Democracy and Efficiency in the Economic Enterprise

Edited by

Ugo Pagano and Robert Rowthorn

Routledge Studies in Business Organization and Networks

DEMOCRACY AND EFFICIENCY IN THE ECONOMIC ENTERPRISE

Edited by

Ugo Pagano and Robert Rowthorn

A study prepared for the World Institute for Development Economics Research (WIDER) of the United Nations University

London and New York

1996

DEMOCRACY AND EFFICIENCY IN THE ECONOMIC ENTERPRISE

The collapse of central planning was hailed as evidence of the economic and moral superiority of capitalism over any possible alternative. The essays in this book challenge that claim. Their authors accept that markets and competition have a major role to play in the modern economy but they reject the view that democracy equals private ownership plus elections. The capitalist enterprise is frequently a bastion of autocracy over which the bulk of the work-force have little control. The authors argue that this is neither morally justified nor economically efficient.

The case for more democratic forms of enterprise management is considered from a variety of viewpoints. One chapter deals with the philosophical justification for enterprise democracy. The remaining chapters are devoted to the question of efficiency, which has been central to economic debates about ownership and control. The orthodox viewpoint amongst economists is that authority is efficient and that any shift to more democratic forms of enterprise control would be unworkable. The essays in this book provide a thorough theoretical and empirical critique of this orthodoxy.

The originality of the book is two-fold. Most criticisms of the orthodox economic viewpoint are from outside of the discipline, informed by sociological or political perspectives. In contrast the theoretical essays in this book are written by economists and use the tools of modern economies, such as agency and transaction cost analysis, to substantiate their arguments. In addition, there are comprehensive surveys of the empirical evidence on the efficiency of different forms of workers' participation.

Ugo Pagano is Professor of Economics at the University of Siena. He is the author of the book *Work and Welfare in Economic Theory,* together with a number of articles on related themes.

Robert Rowthorn is Professor of Economics and Fellow of King's College, University of Cambridge. He is the author of several books including *Capitalism, Conflict and Inflation: Deindustrialization and Foreign Trade.*

CONTENTS

FIGURES

TABLES

PREFACE

The search for alternatives better than the present forms of organization and solution has always been high on the agenda of UNU/WIDER, particularly in those areas which directly influence the lives and aspirations of people.

In this era of major technological changes which are transforming institutions, the organization of work, industrial relations, and competition, there is a fundamentally important question: can the techno-economic and managerial postulates be reconciled with the improved participation of workers within the enterprise? The issue is an important component in the pursuit of equality in the overall search for, what might be termed, 'economic disalienation'. The development of economic democracy and participation, as one of the instruments for its achievement, may simultaneously serve a number of goals. It may help the development of a society from which people do not feel excluded, and especially in the workplace where a sense of value as *a person* is needed by almost every worker. It is also an important instrument for the adaptation of the enterprises to the new era. The postulates of the market include more differentiated products and services, higher quality, and greater flexibility. The hierarchical structure of the enterprises will have to be transformed into a horizontal and flexible system, facilitating intensive and effective feedback. This process requires also a more efficient utilization of the initiatives and creativity of the labour force, in the complex chains of research and development, in production, distribution and sales. Participation means that the 'economic enterprise' views and treats its employees as valuable partners. Participation is also an instrument for consensus building, for the development of co-operation instead of confrontation within the enterprise. Participation could also be considered in the context of consolidating democracy in the evolving new market economies, where the present trends toward greater inequalities may frustrate and weaken the democratization process.

These considerations motivated UNU/WIDER to develop a research project on 'Participation and Co-operation in Economic Enterprises: Democracy and Efficiency'. The papers in this volume are the outcome of the project. They discuss the philosophical, socio-economic, managerial and political aspects of participation, including cases studies and empirical experiences. They represent a valuable contribution to the international dialogue on the issue, related also to certain socio-

economic consequences of the transition process in Central and Eastern Europe. The book offers an interesting and important insight and many new ideas on how the interrelationship between industrial efficiency and economic democracy may or, better still, should develop.

On behalf of UNU/WIDER, I express my sincere thanks to all the contributors for their interesting and original studies, and especially to the Project Director, Professor Robert Rowthorn, for his professional guidance and intellectual input.

Professor Mihály Simai
Director, UNU/WIDER
Helsinki, May 1995

ACKNOWLEDGEMENTS

The papers published in this volume were presented at a seminar held in January 1993 at King's College, Cambridge. They are the outcome of a research project on enterprise democracy and economic efficiency organized under the auspices of UNU/WIDER in Helsinki. We should like to thank the staff of both institutions for their help. We are also most grateful to the former Director of UNU/WIDER, Lal Jayawardena, for his encouragement in the initial stage of this project, and to the present Director, Mihály Simai, for his continuing support.

1

INTRODUCTION

Ugo Pagano and *Robert Rowthorn*

Central planning of the Soviet type is now in disrepute. Throughout Europe and Asia, the dominant economic model of socialism has been abandoned or is being radically transformed. The old command system is being dismantled and the tasks of economic co-ordination and discipline are being increasingly performed by the market. In some countries this process has been accompanied by widespread privatization of state assets. In others, public ownership may remain important for the indefinite future, but even in these countries the private sector is growing rapidly and expanding its share of total production. Thus, in terms of property rights and the role of markets, the formerly centrally-planned economies are taking on many of the features traditionally associated with the rival capitalist model.

These developments have been widely hailed as evidence of the economic and moral superiority of capitalism, not just over socialism of the centrally-planned variety, but over any conceivable alternative. The essays contained in the present collection are sceptical of this claim. These essays were conceived at a time when Western triumphalism was at its height following the collapse of communism in Europe. Their authors accept that comprehensive central planning has been a failure and that markets have an important role to play in any well-functioning economy. However, they do not adopt the Panglossian view that capitalism, as we know it, is the 'best of all possible worlds', nor do they accept the view that free elections and the establishment of capitalism complete the democratic agenda in Eastern Europe and the former Soviet Union. On the contrary, they believe that contemporary capitalism has many undesirable features and is by no means an ideal model of how democracy and the market can be combined.

The essays in this volume were presented in January 1993 at a small conference convened under the auspices of UNU/WIDER (World Institute for Development Economics Research).[1] The theme of the conference was the achievement of economic democracy in a market economy. Economic democracy has, of course, many different dimensions and is too large an area to cover adequately in one conference. To provide a clear focus and prevent a diffusion of effort, it was decided to locus on one particular aspect, namely democracy within the enterprise, above all on the issue of workers' participation in decision-making.

The traditional capitalist enterprise, like its Soviet-type counterpart, is hierarchical and the bulk of the work-force has very limited control over its operation. To the extent that democracy exists in capitalist economies it is located primarily in the wider society and is largely absent within the enterprise itself. In the old Soviet-type economies restrictions on democracy were, of course, even more severe. Many economists argue that democracy within the enterprise is inefficient and they defend the hierarchical model on the grounds that anything else is unworkable. Others disagree with this view. They argue that in some areas, such as the Basque country in Spain or Emilia Romagna in Italy, co-operatives have been very successful and have shown themselves capable of competing effectively in world markets. They also point out that capitalist enterprises themselves are organized in many different ways; for example, the Japanese model of capitalism typically involves more worker participation than its US counterpart.

The case for enterprise democracy can be considered under the following headings: philosophical, theoretical and empirical.

Philosophical: Under this heading come moral and political considerations. The moral justification for enterprise democracy derives from the idea that the normal type of employment contract in modern society is undesirable because it involves the surrender by the individual of his or her capacities for decision-making and creative activity. One extreme view holds that such contracts are immoral and should be outlawed altogether. A more realistic position is to accept the necessity of certain kinds of hierarchy, but to encourage—through legal, financial and other means—the development of property relations and forms of work organization which increase the scope for control and creativity on the part of ordinary workers.

The moral case assumes that enterprise democracy is a good thing in itself. An alternative justification is concerned with its ramifications elsewhere in society, especially in the political sphere. A well-functioning political democracy, it may be argued, requires an active, informed and involved citizenry. Present-day hierarchical forms of production breed passivity, apathy and ignorance. Enterprise democracy would give workers a more creative role in decision-making, thereby helping to breed the capacities and attitudes required for active citizenship in the society at large. This might be described as the educational case for enterprise democracy.

Theoretical: The topic of enterprise democracy raises many different theoretical issues. What are the possible forms such democracy might take: co-operatives, self-managed public enterprises, formal participation in the management of public or private enterprises, or simply an extension of workers' rights of job security and consultation? What are the different forms of co-operation which are feasible? How do they function? What is the relationship between unions and co-operatives and other forms of democratic enterprise? Does ownership matter? Are large enterprises much the same whoever owns them, or does ownership make a significant difference to the way they function internally and to their economic performance? Is economic democracy only meaningful in small enterprises?

Is there a conflict between efficiency and enterprise democracy? Or are they complementary, as some would claim? What are the implications of enterprise democracy for income distribution and other forms of equality? Does it reduce vertical inequality, but only at the expense of greater horizontal inequality resulting from unequal access to more successful enterprises. Does the democratization of enterprises create a new class of fortunate 'insiders' whose benefits are at the expense of excluded outsiders? This is a traditional trade union criticism of co-operatives and self-management.

An important complex of questions is concerned with the efficiency and survival capacity of more democratic forms of enterprise. What kinds of incentive systems and monitoring are required for such enterprises to operate efficiently? What are the obstacles to the formation and survival of democratic enterprises? Does the capital market discriminate against them and, if so, how might the situation be altered? What are the long-term survival prospects of democratic enterprises? Is there a critical proportion in the population of firms below which democratic enterprises are too isolated and gradually die out in the evolutionary competition with more hierarchical enterprises?

Empirical: Workers rights to control and influence at work have been realized in many different ways with very different results, depending on time and place. In Italy and Spain, for example, there have been ambitious experiments with producer co-operatives. In some Third World countries, together with Yugoslavia and more recently Poland, there has been some experience of self-management in public enterprises. In capitalist economies there have been a variety of measures to increase the influence of workers over enterprise decision-making or to devolve management downwards. These measures range from Wage Earner Funds in Sweden—which have apparently been a failure, to worker involvement in production decisions in large Japanese enterprises, which have been more successful but are also less ambitious in scope. These various experiences must be taken into account when considering the future prospects for greater enterprise democracy.

The essays in this book are classified under the three main headings described above. This is a very loose classification intended for general guidance only, and there is a considerable overlap between the various sections.

PART I—THE PHILOSOPHICAL CASE

Robin Archer's paper is entitled 'The Philosophical Case for Economic Democracy'. The case he presents is based on the principle of equal liberty, which asserts that individuals should have the maximum freedom that is compatible with an equal freedom for all other individuals. Where individuals co-operate in associative institutions, such as firms, equal liberty implies a second principle which he calls the 'all-affected' principle. This asserts that control over an association must be shared by all who are affected by its decisions. Archer argues that those affected can be

divided into two groups: subjects and non-subjects. The former are the individuals who are subject to the authority of the association and whose behaviour is, within limits, bound by the rules and decisions of the association. In the case of a firm, the 'affected subjects' are those who work in it. In addition, there are 'affected non-subjects' such as shareholders, consumers, suppliers, financial institutions and local residents. Whilst accepting that all those affected by an association should share in its control, Archer draws a distinction between subjects and non-subjects with regard to the type of control they exercise. Subjects should have a direct control, through some democratic procedure, over the decisions of the association. In the case of non-subjects, control should be levied indirectly through 'environmental' pressures such as market forces or a general regulatory framework. He concludes that firms should be directly controlled by the 'subjects' who work in them, while other affected parties should exert their legitimate control at arm's length through indirect mechanisms.

PART II—THEORETICAL ISSUES

Winfried Vogt examines the nature of work under private ownership. He contrasts two types of enterprise, the 'capitalist' firm and the 'liberal' firm. In each case, the workers are hired by private owners, but the degree of autonomy they are allowed, and choose to exercise, is radically different. In the capitalist firm, work is organized in the traditional, hierarchical fashion and workers are given little control over the pace and nature of what they do. In the liberal firm, by contrast, production is organized within a loose framework of conventions and rules, hierarchies are attenuated and employees enjoy considerable autonomy in their work. Vogt argues that the liberal firm may be potentially more efficient than the conventional capitalist firm. If this is the case, why is it that so few liberal firms exist'? Vogt identifies a number of externalities which operate to the disadvantage of liberal firms in a population already dominated by capitalist firms. If the proportion of liberal firms could be increased sufficiently, these disadvantages would disappear—and the true potential of liberal firms could be achieved. To reach this threshold, Vogt suggests that liberal firms may require temporary protection until they are sufficiently numerous to overcome their current disadvantages. His proposal is analogous to the 'infant industry' argument familiar in the development literature, where temporary protection enables domestic producers to reach some critical threshold where they become strong enough to compete on equal terms with outsiders.

Samuel Bowles and **Herbert Gintis** have two papers in the present volume. In their paper, 'Is the Demand for Workplace Democracy Redundant in a Liberal Economy?', they argue that enterprise democracy can increase the control which people have over their working lives and thereby foster personal autonomy and a democratic culture. Many liberal theorists have claimed that there is no point in seeking to democratize the workplace, since workers' autonomy is already secured by the existence of competitive labour markets and political democracy. According

to Bowles and Gintis, this claim is wrong because it ignores the existence of power in the employment relationship. This power derives from an asymmetry between employers and workers in the enforcement of contracts. Although the law plays some part in the enforcement of contracts, the primary mechanism is the threat of economic sanctions. If either side believes that the other has violated the terms of the employment contract, they are free to terminate this contract. Workers can leave their jobs, whilst employers can dismiss their workers. For reasons which Bowles and Gintis explain, termination of employment is normally more costly for workers than employers. This is true even when labour markets are competitive. Thus, although both sides enter the employment contract as equals, the cost of termination is greater for workers, and it is this asymmetry which gives employers genuine power over workers. Since this asymmetry exists even when labour markets are competitive, the liberal claim is refuted and there is room for increasing workers' autonomy by democratizing control of the enterprise.

One objection to enterprise democracy is that workers are unwilling to invest heavily in their own firm, because they are relatively poor and it is too risky for them to sink the bulk of their wealth into a single firm. The issue of workers' risk aversion is explored at length by Bowles and Gintis in their second paper, 'The Distribution of Wealth and the Viability of the Democratic Firm'. This paper argues that workers are reluctant to invest in their own firms because they are poor and wish to reduce their exposure to risk by diversifying their asset holdings. This inhibits the growth of worker-controlled enterprises, by increasing their dependence on external loan finance, thereby increasing the risk of bankruptcy and raising the cost of borrowing. Bowles and Gintis argue that this disadvantage can be reduced by making workers richer through a more egalitarian distribution of wealth. If they had more wealth, workers would be less risk averse and more willing to invest in their own firms, thereby increasing the proportion of democratic firms in the economy. The same outcome could be achieved by extending credit to democratic firms at an interest rate comparable to that enjoyed by capitalist firms.

Geoffrey Hodgson devotes his paper to the issue of evolution and economic efficiency. Objections to more democratic forms of production are often based on a particular version of evolutionary reasoning. Economic competition is assumed to be a powerful selection process for weeding out the inefficient and fostering the general advance of productivity. The very fact that so few democratic firms exist is taken as strong evidence that such firms are less efficient than their conventional, hierarchical counterparts. Hodgson rejects this 'survival of the fittest' argument as merely a crude application to the economic sphere of outdated biological thinking. He points out that the modern theory of biological evolution establishes that natural selection may lead to forms of behaviour which are harmful to the species or group as a whole. There may also be several possible evolutionary equilibria and the one we actually observe may be simply a result of historical accident. The relevance of these modern biological ideas for the debate on economic efficiency is obvious. We should be sceptical of the argument that some particular type of

firm is most efficient simply because it is numerically dominant in reality. The predominance of this type of firm may be merely a historical accident or the result of factors unrelated to efficiency.

Ugo Pagano and **Robert Rowthorn** examine the interrelationship between technology and property rights. Their aim is to synthesize two opposing approaches to the theory of the firm. The New Institutional economists take technology as given and seek to explain how property rights evolve so as to utilize this given technology most efficiently. Radical economists, by contrast, take property rights as given and seek to explain how technology is shaped by these given property rights. To examine how these two approaches can be combined, Pagano and Rowthorn introduce the concept of an 'organizational equilibrium'. This concept is closely related to what Marx called a mode of production. In an organizational equilibrium, existing property rights are the most efficient for utilizing the existing technique of production. Moreover, this technique is also optimal from the point of view of existing property owners.

As a general rule, there will be more than one feasible organizational equilibrium. There will be a capitalist equilibrium, with its own specific technique of production and property rights. There will also be a labour equilibrium, with a different technique of production and with ownership in the hands of the workers. Each equilibrium will have an intrinsic stability derived from the fact that techniques of production and property rights are mutually reinforcing. To shift from one equilibrium to another will require a simultaneous change in both technology and property rights, which is likely to be more difficult and riskier than merely altering one component at a time. This may help to explain why a certain mode of production may persist for a long time even though it is inefficient.

The authors conclude by comparing their analysis with the biological theory of speciation. They argue that organizational equilibria can be seen as the counterpart of distinct species, which do not readily 'breed' with each other. Mixed property rights/technology combinations (e.g., capitalist property rights and labour technology) are inferior in efficiency to pure combinations, just as in biology hybrids may be inferior in fitness to pure species. Moreover, to undermine the dominance of an existing organizational equilibrium may require a period of protection for the potential rival, just as in biology the emergence of a new species may require a period of isolation from the original population. The economic and biological mechanisms are very different, but the parallel is interesting.

Matti Pohjola explores the impact of production flexibility on wage bargaining. In recent times, there has been a shift towards more flexible production systems in the advanced capitalist countries. Many commentators have argued that this shift entails increased worker autonomy in production and heralds a new era of cooperation between workers and management. However, as Pohjola points out, the empirical evidence suggests that flexible technology is frequently associated with more intense monitoring and increased conflict over wages. Using a simple

mathematical model based on efficiency-wage theory, he analyses why this might be the case. His paper demonstrates that certain kinds of flexibility polarize bargaining between workers and employers and reduce their ability to compromise. He shows how the firm in his model is likely to benefit from flexible technology only if its work is easy to monitor. This helps to explain why the introduction of new production methods often seems to be associated with more intense monitoring and control of workers.

Benedetto Gui provides a general overview of the factors influencing the performance of worker-managed firms. His paper is mainly theoretical, although it does present some evidence on the major issues. He argues that the main characteristic, and strength, of worker-managed firms concerns their fundamental motivation, which is to satisfy workers' own preferences with regard to employment, conditions of work, pay and the like. Capitalist firms must also take these preferences into account, but they do so in a purely instrumental fashion, and the satisfaction of workers' preferences is subordinate to their main objective of maximizing shareholder profits. However, worker-managed firms suffer from two main weaknesses. First, they are at a disadvantage in attracting capital and entrepreneurial skills. Second, the success of worker-managed firms depends to a great extent on their achieving a satisfactory 'social performance'. This is due to the high expectations which these workers hold as to the quality or meaning of working life, and also to the great importance that collective decision-making plays in their governance. To help worker-managed firms, Gui suggests the establishment of specialized agencies which can offer non-conventional forms of finance, together with advice on organizational matters and the design of work.

Dominico Mario Nuti's paper, 'Efficiency, Equality and Enterprise Democracy', analyses the capitalist labour contract and its various modifications, ranging from worker participation in income or control through to worker-managed firms and co-operatives. A number of papers in the present volume argue that full enterprise democracy, combining worker participation in both decisions and results, is economically efficient. Nuti disputes that worker participation in both decisions and results is economically efficient. He argues that conventional forms of self-management have a number of defects stemming from the fact that they operate primarily in the interest of the existing work-force. At times of full employment in the economy as a whole, they hoard labour which would be more efficiently deployed elsewhere, while restricting the employment of new workers when there is unemployment. They also have an extreme propensity to indulge in monopolistic output and pricing policies, a propensity to distribute rather than reinvest profits and a bias towards labour-saving investment. Nuti's assessment of conventional self-management is thus very different from the favourable views expressed by other contributors to this volume. However, he also suggests modifications which can overcome significantly and ameliorate the defects of conventional self-management. These include altering the reward system to give workers an incentive

to invest for the future and to encourage flexibility in employment, so the firm absorbs or releases labour as the interests of the wider economy require.

PART III—EXPERIENCE AND EVIDENCE

Avner Ben-Ner, Tzu-Shian Han and **Derek C.Jones** provide an extensive review of the econometric evidence on the impact of employee participation on economic performance in the advanced capitalist countries. They distinguish between employee participation in economic returns and participation in control. The empirical evidence is not easy to summarize but the following points stand out. Employee participation has a beneficial effect on enterprise performance provided it includes both control and economic returns. Moreover, the effect is strongest in the case of co-operatives where workers have dominant control and receive a majority of the economic returns. It is interesting to note that the studies reviewed by Ben-Ner *et al.* use productivity as their measure of company performance. This measure tends to bias the results against firms where workers participate in control, since it ignores the fact that such participation may improve the quality of working life. It is all the more striking, therefore, that even ignoring the improvements it brings in the sphere of work, participation in control still seems beneficial according to conventional economic criteria.

Milica Uvalic examines the experience of workers' financial participation in capitalist enterprises. There is a vast literature on worker involvement in decision-making, but relatively little has been written on the empirical experience of profit-sharing and other forms of employee financial participation. Uvalic's paper describes the various forms which such participation can take and she documents developments in this area in the advanced capitalist countries, with particular emphasis on the European Community. In many countries governments have actively encouraged profit sharing and employee shareholding, and this is an explicit objective of the European Community social chapter. Even so, despite the growth of such schemes, the proportion of workers covered is still quite small in most countries, and the schemes themselves are typically quite modest, accounting for a few per cent of the total pay of those concerned. Thus, it is not surprising that the evidence surveyed by Uvalic is rather inconclusive about the impact of these schemes on workers' behaviour. One interesting result is that financial participation is most effective at motivating workers when it is allied to participation in decision-making. This is in line with residual claimant theory which argues that control should be in the hands of those taking the risks. If workers' income is tied to company performance, it would seem economically rational for them to have some control over decision-making.

Janez Prasnikar summarizes the findings of his large international research project dealing with issues of participation and self-management in developing countries (including Yugoslavia). This project used a case study approach to determine real,

as opposed to formal, content of participation and to evaluate its economic impact. Apart from Yugoslavia, where self-management firms formerly dominated the economy, worker participation in most of the countries covered by the project is confined mainly to agricultural co-operatives and large public enterprises. In the case of public enterprise, the extent of worker participation is often limited to welfare issues and they rarely have much influence on key economic decision-making. One of the most interesting results to emerge from Prasnikar's paper concerns the impact of participation on employment policy. He finds that most participatory enterprises, of whatever type, believe that one of their most important functions is to maintain employment when economic conditions are bad, even if this means lower productivity. This is typically done by reducing hours of work, extending holidays and reducing pay. Since virtually all of the countries concerned suffer from chronic labour surplus, this suggests that worker participation is socially beneficial, even if it does reduce labour productivity. Indeed, many advanced economies, especially in Europe, also suffer from a chronic labour surplus and could benefit from the kind of work-sharing which workers' participation seems to encourage in developing countries.

The collection concludes with a paper by **Mark Schaffer** on worker participation in socialist and transitional economies. He argues that Yugoslavia was the only socialist economy where workers had substantial influence over the operation of their firms. He also argues that the alleged defects of the Yugoslavian self-management system—unemployment and inequality—have been exaggerated and were no worse than in capitalist economies at a similar stage of development. Moreover, their defects did not stem from self-management *per se,* but from barriers to the formation and entry of new firms. The bulk of Schaffer's paper is concerned with transitional economies. He points out that worker participation has increased in many European countries during the initial phase of transition, primarily because of the power vacuum caused by the collapse of communism. In Poland, there is currently a situation of *de facto* workers' control in large state enterprises. Contrary to the expectation of most economists, this has been accompanied by a moderate, responsible attitude towards wage formation and investment. Wages have been kept down so as to preserve employment, whilst capital equipment has been maintained in good order. Over the long run, Schaffer expects to see worker participation decline in importance in Eastern Europe as existing state-owned enterprises are privatized and new private firms emerge. In the case of China, however, the situation may be different. The Chinese authorities have encouraged the development of co-operative, community-based enterprises whose rapid growth may eventually give them a dominant position in the national economy.

NOTE

1 The one exception is the paper by Avner Ben-Ner *et al.* which was commissioned afterwards to fill a major gap in coverage.

Part I

THE PHILOSOPHICAL CASE

2

THE PHILOSOPHICAL CASE FOR ECONOMIC DEMOCRACY

Robin Archer

One of the most important and widely-held moral beliefs in the modern world is a belief in the principle of equal liberty. According to this principle individuals should have the maximum freedom that is compatible with an equal freedom for all other individuals. Ever since the Enlightenment the principle of equal liberty has provided a basic moral reference point against which the legitimacy of social and political institutions has been judged. And it is, I think, indisputable that this continues to be true today.

In this paper I want to consider whether capitalist firms (or enterprises) satisfy the requirements of the principle of equal liberty.

There are, of course, many competing interpretations of what constitutes the freedom to which the principle of equal liberty refers. Here however I do not want to enter into an argument about the respective merits of these different interpretations.[1] Instead I will appeal to just one idea which is often thought to be a necessary element in the concept of freedom and which has a strong intuitive plausibility. The idea that I have in mind is the idea that an individual can only be free to the extent that that individual's choices govern (or regulate) his or her actions.

This idea serves to emphasize the point that the value of freedom is based on the value of autonomy. It also underpins the principal moral argument for democracy.

In what follows I want to briefly outline that argument. I then want to show how it applies not just to political institutions but also to economic institutions. In particular I want to show that the same basic moral commitments that lead us to promote political democracy should lead us to promote economic democracy, where by economic democracy I mean a system in which firms operate in a market economy but are governed by those who work for them.

This paper falls into four sections. In the first section I will outline the general moral argument for democracy. In the second section I will argue that, in the case of firms, these general moral considerations justify a system of economic democracy. In the third section I will deal with some important objections to this claim. And in the fourth section I will show how my approach provides a basis for categorizing and assessing the different reforms which have been proposed in the name of economic democracy.

FREEDOM AND DEMOCRACY

The issue of democracy arises because human individuals are inherently social in nature. I mean by this no more than that in order to realize some of our choices we need to co-operate and to form associations to facilitate that co-operation. The point of forming these associations is to co-ordinate the activities of the cooperating individuals. But in order to do this an association itself must be able to make choices and act upon them. How should these collective choices be made? In order to be compatible with the principle of equal liberty, collective choices should be made so as to maximize individual freedom. That is, following the definition proposed above, they should be made so as to maximize the extent to which the individual's choices govern his or her actions.

Now clearly the decisions of an association, or rather the actions that result from these decisions, will affect various individuals. If I am one of these individuals then the only way that I can maximize my freedom is to ensure that the choices, and hence the actions, of the association are in accord with my own choices. And the only way to ensure that is to control the association's decision-making process. In order to control an association's decision-making process I must ensure that nobody who disagrees with me can affect the outcome of that process. Setting myself up as a dictator would be one way of achieving this. Ensuring that I were part of a permanent majority would be another. Either way I would guarantee that I had the maximum individual freedom, but only by denying a similar freedom to other individuals.

But the principle of equal liberty commits us to attach as much importance to every other individual's freedom as we do to our own. This means that each affected individual must be prepared to accept less than maximum individual freedom, since, unless there is always unanimity, it is not possible for each individual who is affected by an association to simultaneously exercise complete control over it. If the freedom we gain from controlling an association's decision-making process is to be compatible with an equal freedom for every other individual who is affected by that process, then that control can only be partial and must be shared with every other affected individual. In other words: all individuals whose ability to make choices and act on them is affected by the decisions of an association should share control over the process by which those decisions are made. I will call this the 'all-affected principle'.

An influential version of the all-affected principle can be found in the work of Robert Dahl (1970:64). Other versions can be found in Cole (1920:33–35), Lindsay (1962:231), Bachrach (1969:74, 95, 98) and Holmes (1988:235).

Dahl formulates his version of the all-affected principle as follows: 'Everyone who is affected by the decisions of a government should have the right to participate in that government' (1970:64), where by government he means the government of any association, not just that of the state. This principle is based on Dahl's 'criterion of personal choice' (1970:8) which is quite similar to the principle of equal liberty. However Dahl argues that personal choice has to compete with

two other criteria or values—competence and economy—that can be used to judge the legitimacy of a decision-making process.

But competence and economy need not necessarily be seen as competing values. That a certain minimum level of competence can qualify the right to participate in some situations is presupposed by the value attached to personal choice itself. For example in situations that are life-threatening, competent decisions are a necessary condition for the future exercise of personal choice. And it is situations of this sort, such as performing surgery or piloting a ship, to which Dahl typically appeals (1970:30). But here the conflict that confronts an incompetent is better described as one between present personal choice and the possibility of future personal choice. If we value an autonomous life as a whole we will opt for the latter.

Furthermore it is certainly true that we will often accept a decision-making process that is less than 'ideal' because it economizes on time and energy (Dahl, 1970:48). But that need not be because we value economy *per se*. It could rather be because we would prefer to use the time to pursue other personal choices. Economy need not be thought of as a value competing with personal choice. It might be better thought of as a background condition that necessitates competition between our various personal choices. If there were not a limited amount of time and resources available to us this would not be necessary.

The all-affected principle provides an answer to the most fundamental question that confronts any democratic theory. Democracy is, by definition, rule by the people. A theory of democracy must specify how the people will rule—whether by direct participation, elected representatives, referendum, or some other means. But before a democratic theory can even begin to specify how the people will rule, it must specify who the people are. The all-affected principle provides an answer to this question. Every association, whether it be a state or a shoe factory, should be controlled by a group consisting of all individuals who are affected by its decisions.

However any attempt to operationalize the all-affected principle, or even just to give it greater specificity, runs into theoretical and practical difficulties.

For example, it is unclear whether the all-affected principle really is able to specify meaningfully which group of individuals should share control over the decisions of an association. This is because it could be argued that most decisions ultimately have some affect on every individual. This suggests that the all-affected principle is only workable if we can specify a degree of effect above which an individual qualifies for a share of control.

An apparently still more intractable problem emerges wherever it is possible to exercise more than one kind of control over an association. Yet typically this is the case. For example votes are not the only kind of control over national governments. Those with property have a separate kind of control (Lindblom, 1977:170–188). Now if each of these sources of control are distributed in the same proportions, as recommended for example by Thomas Jefferson (Dahl, 1985:3, 70, 103), this does not present a problem. But, leaving aside whether this is desirable, it is not always possible. Consider, for example, another source of control over a national

government: the power exerted by foreign governments. It is hard to see how this could be parcelled out according to the Jeffersonian formula. But how, then, are the various kinds of control to be distributed among the various affected individuals? My attempt to find a solution to this problem will lead to the development of a second fundamental principle of democracy.

In order to find this solution, we need to recognize that there is an important distinction between two different ways in which control can be exercised over an association. On the one hand control can be exercised directly by making decisions: that is, by choosing from the options allowed for by a set of given constraints. On the other hand control can be exercised indirectly by setting those constraints in place.[2] In the example above, property owners and foreign powers place constraints on a national government (by, for example, refusing to invest or imposing tariffs), while the voters, or rather their representatives, make decisions within those constraints.

The distinction between these two ways in which control can be exercised over an association, corresponds to another distinction between the two ways in which individuals can be affected by an association. On the one hand there are individuals who are affected in the sense that they are subject to the authority of an association. On the other hand there are individuals who are affected by an association without being subject to its authority. Typically the distinction between subjects and affected non-subjects is the same as the distinction between members and affected non-members. Now I want to suggest that direct control is the appropriate form of control for subjects and that indirect control is the appropriate form for affected non-subjects. But to see why this should be so we will have to clarify what it means for an association to have authority over an individual.

To begin with it needs to be made clear that 'authority' is being used here to refer to all effective or *de facto* authority and not just to legitimate or *de jure* authority. It also needs to be made clear that 'authority' refers to 'practical authority' as opposed to 'theoretical authority'. Practical authority is exercised by someone who is 'in authority'. Theoretical authority is exercised by someone who is 'an authority', and when it is exercised it is really a form of advice. These two forms of authority are distinct because while we are bound to comply with the decisions of a practical authority to which we are subject, we are not bound to follow the advice of a theoretical authority although it may be foolish not to (Green, 1988:27; Soper, 1989:219). But while being bound to comply is a necessary characteristic of (practical) authority,[3] it is not sufficient to define it. A promise, for example, often shares this characteristic. If I promise to help you I am bound to do so. What is distinctive about being subject to authority is that, at least partially, and often fully, I am bound, not by my own decision (as in the case of a promise), but by the decision of someone else (Green, 1988:40).

Several people have tried to capture what is at stake here by arguing that being subject to authority involves a 'surrender of judgement' (Friedman, 1973:129). According to this interpretation when I enter an authority relationship as a subject I surrender my judgement over a certain range of matters to somebody else. I may,

for example, surrender it to an individual such as a king or to a collective body in which I may or may not participate. However to talk of a surrender of judgement can be misleading. It is not meant to imply that when an authority requires me to do something I must surrender my right to make a judgement about the requirement. Rather it means that I must surrender my right to act in accordance with my judgement. How I act, not how I think, is what matters to those in authority (Raz, 1986:39). Since my choices are the outcome of my judgements, surrendering my right to act in accordance with my judgements entails surrendering my right to act in accordance with my choices. Thus whenever I am subject to an authority, my choices are *excluded* from playing a role in the regulation of my actions, and are *replaced* in this role by the choices of the authority (Raz, 1986:46; 1987:79; Green, 1988:38, 42). This exclusion and replacement of one person's choices by another's is the defining feature of an authority relationship.[4]

We are now in a position to see why direct control is the appropriate form of control for subjects and indirect control is the appropriate form for affected non-subjects. Figure 2.1 may help to illustrate the argument of the next couple of paragraphs. Recall, before we begin, that I am assuming that the principle that my actions should be governed (or regulated) by my choices is the basic regulatory principle that lies at the heart of the concept of freedom.

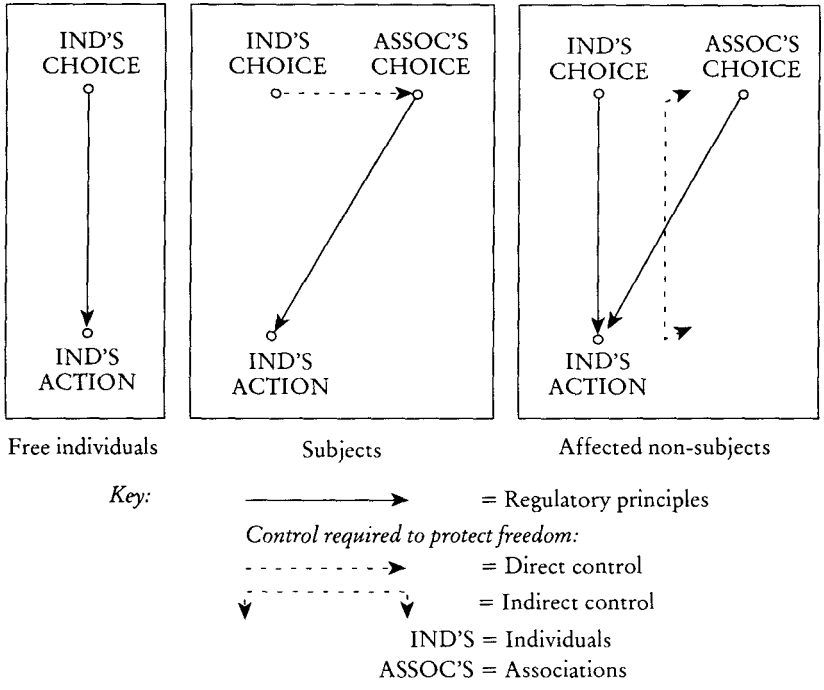

Figure 2.1 Subject and non-subject individuals

In cases where I am subject to the authority of an association this basic regulatory principle is replaced by another regulatory principle. In place of my own choices those of the association regulate my actions. Thus, so long as this alternative principle remains in force, the only way to ensure that my freedom is protected is to ensure that the association makes choices that are identical to mine. Since regulation by my choice has been replaced by regulation by the association's choice, the association's choice must be replaced by my choice. And the only way to ensure this is to make the association's choices myself: in other words, to exercise direct control over its decision-making process. Of course, according to the principle of equal liberty, I must consider not just my own freedom but also that of all the association's other subjects. But if the freedom that each subject gains from directly controlling an association's decision-making process is to be compatible with an equal freedom for every other individual who is subject to that association, then each subject's direct control can only be partial and must be shared with every other subjected individual. In other words: all individuals who are subjected to the authority of an association should share direct control over the decisions of that association. I will call this the 'all-subjected principle'. If the range of matters over which the association has authority is the same for all subjects, then each subject is entitled to an equal share of control over the association's decision-making process.

In cases where I am not subject to the authority of an association but am nevertheless affected by it, the basic regulatory principle is not replaced. It is, however, added to. The association's choices become an additional factor that must be weighed in alongside my own choices before I can act. To ensure that my freedom is protected in these circumstances, I need only constrain the association from making choices which would lead to this additional effect: in other words I need to be able to exercise indirect control over the association. There are various forms of indirect control or constraint. The most complete form is a personal veto. Note however that the veto which is required is not a veto over the association's decisions *per se,* but a veto over the ability of the association's decisions to affect me.[5] Again, of course, I must share these various forms of indirect control with all the other non-subjects who are affected by the association. This may or may not involve weakening my personal indirect control.[6]

As an affected non-subject I could also protect my freedom by securing direct control over the relevant association. However, to do so would be both unnecessary and unjustified. It would be unnecessary because, as we have just seen, I only need to exercise indirect control in order to protect my freedom. And it would be unjustified because I would then be making decisions which bound others (namely the association's subjects) but which did not bind me and which I did not have to obey. Therefore non-subjects should be limited to exercising indirect control, reserving direct control for subjects.

The idea that it is only the subjects or members of an association who should exercise direct control over its decision-making process is explicitly endorsed by Dahl (1979:99, 125). Other versions can be found in Waltzer (1983:292), Norman

(1987:91–99), and Gould (1988:85, 144). But it is important to make clear that unlike some of these latter authors I am not suggesting that non-subjects should have no control, only that the appropriate control for non-subjects to exercise is of a different sort. Unless it is possible to establish that non-subjects are only negligibly affected by an association, it would be morally arbitrary from the point of view of the principle of equal liberty to deny non-subjects any control over its decision-making process.

The most familiar example of an application of the all-subjected principle is the democratic state. Since each member of the state is subject to its authority, each member shares direct control over it. Furthermore, since each member is subject to the state's authority over the same range of matters, each has an equal share of direct control over it: an equally valuable vote. Even if in practice there are numerous difficulties, this is the fundamental rationale underpinning the democratic state. Its members are simultaneously authority-bearing subjects and direct-control-exercising citizens. Non-subjects (or 'foreign nationals'), however, are not citizens, even though they may be affected by the decisions and activities of the state. This does not mean that they have no control over the state—they may, for example, impose tariff barriers against the state's produce—but their control is indirect.

So far, then, I hope that I have shown that, given a moral commitment to the principle of equal liberty, there are good reasons to govern associations according to the all-affected principle and the all-subjected principle which I take to be the fundamental principles of democracy.

ECONOMIC DEMOCRACY

The basic units of economic activity in a capitalist economy are associations called firms or enterprises. In this section I want to consider whether these economic associations live up to the democratic principles that were discussed in the last section. In the course of doing this I will begin to develop a model of economic democracy. The model will not propose change for the sake of change. Where existing capitalist practices live up to democratic principles they will be incorporated into the model unchanged. But where they do not, something new will be required.

Like all other associations, firms ought to be governed in accordance with the all-affected principle. In a capitalist economy there are up to six groups of individuals, or stakeholders, who are affected by the activities of a firm. They include the following:

(1) employees or workers
(2) consumers
(3) shareholders or capitalists
(4) suppliers of raw materials and producer goods
(5) banks and other financial institutions
(6) local residents[7]

According to the all-affected principle, each of these stakeholders should exercise some control over the firm.

Now, as we noted in the last section there are two distinct ways in which individuals can exercise control over an association. They can exercise control directly, by participating in its decision-making process, or they can exercise control indirectly, by setting constraints on the decisions that can emerge. Those who are subject to the association's authority should exercise control directly. Those who are not subject to its authority should exercise control indirectly.

In fact, under capitalism, indirect control is available to each of the stakeholders. Indirect control over firms falls into two subcategories (Dahl, 1970:121): 'government regulation' and 'exit control' (Hirschman, 1970:4). Exit is a particularly desirable form of indirect control because it allows each individual to simultaneously exercise a complete personal veto which is the maximum possible form of indirect control. However exit is only effective if (a) there is a competitive market and (b) the costs of exit are low. Wherever either of these conditions does not pertain, stakeholders must supplement or replace exit control with government regulation. For most stakeholders a mixture of both is needed, even for those stakeholders for whom exit control is paradigmatically advantageous.

Consider the case of consumers. In a competitive market economy exit is a particularly appropriate way for consumers to exercise control over a firm because it enables all those and only those consumers who are affected to exercise control, and because it enables these consumers to better satisfy their choices (i.e. their 'demand') both in the short term, by getting a better deal elsewhere, and in the long term, by forcing improvements on wayward firms. The mechanism is simple enough. If the quality of a firm's product deteriorates or if its price rises then customers will cease to buy that firm's product (that is, they will 'exit' from their relationship with that firm) and will instead buy what they want from a competitor. Falling revenue will alert the firm's management to customer dissatisfaction and force the firm to make alterations if it wants to stay in business.[8] In this way, exit control allows the consumer to constrain a wayward firm.

There are times, however, when exit control alone is not enough for consumers and must be supplemented by, or even predicated on, government regulation. For example government regulation is needed where there is monopoly control over a product, especially where the product is a staple, since in these cases exit control becomes ineffectual. Government regulation is also needed wherever consumer safety is an issue since exit control would have to rely on people actually being injured in order to come into effect. Moreover some injuries may disable a customer so seriously that it even becomes impossible for that customer to exercise exit control. In this sense the operation of exit control is predicated on government regulation of safety.[9]

Nevertheless it remains the case that consumer control over firms should predominantly be exercised by exit. The experience of attempts to rely predominantly on government regulations to exercise control on behalf of consumers reinforces this conclusion. In traditional Soviet-style economies these

attempts seriously weakened the position of consumers *vis-à-vis* firms (Nove, 1983:71) and led to chronic shortages of consumer goods (Kornai, 1986:9). Thus, as in a capitalist economy, in a socialist economy based on economic democracy consumer control would predominantly be exercised by exit. And this implies that the economy must be a market economy, at least to the extent of having a competitive market in consumer goods.

Various combinations of exit control and government regulation are available to each of the other stakeholders. Exit control can play a prominent role wherever a competitive market can be established between the stakeholder and the firm. Thus labour markets, stockmarkets, financial markets, and markets for suppliers of raw materials and producer goods all facilitate exit control.[10] Only in the case of 'local' residents is a prominent role for exit ruled out because of the inability of markets to deal with externalities such as pollution. But in that case government regulation can play an important role.

The basic point to note is that capitalism *does* provide adequate mechanisms of *indirect* control to each stakeholder. Thus in an economy based on the principles of democracy indirect control would look much the same as in a capitalist economy. No doubt there would be much fine tuning needed, but the basic mechanisms through which stakeholders gain indirect control would be the same.

It is only when we begin to consider who should have direct control over a firm that the fundamental difference between economic democracy and capitalism becomes clear. Following Hirschman (1970:19) I will sometimes refer to direct control as 'voice' control. This serves to highlight the distinction between the non-market, 'political' character of direct control and the market-based 'economic' character of exit control.[11] To see the difference between capitalism and economic democracy we need only focus on the position of the traditional industrial antagonists: capital (the shareholders) and labour (the employees). For under capitalism, direct 'voice' control is exercised by capital. But, I will argue, in an economic democracy, it must be exercised by labour.

It is possible to make this argument on the grounds that capital is intrinsically more mobile than labour. Some reasons for thinking that capital is more mobile are discussed by Offe and Wiesenthal (1985:178) and Korpi (1978:16, 22–23). Mobility is relevant because it is a necessary condition for the effective use of exit control (Mueller, 1979:125). If exit control were the only form of control available, then capital's effective control would be greater than labour's because of its greater intrinsic mobility. Thus an argument can be made that labour should be given greater direct voice control in order to compensate for its inability to effectively exercise full exit control. This, however, is not the argument that I want to pursue here. Rather I will argue, on the basis of the principles developed in the last section, that direct voice control should be exercised by labour because the employees who sell this labour are the only human individuals subject to the authority of the firm.

In capitalist societies labour is defined by its role in the employment contract. Indeed it is arguable that the employment contract is capitalism's most characteristic

feature (Offe, 1985b:52). According to the standard neo-classical interpretation, the employers and employees who are party to an employment contract are simply buying and selling a commodity like any other. The employee sells a certain amount of his or her labour to the employer in exchange for a wage. But labour is not a commodity like any other. It is a 'fictitious' commodity (Polanyi, 1957:72). When a genuine commodity (such as a piece of machinery) is exchanged it is transferred from the seller to the buyer along with the exclusive right to decide what to do with it.[12] But when labour is exchanged it remains physically attached to its seller. For there is no separate or detachable entity 'labour' which the labourer can hand over to an employing firm. 'Labour is only another name for a human activity which goes with life itself' (Polanyi, 1957:72). Thus a firm can only gain its exclusive right to decide what it will do with the labour it buys if it gains an exclusive right to decide what the labourers themselves will do. But a firm can only gain an exclusive right to decide what the labourers will do if its decisions about what they should do exclude and replace those of the labourers. But the exclusion and replacement of choice is the defining feature of an authority relationship. Thus, when labourers sell their labour to a firm, they themselves become subject to the authority of that firm.

Moreover the firm will have a powerful incentive to actually exercise this authority over its workers.[13] This is because there is a gap between what the firm acquires under the contract of employment and what it wants from that contract. The gap exists because the 'commodity' that the labourer sells is not labour itself, but what Marx calls 'labour power' or 'the capacity for labour' (Marx, 1976:270). The firm buys this capacity for a certain period of time. In doing so it only acquires the potential for labour (labour power) as opposed to its actual performance (labour). Clearly this potential labour is of no use to the employer unless it is turned into actually performed labour. But the actual labour that can be acquired from a given amount of labour power is variable and remains unspecified in the employment contract. This variability leads to a conflict of interest between workers and capitalists. However much work the workers are prepared to do, the capitalists who own the firm will want them to do more. Since the cost of the labour has already been set, the more labour they can get the labourer to perform, the more profit they stand to gain. Thus, if the firm is to maximize its profits, it is imperative for it to exercise authority over the labour power that it has bought.[14]

It seems, then, that the employment of labour involves the worker not just in the initial exchange relationship, but also in a subsequent authority relationship with the firm. According to Marx the first relationship is 'a very Eden of the innate rights of man' (1976:280), but, once inside 'the hidden abode of production' (279), the second relationship takes over. Here 'the capitalist formulates his autocratic power over his workers like a private legislator…unaccompanied by either that division of responsibility otherwise so much approved of by the bourgeoisie, or the still more approved representative system' (549–550).[15]

It is this latter authority relationship which does not live up to the democratic principles discussed in the last section. For although it is the workers who are

subject to the authority of the firm, it is, under a capitalist regime, the capitalists (i.e. the shareholders) who have direct 'voice' control over the firm. Thus, in an economic democracy, direct 'voice' control over a firm must be transferred to those who work in that firm. Note that this does not imply either that labour has no control under capitalism, or that capital has no control under economic democracy. On the contrary, both continue to exercise indirect 'exit' control under both systems. In brief then, capitalism is a system where capital can exercise both exit and voice control while labour can exercise only exit, whereas economic democracy is a system where labour can exercise both exit and voice control while capital can exercise only exit. I will call this the basic model of economic democracy.

SOME OBJECTIONS

I now want to consider three fundamental objections to the basic model of economic democracy. According to the *first,* the employees are not subject to the authority of the firm. According to the *second,* it is the shareholders who are subject. And according to the *third,* the firm need not have any subjects at all.

Recall that a person who is subject to authority is bound to comply with the decisions of that authority in the sense that their choices are excluded and replaced by those of the authority. The first objection argues that workers are not bound in this way because they can leave the firm whenever they want to.[16] There are a number of ways to answer this objection.

For one thing it is usually not true that workers can leave a firm whenever they want to. Employment contracts typically specify a period of 'notice' (usually some number of weeks) which must be served before an employee can leave. This means that, at least for that period, employees certainly are bound to obey their employers. Under these conditions, hiring a worker is a bit like renting a house: neither the worker nor the landlord can regain authority over what they have rented out until a certain time has elapsed.

But even if we set aside the question of notice—perhaps because it is a requirement that is rarely enforced by employers[17] —it is still possible to argue that workers are bound to obey the firm which employs them. Dahl suggests we compare the relationship between a worker and his firm with the relationship between a citizen and his municipality or even with the relationship between a citizen and his state. It may be true that a worker who does not want to obey a management directive can leave a firm. But similarly, a citizen who does not want to obey an ordinance can leave her municipality and (in many countries) a citizen who does not want to obey the laws of her state can leave that state. However, in all three cases, despite the fact that membership appears to be voluntary, the cost of leaving is so high that it is for all practical purposes compulsory (Dahl, 1985:114–115).

Both of the responses we have considered so far share an assumption with the objection that they are answering. They assume that being bound involves an unconditional compulsion: to be bound to do something is to be compelled to do

it 'no matter what'. But it is also possible to answer the objection by rejecting this assumption. Indeed I think that this is the lesson that should be drawn from the example of municipal and state authority. If, as Dahl suggests, it is only because of the high cost of departure that citizens are bound to obey municipal or state laws, then a great many citizens are not bound at all. In some countries large groups of people move between municipalities at little or no cost and the same is true for smaller groups of people who move between states.[18] But we still think of these people as being subject to the authority of a municipality or a state and as being bound to obey their laws. Indeed the authority of a state over its citizens is the paradigmatic example of authority. If states do not have authority it is hard to imagine who does.

This suggests that rather than denying the authority of the state we should reconsider what it means to say that a subject is 'bound'. Rather than defining someone as bound if they are unconditionally compelled to obey an association, we should define someone as bound if they are compelled to obey an association *so long as they are a member* of it. This means that questions about the nature of authority relations within an association can be posed independently of questions about whether membership of that association is compulsory or voluntary. This is as it should be. Clearly it is important to distinguish subjects who cannot exit (such as serfs) from subjects who can exit (such as workers). But it is equally important to distinguish between the different kinds of authority to which those who can exit are subject. A dictatorial and a democratic state do not become identical simply because the members of each are able to exit. The fundamental problem with the first objection is that it depends on a definition of boundedness which reduces questions about authority to questions about exit rights. In summary then, even if workers can leave a firm, they are still subject to its authority while they work for it. For the duration of their employment they are bound to comply with certain decisions of the firm and it is this which justifies their claim to direct control.[19]

According to the second objection to the basic model of economic democracy, shareholders are subject to the authority of the firm and hence should share direct control over it.[20] The trouble with this objection is that it confuses an exclusive right to decide what to do with certain commodities with authority over persons. Certainly a firm has an exclusive right to decide what to do with the capital which capitalists invest in it. But this does not mean that the capitalists themselves are subject to the firm's authority. For unlike labour, capital is not a fictitious commodity because it can be exchanged without remaining attached to the capitalist who sells or rents it. Consider the different ways in which the owners of capital and the owners of labour are affected by contracts to let third parties use their respective 'commodities'. While I am using your capital you can do something else, but while I am using your labour power you cannot. Since capital can be separated from the capitalist, the firm's authority does not extend to the capitalist. The firm can issue orders about how its capital will be utilized but it cannot tell the capitalists themselves what to do. Who has ever heard a company manager yelling at the

shareholders to 'invest harder'. Since the shareholders are not subject to the authority of the firm they should not have direct control over it.

In this respect it is useful to compare the position of shareholders with that of banks and other financial institutions. Both provide the firm with the same commodity: capital; and both gain a return for undertaking this risk: dividends in the case of equity and interest in the case of debt. But nobody thinks of banks as subject to the authority of the firms to which they lend and, at least in the Anglo-Saxon world, nobody suggests that it is wrong that under capitalism banks do not exercise direct control over these firms.[21] Why, then, should shareholders be thought of as subjects entitled to exercise direct control?

To deny that shareholders are subject to the authority of the firm in which they invest is not to deny that they are affected by the decisions of that firm[22] and hence should exercise control over it. But, under the basic model of economic democracy, shareholders *do* exercise control over the firms in which they invest: they exercise indirect control through their power to 'exit'. As with the analogous control exercised by banks, this 'exit' control depends on the existence of a market: a capital market in the case of banks and a stockmarket in the case of shareholders. And it is clear from the experience of capitalist societies that the control which these markets give both to banks and to shareholders can be very substantial.

Indeed, even though shareholders in capitalist societies nominally have direct control over their firms, it is arguable that, for some time, indirect control exercised through their power to 'exit' has been by far the most important source of control available to them.[23] This argument is closely related to Berle and Means' (1932) thesis that in the modern corporation ownership and (direct) control have become separated. The shareholders still own the firm, but (direct) control has passed into the hands of a managerial élite. As a result it has become a 'Wall Street rule' that 'if you do not like the management you should sell your stock' (Hirschman, 1970:46).

According to the third objection to the basic model of economic democracy there need not be any subjects at all. The fact that capitalism makes workers subject to the authority of a firm does not mean that an economic democracy must do likewise. On the contrary, according to this objection, it is possible to organize work in such a way that no individual is subject to an authority relationship. This can be done, it is suggested, by making every worker into an independent contractor. Now we know from our experience of capitalism that it is possible for independent contractors to perform certain kinds of work. But is it possible to universalise this form of co-ordination thereby eliminating authority relations from the economy and establishing a kind of 'contract-socialism' (Pateman, 1988:152)? Recent work by 'transaction cost' economists suggests that the answer is 'no'.

The most influential work on transaction costs has been done by Oliver Williamson. Building on the seminal work of Ronald Coase (1986) and others, Williamson argues that to eliminate authority relations from the organization of work would be prohibitively costly. Williamson (1985:229) compares various modes

of organizing a typical manufacturing task—Adam Smith's oft-discussed example of the pin manufacturers—and finds that all modes which rely solely on contracts are decidedly less efficient than modes that rely on an authority relation.

The question of costs arises because we live in a 'changing world' which requires individuals and their transactions to constantly adjust to new circumstances (Hayek, 1986:69). Transactions that are solely contractual can meet this requirement in one of two ways. Either the contract must include terms which enable the relevant adjustments to be made, or the contract must be renegotiated; in effect, that is, a new contract must be made (Williamson *et al.,* 1986:141–142). The first option requires a contingent claims contract. The second option requires sequential spot contracting.

Williamson explains his findings about the inefficiency of contract-only modes of work organization by appealing to two reasonable-sounding 'behavioural assumptions' about human individuals. He calls the first 'bounded rationality' and the second 'opportunism'.

Bounded rationality is an assumption about the cognitive competence of individuals (Williamson, 1985:45; Simon, 1983:19). According to this assumption, individuals have only a limited ability to predict the consequences of their actions. In part, at least, this is because individuals have limited access to information and limited capacity to process it (Arrow, 1974:37, 39).[24] Because of these limits, cognitive competence is a scarce resource, and hence like any other scarce resource, the more of it we have to use in order to achieve a goal, the more expensive the achievement of that goal becomes. This means that drawing up a contingent claims contract will be expensive. A fully-specified contingent claims contract is a contract that sets out the obligations of each party in every possible contingency. The more contingencies and their concomitant obligations we attempt to specify, the more cognitive competence we will have to use and the more costly the contract will become.

Opportunism is an assumption about the motivation of individuals who engage in transactions (Williamson, 1985:47). It is a strong version of the assumption that individuals are self-interest seeking. Opportunist individuals are prepared to seek their self-interest with guile and Williamson assumes that at least some individuals are prepared to act in this way. Typical examples of opportunism include providing false or misleading information to those with whom one is entering a contract, and violating the terms of a contract after one has entered into it whenever it is convenient to do so. Opportunism takes on its greatest significance in a context of 'asset specificity'. Asset specificity refers to the fact that the value of certain assets is specific to a particular transaction. For example if I agree to build a plant for you on a particular site, then, the more the costs of relocating the plant, the more its value will be specific to our particular transaction (Williamson, 1985:95). Labour also often manifests asset-specificity resulting for example from task-specific training.[25] In each case the result is a 'lock-in effect' (53). Once such an asset has been invested, one or both of the parties to the investment contract will have a monopoly power, which, assuming opportunism, they can exploit to their own

advantage each time that the contract is renegotiated. This means that sequential spot contracting will be expensive. Pure sequential spot contracting involves a series of one-off task-specific deals such as those between a customer and his or her grocer (Williamson *et al.,* 1986:144). The more frequently renegotiations take place, the more scope there will be for utilizing the power of asset specific investments and the more costly the contracting process will become (Williamson, 1985:78).

Thus it is clear that, if we accept Williamson's two behavioural assumptions, any attempt to co-ordinate the relationship between firms and labourers solely by contracts would be extremely costly. Bounded rationality makes contingent claims contracts costly and opportunism does the same for sequential spot contracting. Authority relations, on the other hand, can reduce these costs. By establishing a long-term relationship the expenses associated with renegotiations are curtailed, but at the same time the need for expensive contingency planning is avoided. Thus there is no way of efficiently organizing some forms of work without subjecting individuals to an authority relationship (Arrow, 1974:69). In the real world of the advanced capitalist countries this will be enough to ensure that these forms of work continue to be organized in such a way that workers are subject to the authority of their firm.

Nevertheless a proponent of the objection that we are considering may continue to argue that while it would certainly be very costly to eliminate economic subjects it is still *possible*.[26] However I think that Williamson's argument can be used to show that even this is not so. Remember that, since the organization of work will have to adapt over time, contract-only co-ordination must take one of two forms: contingent claims contracting or sequential spot contracting (Williamson *et al.,* 1986:141–142).

A contingent claims contract is a fully-specified contract that sets out the obligations of each party in every possible contingency. We have already seen how Williamson argues that, because of bounded rationality, such contracts can be very expensive. In fact however, he can and does make the stronger claim that, for any reasonably complex transaction, bounded rationality makes a fully-specified contingent claims contract impossible. There are just too many possible alternatives and it is not possible to estimate the consequences of each (Williamson *et al.,* 1986:142–143). Furthermore unlike in, say, chess, there is no way of even specifying all the alternatives. A fully-specified contingent claims contract is impossible because of uncertainty about the future.

Sequential spot contracting avoids this problem by adapting to the future only when it is reached. No attempt is made to foreshadow future changes within the framework of any one contract (as in contingent claims contracting). Rather the contract itself is continually renegotiated to meet these changes as they arise. But this procedure can also fall prey to uncertainty: not in the future, but in the present. Consider a complex rapidly-changing production process that requires a large number of workers to each simultaneously perform different but interrelated functions. Given the bounds of human rationality there is no way that all the

individuals whose actions must be co-ordinated can renegotiate their contracts either quickly enough or often enough without overloading their cognitive competence. The problems posed by bounded rationality will be further exacerbated in such a situation by the interdependence of the various renegotiations. Each contractor will need to consider each of the possible deals which the other contractors may reach before being able to make his or her own deals. This seems to lead back to another kind of contingent claims contracting. In this case the contingent claims contract would have to specify all the various contracts that the contractor is prepared to enter into as a function of each of the other possible contracts which may be agreed between third parties.[27]

So, at least for certain forms of work, it is simply not possible for contract-only co-ordination to displace authority relations between a firm and its workers.

Note moreover that the claim that contract-only co-ordination is impossible depends solely on the assumption of bounded rationality.[28] So it is not susceptible to criticism of the assumption that individuals are opportunists. The possibility of doing away with opportunism in particular and self-interest in general is a recurring theme in socialist literature. There is a tendency on the part of some socialist writers to assume that the genuine absence of opportunism that is sometimes found in revolutionary situations can be built into a post-revolutionary society as a permanent feature.[29] This seems highly unlikely to eventuate. But the point is that, even if it did, the need for authority would persist due to bounded rationality alone. It is of course possible to suggest that bounded rationality is also an avoidable feature of human nature. But in light of the 'tremendous weight' of empirical evidence to the contrary this is hardly a tenable position (Simon, 1983:22).

So each of the three objections to the basic model of economic democracy fails. According to the first objection employees are not subject to the authority of their firm. This objection fails because it mistakenly conflates questions about authority with questions about exit rights. According to the second objection capitalists are subject to the authority of their firm. This objection fails because it mistakenly conflates exclusive rights over capital with authority over capitalists. Finally, according to the third objection the firm need not have any subjects at all. But this objection also fails because it makes unrealistic assumptions that ignore human bounded rationality and opportunism.

TYPES OF ECONOMIC DEMOCRACY

If the basic model of economic democracy is correct then direct voice control over a firm should be transferred from the capitalists who own that firm to the workers who are employed by it. Note, however, that the basic model does not object *per se* to the separate existence of capitalists (who are owners) and workers (who are employees). Rather it objects to the relationship between the two, and, in particular, to the fact that those who are employed become subject to the authority of those who own. This means that, unlike in some other models of economic democracy,

worker ownership is not a necessary characteristic of the basic model.[30] While it may be possible in certain circumstances to use worker ownership as a vehicle to achieve worker self-government, it is the system of government and not the system of ownership that defines an economic democracy.

This observation points to a natural way of categorizing initiatives which are aimed at promoting economic democracy. These initiatives can be divided into two types.

One type of initiative accepts the idea that ownership of a firm gives capitalists the right to exercise direct control and instead seeks to acquire these rights by making the workers themselves into owners. These initiatives can be described as seeking 'control through ownership'.

The other type of initiative challenges the idea that ownership of a firm gives capitalists the right to exercise direct control (or, at least, to appoint those who do) and seeks to usurp those rights for the workers. These initiatives can be described as seeking 'control against ownership'.

In each case the acquisition of control is not a matter of all or nothing. In the case of control through ownership more or less control can be acquired by acquiring more or less shares. In Sweden, Rudolf Meidner's plan for employee investment funds sought to make full use of this potential by enabling workers to move towards economic democracy through a series of partial increases in control. According to Meidner's original plan, each firm with over 50 employees would be required to transfer 20 per cent of its profits to the funds per annum in the form of new shares. The voting rights attached to these shares would be exercised by the firm's workers and their unions (Meidner, 1978:99). Each year that the firm made a profit the funds would acquire a further 20 per cent so that eventually, over a period of 20 to 70 years depending on its profitability (ibid.: 59), the workers would control a majority of the firm's shares. The plan went through a number of permutations and was eventually implemented in a much watered-down form in 1983. Attempts by workers to gain control of their pension funds represent less ambitious attempts to acquire control through ownership.

It is also possible to acquire partial increments of control in the case of control against ownership. In a pure capitalist firm all direct control is vested in the hands of the capitalists. However this control can be dissaggregated in two different ways.

Firstly, direct control can be dissaggregated into a bundle of separable control rights. Each control right enables the holder to make certain decisions about the operations of a firm. There have been several attempts to list and order the various control rights (or decision-making rights) which exist in a typical capitalist firm. Here I will rely on the list drawn up by John D.Stephens (1979:24) which is reproduced in Figure 2.2. The steps in Figure 2.2 can be thought of as various levels of control. Higher levels of control are more important than lower levels in the sense that they carry greater consequences for the future of the firm (ibid.: 23).

Secondly, each level of control can itself be disaggregated. There is a spectrum of intermediate degrees of control which enable direct control over any given level to be shared. In particular each level of control can be disaggregated according to

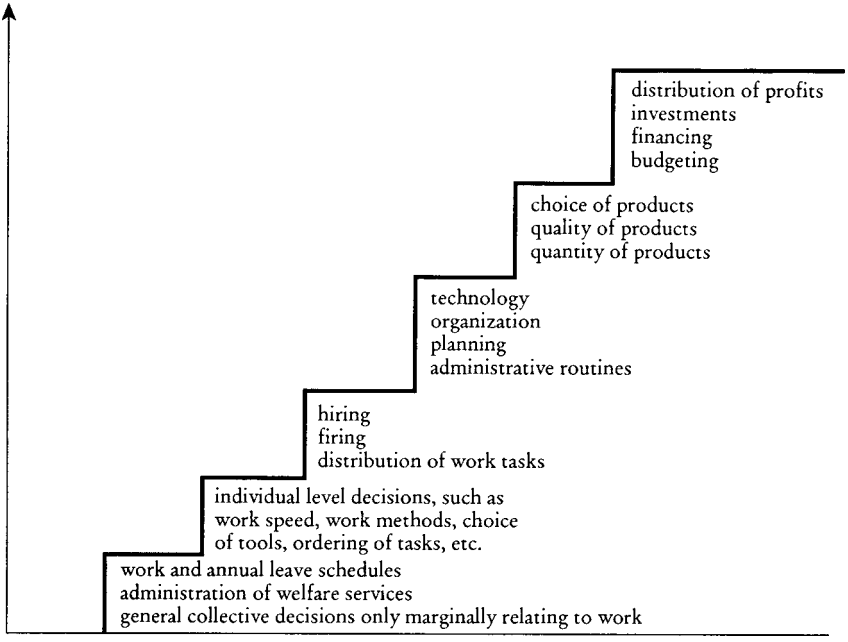

Figure 2.2 Stephens' levels of controls
Source: John D.Stephens (1979:24)

the degree of control that workers exercise over the decisions made at that level. Moving from lesser to greater degrees of control, the spectrum of control which workers can exercise over a decision includes: the right to notification about the decision, the right to information about the decision, the right to consultation about the decision, the right to minority representation on the body that makes the decision, the right to negotiate the decision, the right to veto the decision, the right to parity representation on the body that makes the decision, and the right to majority representation on the body that makes the decision.[31]

In summary, direct control over a firm can be disaggregated according to the level of control at which it is exercised and according to the degree of control exercised at that level. Thus workers may increase their direct control at a firm in one or both of two ways. On the one hand they may gain some control over a level over which they previously had no control. For example in West Germany, the pace-setting metalworkers' union gained some control over technological change in agreements with employers in Nord Wurttemburg—Nord Baden in 1973 (Gourevitch *et al.,* 1984:137, 168; Streeck, 1981:149–150). On the other hand workers may increase the degree of control over a level over which they previously did have some control. For example in Sweden the position of union safety stewards was strengthened in 1973 to give them a temporary veto over any decision they thought unsafe (Gourevitch *et al.,* 1984:260).

Sometimes an attempt is made to increase control against ownership at every level of control simultaneously. Some of the most important economic democracy initiatives in the 1970s were of this kind. In Sweden the 1976 co-determination law gave unions the right to negotiate the outcome of decision-making at all levels. In Germany the 1976 co-determination law achieved near parity representation for workers on supervisory boards. And in Britain the 1977 Bullock inquiry unsuccessfully recommended a form of minority representation for workers on company boards.

The fact that direct control over a firm can be disaggregated into various incremental increases is important because this makes it possible to envisage a gradual step by step transition to economic democracy. Past experience suggests that the achievement of economic democracy would not be a feasible goal if a dramatic one-step transition were the only available strategy. Such a one-step transition would only be feasible if workers could suddenly accumulate enormous power resources. On the few occasions where this has happened, for example, in parts of Central Europe following the First World War, these power resources have proved impossible to maintain. The workers' power was more a function of rapid changes in the external environment than of their own internal organizational strength. A gradual transition allows workers to slowly build up and consolidate their own organizational strength. It requires only that each step results in an incremental increase in the amount of direct control exercised by workers.

NOTES

1 For a treatment which takes up these issues see Chapter 1 of Archer (1995).
2 The terms 'direct' and 'indirect' control are drawn from Ellerman (1990:46), who also refers to 'positive' and 'negative' control to make the same distinction.
3 Henceforth I will refer to 'practical authority' simply as 'authority'.
4 It has also been suggested that an authority's choices must provide 'content-independent reasons for action' (Raz, 1986:35–37; Green, 1988:40–42). But this aspect of authority will not concern us here.
5 Thus, for example, in a competitive market economy, a consumer has a veto over a firm's ability to affect him because he can take his custom elsewhere, but he does not have a veto over the firm's decisions themselves. I will return to this point in the next section.
6 Consider the example in the previous note. Consumers can share the indirect control that they exercise through the market without weakening their personal indirect control. Residents, on the other hand, exercising indirect control through the regulatory powers of a local government, will weaken their personal indirect control by sharing these powers with others.
7 In fact this group includes some not-so-local residents. Consider, for example, certain forms of pollution.
8 Note that where quality deteriorates but price remains constant there will be an immediate effect on revenue, but where price rises and quality deteriorates the price rise can shield a certain number of exits (Hirschman, 1970:23). This illustrates the more general problem that exit control is sometimes ineffective because the information it conveys is not rich enough in detail.

9 Strictly speaking, exit control does not have to rely on after-the-fact experience. If all consumers had access to all the detailed technical information needed to make an assessment about the safety of each of the products that they may buy then unsafe goods could be avoided before the fact. But even if all the information were available nobody could be expected to have the expertise required to make an adequate assessment in every case. This raises a general problem about the importance of government regulation when consumer knowledge is lacking (Hirschman, 1981:219–220).

10 There are specialist literatures on each of these markets. On bankers see Jensen and Meckling (1976) and on suppliers see Williamson's (1985) chapters on vertical integration. I will return to the labour market and the stockmarket shortly.

11 Note however that I am using 'voice' more narrowly than Hirschman does. According to Hirschman (1970:30):

> Voice is…defined as any attempt at all to change rather than escape from the objectionable state of affairs [in a firm or other organization], whether through individual or collective petition to the management directly in charge, through appeal to a higher authority with an intention of forcing a change in management, or through various types of actions and protests, including those that are meant to mobilize public opinion.

In contrast I am using voice control to refer to that subset of these attempts where an individual or group of individuals actually makes the firm's decisions.

12 Of course this exclusive right must be exercised within the terms of the contract of sale. For example a buyer of uranium may be prohibited by the contract of sale from using the uranium to produce weapons.

13 Authority can exist as a potential which is distinct from its actual exercise. Having authority means that if you command you will be obeyed. Exercising authority means that you do in fact command.

14 There are useful discussions of these issues in Edwards (1986:280), Offe (1985b:57) and Bowles (1986:334).

15 See also the distinction that Marx identifies in the *Grundrisse:*

> If we consider the exchange between capital and labour, then, we find that it splits into two processes which are not only formally but also qualitatively different…: (1) the worker sells his commodity [labour power]…which has…as a commodity…a price…. (2) The capitalist obtains labour itself…he obtains the productive force that maintains and multiplies capital…. The separation of these two processes is so obvious that they can take place at different times and need by no means coincide. The first can be and usually, to a certain extent, is completed before the second even begins…. In the exchange between capital and labour the first act is an exchange and falls entirely within ordinary circulation; the second is a process qualitatively different from exchange, and only by misuse could it have been called any kind of exchange at all.
>
> (Marx, 1973:274–275)

16 Alchian and Demsetz (1986:111–112) provide a good example of this objection:

> It is common to see the firm characterized by the power to settle issues by fiat, by authority, or by disciplinary action superior to that available in a conventional market. This is a delusion…. To speak of managing, directing, or assigning workers to various tasks is a deceptive way of noting that the employer continually is involved in renegotiation of contracts on terms that must be acceptable to both parties. Telling an employee to type this letter rather than to

file that document is like telling my grocer to sell me this brand of tuna rather than that brand of bread. I have no contract to continue to purchase from the grocer and neither the employer nor the employee is bound by any contractual obligations to continue their relationship.

17 Although clearly some employers do go to great lengths to enforce relatively long-term contracts. Consider the case of football players who want to quit early to sign up with another club.

18 In Europe after 1992 this may well become the norm rather than the exception.

19 It is interesting to note that in the English common law tradition the existence of an authority relationship has long been considered the single most important, if not the only, defining feature of the relationship between employer and employee or between master and servant. See Rideout and Dyson (1983:4–6) and Batt cited in Coase (1986:84–85).

20 Proponents of this objection may or may not accept that workers are also subject to the firm's authority.

21 It is true that banks in the Anglo-Saxon world are called upon to exercise direct control in certain abnormal circumstances. For example they may be called in as liquidators charged with winding up a firm which has collapsed. But they do not exercise direct control over a normally operating firm (Dahl, 1985:79).

22 In some cases they may even be affected to a greater extent than the firm's workers. Consider a pensioner who invests all his retirement income in a firm which collapses. At a time of low unemployment the firm's workers may easily find another suitable job, but, with the loss of his 'nest egg', the pensioner's retirement plans will be ruined. However cases like this should be rare since capitalists—even small capitalists—can spread their risk more easily than workers. Whereas the capitalist can invest in a large number of firms, the worker can only work for one or maybe two firms (Meade, 1988:214; Horvat, 1982:447). The pensioner made the mistake of putting 'all his eggs in one basket'.

23 Again this has been especially pronounced in the Anglo-Saxon world.

24 See also McPherson (1983:356) and Williamson (1985:46).

25 Indeed even in unskilled jobs there is usually a certain amount of on-the-job learning as well as efficiencies that result from personal relations with co-workers. This means that simply by working for a particular firm your labour will come to manifest some degree of asset-specificity. Williamson refers to this as the 'fundamental transformation' (61).

26 Perhaps, the objector might argue, that, in the name of freedom, we should eliminate subjection whatever the cost. I am not convinced that this is right however since, as I noted in the first section, efficiency (or 'economy') is itself linked to freedom since a less efficient system may restrict us from pursuing choices which we could otherwise pursue.

27 On top of all of this there are likely to be multiple 'co-ordination problems' in the specific game theoretic sense of the term (Schelling, 1960:89). But these would exist no matter how rational the contractors were.

28 Williamson (1985:48) thinks that without opportunism, a general clause contract could take the place of contingent claims contracting. However this seems to ignore problems of interpretation (Harel, 1989:15, 16) and these can exist even between non-opportunists.

29 In her essay 'The Revolutionary Tradition and Its Lost Treasure', Hannah Arendt (1963) also seems to build her hope on this sort of possibility.

30 This is important when considering questions of efficiency, since many, though by no means all, of the arguments that contend that economic democracy is inefficient are based on the assumption that the workers will also be the owners of their firms.

31 Compare with Poole (1975:25–26) and DEIR (1986:61–65).

REFERENCES

Alchian, Armen and Harold Demsetz (1986), 'Production, Information Costs, and Economic Organization', in Putterman, ed. (1986).

Archer, Robin (1995), *Economic Democracy: The Politics of Feasible Socialism,* Oxford: Oxford University Press.

Arendt, Hannah (1963), *On Revolution,* Harmondsworth: Penguin.

Arrow, K.J. (1974), *The Limits of Organization,* New York: Norton.

Bachrach, Peter (1969), *The Theory of Democratic Elitism,* London: University of London Press.

Berle, Adolf and Gardiner Means (1932), *The Modern Corporation and Private Property,* New York: Commerce Clearing House.

Bowles, Samuel (1986), 'The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models', in Putterman, ed. (1986).

Coase, Ronald (1986), 'The Nature of the Firm', in Putterman, ed. (1986)

Cole, G.D.H. (1920), *Guild Socialism Restated,* London: George Allen and Unwin.

Dahl, Robert A. (1970), *After the Revolution,* New Haven: Yale University Press.

—— (1979), 'Procedural Democracy', in Peter Laslett and James Fishkin, eds, *Philosophy, Politics and Society,* Fifth Series, New Haven: Yale University Press.

—— (1985), *A Preface to Economic Democracy,* Cambridge: Polity.

DEIR (1986), *Industrial Democracy and Employee Participation,* Department of Employment and Industrial Relations, Canberra: Australian Government Publishing Service.

Edwards, Richard (1986), 'From *Contested Terrain*' in Putterman, ed. (1986).

Ellerman, David (1990), *The Democratic Worker-Owned Firm,* Boston: Unwin Hyman.

Friedman, R. (1973), 'On the Concept of Authority in Political Theory', in R.E. Flathman, ed., *Concepts in Social and Political Philosophy,* New York: Macmillan.

Gould, Carol C. (1988), *Rethinking Democracy,* Cambridge: Cambridge University Press.

Gourevitch, Peter, Andrew Martin, George Ross, Stephen Bornstein, Andrei Markovitz and Christopher Allen (1984), *Unions and Economic Crisis: Britain, West Germany and Sweden,* London: George Allen and Unwin.

Green, Leslie (1988), *The Authority of the State,* Oxford: Clarendon.

Harel, Alon (1989), 'The Logic of Industrial Organization: Firm versus Markets', unpublished paper.

Hayek, F.A. (1986), 'The Use of Knowledge in Society', in Putterman, ed. (1986).

Hirschman, Albert O. (1970), *Exit, Voice and Loyalty,* Cambridge, Massachusetts: Harvard University Press.

—— (1981), *Essay in Trespassing,* Cambridge: Cambridge University Press.

Holmes, Stephen (1988), 'Precommitment and the Paradox of Democracy', in J.Elster and R.Slagstad, eds, *Constitutionalism and Democracy,* Cambridge: Cambridge University Press.

Horvat, Branko (1982), *The Political Economy of Socialism,* Oxford: Martin Robertson.

Jensen, Michael and William Meckling (1976), 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', in Putterman, ed. (1986).

Kornai, Janos (1986), *Contradictions and Dilemmas,* Cambridge, Massachusetts: MIT Press.

Korpi, Walter (1978), *The Working Class in Welfare Capitalism,* London: Routledge.

Lindblom, Charles E. (1977), *Politics and Markets,* New York: Basic Books.

Lindsay, A.D. (1962), *The Modern Democratic State,* Oxford: Oxford University Press.

McPherson, Michael (1983), 'Efficiency and Liberty in the Productive Enterprise: Some Recent Work in the Economics of Work Organization', *Philosophy and Public Affairs,* 12(4), Fall.

Marx, Karl (1973), *Grundrisse,* Harmondsworth: Penguin.

—— (1976), *Capital,* Volume 1, Harmondsworth: Penguin.

Meade, James (1988), 'Different Forms of Share Economy', in Susan Howson, ed., *The Collected Papers of James Meade,* Volume 2, London: Unwin Hyman.

Meidner, Rudolf (1978), *Employee Investment Funds,* London: George Allen and Unwin.

Mueller, Dennis C. (1979), *Public Choice,* Cambridge; Cambridge University Press.
Norman, Richard (1987), *Free and Equal: A Philosophical Examination of Political Values,* Oxford: Oxford University Press.
Nove, Alec (1983), *The Economics of Feasible Socialism,* London: George Allen and Unwin.
Offe, Claus (1985a), *Disorganised Capitalism,* Cambridge: Polity.
—— (1985b) 'The Future of the Labour Market', in Offe (1985a).
Offe, Claus and Helmut Wiesenthal (1985), 'Two Logics of Collective Action', in Offe (1985a).
Pateman, Carole (1988), *The Sexual Contract,* Cambridge: Polity.
Polanyi, Karl (1957), *The Great Transformation,* Boston: Beacon.
Poole, Michael (1975), *Workers' Participation in Industry,* London: Routledge.
Putterman, Louis, ed. (1986), *The Economic Nature of the Firm,* Cambridge: Cambridge University Press.
Raz, Joseph (1986), *The Morality of Freedom,* Oxford: Clarendon.
—— (1987), 'Government by Consent', in J.W.Pennock and J.R.Chapman, eds (1987) 'Authority Revisited', *Nomos 29,* New York: New York University Press.
Rideout, Roger W. and Jacqueline Dyson (1983), *Rideout's Principles of Labour Law,* Fourth Edition, London: Sweet and Maxwell.
Schelling, Thomas C. (1960), *The Strategy of Conflict,* Cambridge, Massachusetts: Harvard University Press.
Simon, Herbert (1983), *Reason in Human Affairs,* Oxford: Blackwell.
Soper, Philip, (1989), 'Legal Theory and the Claim of Authority', *Philosophy and Public Affairs,* 18(3), Summer.
Stephens, John D. (1979), *The Transition from Capitalism to Socialism,* London: Macmillan.
Streeck, Wolfgang (1981), 'Qualitative Demands and the Neo-Corporatist Manageability of Industrial Relations', *British Journal of Industrial Relations,* XX(2).
Walzer, Michael (1983), *Spheres of Justice,* Oxford: Martin Robertson.
Williamson, Oliver (1985), *The Economic Institutions of Capitalism,* New York: The Free Press.
Williamson, Oliver, Michael Wachter and Jeffrey Harris (1986), 'Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange', in Putterman, ed. (1986).

Part II

THEORETICAL ISSUES

3

CAPITALIST VERSUS LIBERAL FIRM AND ECONOMY

Outline of a theory[1]

Winfried Vogt

THE CAPITALIST FIRM AS A PROBLEM

There can be no doubt that the exceptionally high productivity of developed market economies is, to a large extent, due to the institution of the market itself, which on the one hand provides strong incentives for productive behaviour and on the other hand admirably co-ordinates the decisions of independent individual units. The recent breakdown of the socialist economies has once more confirmed this claim. This is not to deny that part of the success must be credited to the state for compensating market failures. But apart from this reservation, there still remains one point of irritation in this praise of market economies, which has troubled economists (and other observers) for quite some time. The outstanding economic performance of market economies seems to be the result not only of pure market transactions, adequately supported by state intervention, but also by the internal organization of capitalist firms, which looks (at least at first sight) vastly different from that of ordinary market transactions. In sharp contrast to market relationships, which are characterized by independent, autonomous decisions of market participants, the relationships within the firm are usually described as hierarchical command structures. The centre of this internal structure of the firm is the employment relationship, in which the employer has the authority to impose rules and orders upon his employees, who (within certain limits) have simply to obey them. Instead of the unconscious co-ordination achieved through market transactions, firms seem to attain co-ordination by the conscious use of directives and power.[2]

For a long time economists have been troubled by the existence and meaning of these centres of power and command in the 'ocean of market exchanges'. Many critics of market economies have focused their uneasiness on this striking exception to the norms of freedom and equality which one expected to rule in free markets. One of the earliest and certainly one of the most influential critiques of the command relationship of the capitalist firm is that of Marx. He condemned its

hierarchical structure as the means to suppress the freedom of workers in the interest of high capital profits, and as he saw the capitalist firm as the inevitable result of a market economy, he made the radical proposal to abolish the market itself and to replace it by a vaguely sketched *'Verein freier Menschen'*.

Especially after the historical failure of socialist experiments with non-market economies, few critics of the capitalist firm would still support such a radical position. The economic superiority of market systems has been generally acknowledged. Instead, modern critics of the capitalist firm from many sides[3] advocate the replacement of the hierarchical structure by alternative organizations of the firm.

The usual objection to proposals of this kind is that the hierarchical organization of the firm is an efficient device to secure a high productivity of labour. Without hierarchy, it would be impossible to extract an efficient amount and quality of labour. The basic argument is that contractual enforcement of an efficient solution is impossible, either because complete contracts cannot be designed, or because the amount and quality of labour agreed upon cannot be observed or verified.

In the first case, a potential employer who would be willing to enter a long-run relationship with an employee cannot secure a high productivity of labour by an *ex ante* agreement on this item, if contracts cannot be completely specified, either because future contingencies are unknown or because it is too expensive to write them down in detail. On the other hand, *ex post* negotiations may be unacceptable for the employer, if he cannot credibly threaten to withdraw from the firm (if he is 'locked in') because he had to make specific investments in the relationship. In this case, a mutually beneficial relationship requires some safeguards for the employer. They can be provided by an employment contract which delegates authority to him to direct the employee's actions. Hierarchy is then an optimal response to imperfect commitments due to incomplete contracts.[4]

A different problem arises when the desired amount and quality of labour could be contractually specified, but deviations cannot be observed or verified without costs. A hierarchical organization may then be regarded as a rational device to monitor the behaviour of employees. In this case, hierarchical supervision and control serve to enforce a high productivity of labour because they allow the detection and sanction of deviations from efficient solutions.[5]

However, monitoring is usually not costless. It can be supplemented or sometimes even replaced by suitable work incentive mechanisms. This offers a further explanation of hierarchical structures. A hierarchy can also serve as an incentive structure which induces employees to behave in the interest of the firm, if adequate performance is likely to be rewarded by a favourable position in the hierarchy.[6]

All these explanations regard the hierarchical structure of the firm as an optimal response to credibility problems, which are caused by the opportunistic behaviour of employees. It seems also possible, however, to understand this behaviour as a reaction to hierarchical structures and command relationships rather than as their primary cause. A hierarchical solution may well be chosen for quite different reasons. Even without credibility problems, hierarchical structures may be

introduced in order to solve a co-ordination problem. This, however, is the basic problem of team production and therefore of the firm. Team production needs co-ordination, but co-ordinating a team is usually a complicated matter. Special knowledge is required to find a good or even the best solution. The expert who is entrusted with this task is the entrepreneur (the employer). This view of the entrepreneur is confirmed in almost any (micro)economic textbook. The entrepreneur is usually introduced as the co-ordinator of the factors of production which he/she employs. In most textbooks, it is true, this co-ordination boils down to the determination of optimal factor proportions, based on an efficient production technology which is assumed to be already given and known. But the development of an efficient frontier of production itself requires the prior solution of a co-ordination problem which is at least as important and intricate as the subsequent factor allocation problem. In this allocational problem, factors of production are combined which have clearly specified assignments. But the choice and implementation of these assignments is the basic matter of the foregoing coordination problem. Employees have to be told what they are expected to do in order to achieve co-ordinated behaviour. This, then, is the task of the entrepreneur or employer (or manager), who has to be a specialist in solving and implementing co-ordination problems, which usually are intricate and difficult. In this respect, the authority of the employer can be compared to that of a coach in a football team or that of a conductor of an orchestra. He has the expertise and therefore the authority to impose on his employees that pattern of work which he considers optimal for the purpose of the firm.

In general, however, co-ordination problems (co-ordination games) allow more than one solution, and it requires expertise not only to discover them, but also to select and implement one of them. There may even be several efficient solutions with different distributional implications.[7] Co-ordination can be achieved, e.g., by imposing an elaborate system of rules and orders and by assigning very specific tasks, but also by a basic framework of rather general rules and orders only, which leave room for autonomy and self-direction. As for the firm, an example of the first kind is the assembly line, and of the second kind, the autonomous work group.

The general idea is that the co-ordination problem of the firm can be solved not only by more or less purely hierarchical systems of authority, but also by some basic organizational framework with much less hierarchy, where co-ordination is achieved by mutual adjustment as a (Nash-)equilibrium of a co-ordination game.[8] In this view, the hierarchical structure of the capitalist firm can be seen as a particular solution to the co-ordination problem of production, which strongly relies on specific rules and orders 'from above' and which consequently leaves little room for work autonomy. The main advantage of this solution seems to be that it promises a particularly high productivity of labour. On the other hand, its strictly hierarchical nature is also the reason for widespread dissatisfaction because it leads to a high disutility of labour. This in turn induces employees to reduce the amount and quality of work as much as possible, and this confirms the necessity of a

hierarchical structure which is now also used as a mechanism to secure the desired performance of work.

This capitalist solution should be contrasted with an alternative solution, in which co-ordination is achieved by some general rules and orders only, which allow a high degree of autonomous work and self-direction. Some authority (hierarchy) will be required by this alternative solution as well, because a completely 'anti-authoritarian' production process would very likely fail to solve the co-ordination problem at reasonable cost. (This is in line with the modern theory of the firm, which explains authority relationships by the excessive transaction costs of 'market anarchy'.) But since the assumed authority or hierarchy may be regarded as a minimal prerequisite for efficient co-ordination, the corresponding firm type may be called a 'liberal firm' (in accordance with the concept of a liberal society, in which the authority of the state is confined to the minimal requirements of an efficient co-ordination of individual decisions).[9] This expression is also intended to avoid premature connotations with a 'labour-managed', 'co-operative' or 'democratic' firm.[10] In principle, in the liberal firm envisaged in this paper, the general pattern of decision-making may remain as individualistic as in the capitalist economy. Like its capitalist counterpart, the liberal firm may be run by an 'entrepreneur' who hires labour and capital and who has the authority to coordinate the production process. The major difference is that in his optimal plan the choice sets of his employees are (considerably) enlarged (in comparison with their counterparts in a capitalist firm). It is conceivable, therefore, that a liberal firm might offer an efficient solution to the co-ordination problem of the firm, even though its labour productivity may be lower, if this is (more than) offset by a reduced disutility of labour.[11] If job satisfaction is high enough, material work incentives may lose their importance, and stabilizing hierarchical structures may indeed be unneccessary.

This confrontation of a capitalist with a liberal firm could be reminiscent of a prototype of a co-ordination game, the so-called 'battle of sexes'. Its solutions cannot be ranked in the sense of Pareto, but they have strong distributional implications (when 'he' follows 'her', she gains and vice versa). The capitalist firm has often been accused of enforcing a particular co-ordination of production, which favours capital and discriminates against labour. Analogously, one could speak of a 'battle of the factors of production' which can result either in a capitalist or a liberal solution. But the following analysis tries to show that both solutions may differ not only with respect to distribution but also with respect to efficiency: one should seriously consider the possibility that an economy with liberal firms (a 'liberal economy') might have advantages over an economy with capitalist firms (a 'capitalist economy'), on the level of the individual firm as well as on that of the economy as a whole.

CAPITALIST VERSUS LIBERAL FIRM AND ECONOMY

A basic suggestion of the introductory section has been that a feasible coordination of production usually requires some mandatory regulation, which specifies job assignments, rules of production, etc. This regulation has to be designed,

implemented and controlled by some leadership of the firm (the entrepreneur, the employer, the management). It obviously reduces the choice sets of employees because it constrains their actions by co-ordinating rules, orders, directions, instructions, etc. As the term conveys, employees are not self-employed. In performing their work, they are more or less dependent on the employer's rules and orders. But the extent to which they are dependent is variable. In principle, one can imagine a wide range of varying degrees of dependence, from complete independence (autonomy) to full dependence. Classical (scientific) management, e.g., relies on a system of co-ordination in which the degree of dependence is very high. Activities are extensively specified, work is 'rationalized' and routinized. The assembly line offers a particularly convincing example of this kind. The lower the degree of dependence, the more scope is left for self-determined or autonomous work. Employees have increasing control over their working conditions. They have more freedom to organize their work according to their individual preferences. Varying degrees of dependence or autonomy are likely to have considerable impact on the productivity and disutility of labour. These are the decisive factors for evaluating different co-ordination schedules. Labour disutility summarizes the (labour) costs of a certain schedule, whereas labour productivity is an indicator of its returns.

In order to study the impact of varying degrees of dependence on the productivity and disutility of labour, a simple model is developed. In order to clarify some basic relationships, only identical firms and employees are considered. It is recognized that individual differences may be of particular importance for the problem to be discussed, but their introduction right at the beginning might obscure the analysis which follows. Without such differences, the productivity and disutility of labour can be expressed by single variables. The productivity of an employee is denoted by y, his/her disutility of labour by v. Both variables are assumed to depend on the degree of dependence and on the extent of autonomous work chosen. The degree of dependence is denoted by the (continuous) variable d. If there is no dependence at all (d=0), the individual employee remains completely unconstrained (with respect to his productive activities), but also completely unguided by co-ordinating regulations. At high degrees of dependence, the employee has little discretion. He has to execute tasks specified by the employer (the management). The extent of autonomous work chosen by the employee is expressed by the (continuous) variable a.

An explicit definition of the variables d and a would require to specify the possible organizational structure of a firm which may be very complex. However, in order to grasp the idea, it may suffice to imagine a very simple structure, in which d and a can be related to the determination of labour effort. The degree of dependence d may then be defined as the percentage of maximum labour effort which is determined by the leadership of the firm, whereas $1–d$ is the percentage which is left to the discretion of the employee. The extent of autonomous work a is then defined as the percentage of maximum labour effort which is actually provided by autonomous decisions of the employee ($0 \leqslant a \leqslant 1–d$).

The basic relationships of the following analysis are then[12]

$$y=y(d, a) \tag{1}$$

$$v=v(d, a). \tag{2}$$

Equation (1) is a productivity function, a production function of a firm for a single employee. Equation (2) is a disutility function of an individual who is employed in a firm. The productivity and disutility of labour are assumed to be influenced by the degree of dependence chosen by the firm and by the extent of autonomous work chosen by the employee.

An optimal choice of the degree of dependence and the level of autonomous work requires values of d and a at which the individual surplus s of labour productivity over 'labour costs' is maximized:

$$\max_{d,a} s(d, a) = y(d, a) - v(d, a), \text{ s.t. } a \geq 0.$$

The first-order conditions, which are self-explanatory, are

$$s_d(d, a)=y_d(d, a)-v_d(d, a)=0 \tag{3}$$

$$s_a(d, a)=y_a(d, a)-v_a(d, a)\leqslant 0. \tag{4}$$

Of course, the solutions for d and a depend on the properties of the functions y and v. If it is assumed as usual that y is a concave function and v is a convex function of d and a, these conditions allow a unique optimal solution. In order to show the possible existence of multiple solutions, a capitalist and a liberal one, one has to add some qualifications of the usual assumptions concerning the shape of y and/or v. The first qualification is the additional assumption that at some low degree of dependence $d=d_0>0$ autonomous work is especially satisfying and productive. At this degree, which is called 'optimal degree of dependence', the employer determines only some basic rules and regulations which offer an optimal guide for co-ordinated autonomous work of his employees. The disutility of labour achieves a minimum value, $v(d_0, a)<v(d, a)$ for all values of d and a, and the productivity of autonomous work is higher than for neighbouring values of d_0, $y(d_0, a)>y(d, a)$ for $a>0$ and d in a certain interval around d_0. The second qualification is that at higher degrees of dependence, autonomous work becomes unprofitable, because its costs rise faster than its productivity. This proposition can be summarized as $y_a(d, 0)<v_a(d, 0)$ for higher values of d.[13]

With these qualifications, the optimality conditions (3) and (4) may permit two different solutions, which are illustrated in Figure 3.1.

A first solution is obtained at the optimal degree of dependence, $d=d_0$. At this point, the first optimality condition is satisfied by the assumed properties of d_0:

$$y_d(d_0, a)=v_d(d_0, a) \text{ for all values of } a. \tag{3.0}$$

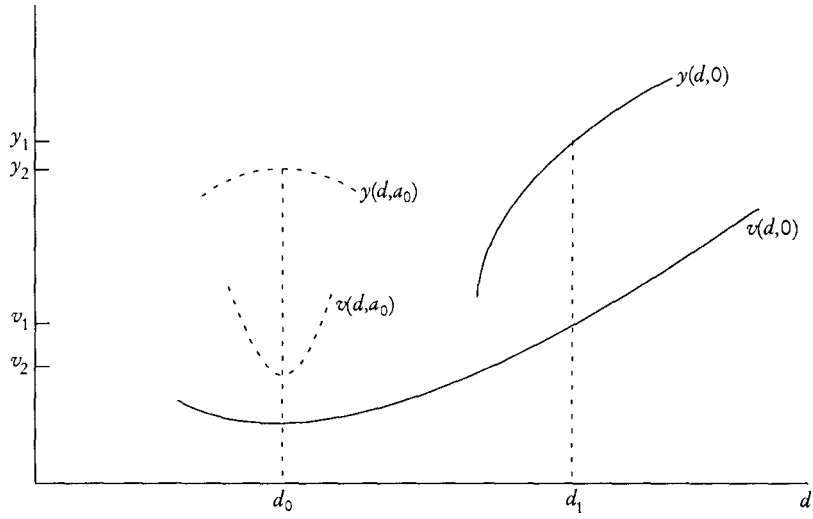

Figure 3.1 A capitalist and a liberal equilibrium

The second optimality condition gives the optimal value a_0 of autonomous work at d_0:

$$y_a(d_0, a0)=v_a(d_0, a_0). \tag{4.0}$$

This value is positive, because the conditions for autonomous work are optimal.[14]

A second solution may exist at a high degree of dependence, $d=d_1$, at which autonomous work is unprofitable:

$$y_d(d_1, 0)=v_d(d_1, 0) \tag{3.1}$$

$$y_a(d_1, 0)<v_a(d_1, 0). \tag{4.1}$$

Co-ordination is obtained by a strictly hierarchical organization of work, which admits no autonomy, but secures a high level of labour productivity, albeit at high labour costs.[15]

Each of the two optimal solutions derived in the last section can be considered as an equilibrium of a decentralized competitive market economy. This follows immediately from a fundamental welfare theorem. In order to fully understand its implications, it is useful, however, to develop the argument in more detail. This requires some additional specifications. It is assumed that the economy consists of N (potential) employees and M identical firms (N and M fixed). Each employee has the same utility function $u=w-v$, with w as the wage rate. (Capital income can be added without altering the following argument.) In a state of full employment, every firm employs $n=N/M$ people. Total production of each firm equals ny. This would imply constant returns to labour, if y were independent of n. Under

competitive conditions, zero profits would follow. But as profits play a crucial role in distinguishing capitalist from liberal firms, one has to assume a decreasing marginal utility of labour.[16] Therefore, the productivity function has to be slightly modified. Instead of (1), a production function $f(d, a, n)$ is introduced, with $f_n>0$, $f_{nn}<0$, so that labour productivity is now given by $ny=f(d, a, n)$. In order to simplify the analysis, f is assumed to be separable in n:

$$y = \varphi(d, a)\,\frac{h(n)}{n}, \qquad h' > 0, \qquad h'' < 0. \tag{1a}$$

The assumptions on the partial derivatives with respect to a and d are retained.[17]

Each firm maximizes its profits s according to

$$\max\ \sigma=\varphi(d, a)h(n)-wn$$

$$\text{s.t.} \qquad w-v(d, a)\geqslant\bar{u},\ a\geqslant 0$$

by choosing optimal values of d, a, n and w. These values depend on u, the competitive utility level which each firm has (at least) to offer to attract employees.

The first-order optimality conditions are now:[18]

$$\varphi_d\,\frac{h(n)}{n} = y_d = v_d \tag{3'}$$

$$\varphi_a\,\frac{h(n)}{n} = y_a \leqslant v_a \tag{4'}$$

$$\varphi h'(n)=w \tag{5}$$

$$w=v+\bar{u}. \tag{6}$$

The first two conditions are restatements of the optimality conditions (3) and (4), which determine the optimal values of d and a at the equilibrium value of n. This shows that the two (locally) optimal solutions of the preceding section are also alternative equilibrium solutions of a competitive market system.

Equation (5) and the (binding) constraint (6) determine the values of n and w, given u. At a given labour supply $n=N/M$ for each firm, the equilibrium wage rate, at which the labour market clears, follows from (5), and the utility level of an employee is then determined by (6).[19]

As a result, one can imagine two very different types of market economies. The first one is a 'liberal economy'. It consists of liberal firms, which are characterized by a low degree of dependence, $d=d_0$, and a high level of autonomous work, $a=a_0$. Labour productivity and labour disutility are

$$y_0 = \varphi(d_0, a_0)\,\frac{h(n)}{n} \qquad \text{and} \qquad v_0 = v(d_0, a_0).$$

The wage rate is[20]

$$w_0=\varphi(d_0, a_0)h'(n).$$

The profit of a liberal firm is given by

$$\sigma_0=(y_0-w_0)n=\varphi(d_0, a_0)\,(h(n)-h'(n)n).$$

These values have to be compared to those of a 'capitalist economy'. This economy consists of capitalist firms, which are characterized by a high degree of dependence, $d_1>d_0$, and little scope for autonomous work ($a_1=0$, or at least $a_1<a_0$). The disutility of labour may be expected to be considerably higher than in a liberal economy:

$$v_1=v(d_1, 0)>v(d_0, a_0)=v_0.$$

As the figure suggests, labour productivity should be higher as well—as a reward, as it were, for the higher disutility of labour:

$$\varphi(d_1, 0)>\varphi(d_0, a_0),$$

and therefore $y_1>y_0$.

Otherwise the solution at d_1 would lose much of its interest. If it were more costly (in terms of labour utility) and also less productive, its empirical relevance would be doubtful. It would be difficult to present d_1 as the (idealized) solution of existing market economies, if it were an inefficient solution with respect to costs as well as returns. If d_1 is assumed to represent the equilibrium of a capitalist economy, and if it is claimed that this economy demands high disutility of labour, one should be prepared to concede that its productivity is likely to be comparatively high, too.

If this is the case, it follows that wages and profits are also higher at d_1 than at d_0:[21]

$$w_1>w_0 \quad \text{and} \quad \sigma_1=(y_1-w_1)n>s_0=(y_0-w_0)n. \tag{7}$$

Under these assumptions, a capitalist economy turns out to have higher wages and profits than its 'liberal' counterpart, because its productivity is higher. On the other hand, it has the disadvantage of a high disutility of labour. The interesting question is whether this disadvantage is more than offset by its high level of wages. If this were the case, a liberal firm would seem rather unattractive, because then the capitalist solution would prove to be superior in every economic respect. It would offer higher profits *(y–w)* to capital owners as well as higher utility levels *(w–v)* to its employees. A 'liberal' solution would simply be inefficient.

But the possibility of improving the economic position of employees in a more liberal environment should not be dismissed too quickly. There is a growing awareness in western economies that employees are not going to lose if more work autonomy is allowed. One can even find the expectation that a change in that direction would benefit the firm as a whole. Compared to this optimistic

prospect it seems modest to assume that the utility level of employees would be higher, i.e. $w_0–v_0>w_1–v_1$. This, however, would not yet settle the dispute about the relative performance of the two solutions. The decisive comparison is that of the economic surplus $y–v$, because the economy with the higher surplus is superior in the sense of Pareto and is, therefore, the efficient solution. If the capitalist firm offers a higher surplus, employees could in principle be compensated for lower levels of utility by profit receivers. It is, of course, an open question if and how such a compensation could be carried out. But this would not invalidate the conclusion that a liberal solution would again lose much of its attraction if it turned out to be inefficient.

The basic suggestion of this article is, therefore, to give this solution the benefit of the doubt, as it were, and to assume that the economic surplus is maximized there:

$$y_0–v_0>y_1–v_1. \tag{8}$$

It should be clear beyond doubt right from the beginning that this is an assumption which is not cogent. It is justified by the observation that the converse inequality has not been proven, either, although it may seem more convincing at first sight, because the capitalist firm has made its way and is an established institution. But mere existence need not be a sufficient condition for efficiency. In fact, the purpose of the last section of this article is to put forward some arguments which show that a capitalist economy might indeed be stable without being efficient.

If the liberal firm is efficient, but profits are higher in the capitalist firm, it immediately follows that employee utility is higher in the liberal firm:

$$w_0–v_0>w_1–v_1. \tag{9}$$

If inequalities (7), (8) and therefore (9) cannot be ruled out right away, the capitalist firm and economy should be (or remain) serious subjects of discussion in economic theory.

Against this background, it makes proper sense to call a firm at solution d_1 a capitalist firm. Usually this term is used to express the fact that a firm is run by capital owners (or their representatives). But if capital owners should decide and act not only in their own, but also in the best interests of their employees, the notion would convey no additional economic meaning. Matters are different if profits are maximized at d_1, but the utility levels of employees at d_0. Then the choice of d_1 clearly reflects the dominant interests of capital owners.

The reason to call a firm at d_0 a liberal firm has already been explained above. It is the same reason which has caused philosophers and social scientists to speak of a liberal society when the co-ordinating institutions and activities of the state are a precondition for, but no hindrance to, individual decision-making and action. If in a liberal firm and economy the utility of labour is indeed higher than in a capitalist firm and economy, it is tempting to suppose that this must ultimately be due to some kind of 'labour management', so that one had better speak of a 'labour-

managed' or 'co-operative' or 'democratic' firm, or something like that. But labour management or enterprise democracy does not seem to be an inherent property or a necessary precondition of a firm at d_0. Without further evidence, a liberal firm can be regarded as an ordinary firm in an ordinary (liberal) market economy run by an employer (entrepreneur, management) who hires capital and labour in capital and labour markets, and who selects a co-ordinating regulation with a degree of dependence d_0, because this is his optimal solution given the constraints of the market in a liberal economy. It may be true that a liberal firm will sometimes prefer democratic procedures when a capitalist firm can rely upon authoritarian solutions. But there has been no convincing argument that this should be expected as a general rule.[22]

POSITIVE SOCIAL RETURNS OF A LIBERAL ECONOMY

As the analysis of the preceding section has shown, one cannot reject the possibility that a liberal economy might outperform a capitalist one, because liberal firms may have a higher surplus than capitalist ones. Even if this were not the case, a liberal economy may be superior, because it may generate important positive external effects. The peculiar character of work under liberal conditions can be the source of far-reaching social consequences, because the mode of working may have a considerable impact on individual capacities and attitudes which are of social importance. This view is in line with the old Marxian assertion that in the production process not only commodities but also workers themselves are produced. Their 'attitudes, capacities and beliefs are transformed'.[23] Psychological investigations have shown that one can distinguish between two different types of individuals, 'self-determined' and 'control-determined' individuals (Deci and Ryan, 1985). This distinction and the corresponding observations can be applied to employees of liberal and capitalist firms. Self-determined individuals have the capacity to choose free of pressure and control. Their environment of work defies suppression, alienation and frustration. It permits latitude in scheduling and organizing one's work and in determining the procedures in carrying it out. Employees are able to shape and arrange their work in a way which fits their needs and activities.[24] A liberal organization fosters competence, flexibility and creativity. For self-determined individuals self-determination itself is a need, and hence their rewards are (at least partly) inherent in their activity. If this is the case, work may provide satisfaction like a consumption good. It may lead not only to a lower level of disutility, but even to positive utility ($v_0<0$). If this is true, employees prefer autonomous work (at $a=a_0$) to leisure. They choose to work in this way because they like doing it. They are intrinsically motivated. Working behaviour is then performed for its own sake rather than for the purpose of getting material rewards. Employees are involved in their jobs and even hold them as an important life interest.[25]

This is in striking contrast to control-determined attitudes and behaviour. Control-

determined individuals act under external constraints (surveillance, pressure and tension, external rewards). Their activity is a means to an end rather than an end in itself. Their behaviour is instrumental, their motivation extrinsic. Labour is a source of disutility. It has to be compensated by labour income. This seems still to be a valid description of the usual work in capitalist firms.[26]

If it is true that a low degree of dependence fosters individual competence, flexibility and creativity, one should expect a higher rate of productivity. In seeming contrast, the discussion of the model of the preceding section suggested a lower level of labour productivity. However, it is important to emphasize that a diminished rate of productivity of a liberal firm would be nothing but the deliberate result of an optimizing decision. Individuals can choose to produce less than under hierarchical pressure (as in Marglin's well-known comparison of the putting-out system with the capitalist firm, Marglin 1974), even if they are more productive. It is quite conceivable that there are remarkable potential productivity gains if more autonomy at work is admitted. The recent managerial and scientific experience with autonomous work groups, which has attained considerable attention in the popular press, seems to substantiate this supposition.[27] Even if the potential productivity gains are usually not realized, the existence of considerable productivity reserves may be regarded as a welcome 'fall-back' resource, which could be activated in cases of economic need or emergency.

Moreover one should not disregard potential positive external effects on labour productivity of a liberal mode of production. It is obvious that self-determination will require a particularly high level of human capital. On the one hand, self-determined employees must be equipped with sufficient human capital to be able to perform autonomous work. A sufficiently high level of human capital is therefore a necessary condition for working in a liberal firm. On the other hand, self-determined work is itself a favourable factor in the production of new human capital and knowledge because it needs and fosters competence, inspiration and creativity. Human capital must therefore be higher in a liberal than in a capitalist economy. However, human capital produces knowledge which can be regarded as a non-rival input in the production process. The creation of new knowledge in one place raises the production possibilities in other places and thereby the general level of productivity.[28] One can therefore expect that in the long run the level of productivity would be higher in a liberal than in a capitalist economy.[29]

The specific attitudes towards work will certainly require different work incentives. In a capitalist economy, the amount and quality of labour supplied depends very much on material compensations. Labour supply is more or less elastic with respect to wages. In a liberal economy, however, labour may at least partly be supplied because of its intrinsic value, independently of material rewards. It will therefore be less elastic with respect to wages. This may reduce, for example, the deadweight losses which accompany the taxation of labour when labour supply is reduced in order to evade taxation.

In the firm itself, work incentives are of particular importance when the desired

amount and quality of labour cannot be observed or verified, and when employees have an incentive to reduce their supply. In a capitalist firm, this is a well-known serious problem. The reason is that unobservable or unverifiable deviations from the high degree of dependence (d_1) promise high individual rewards. On the contrary, deviations from the degree of dependence of a liberal firm (d_0) would increase the disutility of labour because d_0 is an optimal precondition for autonomous work. Therefore, deviations from the rules implied by d_0 can be ruled out. Problems could arise if autonomous work is reduced below the optimal value a_0. But they are certainly less severe in so far as autonomous work is satisfying, in particular if employees perceive performance at work as central to their self-confidence and self-esteem.[30]

Capitalist firms use hierarchical structures to deal with their incentive problem. It was pointed out in the first section that many economists explain the hierarchy of the firm in this way. According to the view of this article, hierarchical solutions of the incentive problem are an optimal response to hierarchical work organizations, which are themselves a major cause of the incentive problem. They are necessary to 'extract' subordinate and dependent labour which is not voluntarily offered because its disutility is very high.[31] Within the capitalist firm, work incentives are provided by a hierarchy of principals and agents, where employees act as principals in relation to their subordinates, and as agents in relation to their own supervisors. From the lowest level upwards an additional agency (efficiency) rent is offered on each level of the hierarchy, which can be secured by proper performance. As a consequence, labour supply is rationed on each level (because otherwise rents could not be maintained).

The best-known consequence of rationing in the labour market by efficiency rents ('efficiency wages') is a certain amount of equilibrium unemployment. The analysis suggests that this kind of unemployment may be far less severe in a liberal economy.

Hierarchical efficiency rents may entail further negative social effects which are absent or less important in a liberal economy. Where there are rents, there is rent-seeking and there are influence costs. A hierarchy of rents offers a career ladder on which individuals try to get as high as possible. However, on the way to and up this ladder, one has to make investments to outperform competitors because positions with higher rents are scarce and in equilibrium always less than demand (this being an efficiency condition). Investments in economic status range from the formation of human capital in the education sector to building up promising connections, etc. But not all of these investments pay off because only part of the applicants will be selected. Therefore, there is some waste of resources. This is a well-known result of the theory of rent-seeking as well as of the theory of 'positional goods' (Hirsch, 1976). The point is that investments are a necessary condition for making the race, but if everybody invests, nobody can increase his/her individual probability of getting the desired position.[32]

In addition to the waste of resources by unemployment or rent-seeking, there may also be some more indirect externalities of capitalist hierarchies. It has often

been observed that individual utilities depend not only on individualistic arguments but also on the relative position of individuals. In that case, hierarchic utility differentials generate externalities which cannot be internalized, because they are introduced to secure economic efficiency. Externalities of this kind should not be neglected when a capitalist economy is compared to a liberal economy. The conjecture is again that they are disadvantageous to the capitalist solution. This impression is confirmed by the observation that in a competition for scarce positions there are always losers. As in equilibrium supply exceeds demand, part of the competitors must be defeated (this is not the case in a market equilibrium, in which supply equals demand). Even if the rules of the game are known in advance and are not discriminating so that competition may be regarded as fair, the relationship between competitors, winners and losers may nevertheless be strained. Personal and social tensions, animosity and envy may arise and impair the social climate.

Apart from this influence, the social climate of a liberal economy may directly gain by the very nature of autonomous work itself. This conjecture is confirmed by some results of psychological research (Deci and Ryan, 1985) which registered a positive emotional tone of self-determined individuals. They tend to be more peaceful and less aggressive than control-determined individuals, who suffer from pressure and tension, who are frequently frustrated, and whose emotional tone is negative. Hence, the specific attitude of different working conditions may directly influence the behaviour towards other persons. This is once more an external effect which is not internalized within firms but has an impact on social life and climate.

Finally, one can imagine that job satisfaction influences individual preferences, in particular the preference structure with regard to private consumption and other expenditures. In a capitalist economy, preferences for private consumption may be especially pronounced, because private consumption is correctly regarded as the proper (extrinsic) reward for a high disutility of labour. But in so far as work itself creates intrinsic satisfaction, extrinsic rewards may lose their importance. Private consumption is no longer necessary as a compensating variable. It may still be an important source of individual utility, but no longer as the main objective of work. This may lead to a diminished weight of private consumption in individual utility functions. This conjecture has been confirmed by empirical investigations (Scherhorn, 1992) which show that self-determined individuals are significantly less dependent on private consumption than control-determined individuals. However, if the importance of private consumption is diminished, a greater part of total expenditures will be spent on items like gifts, donations and public goods (for instance for preserving the environment, see again Scherhorn). Therefore, a liberal economy might presumably offer better opportunities for solidarity and public concerns, i.e. for the cultivation of some neglected social (socialist?) values and virtues. Readers who feel uneasy about the individualistic approach of this theory of a liberal economy might find this an interesting starting-point for an attempt to integrate some old, but perhaps still cherished socialist ideas.

THE STABILITY OF THE CAPITALIST FIRM AND ECONOMY

It is true that up to now significant empirical evidence on liberal firms and their efficiency has been hardly available. Only occasionally are there firms which can be called liberal. There has been some experience of more liberal patterns emerging within capitalist firms. Examples are experiments with autonomous workgroups with 'flat hierarchies' or 'lean management', which have received much attention in discussions of modern organization and which are sometimes summarized by terms like 'Japanese mode of production'. They seem to satisfy the basic claim of a liberal organization in so far as employees are given individual freedom to organize their work without much interference from above. But the results are still ambiguous. There have been considerable productivity gains, but the lasting impact on individual utilities has been far less clear (see, for example, Greifenstein *et al.,* 1990; Pohjola in this volume). One should be careful, therefore, in identifying this new type of organization too quickly with a liberal mode of production. The salient difference seems to be that employees can indeed decide how to perform a given task, but the definition of the task itself remains firmly within the power of the management. Furthermore, improvements of working conditions are admitted only in so far as they are subservient to a higher productivity of labour. However, the outstanding feature of a liberal firm should be that it reduces the disutility of labour, even if this lowers the productivity of labour as well. Therefore, the new models of production should at best be understood as a first step towards liberal working conditions. The decisive step would be to abolish the productivity constraint.

Why has this decisive step hardly been observed? Are liberal firms inefficient after all? If they were more efficient than capitalist ones, shouldn't they have invaded capitalist economies and made their way in history? Apparently, efficient liberal firms should be able to enter a capitalist economy, receive higher profits than comparable capitalist firms and thereby take over the economy and transform it to a liberal one. Moreover, an existing liberal economy would be 'evolutionary' stable in the usual sense: no capitalist firm could invade the liberal environment and receive higher profits than a comparable liberal firm. On the contrary, its profits would be lower. This follows from the assumption that a liberal firm has a higher economic surplus than a capitalist one.[33]

However, there is no proof that evolution always leads to optimal solutions. On the contrary, the theory of evolution has hit upon striking examples of stable suboptimal developments. This shows that 'natural selection' (competitive forces) need not always produce the most efficient solutions.[34] If there are multiple solutions, like those of a capitalist and a liberal economy, real development may be path-dependent, i.e. the pattern which it follows may be determined by initial conditions and not by overall optimality conditions.

However, welcome as they are, the lessons of the modern theory of evolution are too abstract to be applied without further qualifications to the question why an inefficient capitalist economy can survive. Some substantial economic arguments have to be provided. An obvious suggestion would be that a successful

transformation process would presuppose the solution of a social co-ordination problem. The idea is that it would be unprofitable for a single firm to introduce work autonomy in an otherwise capitalist environment, but that this step would be profitable if it were simultaneously taken by many firms.[35] In this case, the capitalist status quo is obviously stabilized by some external effects of a liberal economy which cannot be internalized by individual firms.[36]

Indeed, as the last section has shown, the advantages of a liberal economy might consist in considerable positive externalities which are not taken into account by profit maximizing capitalist firms. If capitalist firms were more efficient than liberal firms, the social returns of a liberal economy would be neglected by private market incentives.

The answer is less straightforward if the assumption is justified that liberal firms are more efficient than capitalist firms. Then it is not the neglect but the potential influence of some external effects which may prevent the elimination of capitalist structures. Disturbing external effects may restrain capitalist firms from leaving the shelter of the prevailing capitalist market conditions. The problem is that strategic variables of the employment contract of a liberal firm (like the wage rate) can no longer simply be taken from capitalist markets but have to be determined in a bargaining process which will probably be aggravated by imperfect information and incomplete commitment.

It is obvious that in a capitalist environment, information on important variables of a liberal firm will be imperfect. There may be common uncertainty about some variables and only private (asymmetric) information about others. Under these conditions, liberal employment contracts may turn out to be inefficient as long as capitalist firms prevail. For example, the wage rate of a liberal firm should depend on the productivity and disutility of labour (like that in a capitalist firm). Labour productivity is likely to be an uncertain magnitude so that some risk is implied. Assume that this risk is born by risk neutral capital owners, who calculate with the expected value of labour productivity. (Risk averse employees are offered a fixed wage.) The expected value of labour productivity has been revealed in a capitalist economy, but it is still unknown in a liberal firm where it could only be inferred after many periods of observation. It is difficult, therefore, to make wages of a liberal firm dependent on this value. On the other hand, the disutility of labour is private information which cannot be written in an employment contract. In the capitalist market, it is revealed by labour supply. Likewise, the disutility of autonomous work could be revealed by the supply of labour to liberal firms. Problems arise, however, if this disutility is also unknown as long as there has been no experience with autonomous work. In this case, employees would have to be hired before they know the value of their job. However, when they come to know it, it remains private information. It is obvious that the costs of overcoming these informational deficiencies can surpass the potential gains of a liberal solution.

In a fully developed liberal economy, this problem would not arise. The distribution and the expected value of labour productivity would be known, because many liberal firms can be observed at the same time, and (or) because is

has been revealed by history. Moreover, labour disutility would be revealed by the competitive supply of labour on a fully developed liberal labour market. This means that there are informational externalities to a general move from a capitalist to a liberal economy which are not available to a single liberal firm in a capitalist economy.[37]

The gist of the problem just discussed was that employees cannot credibly commit themselves to reveal the true value of their disutility of labour which is private information. A similar problem arises if investments in liberal firms require long-term employment relationships because they are specific, but employment contracts cannot include binding commitments because contractual agreements on future events are incomplete or non-enforceable. It is easily conceivable that setting up a liberal firm requires investments in specific capital equipment and human capital. In a capitalist economy, 'liberal' investments of this kind will probably cause sunk costs because they cannot be used costlessly for capitalist purposes. But this means that once a liberal firm is established, capital owners as well as employees have specific assets at risk. As a consequence, each side will have some degree of monopoly power against the other. This leads to the well-known bilateral monopoly situation which has been emphasized in transaction costs economics. In such a situation, it may be very costly to come to an agreement. On the other hand, it may be impossible to avoid this situation by *ex ante* agreements if 'bounded rationality' prevails and long-term contracts are incomplete or non-enforceable. Then either side, capital owners as well as employees, may not invest in liberal firms. However, both obstacles would be removed in a fully developed liberal economy: investments would no longer be specific in the particular sense, and a competitive labour market would keep wages at a competitive level.

Obviously, this analysis makes use of the well-known conjecture that distributional considerations can prevent the choice of efficient solutions, if asymmetric information or incomplete contracts are considered.[38] Even if liberal firms offer potential gains, they may be shunned if capital owners or employees have the fear not only to be excluded from these gains but even to suffer losses. Other examples which confirm this conclusion are conceivable. But it is important to note that the obstacles to investments in liberal firms which have been discussed would have vanished in fully developed liberal economies.

The uncomfortable conclusion seems to be that in order to be successful, liberal firms need the 'protective belt' of an already established liberal economy, firstly because important information on productivity and disutility of labour will be revealed only in a fully developed liberal environment, and secondly because capital owners will only invest in liberal firms if they can draw on a competitive labour market with a sufficient number of employees skilled in performing autonomous work, since a competitive labour supply acts as a safeguard against unfavourable distributions of income.

Quite apart from problems of distribution, a developed market for labour skilled in doing autonomous work seems to be of paramount importance for the existence and survival of liberal firms. Most of the preceding analysis has tacitly assumed

that employees can alternate without costs between capitalist and liberal firms. But this assumption can certainly not be maintained. Employees of capitalist firms will usually not have the competences required to perform autonomous work efficiently.[39] Advocates of a capitalist economy would even claim that most people are unable—quasi by nature—to perform autonomous work at all. They would argue that the capitalist solution is simply an optimal response to the natural distribution of innate abilities of people. If this were true, a liberal economy would be nothing but Utopia and no serious object of research. But the mere fact that dependent work prevails cannot be accepted as a convincing proof of this claim. It ought to be challenged by the conjecture that instead of being only the mirror-image of innate abilities of men and women, the prevalence of dependent work might be just an expression of the needs and necessities of a capitalist economy. In this view, a high degree of dependence is an optimal choice from a wide range of possible values. Once this degree is chosen, capitalist firms obviously demand employees who are educated and trained in executing dependent work. Hence, it is optimal for people who seek employment to supply these particular qualifications. If these qualifications are not given by nature, they must be acquired in processes of education and training. Therefore, it is also optimal to have education and training systems which are committed to promoting and teaching qualifications of this kind. The inability of employees to perform autonomous work is then the product of educational and training processes which are strongly influenced by the requirements of the production process in capitalist firms (see Bowles, 1985:33, and the literature given there in fn. 31). A capitalist economy produces its own particular labour supply.

The lack of a sufficient supply of labour skilled in performing autonomous work seems, indeed, to be the most important obstacle to the development of a liberal economy. However, 'liberal' education, like education in general, is likely to have considerable increasing returns to scale and positive external effects. It will therefore be unprofitable for a single firm to carry out this education. Qualified labour for liberal firms and a liberal economy requires a particular, comprehensive system of education, in which high priority is given to the development of individual autonomy, self-determination and responsibility. Like in a liberal firm, the degree of dependence of students would be reduced to an optimal level which provides basic rules, regulations and guidelines as a necessary support for autonomous behaviour. Within this framework, latitude would be allowed in designing and organizing processes of learning and working.

It is obvious that the development of a 'liberal' education system of this kind would imply a major change of the usual systems of education which are more or less tailored for the purposes of the capitalist economy. Since increasing returns and external effects are involved, the state or the government would have an important role in this development. The transition to a liberal economy seems to depend much less on the readiness of individual firms than on political decisions to care for favourable social conditions (although one should not overlook the dependence of political decisions on the requirements of prevailing economic

arrangements). If one favours a liberal economy, one should, therefore, recommend a corresponding change in the education and training systems of the society, induced and supported by the state.[40]

But should one really recommend a transition to a more liberal system, when the basic hypothesis that a liberal economy is Pareto better than a capitalist economy is questionable and perhaps wrong? If the hypothesis is accepted when it is really false, the costs of the attempt to transform the economy have to be considered. The hypothesis may be wrong, either because most people are really unable to perform autonomous work, or because dependent work is a necessary condition for economic efficiency.[41] In the first case, a liberal solution does not exist. In this case, the conversion of the education system itself would turn out to be impossible. Any attempt in this direction would sooner or later be doomed to failure, and the costs of this possible failure have to be taken into account. In the second case, a liberal solution may exist, but it would not be efficient. Liberal firms would not be set up, and employees could therefore not use their autonomous powers in the process of production. On the contrary, these powers could cause frictions and frustrations in capitalist firms because employees are now less suited for highly dependent work and because they may be more reluctant to perform this kind of work.

On the other hand, if the hypothesis is rejected when it is really true, the economy remains on an inferior capitalist path and forfeits the individual and social benefits of a liberal solution which could be considerable.

However, the basic hypothesis is probably too narrow because it rests upon the assumption of identical individuals with equal preferences and abilities for different working conditions. If there are individual differences, a weaker hypothesis would result. If one assumes, e.g., that besides the 'liberal' individuals described above there are also 'capitalist' individuals for whom autonomous work is neither particularly productive nor satisfying, one can get an equilibrium with coexisting liberal and capitalist firms.[42] Then the claim would be that in market economies liberal firms should be given a chance to co-exist with capitalist firms according to the distribution of individual preferences and abilities. The rise of a liberal subsystem could then be accomplished by the gradual admission and support of more liberal methods of education, and by the promotion of the idea that autonomous work may be rewarding and liberal firms may be efficient.

NOTES

1 I would like to thank Clive Bell, Andrew Burchardt, Herbert Gintis, Joachim Grosser, Bob Rowthorn and Gerhard Scherhorn for their helpful comments and suggestions. All errors are only my responsibility.

2 There is a vast literature on this point. Recent empirical observations are to be found, for example, in Gordon, 1990, and Cressey, 1991.

3 'In fact, there has been growing criticism of purely hierarchical structures of authority in firms, not only from the left, but also mainstream analysts, consultants, and managers themselves' (Radner, 1992:1412).

4 This theory, which goes back to the early work of Coase on the nature of the firm (1937) and of Simon on the employment relationship (1951), owes much to Williamson, e.g. Williamson (1985). An excellent survey of the state of the theory is given in Milgrom and Roberts (1992), especially in Chapter 5. See also the discussion in R.Archer, this volume.

5 This explanation is usually associated with a seminal article by Alchian and Demsetz (1972), although the authors themselves reject notions like 'authority' or 'authoritarian control' to characterize the capitalist firm.

6 It is in this sense, when Radner (1992:1405) writes that 'a hierarchy of authority can be thought of as a cascade of principal-agent relationships, each supervisor acting as a principal in relation to his subordinates, and as an agent in relation to his own superior'.

7 In a team, where we have a well-defined notion of optimality, there may be several different optimal combinations of decisions. In particular, different assignments of persons to jobs may be equally good…. A co-ordinator might play the role of persuading the players to focus on a better equilibrium rather than on a worse one…. If there are several essentially different Pareto optimal equilibria, then there will be a conflict of interest among the players concerning which equilibrium should be implemented.

(Radner, 1992:1410)

8 Mintzberg (1989:101) distinguishes three ways in which work is co-ordinated: direct supervision and authority, standardization (of work processes etc.) and mutual adjustment. According to Radner (1992:1410), the first one implies hierarchy, whereas the two others suggest an equilibrium of a game.

9 The idea of the following theory was developed in Vogt (1981, 1983) and especially (1986). In Vogt (1986) the alternative firm is called 'labouristic' in contrast to 'capitalistic'. This expression is also used in the social tenet *('Soziallebre')* of the Roman Catholic church, where it conveys similar ideas. But the term is too easily associated with either 'labour-managed' or 'laborious', both of which are misleading.

10 In this respect, the following ideas differ from the main conclusions of some other articles of this volume.

11 This basic idea can also be found in a somewhat different context in Pagano (1985).

12 It should go without saying that throughout the text continuity and differentiability of all functions are taken for granted whenever needed.

13 These qualifications are elaborated more precisely in Vogt (1992). A more adequate assumption than $y(d_0, a)>y(d, a)$ around d_0 would be $y_a(d_0, a)>y_a(d, a)$ for all values of d and a. Analogous results could be obtained, but the analysis would be more complicated.

14 The second-order condition is satisfied if $y–v$ is concave around (d_0, a_0). The assumption that $y_d(d_0, a)–v_d(d0, a)=0$ for all values of a is convenient but unnecessarily restrictive. If the assumption is relaxed, one could still get a solution at a low value of d (albeit not at d_0) and with $a>0$.

15 Again the second-order condition is satisfied if $y–v$ is concave around the solution point. The assumption that there is no autonomous work is chosen to simplify the analysis. It could be relaxed without altering the general conclusions.

16 This does not invalidate the assumption that team production implies increasing returns to labour in a certain interval.

17 It is easy to verify that the introduction of n does not alter the results of the preceding section, because n can be regarded as a constant.

18 The second-order conditions are satisfied if the usual concavity conditions are assumed to hold.

19 The model may be supplemented by the addition of a capital good which is used in production along with labour. Profits are then the reward for supplying capital. The

supply of capital may be assumed to be inelastic, with the demand for its services determined by marginal productivity. If returns to labour and capital are constant, wages and profits on capital just exhaust total production.

20 It can be split into separate remunerations for dependent and autonomous work, w_d and w_a, which are determined by the respective marginal productivities:

$$wd_0=y\mathrm{d}(d_0, a_0)=v_d(d_0, a_0),\ w_{a0}=y_{a(}\mathrm{d}_0, a_0)=v_a(d_0, a_0),$$

and a flat-wage rate $\bar{w}_0$ which is a result of labour market conditions. As $y_d=v_d=0$ at $d=d_0$, the wage rate for dependent work is zero. Therefore:

$$w_0=\bar{w}_0+w_{a0}a_0.$$

21 $w=\varphi h'$ and $\sigma=\varphi(h-h'\ n)$

Wages can again be split into remunerations for dependent and autonomous work and a flat-wage rate. The respective values are given by

$$w_{d1}=y_d(d_1, 0)=v_d(d_1, 0),$$

$$y_a(d_1, 0)<w_{a1}<v_a(d_1, 0)$$

and

$$w_1=\bar{w}_1+w_{d1}d_1.$$

22 Suggestions for conditions of an efficient labour-management, as in Barzeley and Thomas (1986), are therefore not pertinent to the discussion of liberal firms.

23 Bowles, 1985:19, see also p. 32. Bowles is one of the very few economists who have firmly stuck to this important idea.

24 The optimal degree of dependence does not rule out authority and hierarchy within the firm. But these types of structures are different from those of capitalist firms, and it is this distinction which matters (cf Green, 1988:308).

25 See, for example, Klages, 1989. A short remark that labour may be considered as a good is found in Putterman, 1983:159.

26 In an empirical study on work motivation in Germany, Miegel (1988) came to the conclusion that the vast majority of employees still regards work only as a necessary evil, as a 'second life' which has to be accepted as a necessary condition for the 'first', the proper life. The usual explanation of labour supply in economic textbooks confirms this impression.

27 The economic effect of worker participation on productivity is a frequently debated but still unsettled question. Empirical results are often ambiguous. See, for example, Jones and Pliskin (1991), Pinder (1984:101), Steers and Porter (1975: Ch. 7). The distinction between potential and actual rates of productivity may perhaps contribute to clarifying the dispute about the impact of work autonomy on labour productivity.

28 This is an important proposition of modern growth theory, see for example Romer (1986) and Lucas (1988).

29 At the risk of drifting towards too much speculation, one may consider additional social benefits of high human capital. A high level of human capital may perhaps also raise 'social productivity', because it may have a positive impact on the social and perhaps even moral competence of people. Some well-established psychological development theories (Piaget, 1965; Kohlberg, 1976) lend support to this view.

30 There is either an optimal fallback position $a^*<a_0$, which the firm accepts and anticipates in its wage schedule, or a solution with $a>a^*$ which can be achieved by relatively weak incentives.

31 Bowles and Gintis (1988, 1990, and again in this volume) have introduced and used the term 'contested exchange' to qualify the relationship between employer and employee in a capitalist firm.

32 The corresponding game can be formulated as a prisoner's dilemma with an inefficient Nash-equilibrium. There are numerous examples of wasteful competition for scarce positions. Particularly striking examples are discussed by Frank (e.g., Frank, 1985, especially Chapter 7).

33 In a capitalist economy, a liberal firm (L) would have to offer its employees the same utility level as a capitalist firm, $w_L - v_L = w_1 - v_1$. However, if its surplus is higher, $y_L - v_L > y_1 - v_1$, it immediately follows that its profits are higher, $y_L - w_L > y_1 - w_1$. In a liberal economy, a capitalist firm (K) would have to offer $w_K - v_K = w_0 - v_0$. If its surplus is lower, $y_K - v_K < y_0 - v_0$, its profits are also lower: $y_K - w_K < y_0 - w_0$. The precise conditions are given in Vogt (1992).

34 This is confirmed by quite different approaches, like Sugden (1986, 1989) or Nelson and Winter (1982). A summary of some important arguments is given in Hodgson (in this volume).

35 Similar co-ordination problems have recently been investigated, for example, by Murphy *et al.* (1989) and by de Meza and Gould (1992).

36 This seems also to be the ultimate reason for the stability of a capitalist equilibrium in spite of the assumed existence of efficient labour-managed or democratic firms in some papers by U.Pagano. See Pagano (1991a, 1991b), and Pagano and Rowthorn (in this volume, chapter 7).

37 It has sometimes been argued that in non-capitalist firms important economic variables, like productivity levels or risk levels of investment, cannot be observed by capital owners, and that this could be an important obstacle to the supply of capital (see, for example, Eswaran and Kotwal, 1989, and Gintis, 1989). One can question the empirical validity of these assumptions, because it usually seems possible to get some impression of the performance of firms (whereas levels of utility, on which the above argument rests, are unobservable in principle). But as far as liberal firms are concerned, there is a more important objection. Unlike labour-managed firms, for which the analysis may be partially valid, liberal firms are run by entrepreneurs or managers who can offer capital investors the same kind of information as in capitalist firms.

38 G.Dow (1993) has shown in a formal model that incomplete contracts may stabilize a capitalist firm even if a labour-managed firm were more efficient. Similar ideas are developed in Skillman (1991).

39 For similar arguments, see Heller, 1991:265.

40 There may be some endogenous forces in support of this development. In capitalist economies, a growing tendency to higher education can be observed, on the one hand because modern production techniques require better educated employees, and on the other hand because people prefer higher education. As they become more highly educated, their capacities (and also their preferences) for autonomous work may be increased. This tendency could be used by the state to change the structure of the education system in a way which favours the development of a more liberal society and economy.

41 Arguments for either case are presented and discussed in McCarthy, 1989.

42 In this equilibrium, profits are equalized by an optimal allocation of a given number of firms or a given amount of capital. There is, indeed, some preliminary empirical evidence for the possible co-existence of capitalist and more liberal firms, see Beyer *et al.* (1993).

REFERENCES

Alchian, A.A. and Demsetz, H., 'Production, Information Costs, and Economic Organization', *American Economic Review,* Dec. 1972, 777–795.

Archer, R., 'The Philosophical Case For Economic Democracy', in this volume.
Barzeley, M. and Thomas, L.R., 'Is Capitalism Necessary? A Critique of the Neoclassical Economics of Organization', *Journal of Economic Behavior and Organization,* Sept. 1986, 225–233.
Beyer, H., Fehr, U. and Nutzinger, H.G., 'Unternehmenskultur zwischen Partnerschaft und Mitbestimmung' ('Corporate culture between partnership and co-determination'), unpublished research memorandum, University of Kassel, 1993.
Bowles, S., 'The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models', *American Economic Review,* March 1985, 16–36.
Bowles, S. and Gintis, H., 'Contested Exchange: Political Economy and Modern Economic Theory', *American Economic Review,* May 1988, 145–150.
—— 'Contested Exchange: New Microfoundations for the Political Economy of Capitalism', *Politics and Society,* 1990, 165–222.
—— 'The Distribution of Wealth and the Viability of the Democratic Firm,' in this volume.
Coase, R.H., 'The Nature of the Firm, "Economica"', Nov. 1937, 386–405. Reprinted in G.J.Stigler and K.E.Boulding (eds), *Readings in Price Theory,* Homewood, Ill., Irwin, 1952.
Cressey, P., 'Trends in Employee Participation and New Technology', in R.Russell and V. Rus, 1991, 9–27.
Deci, E.L. and Ryan, R.M., *Intrinsic Motivation and Self-Determination in Human Behavior,* New York—London, Plenum Press, 1985.
de Meza, D. and Gould, J.R., 'The Social Efficiency of Private Decisions to Enforce Property Rights', *Journal of Political Economy,* June 1992, 561–580.
Dow, G.K., 'Why Capital Hires Labor: A Bargaining Perspective', *American Economic Review,* March 1993, 118–134.
Eswaran, M. and Kotwal, A., 'Why Are Capitalists the Bosses?', *Economic Journal,* March 1989, 162–176.
Frank, R.H., *Choosing the Right Pond,* Oxford, Oxford University Press, 1985.
Gintis, H., 'Financial Markets and the Political Structure of the Enterprise', *Journal of Economic Behavior and Organization,* May 1989, 311–322.
Gordon, D.M., 'Who Bosses Whom? The Intensity of Supervision and the Discipline of Labor', *American Economic Review,* May 1990, 28–32.
Green, F., 'Neoclassical and Marxian Concepts of Production', *Cambridge Journal of Economics,* Sept. 1988, 299–312.
Greifenstein, R., Jansen, P. and Kissler, L., 'Partizipationskompetenz und technisch organisatorische Innovation. Ergebnisse dreier Fallstudien' ('Participation competence and technological and organizational innovation. Results of three case studies'), in Kissler, L. (ed.), *Partizipation und Kompetenz. Beiträge aus der empirischen Forschung,* Westdeutscher Verlag, 1990, 15–54.
Heller, R., 'Participation and Competence: A Necessary Relationship', in R.Russell and V. Rus, 1991, 265–281.
Hirsch, F., *Social Limits to Growth,* Cambridge (Mass.), Harvard, 1976.
Hodgson, G.M., 'Organizational Form and Economic Evolution: A Critique of the Williamsonian Hypothesis', in this volume.
Jones, D.C. and Pliskin, J., 'The Effects of Worker Participation, Employee Ownership, and Profit-Sharing on Economic Performance: A Partial View', in R.Russell and V.Rus, 1991, 43–63.
Klages, H., 'Arbeit—das erste Lebensbedürfnis?' ('Work—the most essential need of life?'), in H.Scherf (ed.) *Beschäftigungsprobleme hochentwickelter Volkswirtschaften,* (Berlin), 1989, 503–518.
Kohlberg, L., 'Moral Stages and Moralization: The Cognitive Development Approach', in T.Lickona (ed.), *Moral Development and Behavior: Theory, Research, and Social Issues,* New York, Holt, Rinehart and Winston, 1976, 195–261.

Lammers, C.J. and Szell, G. (eds), *Organizational Democracy: Taking Stock, International Handbook of Participation in Organizations for the Study of Organizational Democracy, Co-operation, and Self-Management,* Vol. I, Oxford, Oxford University Press, 1989.

Lucas, R.E., 'On the Mechanics of Economic Development', *Journal of Monetary Economics,* July 1988, 3–42.

McCarthy, S., 'The Dilemma of Non-participation', in C.J.Lammers and G.Szell (eds), 1989, 115–129.

Marglin, S., 'What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production', *Review of Radical Political Economics,* Summer 1974, 60–112.

Miegel, M., 'Die Arbeitsmotivation von Arbeitern und Angestellten der deutschen Wirtschaft—Ergebnisse einer neuen Umfrage' ('Work motivation of German employees—results of a new investigation'), *Institut für Wirtschaft und Gesellschaft,* Bonn, Arbeitsmotivation und Führung, 1988.

Milgrom, P. and Roberts, J., *Economics, Organization and Management,* Englewood Cliffs, NJ, Prentice-Hall, 1992.

Mintzberg, H., *Mintzberg on Management,* New York, Free Press, 1989.

Murphy, K.M., Shleifer, A. and Vishny, R.W., 'Industrialization and the Big Push', *Journal of Political Economy,* Oct. 1989, 1003–1026.

Nelson, R. and Winter, S., *An Evolutionary Theory of Economic Change,* Cambridge, MA Harvard University Press, 1982.

Pagano, U., *Work and Welfare in Economic Theory,* Oxford, Blackwell, 1985.

—— 'Property Rights, Asset Specificity, and the Division of Labour under Alternative Capitalist Relations', *Cambridge Journal of Economics,* Sept. 1991 (1991a), 315–342.

—— 'Property Rights Equilibria and Institutional Stability', in J.Backhaus (ed.), *Systemwandel und Reform in östlichen Wirtschaften,* Metropolis, Marburg 1991 (1991b), 185–224.

Pagano, U. and Rowthorn, R., 'The Competitive Selection of Democratic Firms in a World of Self-Sustaining Institutions', in this volume.

Piaget, J., *The Moral Judgement of the Child,* New York, Free Press, 1965.

Pinder, C.C., *Work Motivation. Theory, Issues, and Applications,* Glenview, Ill., Scott, Foresman and Co., 1984.

Pohjola, M., 'Flexibility, Power and Wage Bargaining', in this volume.

Putterman, L., 'Incentives and the Kibutz: Toward an Economics of Communal Work Motivation', *Journal of Economics,* 1983, No. 2, 157–188.

Radner, R., 'Hierarchy: The Economics of Managing', *Journal of Economic Literature,* Sept. 1992, 1382–1415.

Romer, P.M., 'Increasing Returns and Long-Run Growth', *Journal of Political Economy,* 1986, 1002–1037.

Russell, R. and Rus, V., (eds), *Ownership and Participation, International Handbook of Participation in Organizations for the Study of Organizational Democracy, Co-operation, and Self-Management,* Vol. II, Oxford, Oxford University Press, 1991.

Scherhorn, G., 'Consumer's Concern About the Environment and its Impact on Business', Revised version of a paper presented at the Seminar on 'Ecologia, Relaciones Industriales y Empresa' in Madrid, Nov. 25–27, 1992.

Simon, H.A., 'A Formal Theory of the Employment Relationship', *Econometrica,* July 1951, 293–305.

Skillman, E.L., 'Efficiency vs. Control: A Strategic Bargaining Analysis of Capitalist Production', *Review of Radical Political Economics,* 1991, 12–21.

Steers, R.M. and Porter, L.W., *Motivation and Work Behavior,* New York, McGraw-Hill, 1975.

Sugden, R., *The Economics of Rights, Co-operation and Welfare,* Oxford, 1986.

—— 'Spontaneous Order', *Journal of Economic Perspectives,* Fall 1989, 85–97.

Vogt, W., 'Kapitalistisches Gleichgewicht und ökonomische Ungleichgewichte' ('Capitalist equilibrium and economic disequilibria'), *IHS-Journal*, 1981, 223 ff.

—— 'Eine Theorie des kapitalistischen Gleichgewichts' ('A theory of the capitalist equilibrium'), *Ökonomie und Gesellschaft,* 1983, 161–208.

—— *Theorie der kapitalistischen und einer laboristischen Ökonomie (Theory of a capitalistic and a labouristic economy),* Frankfurt, 1986.

—— 'Capitalist versus Liberal Firm and Economy. Outline of a Theory', discussion paper 249, University of Regensburg, June 1992.

Williamson, O., *The Economic Institutions of Capitalism: Firm, Markets, Relational Contracting,* New York, Free Press, 1985.

4

IS THE DEMAND FOR WORKPLACE DEMOCRACY REDUNDANT IN A LIBERAL ECONOMY?

Samuel Bowles and *Herbert Gintis**

INTRODUCTION

Its advocates have seen enterprise democracy as a means of giving people greater control over their working lives and thereby fostering personal autonomy and a democratic culture. Its detractors, however, have claimed that the project of democratizing the workplace is redundant given that worker autonomy is already secured by the competitive structure of labour markets and the liberal democratic structure of the state. The underlying reasoning is that where markets are competitive, according to David Gauthier,[1]

> the operation of the market cannot in itself raise any evaluative issues.... The presumption of free activity ensures that no one is subject to any form of compulsion or to any type of limitation not already affecting her own actions as a solitary individual.

We will show why this reasoning is false in the case of the labour market, and consider reasons why, from the standpoint of democratic theory, everyone should have the opportunity to work in a firm democratically controlled by its workers. Our primary claim concerns *democratic values:* because the employment relationship involves an exercise of power, arguments conventionally deployed to justify the democratic state apply (with varying degrees of force) to firms as well.

This claim is far from obvious. Is Gauthier not correct? If labour is transferred to an employer through an exchange in a competitive market in which workers may offer their services to a wide range of prospective employers, how can the employment relationship involve the exercise of power? The fact that the worker must secure work from *some* employer in order to secure a livelihood is not

* We have benefited from comments and criticisms from Pranab Bardhan, John Roemer, Bob Rowthorn, Philippe Van Parijs, and Winfried Vogt and from participants at a meeting of the Project on Enterprise Democracy, sponsored by the World Institute for Development Economics Research, held in Cambridge, England, January 1993.

sufficient to establish the power of the employer over the worker; we do not, for example, claim that grocers have power over consumers because we must make a transaction with *some* grocer in order to eat.

THE DEMOCRATIC FIRM: AN OVERVIEW OF THE ISSUES

A democratic firm is one that (a) has a constitution guaranteeing fair elections for the leading managerial positions, subject to the protection of minority rights, freedom of speech, information, and political activity, plus whatever additional conditions are required to facilitate substantive democratic decision-making among the worker members; (b) extends equal rights of political participation to new worker members within a reasonable period following their admission to the firm; (c) follows due process and equal treatment in hiring, dismissal, and promotion. This democratic political structure of the firm guarantees that sovereignty lies in the polity of worker members; but does not determine the firm's administrative structure or the specific distribution of property rights that it supports. Nor should it, for to determine these two aspects of the firm by fiat would be to arbitrarily limit the agenda of choices facing the polity of worker members. Thus the democratic firm need not be participatory; its members might choose to adopt a hierarchical administrative structure with its leadership subject to no democratic accountability other than the prospect of electoral defeat and replacement. The democratic firm, moreover need not be worker owned, although we will show that workers would rationally require a substantial ownership of the firm's assets by those who work there.

Critics of the democratic firm have objected that where competitive labour markets afford opportunities for exit and where liberal democratic states offer the possibility of regulation of firms, workplace democracy is at best redundant, and possibly an infringement on individual liberty if participation in such firms is made mandatory. Richard Arneson's careful and nuanced assessment is this:[2]

> Rights of democratic citizenship in the nation are needed to safeguard people's fundamental interests since political decisions will affect their lives powerfully and continuously in ways that they cannot avoid save by the drastic measure of moving to another land. In contrast, the freedom of the individual on a modern labor market willy-nilly confers on each person a considerable degree of control in the form of exit rights. …One can generally escape the reach of…unwanted policies by quitting one's job and taking another.

While the traditional neo-classical model of the labour market, as we will see, lends this critique considerable force, some often closely-related critiques seem uncompelling on any grounds. Again Arneson (1993:139):

> What remains of the argument from democracy once we imagine reforming property arrangements in an egalitarian mode? …In principle we can correct for the distributive inequality produced by capitalist markets without instituting workers' control. Once the distributive issue and the democratic issue are separated, the idea of enforcing democratic work arrangements even on those who would not voluntarily choose them…may command very little support.

True and no doubt worth saying, but to argue against mandatory workplace democracy is to critique a straw man and to elide the fundamental issue, which concerns whether policies promoting workplace democracies are justified in the interest of giving workers the opportunity to participate in these forms of governance.

When we turn from mandating workplace democracy to the more interesting question of promoting democratic firms through subsidies we arrive at the second major objection: inefficiency.[3] The argument made by Arneson and others to the effect that promoting workplace democracies would place an unfair burden on those preferring other forms of economic governance presumes that making democratic firms competitively viable would require policies which reduce the efficiency of the economic system as a whole.

This position receives considerable support from economic models of the democratic firm which have almost without exception demonstrated its economic irrationality in handling basic resource allocation questions. Ward (1958), Domar (1966), and Vanek (1970) modelled the worker-controlled firm as maximizing net revenue per worker rather than profits, and proved that such firms would hire too few workers and would respond perversely to price changes, decreasing output when prices increase and vice versa. Meade (1972) showed that equally inefficient results follow if the democratic firm is prohibited from adjusting its employment in response to economic conditions. Furubotn and Pejovich (1974), and later Jensen and Meckling (1979), showed that if workers have no ownership rights to the capital stock when they leave the democratic firm, such firms will systematically underinvest. Thus the economic models suggest that economic inefficiencies will prevent democratic firms from being viable in a competitive economy in the absence of subsidies, mandatory participation or some other intervention.

These pessimistic assessments of the democratic firm are not confirmed by the empirical evidence, although interpretation of the data is difficult given that few firms studied meet our definition of a democratic firm. David Levine and Laura Tyson (1990) surveyed 14 studies of worker co-operatives and found positive effects on productivity in 13 of them, with no negative effects in any. Weitzman and Kruse (1990) surveyed six econometric studies of the effects of profit-sharing on productivity and found that of the total of 226 estimated regression coefficients for variables measuring profit-sharing 94 per cent were positive and 60 per cent were twice or more than their standard errors, while no negative coefficient estimates were statistically significant by this standard.[4]

A striking finding in the literature, noted by these two surveys as well as that by Conte and Svejnar (1990), is that the positive productivity effects of participatory decision-making depend greatly on the distribution of property rights in the firm, with residual claimancy by workers strongly contributing to the positive productivity contribution of participation. Conte and Svejnar (1990:7) conclude: 'it seems clear that participate institutions within firms lead to heightened performance levels when combined with employee ownership'. The complementary of worker participation in decision-making and worker ownership is likewise stressed by Levine and Tyson, referring to firms with employee stock ownership plans (ESOPs):

> ESOP firms that give employees additional opportunities for participation in decision-making are significantly more likely to outperform conventionally owned firms than ESOP firms that fail to offer such opportunities. Furthermore of the various forms of participation, those that reach closest to the shop floor have the largest productivity effects, while stock voting rights or employee representation on company boards of directors have insignificant productivity effects.
>
> (p. 20)

In some cases the productivity effects of combined ownership and participatory decision making are quite large. The US General Accounting Office (GAO) found that ESOP firms in which non-managerial employees participate in company decisions have a 52 per cent more rapid rate of productivity growth than ESOP firms in which they do not.[5] Cable and Fitzroy (1980) measured the degree of participation in a group of West German firms, ranging from purely advisory to substantive and found that labour productivity was 15 per cent higher in the firms with high participation rather than low. Ben-Ner and Estrin (1988) found that union-owned and managed firms in Israel were 43 per cent more efficient (in terms of output per total factor input) than privately-owned and managed firms. Estimated effects on worker satisfaction are uniformly positive, and appear to be more dramatic than the effects on productivity.

These productivity and worker satisfaction effects of workplace democracy may explain the relative success of democratic firms, at least since the 1950s. Comparative studies of the formation and extinction of democratic and capitalist firms in France and the United Kingdom indicate a substantial excess of births over deaths for the democratic but not for the capitalist firms.[6] Though comparative data are not available for capitalist firms in the Netherlands and Italy, birth-rates exceed death-rates for democratic firms by a wide margin in those countries as well. Only in Sweden is the extinction rate of democratic firms in excess of the birth-rate. A study of 0.4 million capitalist firms born in the UK between 1974 and 1982 and 1,526 democratic firms born between 1974 and 1986 found that the probability of extinction was considerably lower for the democratic firms in every year of the life of the firm. In years 1–8, the democratic firms experienced less than half the probability of extinction than the capitalist firms.

While the empirical evidence thus casts some doubt on the purported inefficiencies of the democratic firm, the inference that they are not competitively viable other than in exceptional circumstances may none the less be true. In no country do democratic firms employ more than a tiny fraction of the work-force. But if we are correct the competitive disabilities of the democratic firm derive more from competitive market failures—especially the inability of worker-owned firms to borrow funds on terms equivalent to their capitalist competitors—than from any endemic inefficiency of this form of governance.

The theoretical literature on democratic firms has suffered from serious methodological lacunae, treating the capitalist firm as embedded in an environment free from market failure, and the democratic firm as embedded in an environment of contrived restrictions leading to systematic inefficiencies. The most common disability conventionally imposed on the co-operative form of governance in this literature is the prohibition of individual ownership of shares of the democratic firm. Dow (1986, 1992), Drèze (1976, 1989) and others have pointed out that where market failures are absent and both forms are equally unrestricted, the two institutional forms are indistinguishable in their behaviour. Indeed this result vindicates Paul Samuelson's (1957) provocative remark that in 'a perfectly competitive model it really does not matter who hires whom…', since an economy of workers renting machines is indistinguishable from an economy of capitalists owning machines and hiring workers.

Our approach differs from the conventional literature in that it addresses problems of motivation, incentives, discipline, malfeasance and opportunism. Surprisingly, these issues are absent in most theoretical treatments by economists despite their centrality to the evaluation of governance structures and property rights.[7] More technically, our approach focuses on agency problems arising from the asymmetric nature of information concerning work effort and risk-taking. An agency problem exists when a principal *A* cannot costlessly observe the behaviour of an agent *B,* but would like *B* to take some action that *B* would otherwise not undertake.

In addition to realism, our focus on agency problems enjoys advantages unavailable to approaches that abstract from these issues. Most importantly, attention to the so-called labour discipline problem permits a precise definition of the concept of the 'power' of employers over workers in a competitive capitalist economy. This concept of power in turn motivates our claim that workplace democracy is not redundant in a competitive economy and that there are democratic grounds for the governance of firms by their workers.

Our concept of power is as follows: *A* has power over B if, by imposing or threatening to impose sanctions on *B, A* is capable of affecting *B's* actions in ways that further *A's* interests, while *B* lacks this capacity with respect to *A*.[8] Thus the advantageous and asymmetric exercise of sanctions is a sufficient condition for the existence of a power relationship. It should be noted that *A's* exercise of power need not be disadvantageous to *B;* the exercise of power may be Pareto-improving. Nor is power equivalent to the capacity to secure advantage; in the standard

textbook model of competitive markets both parties to an exchange gain by comparison to the counterfactual of no exchange, but neither has power as the equilibrium transaction leaves them both indifferent between the current exchange and their next best alternative, the result being that neither can sanction the other by terminating the contract. As we will see presently, where incomplete labour contracts give rise to incentive problems concerning labour discipline, however, the labour market does not generally clear in equilibrium, and as a result the employer has power in the sense defined. We use this concept of power to advance specifically democratic criteria for the evaluation of the organization of the firm.

THE EMPLOYMENT RELATIONSHIP AS A CONTESTED EXCHANGE

The classical theory of contract implicit in most of neo-classical economics holds that the enforcement of claims is performed by the judicial system at negligible cost to the exchanging parties. We refer to this classical third-party enforcement assumption as *exogenous enforcement*. Where, by contrast, enforcement of claims arising from an exchange by third parties is infeasible or excessively costly, the exchanging agents must themselves seek to enforce their claims. Endogenous enforcement in labour markets was analysed by Marx—he termed it the extraction of labour from labour power—and has recently become the more or less standard model among microeconomic theorists.[9]

Exogenous enforcement is absent under a variety of quite common conditions: when there is no relevant third party (as when *A* and *B* are sovereign states), when the contested attribute can be measured only imperfectly or at considerable cost (work effort, for example, or the degree of risk assumed by a firm's management), when the relevant evidence is not admissible in a court of law (such as an agent's eyewitness but unsubstantiated experience) when there is no possible means of redress (e.g., when the liable party is bankrupt), or when the nature of the contingencies concerning future states of the world relevant to the exchange precludes writing a fully specified contract.

In such cases the *ex post* terms of exchange are determined by the structure of the interaction between *A* and *B,* and in particular on the strategies A is able to adopt to induce *B* to provide the desired level of the contested attribute, and the counter strategies available to *B*. As endogenous enforcement is ubiquitous in labour markets, credit markets, and even some goods markets, we consider it to be a fundamental aspect of the capitalist economy. In the presence of *endogenous enforcement,* exchange is a strategic, non-anonymous relationship, in the sense that the terms of exchange depend on the power of the exchanging parties to enforce favourable outcomes, and are continually subject to *de facto* respecification (Bowles and Gintis, 1993b).

Consider agent *A* who purchases a good or service from agent *B*. We call the exchange *contested* when *B's* good or service possesses an attribute which is valuable to *A,* is costly for *B* to provide, yet is not fully specified in an enforceable

contract. Exogenous enforcement is absent when there is no relevant third-party enforcer (as when *A* and *B* are sovereign states), when the contested attribute can be measured only imperfectly or at considerable cost (work effort, for example, or the degree of risk assumed by a firm's management), when the relevant evidence is not admissible in a court of law (such as an agent's eyewitness but unsubstantiated experience), when there is no possible means of redress (e.g., when the liable party is bankrupt), or when the number of contingencies concerning future states of the world relevant to the exchange preclude writing a fully specified contract.

In such cases the *ex post* terms of exchange are determined by the monitoring and sanctioning mechanisms instituted by *A* to induce *B* to provide the desired level of the contested attribute. The employment relationship is an archetypal form of contested exchange.

An employment relationship is established when, in return for a wage, the worker *B* agrees to submit to the authority of the employer *A* for a specified period of time in return for a wage *w*. While the employer's promise to pay the wage is legally enforceable, the worker's promise to bestow an adequate level of effort and care upon the tasks assigned, even if offered, is not. Work is subjectively costly for the worker to provide, valuable to the employer, and costly to measure. The manager-worker relationship thus is a contested exchange. The endogenous enforcement mechanisms of the enterprise, not the state, are responsible for ensuring the delivery of any particular level of labour services per hour of labour time supplied.[10]

Faced with the problem of labour discipline the employer may adopt the strategy of contingent renewal, that is, promise to renew the contract of the employee if satisfied with her or his level of work, and to dismiss the worker otherwise. In order to be effective such a strategy requires two things: the employer must adopt a system of monitoring to determine with some degree of accuracy the work effort levels of the employees, and must be able to deploy a costly sanction against those whose effort levels are found wanting.

The imposition of a costly sanction requires that the worker be paid a wage sufficiently high that he or she would prefer to retain the job, given the alternatives available (unemployment insurance and job search followed by a new job, for example). For any given wage, the worker will determine how hard to work by trading off the marginal disutility of additional effort against the effect that additional effort has on the probability of retaining the job and thus continuing to receive the employment rent. As a result of this employer wage-setting strategy, in competitive equilibrium the expected well-being (measured in income or utility or some other metric) of the employed worker must exceed that of the worker without the job. The difference between the two is termed an employment rent; it must be positive for a contingent renewal strategy to be effective, otherwise the sanctions are without force.

The employer will determine the optimal wage by trading off the cost of increasing the wage against the additional work effort which the employment rent elicits from workers, or perhaps the reduced monitoring costs which a higher wage allows.

Where employers adopt contingent renewal strategies two results will follow. First, the workers will work harder than they would have in the absence of the treat of the sanction. And second, workers without jobs would prefer to have them, but cannot obtain them by promising to work as hard as the currently employed for lower wages (the promise is not believable). The first result indicates that *A's* enforcement strategy is effective. The second indicates that the labour market does not clear in competitive equilibrium: workers holding jobs are not indifferent to losing them, since there are identical workers either involuntarily unemployed, or employed in less desirable positions.

SHORT SIDE POWER

The analysis of the labour market as a contested exchange motivates our claim that in a capitalist economy the employment relationship gives the employer power over the worker, that on democratic grounds this power should be accountable to those over whom it is wielded, and that a workplace democracy is one means of securing a greater degree of this democratic accountability.

We begin by asking: does the employer indeed have power over the worker? In a neo-classical competitive equilibrium, no sanctions may be imposed through the private actions of non-colluding agents, and hence there is no power in our sense of the term, accountable or otherwise. Prices in this model implement each agent's constrained optimum and simultaneously eliminate excess supply or demand in all markets, thus resulting in clearing markets. In competitive equilibrium, if *A* and *B* exchange, *B's* gain exactly equals the gain she would have obtained had she chosen her next-best alternative. For if this were not the case, if for example *B's* gain exceeded her next-best alternative, there would be some third person *C* currently receiving the same (lower) value as *B's* next-best alternative, and who would benefit from occupying *B's* current position. *C* could thus have offered *A* a contract superior to that offered by *B,* blocking *B's* exchange with *A*. Since this did not occur, no such *C* exists, and *B's* next best alternative must be at least as valuable as the exchange with *A*.

On the other hand, *B's* next-best alternative cannot have greater value, or *B* would not have entered into the current contract with *A*. We conclude that *B's* gain from trading with *A* exactly equals the gain from *B's* next-best alternative, so *A's* threat of non-renewal of contract with *B* forcing *B* to her next-best alternative imposes no costs on *B,* and hence gives *A* no power over *B*. For analogous reasons *B* has no power over *A*.

In the neo-classical model, it follows, the locus of ultimate decision-making sovereignty within the enterprise—that is, its political structure—has no effect in competitive equilibrium, and hence is irrelevant. The neo-classical model thus concludes that the conversion of a firm from capitalist to democratic rule is without consequence. This model is based, however, on the dubious assumption that claims are enforceable at zero cost to the exchanging parties. In contested exchanges characterized by endogenous enforcement, by contrast, equilibria are characterized by a well-defined distribution of power.

Consider our model of the employment relationship: does *A* (the employer) have power over *B* (the worker)? *A* may dismiss *B,* reducing *B's* welfare to the reservation position. Hence *A* can apply sanctions to *B*. Further, *A* can use sanctions to elicit a preferred level of effort from *B,* and thus to further *A's* interests. Finally, while *B* may be capable of applying sanctions to *A* (e.g., *B* may be capable of burning down *A's* factory), *B* cannot use this capacity to induce *A* to choose a different wage, or to refrain from dismissing *B* should *A* desire to do so. Should *B* threaten to apply sanctions unless *A* offers a higher wage, *A* would simply reject the offer and hire another worker. For as we have seen in the previous section, in equilibrium there will exist unemployed workers identical to *B* who would prefer to be employed.[11]

The point is not that a worker cannot impose a cost or otherwise harm the employer. This she clearly can do, especially if she has acquired skills on the job at the employer's expense. The worker can simply quit. Our point, rather, is that it is not generally in the interest of the worker to impose these costs on the employer because in order to do so the worker's own welfare will be reduced. Hence any threat to do so is not credible, and will be ignored by the employer, thus having no effect on the outcome of their exchange. Because *A's* threats are thus credible and *B's* are not, *A* has power over *B*.[12]

This power is based on *A's* favourable location in a non-clearing market, that is, a market in which excess demand or excess supply exists. We say that the employer *A,* who can purchase any desired amount of labour and hence is not quantity constrained, is on the *short side* of the market. Where excess supply exists, as in the labour market, the demand side is the short side, and conversely.[13] Suppliers of labour are on the *long side* of the market; some of them cannot sell all the labour time they would like to at the going wage (or perhaps they can sell none at all).

When contingent renewal enforcement strategies are common, as in the labour market, the principle of *short side power* holds: those on the short side of the market have power over agents on the long side with whom they transact. Long-side agents are of two types: those such as *B* who succeed in finding an employer and receive a rent that constrains them to accept the employer's authority, and those such as *C* who fail to make a transaction and hence are rationed out of the market.[14]

Two objections to our interpretation may be raised. First, it might appear that *A* has expressed a preference for power and has simply traded away some income, the enforcement rent, to gain power. But this is false: *A* is assumed to be indifferent to the nature of the authority relationship *per se* and is simply maximizing profits.

Second, it may be argued that *B* has power over *A,* if not in our formal sense, then in the sense that *B* has the capacity to induce *A* to offer an enforcement rent over and above the amount needed to induce *B* to enter into the transaction. But the fact that *B* receives a rent, while certainly conferring a distributional advantage to *B* as compared to a no-rent alternative, does not involve 'power' in the sense of a capacity that can be strategically deployed towards furthering one's interests. The benefit which *B* derives from the exchange is simply that which maximizes *A's* profits, and in no way derives from any strategic intervention by *B*. To see this,

recall that *A's* option to dismiss *B* is a credible threat, while *B* can issue no credible threat. Rather than attributing the fact that *B* receives a wage in excess of the reservation wage to '*B's* power over *A*', we might better say that the enforcement rent derives from *B's* autonomy; that is from the inability of *A* costlessly to dictate *B's* level of effort.

IS EMPLOYMENT ANALOGOUS TO CITIZENSHIP?

The conclusion that the employer *A* does indeed have power over the worker *B* is insufficient, however, to justify our claim that *A* should be democratically accountable to *B* and the other members of the team of workers. Two objections may be raised. First, it is not obvious why the exercise of unaccountable power ought to be rectified, and second, even if it is shown that the exercise of unaccountable power is undesirable on some grounds, *A's* power over *B* might better be addressed by some means other than workplace democracy.

Our response to the first objection will be to give reasons why the short side power of employers over workers is in relevant respects analogous to the power of states over citizens. On this basis we will claim that any compelling argument for democratic governance of the state entails the desirability of democratic governance of firms as well; and that arguments which deny the legitimacy of democratic governance of firms equally oppose democratic governance of the state.

Is the exercise of power by employers over employees similar to the exercise of state power over citizens in ways sufficient to substantiate our claim? A modern restatement of the classical argument for democracy as a defence against the arbitrary exercise of power is this: when decisions of major importance (perhaps including matters of life and death) are binding on parties not directly involved in the decision-making, the decision-makers should be accountable to those directly affected.[15] There can be little doubt that employers make important, even life and death, decisions affecting workers. But are the decisions binding? If the loss of one's job inflicts substantial costs on a worker, as it often does as it entails financial distress, loss of medical insurance, disruption of one's family, having to relocate and the like, the employer's decisions must be taken as binding on the worker in the same sense that government decisions are binding. Of course citizens may leave their nations and workers may leave their work; the costs of both are often substantial. But, Robert Dahl asks:

> is not 'exit' (or exile) often so costly, in every sense, that membership is for all practical purposes compulsory—whether it requires one to leave a country, a municipality, or a firm? If so, then the government of a firm looks rather more like the government of a state than we are habitually inclined to believe: because exit is costly, membership in a firm is not significantly more voluntary or less compulsory than citizenship in a municipality or perhaps even in a country.
>
> (Dahl, 1985:5)

Some might agree that membership in the firm is perhaps more compulsory than membership in a municipality, but balk at applying the analogy to the nation. But in view of the fact that democratic governance of localities is widely advocated, does not even this limited view support the claim for democratic governance of firms?

It would be pointless to argue that exit from firms is more costly or even as costly as exit from states, and we do not need to sustain so strong a claim. The cost of exit clearly depends on the circumstances, and one can easily imagine both low exit cost and high exit cost situations for the state and the place of work alike.

The fact that power may be wielded in benign ways does not alter the case for its accountability. It is of course true that workers are better off employed than not employed and also better off employed and facing a cost of job loss threat than without the threat. The same may be said of citizens in many states; they are better off than their next-best alternative (possibly emigration) and this is in part because of the power wielded over them and their fellow citizens by the state. But to offer this as an argument against accountability of power in either firms or states is to reduce the political and moral assessment of a relationship to its economic consequences. It is thus analogous to defending slavery on the grounds that slave living standards were higher than that of free agricultural labour. Moreover the beneficial effects of the power relationship may be unrelated to the fact that the power is unaccountable and thus may not provide an objection to democratic accountability. A firm with a democratic political structure may choose to adopt a hierarchical administrative structure and may subject its worker-citizens to the threat of job loss. Thus, the undemocratic political structure of the capitalist firm cannot be defended on the basis of the beneficial effects of its labour disciplining capacities, as these effects can be replicated in the democratic firm.

Standard economic arguments, such as those offered by Oliver Williamson (1984) and Armen Alchian and Harold Demsetz (1972), support the efficiency of contingent renewal sanctions and hierarchical organization. But they do not justify a lack of democratic accountability. Alchian and Demsetz, in fact, go to some lengths to convince their readers that a team of equal workers might have freely chosen to appoint one of their number to monitor their work activities. But they provide no reason why the monitor might not be subject to periodic re-election.

While employers may use their power over workers purely in the interests of profit maximization, they also may not. Thus the uses of power by owners may include assaults on the dignity of workers and violations of elementary fairness bearing no relationship whatsoever to the regulation of labour effort. Sexual harassment, racial discrimination and favouritism in promotions come to mind.[16] Because owners necessarily exercise less than perfect control over the various levels of management, these and other uses of power that are arbitrary from the standpoint of the regulation of effort have substantial latitude.[17] Owners, themselves, may directly exercise such arbitrary power as well. Thus the power of employers need not take the benign forms illuminated by our approach: the short side power of the employer is both arbitrary and unaccountable in the same sense that might be said of a despotic state.

But suppose that the analogy of the firm to the state is accepted; does the same reasoning not then extend to all exchange relationships, including those governed by exogenously enforced contracts in clearing markets? To see that this is not the case recall that if the market clears each agent is indifferent between the current transaction and their next-best alternative. This being the case the latitude for actions by one party which are inimical to the dignity or well-being of the other are quite limited. Your grocer may, if he chooses, hurl ethnic slurs at you while you shop, but he will pay for this perverse behaviour with a loss of sales. The employer who does the same thing may not be maximizing profits (for by making your job unpleasant he is reducing your cost of job loss), but you will be constrained to tolerate considerable abuse as you do not have the recourse of costless exit. Like states, and unlike traders in clearing markets, employers in non-clearing markets may exercise power arbitrarily at relatively low cost.[18]

DEMOCRATIC ACCOUNTABILITY

We thus conclude that a standard argument for democratic governance—that it is a defence against the abuse of otherwise unaccountable power—applies to the employment relationship.

A second argument for democratic governance—another which we think is no less applicable to the firm than to the state—is that majority rule and associated procedures yield on average better decisions than those made by a single individual. This is true both because where the number of voters is large and all participants are prone to error, the majority rule decision is less error prone than that of any individual. Further by exploiting both the superior information structures and motivational environments made possible by involving those directly affected in making decisions democratic decisions may be made both with more adequate information and with less distortion of outcomes by strategic advantage seeking.[19] (Our subsequent argument concerning mutual monitoring is an example of such reasoning.) While supporting workplace democracy this argument suggests that rendering the power of employers accountable solely through the democratic election of national states with regulatory powers may forgo important motivational and informational advantages of decentralization.

A third argument, originally suggested by John Stuart Mill, is that democratic governance is a school for the formation of democratic citizens capable of collective self-rule. This human development argument for the democratic firm begins with the observation, often overlooked in conventional economic theory, that *the economy produces people,* their experiences as economic actors strongly affecting their personal capacities, attitudes and the character of their interpersonal relations. Democratic social relationships foster forms of social development both desirable in their own right, and supplying the skills allowing individuals to control their political and community lives. The undemocratic structure of the capitalist enterprise, by virtue of the everyday experiences it fosters and the cultural forces mobilised in its defence, thus thwarts the development of a fully democratic culture

(Pateman, 1970; Kohn, 1969; Almond and Verba, 1963). Indeed, we have suggested that the sharp contrast between the democratic character of political life and the authoritarian character of schooling in contemporary liberal democratic societies, flows from the requirement of the educational system to prepare youth for their future positions in an authoritarian workplace (Bowles and Gintis, 1976). Were democratic firms prevalent in the economy, according to this logic, schools might simultaneously foster a democratic culture and prepare young people for productive work lives.[20]

A final argument (proposed by R.H.Tawney, T.H.Marshall and others) is that democratic accountability of the state is essential to assuring the equal dignity of citizens. This argument holds that unaccountable relationships of power establish master—servant relationships inimical to self-respect and mutual recognition among citizens. If our first argument concerning the compulsory nature of membership in the firm, stemming from our analysis of the power of the employer, is accepted, this fourth argument clearly applies to the governance of the firm, though we would want to stop short of prohibiting capitalist employment relationships as contrary to democratic citizenship.

We thus find four compelling reasons why the unaccountable power of employers is objectionable: it gives wide scope for the arbitrary exercise of power, it leads to inferior decision-making, it is an obstacle to the development of a democratic culture and it violates the principle of equal dignity.

DEMOCRATIC REMEDIES

It is far from obvious, however, that the appropriate remedy for the concentration of short side power in the hands of the employer is to give democratic voice to the employed long-siders through workplace democracy. Several alternatives come to mind. The most obvious remedy, the abolition of employment relationship itself and its replacement by self-employment, however, is feasible technically; it is prohibitively costly except in those few lines of work not characterized by economies of large-scale production.

A second remedy might be to redesign the nature of work and so alter the process of human development to render work more intrinsically rewarding, so that the work intensity freely chosen by the worker would be sufficiently high as to make labour disciplining strategies unnecessary, or possibly counterproductive.[21] We do not doubt that changing property rights and altering the structure of control over labour could render the process of work considerably less unpleasant; but we doubt that any feasible programme of disalienation of labour can eliminate the problem of work discipline except in a minority of jobs.

A third alternative is the elimination of the employer's power by assuring employees costless exit. This could be accomplished either by adopting macroeconomic policies designed to eliminate all but frictional unemployment or equating the level of unemployment benefits to the wage rate. The strategy of assuring costless exit, however, is neither feasible nor desirable.

The elimination of employment rents entailed by the free exit strategy is untenable because independently of the level of unemployment benefits or the unemployment rate, the employer maximizes profits by offering a wage such that employment is preferable to the worker's next-best alternative. Improving the income of the dismissed worker will induce wage increases, but it cannot eliminate the employment rent unless employers are forced to adopt a different enforcement strategy.

The elimination of employment rents would be undesirable even if it were feasible, for the only wage at which exit could become costless is the worker's reservation wage that if offered would elicit the worker's reservation level of work effort, the effort that is preferred by the worker independently of the effect on output or reward. The result would be a reduction in the level of output per hour of work. But a work incentive scheme that places no value on output per hour of work is clearly irrational.

Accepting the concentration of short side power as an unavoidable fact of economic life and admitting the strength of the reasons we have offered for making it accountable does not, of course require workplace democracy as the remedy. In modern economies two alternative remedies are far more common: regulation by a liberal democratic or social democratic state and collective bargaining by labour unions. We will not evaluate the relative merits of these alternatives here except to observe that two of the reasons for democratic governance (better decision-making and fostering a democratic culture) would seem to favour an approach including such decentralised elements as democratic workplaces, and point out that where labour unions are powerful but are not owners of the assets over which they bargain the result is likely to be inefficient for reasons analogous to those afflicting the collectively rather than individual worker-owned co-operative. Strong arguments can be offered in favour of these alternatives as well, of course.

CONCLUSION

Economic democracy has long occupied an uneasy place in the lexicon of liberal political philosophy: the term has an oxymoronic ring to it, for if the capitalist economy is a sphere of voluntary private interactions, what is there to democratize?

Liberal political theory holds that the just society must ensure liberty: individuals have certain rights which ought not be violated. Democratic political theory holds that the just society must ensure popular sovereignty: people ought to have a voice, and in some sense an equally effective voice, in the decisions that are binding on them. Modern liberal democratic theory generally supports the application of both democratic and liberal principles to the state, while supporting the application of the liberal principle alone to the economy. Thus, according to liberal democratic norms, capitalist economies in which effective claims on resources and command over labour generally reside in property-owners and their representatives may represent a just form of social organization providing, of course that markets are sufficiently competitive.[22]

But our analysis of the capitalist firm in competitive labour and product markets has demonstrated that the controllers of the firm wield an unaccountable power over their employees in matters of great importance to their employees and their families. We are justified, then, in terming the capitalist economy a public sphere, by which we mean one in which some agents exercise socially consequential power over others. The arbitrary nature of liberal political philosophy stems, we believe from the incorrect notion that the capitalist economy is a 'private' sphere, one devoid of the exercise of power in our sense. This mistaken division of society into private and public spheres is itself implicitly based on the now discredited Walrasian model of exchange with exogenous enforcement.

Liberal political theory goes on to argue that the economy, perhaps when suitably controlled by a democratic state, should remain private. This, however, is beside the point. For if our argument is correct the capitalist economy is not now a private sphere, and the only real issue is its just organization as a public sphere.

Our case for the democratic firm thus does not claim that firms ought to be democratically run because this would enhance efficiency, but rather that on conventional ethical grounds enough firms ought to be democratically run so that all wishing to work in a democratic environment had a reasonable opportunity of doing so, and that in a suitable institutional setting there is every reason to believe that the effects on productivity would be positive. Nor does our view entail the elimination of capitalist firms by fiat, for surely it is sufficient on democratic grounds that all workers have the opportunity to work in a democratic environment. Securing this opportunity, of course, would appear to require that the disabilities facing democratic firms such as credit market disadvantages stemming from the concentration of wealth be eliminated or at least significantly reduced.[23]

NOTES

1 Gauthier (1986), 95–96.
2 Arneson (1993:139). See also his forthcoming essay. Immediately following the cited passage Arneson goes on to say that the deference is a matter of degree but that 'the difference of degree amounts to a morally consequential difference'. The passage immediately below is from his forthcoming essay. Robert Nozick (1974) offers a similar rebuttal to the demand for democratic workplaces.
3 We address the efficiency aspects of the democratic firm in Bowles and Gintis (1993a) and (1994).
4 Craig and Pencavel's recent (1992) study of worker-owned plywood firms, however, suggests that labour productivity may be lower in the co-ops than in classical firms, although the authors caution against placing much confidence in the comparison given the heterogeneous nature of both inputs and outputs. Moreover given the evident differences in the availability of capital among the two forms of firm, the more germane comparison would be of total factor productivity. The authors found no evidence of the perverse supply response to price changes predicted by the conventional literature.
5 Reported in Conte and Svejnar (1990:165).
6 Ben-Ner (1988). The remaining data in this paragraph are from this article.
7 John Stuart Mill's assessment of the economic ideas of Utopian socialists, by contrast,

focused almost exclusively on what we would now call agency problems surrounding both work effort and management (Mill, 1976:115–136).

8 This conception of power is presented at greater length in Bowles and Gintis (1992).

9 See Stiglitz (1987), Gintis (1976) and Bowles (1985).

10 For a complete mathematical exposition, see Samuel Bowles and Herbert Gintis, 'The Democratic Firm: An Agency-Theoretic Evaluation', in Samuel Bowles, Herbert Gintis, and Bo Gustafsson (eds), *Democracy and Markets: Participation, Accountability, and Efficiency* (Cambridge: Cambridge University Press, 1993a).

11 Readers familiar with non-cooperative game theory might wonder, if the cost to the employer of replacing a dismissed worker is positive, whether the threat to dismiss is credible, in the sense that it is in the employer's interest to carry out this threat when actually faced by a shirking worker. If the employer's disciplinary actions are observable by other (present and future) workers, then a 'reputation effect' argument shows that this is the case. See Bowles and Gintis (1990) for details.

12 Of course where workers can collectively threaten to impose costs it may be in their interests to carry out threats, but this is not the case under investigation.

13 More generally: the short side of an exchange is located where the total amount of desired transactions is least; the demand side if there is excess supply and the supply side if there is excess demand (Benassy, 1982).

14 A more extended treatment would take account of agents who attain some level of transactions, but less than they would have chosen at the prevailing price or wage.

15 This is Dahl's (1985) formulation.

16 Racial and other forms of discrimination may be part of a divide and rule tactic adopted by employers as part of their endogenous enforcement strategy. We have analysed this case in Bowles and Gintis (1990). But discrimination need not be profit maximizing in order to persist in a contested exchange.

17 Assaulting the dignity of workers is not likely to be a profit maximizing strategy (among other things, because it lowers the value of employment and hence the cost of job loss), but the power created by the short side location of the employer, along with the owners' inability to perfectly solve their own principal agent problem *vis-à-vis* management provides ample opportunity for managers to cater for their own personal objectives.

18 When we say that the employer can at low cost inflict substantial harm on his employees we mean the following: because the employer selects the working conditions, including his demeanour towards employees, so as to maximize profits, small variations in these conditions in the neighbourhood of the profit maximizing equilibrium affect second order small changes in profits while inflicting first order changes in well-being on employees. In this sense the employer is free (or almost so) to indulge his preferences. In a clearing market—the grocer in our example—the indifference of both parties to the exchange means that both experience only second order changes in well-being.

19 The reduction in error made possible by majority rule was originally demonstrated by Condorcet. See Dahl (1989).

20 While the effect of hierarchical work relations on political culture is well documented, the only study of the effect of workplace democracy on political culture of which we are aware, Greenberg's study of the plywood companies in the US Northwest, does not support any strong or positive assessment of the capacity of this form to foster any major change in political attitudes or participation (Greenberg, 1986).

21 Unalienated workers, who willingly exert themselves on the job, would still need to be paid a wage to induce them to give up their time from other pursuits.

22 Classic statements of this view are Nozick (1974) and Gauthier (1986).

23 We address the relationship between wealth inequality and the evolutionary viability of democratic firms in a companion paper in this volume.

REFERENCES

Alchian, Armen, and Harold Demsetz, 'Production, Information Costs, and Economic Organization', *American Economic Review,* 62 (December 1972): 777–795.

Almond, Gabriel, and Sidney Verba, *The Civic Culture: Political Attitudes and Democracy in Five Nations* (Princeton, NJ: Princeton University Press, 1963).

Arneson, Richard, 'Democratic Rights at National and Workplace Levels', in John Roemer, *et al.,* (eds), *The Idea of Democracy* (Cambridge: Cambridge University Press, 1993): 118–148.

Arneson, Richard, 'Is There a Right to Workers' Control?' *Economics and Philosophy* (forthcoming).

Benassy, Jean-Pascal, *The Economics of Market Disequilibrium* (Orlando, FL: Academic Press, 1982).

Ben-Ner, Avner, 'Comparative Empirical Observations on Worker-Owned and Capitalist Firms', *International Journal of Industrial Organization,* 6 (1988): 7–31.

Ben-Ner, Avner, and Saul Estrin, 'Unions and Productivity: Unionized Firms versus Union Managed Firms', University of Minnesota, 1988.

Bowles, Samuel, 'The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models', *American Economic Review,* 75 (March 1985): 6–36.

Bowles, Samuel, and Herbert Gintis, *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life* (New York: Basic Books, 1976).

Bowles, Samuel, and Herbert Gintis, 'Contested Exchange: New Microfoundations of the Political Economy of Capitalism', *Politics and Society,* 8,2 (1990): 65–222.

Bowles, Samuel, and Herbert Gintis, 'Wealth and Power in a Competitive Capitalist Economy', *Philosophy and Public Affairs,* 8,4 (Fall, 1992).

Bowles, Samuel, and Herbert Gintis, 'The Democratic Firm: An Agency Theoretic Evaluation', in Bowles, Gintis and Bo Gustafsson (eds), *Markets and Democracy: Participation, Accountability and Efficiency* (Cambridge: Cambridge University Press, 1993a).

Bowles, Samuel, and Herbert Gintis, 'The Revenge of *Homo Economicus:* Contested Exchange and the Revival of Political Economy', *Journal of Economic Perspectives,* Winter, 1993b.

Bowles, Samuel, and Herbert Gintis, 'Democratic Firms and the Distribution of Wealth,' in Bob Rowthorn (ed.), *The Democratic Firm* (Oxford: Oxford University Press, 1994).

Cable, John, and Felix Fitzroy, 'Cooperation and Productivity: Some Evidence from West German Experience', *Economic Analysis and Workers' Management,* 14,2 (1980): 163–180.

Conte, Michael A., and Jan Svejnar, 'The Performance Effects of Employee Ownership Plans', in Alan Blinder (ed.), *Paying for Productivity: A Look at the Evidence* (Washington: Brookings Institution, 1990) 143–172.

Craig, Ben, and John Pencavel, 'The Behavior of Worker Cooperatives: The Plywood Companies of the Pacific Northwest', *American Economic Review,* 82,5 (December, 1992): 1083–1105.

Dahl, Robert, *Preface to the Theory of Economic Democracy* (Berkeley, CA: University of California Press, 1985).

Dahl, Robert, *Democracy and Its Critics* (New Haven, Yale University Press, 1989).

Domar, Evsey, 'The Soviet Collective Farm as a Producer Cooperative', *American Economic Review,* 56 (September 1966): 743–757.

Dow, Gregory, 'Control Rights, Competitive Markets, and the Labor Management Debate', *Journal of Comparative Economics,* 10,1 (1986): 48–61.

Dow, Gregory, 'Markets for Membership in the Labor-Manager Firm: A Simple General Equilibrium Model', mimeo (1992).

Drèze, Jacques H., 'Some theory of Labor Management Participation', *Econometrica,* 44 (1976): 1125–1139.

Drèze, Jacques H., *Labour Management, Contracts, and Capital Markets* (Oxford: Basil Blackwell, 1989).

Furubotn, Eirik G., and Svetozar Pejovich, *The Economics of Property Rights* (Cambridge, MA: Ballinger, 1974).

Gauthier, David, *Morals by Agreement* (Oxford: Clarendon Press, 1986).

Gintis, Herbert, 'The Nature of the Labor Exchange and the Theory of Capitalist Production', *Review of Radical Political Economics,* 8, 2 (Summer, 1976): 36–54.

Greenberg, Edward, *Workplace Democracy: The Political Effect of Participation* (Ithaca: Cornell University Press, 1986).

Jensen, Michael C., and William H.Meckling, 'Rights and Production Functions: An Application to Labor-Managed Firms and Co-determination', *Journal of Business,* 52 (1979): 469–506.

Kohn, Melvin, *Class and Conformity: A Study in Values* (Homewood, IL: Dorsey Press, 1969).

Levine, David I., and Laura d'Andrea Tyson, 'Participation, Productivity, and the Firm's Environment', in Alan Blinder (ed.), *Paying for Productivity* (Washington, DC: Brookings, 1990) 183–244.

Meade, James E., 'The Adjustment Processes of Labour Co-operatives with Constant Returns to Scale and Perfect Competition', *Economic Journal,* 82 (1972): 402–428.

Mill, John Stuart, *On Socialism* (Buffalo, Prometheus, 1976).

Nozick, Robert, *Anarchy, State, and Utopia* (New York: Basic Books, 1974).

Pateman, Carole, *Participation and Democratic Theory* (Cambridge: Cambridge University Press, 1970).

Samuelson, Paul, 'Wages and Interests: A Modern Dissection of Marxian Economics', *American Economic Review,* 47 (1957).

Stiglitz, Joseph, 'The Causes and Consequences of the Dependence of Quality on Price', *Journal of Economic Literature,* 25 (March, 1987): 1–48.

Vanek, Jaroslav, *The General Theory of Labor-Management Market Economies* (Ithaca: Cornell University Press, 1970).

Ward, Benjamin, 'The Firm in Illyria: Market Syndicalism', *American Economic Review,* 48 (September 1958): 566–589.

Weitzman, Martin, and Douglas Kruse, 'Profit Sharing and Productivity', in Alan Blinder (ed.), *Paying for Productivity* (Washington, DC: Brookings Institution, 1990) 95–142.

Williamson, Oliver E., 'The Economics of Governance: Framework and Implications', *Journal of Institutional and Theoretical Economics,* 40 (1984): 95–223.

5

THE DISTRIBUTION OF WEALTH AND THE VIABILITY OF THE DEMOCRATIC FIRM

*Samuel Bowles and Herbert Gintis**

INTRODUCTION

By a *democratic firm* we mean an enterprise whose management and administrative structure are chosen by the firm's labour force using a democratic political process. A *capitalist firm,* by contrast, is one whose management and administrative structure is determined by owners of the firm's capital assets, who are distinct from the firm's labour force. In this paper we show that under plausible conditions, where both types of firms are possible, and where workers allocate themselves among firms to maximize a standard measure of well-being, the equilibrium fraction of workers in democratic firms and the distribution of wealth are mutually determining.

Why is the fraction of workers in democratic firms an increasing function of the level of worker wealth? The economic advantages of the democratic firm are enhanced when workers are residual claimants, and democratic firms will optimally involve a significant degree of worker ownership. Also, under plausible conditions agents who might form democratic firms will be credit constrained and exhibit declining risk aversion, the negative effects of which decrease with increasing wealth. It follows that the fraction of workers who would benefit from membership in democratic firms increases with worker wealth.

Why does the level of worker wealth increase with the fraction of workers in democratic firms? Worker ownership decreases the diversification of the worker's assets, and hence increases the degree of risk exposure of these assets. Workers are willing to bear this increased risk only if it is associated with a higher expected return than is available when worker assets are fully diversified. Both the higher return and the increased riskiness foster an increase in worker saving, which entails an increase in the expected lifetime wealth of workers.

An implication of our model is that an exogenous equalization of assets will support a higher fraction of workers in democratic firms. Conversely, an exogenous increase in the fraction of workers in democratic firms, say through the extension

* We are indebted to Duncan Foley, George Martin, Ignacio Ortuño-Ortin, Winfried Vogt, and Bob Rowthorn for their help.

of credit to democratic firms at an interest rate comparable to that enjoyed by capitalist firms, tends to support a higher level of worker wealth. A further implication is that there may exist multiple stable equilibria, some exhibiting high levels of worker wealth and a prevalence of democratic firms, and others exhibiting the converse.

We address two agency problems: eliciting effort from a team of workers and inducing the firm's managerial decision-makers to act in the interest of the firm's debt and equity holders. These are standard principal—agent problems that virtually any modern productive organization must address: where labour is employed in teams and where capital is acquired by loan or in equity form, neither labour effort nor the return profile of the firm's investments can be adequately specified in a contract enforceable at zero cost to the exchanging parties.[1] In our model of the democratic firm workers are residual claimants, which we will see gives the democratic firm a relative advantage in resolving the problem of eliciting effort. By contrast, owners of the capitalist firm tend to be wealthy, diversified, and hence closer to risk-neutral than workers. This gives the capitalist firm a relative advantage in obtaining finance on favourable terms.

Our approach differs from the existing literature on democratic firms and cooperative forms of organization in three ways.[2] First, the complete contracting framework adopted by many authors yields the counter-intuitive result that in competitive equilibrium the location of residual claimancy and control rights in the two types of firms is of no consequence, and that under suitable conditions both implement Pareto optimal allocations. The principal-agent models we use, by contrast, make it clear that the two types of firm differ in the distinct types of market failures they address, and the manner in which they address them.[3]

Second, most authors have distinguished the democratic firm from the capitalist by restricting the types of property holdings permitted, requiring, for example, that the assets of the democratic firm be held as common property by its members. But these restrictions on contracting are generally suboptimal and are not likely to be chosen by a democratic process. By contrast we assume that workers fully own the assets of the democratic firm, in negotiable shares that may be sold to new members upon leaving the firm. This ownership structure is not subject to the two standard criticisms in this literature, namely that the democratic firm invests too little and exhibits a perverse supply response to output price variations.

Third, in providing a unified treatment of the capital market and labour discipline problems facing firms we are able to provide reasons why efficient assignment of residual claimancy and control rights may be precluded in economies where most agents are asset-poor.

An implication of our analysis is that the assignment of property rights in an economy cannot be understood as optimal solutions to agency and transactions costs problems.[4] Since in the presence of wealth constraints on borrowing, the pattern of ownership and control depends on the distribution of wealth.[5] In particular, the predominance of capitalist firms in the competitive economy which we model is attributable to the credit constraints facing workers and has nothing

to do with the budget-breaking capacities of wealthy owners, stressed in the literature on optimal contracts for team production or the advantageous monitoring structures that some have claimed (notably Hölmstrom, 1982) are available to the capitalist firm.[6]

THE EMPLOYMENT RELATIONSHIP

Consider a capitalist firm with a homogeneous labour force, where net revenue in any period t=1, 2,…is given by

$$\pi=q(n.\ e^c,\ k^c)-n(w^c+m^c)-r^ck^c+\varepsilon \tag{1}$$

where e^c represents the work effort per hour provided by a typical worker, n is the number of worker-hours provided to the firm, w^c and m^c are the wage and monitoring expenditures per worker-hour, k^c is the amount of capital and r^c is the interest rate paid on the capital, which for simplicity we assume does not depreciate, ε is a random variable of mean 0, and $q(.)$ is increasing and strictly concave. We assume that effort is observable by the owner only imperfectly and at a cost, and cannot be inferred from gross revenue $q(.)$ due to the presence of the error term ε. We further assume markets are competitive in the sense of unimpeded entry and exit, although there is no market in effort.

We assume the firm has an exogenously given, fixed, and universally known probability $\gamma>0$ of becoming non-viable in any period, which we interpret as a shift in $q(.)$ rendering the firm henceforth worthless. In this case any firm revenues are dissipated in liquidation and the capital stock becomes worthless. We also assume the firm has access to a competitive capital market with risk-free interest rate ρ, and the capitalist is risk-neutral and can finance the stochastic element e in the return at no cost. Then $r^c=(\rho+\gamma)/(1-\gamma)$.[7]

We model the interaction of the employer and a single representative member of the work-force. The employer is first mover in an infinite-horizon repeated principal—agent relationship, and maximizes the expected value of the firm's net revenue. The employer does not observe the worker's choice of e^c, but does observe a signal positively correlated with it, the accuracy of which is a function of monitoring resources m^c expended by the employer. If the signal indicates malfeasance (as specified by the employer but known to the worker), the worker is terminated. The worker selects a utility-maximizing level of effort e^c for each wage rate w^c and monitoring intensity m^c selected by the employer. The employer uses the resulting worker *best response function* $e^c=e^c(w^c,\ m^c)$ to maximize profits by choosing the wage rate, the monitoring intensity, the number of worker-hours to hire, and the amount of capital to rent.

To derive the worker's best response function, suppose the worker has a twice differentiable utility function $u(w^c,\ e^c)$, increasing in the wage w^c, decreasing in effort e^c, and strictly concave in both variables. The worker then maximizes the expected present value of utility v^c over an infinite horizon, giving

$$v^c=[u(w^c, e^c)+(1-p)v^c+pz]/(1+\rho) \quad (2)$$

where ρ is the worker's rate of time preference, p is the probability of job loss (from both termination and firm bankruptcy), and z is the present value of the worker's utility upon job loss. We take z as exogenously given, and for convenience we assume that flows accrue at the end of the period.[8] Rewriting (2), we have

$$v^c = \frac{u(w^c, e^c) - \rho z}{\rho + p} + z.$$

The employer announces a probability of job loss schedule $p=p^c(e^c, m^c)$, where p is a decreasing function of effort e^c. The worker takes the wage w^c, the fallback position z, the probability of job loss schedule $p^c(e^c, m^c)$, and monitoring intensity m^c as given, and chooses ec to maximize present value v^c.[9] The result of this optimization is the worker's best response function $e^c=e^c(w^c, m^c, z)$, which can be shown to be increasing in m^c and w^c, and decreasing in z, at least in a neighbourhood of firm equilibrium.

It is straightforward to check from (1) that the employer may maximize profits by choosing the wage w^c and the monitoring level m^c to maximize $e^c/(w^c+m^c)$ subject to the worker's best response schedule $e^c=e^c(w^c, m^c, z)$, and then chooses the optimal number n of worker-hours to employ by equating the marginal product to the marginal cost of effort (i.e., by solving $q_e{}^c=(w^c+m^c)/e^c$, and the marginal product to the marginal cost of capital (i.e., by solving $q_k{}^c=r^c$).[10] The result is a profit-maximizing wage w^c, monitoring level m^c, and working capital k^c, thus determining equilibrium effort e^c, the probability of job loss $p^c(e^c, mc)$, and the present value of employment v^c. Because no results hinge on the determination of the number of hours of labour hired by the firm, we normalize n to unity, and write $k^c=k_0$ for the capital/labour ratio.

Under plausible conditions $v^c>z$ in equilibrium, so the worker receives an employment rent, the maintenance of which induces an effort level above that which would be forthcoming in the absence of a threat of dismissal. Because workers are indifferent to losing their current employment if and only if $v^c=z$, and because workers are indifferent to losing their current employment if and only if the labour market clears, the equality $v^c=z$ is equivalent to labour market clearing, and hence to the condition of full employment. It follows that in equilibrium there is a positive level of unemployment. Without specifying the demand for labour, of course, we can say nothing further about the value of the fallback z, and hence about the level of unemployment.

We assume the democratic firm differs from the capitalist firm in two ways. First the firm's work-force appoints the firm's managers and thereby determines the operating parameters of the firm: the wage rate, the level of monitoring, and the level of debt.[11] Second, because control without residual claimancy and at least partial ownership is not incentive compatible, we assume that workers are residual claimants on the firm's revenue stream and hold equity in the firm. Workers then

direct the managers to select an hourly per worker payment y, a monitoring level m^d, and a level of equity per worker-hour k, to maximize the worker's value of employment in the democratic firm,

$$v^d = \frac{u(y, e^d) - \rho z}{\rho + p^d(e^d, m^d)} + z, \tag{3}$$

where $p^d(e^d, m^d)$ is the democratic firm's probability of job loss function, subject to the feasibility constraint

$$y = q(e^d) - m^d - r^d(k, k_0)(k_0 - k) - r(k)k, \tag{4}$$

where e^d is the worker's effort, k_0 is the amount of capital per worker hour, $r^d(k, k_0)$ is the interest rate on the debt $k_0 - k$, and $r(k)$ is the expected return to equity capital k contributed by the worker (the actual return is $r(k)+\varepsilon$ unless the firm fails, in which case the return is zero).

If the democratic firm exhibits greater effort for given inputs than does the capitalist firm, i.e., if $e^d(y, m) > e^c(w, m)$ with $y = w$ for some range of parameter values for m, w, and y, we say the democratic firm *dominates* the capitalist firm in regulating effort over this range. We offer two reasons to believe that the democratic firm might dominate the capitalist firm in regulating effort. The first is that the distribution of residual claimancy and control rights that characterize the democratic firm alters the problem of enforcing labour discipline, not by eliminating agency problems, but by providing the democratic firm with monitoring mechanisms unavailable to the capitalist firm. Workers frequently have virtually costless access to information concerning the work activities of fellow workers, and in the democratic firm each has an interest in the effort levels of other workers. Residual claimancy status of workers in the democratic firm thus provides a motive for *mutual monitoring*. Second, if workers may tacitly collude in setting effort levels, they are more likely to collude to lower effort in the capitalist firm and to raise effort in the democratic firm. If in both types of firm the probability of job loss depends in some degree on one's effort relative to the effort levels of others, the non-co-operatively determined Nash equilibrium effort levels of the team members will exceed the Pareto optimal levels available in a co-operative solution. Collusion to reduce effort levels will thus be beneficial to workers.[12] In the democratic firm, however, these work-reducing incentives will be at least partially offset by the effects of residual claimancy which provide an incentive to collude in raising effort levels above the Nash equilibrium. We thus assume that the democratic firm dominates the capitalist firm in regulating effort over the appropriate range of monetary remunerations and monitoring levels.[13]

WEALTH AND CREDIT IN THE DEMOCRATIC FIRM

While the democratic firm may enjoy a favourable worker best response function, this is not sufficient to ensure its competitive survival. In fact the democratic firm, in which workers are residual claimants, faces a higher cost of capital than its capitalist counterpart. The increased capital costs derive from several sources. To begin, since workers are by assumption less wealthy than capitalists, the subjective cost of the worker's equity in the firm is higher, both because individuals are assumed to be more risk averse at lower levels of wealth, and because the degree of asset concentration entailed by firm membership is greater for those with low levels of wealth. It follows that the democratic firm will have less equity and more debt than its capitalist counterpart, and for this reason its failure rate will be higher than that of a capitalist firm with the same distribution of returns. In this section we sketch a model of the capital market that supports this analysis.[14]

The market for capital involves an exchange between borrower and lender that is not generally contractually enforceable: in exchange for funds now, the borrower promises the payment of greater funds later. Should the borrower become insolvent, however, the lender has only limited recourse to the courts. Thus lenders devise incentives that induce borrowers to increase the probability of repayment (Stiglitz and Weiss, 1981). The most effective incentive mechanism involves requiring the borrower to share in the equity of a project.[15] This equity, which is forfeited in case of insolvency, attenuates the incentive incompatibility between borrower and lender. But equity capital must involve the borrower's own wealth, and cannot itself be borrowed without undermining its enforcement value.

In the case of capital investment in the democratic firm, two additional factors argue for a significant level of worker equity as a condition for borrowing. First, since workers receive employment rents, they profit from the firm's continued operation even when its expected future profits are negative, whereas creditors prefer to declare bankruptcy in such a situation (Gintis, 1989a). This heightens the incentive incompatibility between creditors and borrowers. Second, it is more costly for outside creditors to provide adequate incentives to a large democratic organization than to a small group of managers in the capitalist firm, since in the democratic firm these incentives must be extended to at least a majority of members, while in the capitalist case a relatively small number of agents must be influenced (Gintis, 1989b). In both cases, a significant degree of worker ownership will normally be necessary to secure access to outside credit.

But the cost to workers of taking an equity position in the firm varies inversely with worker wealth. To see this, we consider three decisions to be made in the democratic firm. The first two are made collectively, presumably by majority voting, but in our case of identical workers, by unanimous agreement. These are the selection of a level of equity to invest in the firm and a level of monitoring of worker-members. Given these two decisions, each worker individually selects a level of work effort.

We assume as before that if the firm cannot repay its loans in full, it is declared bankrupt, its net revenue is dissipated in bankruptcy proceedings, and the salvage value of the firm's capital stock is zero. The democratic firm could clearly lower its probability of failure by financing the firm's debt in part through worker equity, and obliging workers, as residual claimants, to absorb losses under adverse economic conditions.

Let k be worker equity per hour of labour performed, so the firm borrows an amount k_0-k. If p^s is the probability of success (that is, the probability that debt obligations are met) then we can write $p^s=p^s(k)$, and it can be shown that under weak conditions this schedule is defined and increasing over some range $k_{min}=k=k_0$. In other words, the larger the equity in the democratic firm, the lower the probability of bankruptcy.[16] But by increasing their equity in the firm, workers increase their exposure to risk, and hence the minimum return required to induce them to accept this risk increases. We take workers to be decreasingly risk averse, so the certainty equivalent of a risky lottery increases with increasing wealth. Each worker has non-labour-related wealth W which, we assume earns the risk-free interest rate ?. The worker must thus transfer an amount k from the portfolio W to purchase a risky asset: firm membership. Let $r(k)$ be the interest rate required to induce workers to provide equity k. It can be shown that $r(k)$ is an increasing function of k. It is obvious that if $k_0 \geq W$, full worker finance of the firm is impossible. We assume for the remainder of our analysis that $W \leq k_0$, so that full equity finance of the democratic firm is suboptimal.[17] Note also that it is possible that no level W of worker wealth is compatible with worker ownership, since if the disutility of effort increases sufficiently strongly with W (counter to our assumption that the disutility of effort is a function of effort and income alone), when W is sufficiently large to support worker ownership, optimal worker effort is too low to render the firm competitively viable.

Using the fact that the worker chooses effort e^d to maximize welfare, we then get a best response function $e^d=e^d(y, m^d, p^s)$, which reflects the fact that the team member increases effort until the marginal disutility of effort offsets the marginal effect of additional effort on the probability of retaining the job multiplied by the product of the job rent and the probability of firm survival, retaining the job being worthless if the firm fails.

The democratic firm now chooses m^d and k to maximize v^d using the worker best response function $e^d=e^d(y, m^d, p^s(k))$ and y given by (4). The determination of k is depicted in Figure 5.1, where the optimal level of worker equity k^* occurs where the 'marginal product of equity' and the 'marginal cost of equity' schedules intersect.

How does worker wealth W affect the present value v^d of being a member of the democratic firm? We have already seen that unless W is sufficiently large, the democratic firm is not viable at all, since in general we expect a positive equity/capital ratio. Moreover, it can be shown that the optimal equity level is an increasing function of worker wealth. This is illustrated in Figure 5.1 by shifting down the marginal cost of equity schedule (the dashed line) when wealth W is increased.

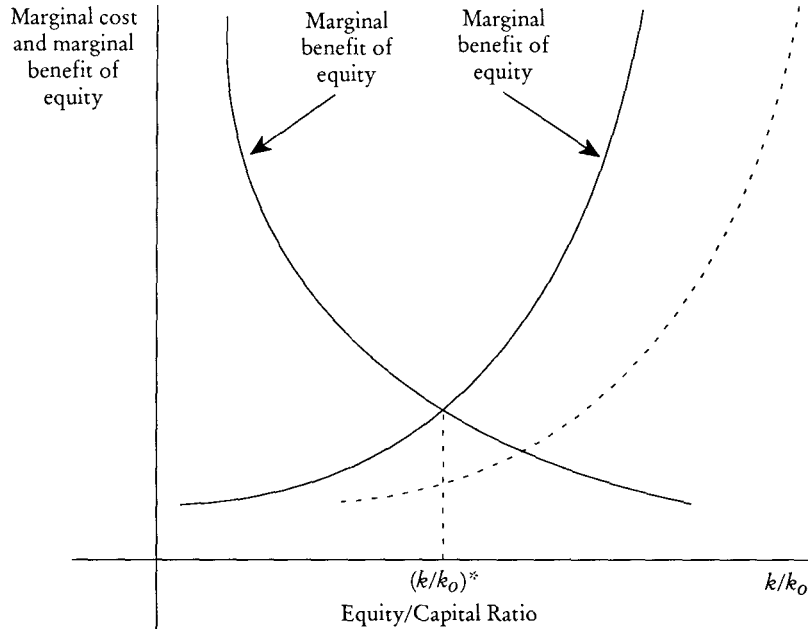

Figure 5.1 The internal finance of the democratic firm

THE COMPETITIVE VIABILITY OF THE DEMOCRATIC FIRM

It is clear that the probability of failure is greater for the democratic than the capitalist firm as long as the democratic firm incurs any outside debt. However, the increased optimal equity level induced by increased worker wealth attenuates credit market incentive incompatibilities, lowering both borrowing costs and the probability of firm failure. To see this, note that since $dk^*/dW>0$, an increase in wealth increases the equilibrium success probability p^s, and hence reduces total capital costs. It is thus plausible that $dv^d/dW>0$, and indeed this is the case. This relationship is depicted in Figure 5.2, which shows v^d as a function of worker wealth.

Note that at some level of worker wealth, labelled W^+ in Figure 5.2, workers can borrow and supply equity on the terms equivalent to the owners of capitalist firms. Thus the difference $v^d(W^+)-v^c$ is a measure of the superior effort regulation capacities of the democratic firm. Let W^* be the worker wealth level such that $v^c=v^d(W^*)$, and consider W^0, some level of worker wealth such that $W^*<W^0<W^+$. We can decompose the advantage of the democratic firm in worker expected utility terms, $v^d(W^0)-v^c$, into its effort regulation superiority, $v^d(W^+)-v^c$ minus its credit market disability, $v^d(W^+)-v^d(W^0)$, as shown in Figure 5.2.

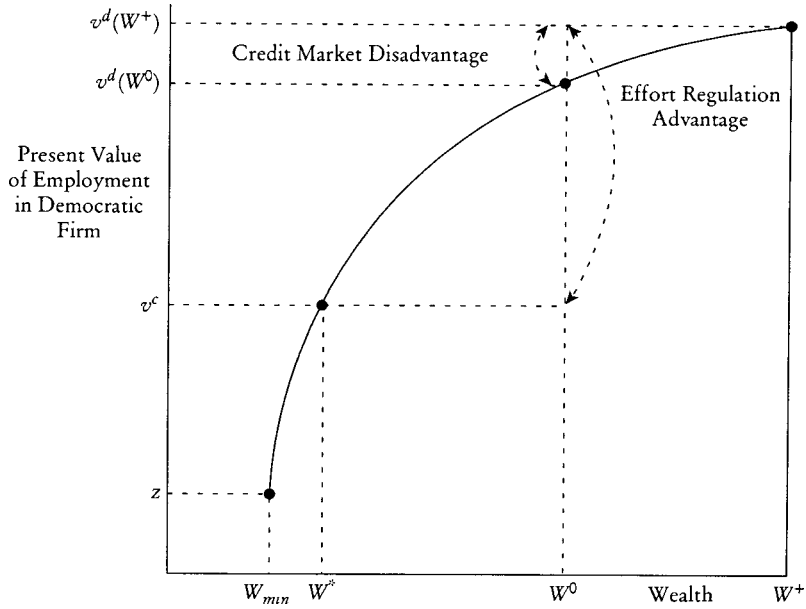

Figure 5.2 Worker wealth and the viability of the democratic firm

The fact that the cost of capital to the democratic firm decreases as worker wealth increases implies that the fraction of workers in democratic firms is an increasing function of worker wealth. Our reasoning is as follows. We can expect the various industries in the economy to have distinct levels of capital per worker, and to experience differential gains in effort regulation associated with democratic organization. At low levels of worker wealth, the financial burden of the democratic firm is likely to outweigh the benefits in the regulation of labour in all but the most auspicious environments, namely those with low capital requirements and production processes for which the democratic firm's labour regulation advantages are especially great. But as worker wealth increases, sectors of the economy that previously had excessive capital intensity or insufficient gains in effort regulation from democratic organization, will exhibit superior performance as democratic rather than capitalist firms. In the limit, with worker wealth such that workers become risk-neutral, democratic firms will be superior in all sectors in which democratic organization dominates capitalist organization in the regulation of effort.

THE JOINT DETERMINATION OF THE FRACTION OF DEMOCRATIC FIRMS AND THE DISTRIBUTION OF WEALTH

The equilibrium level of worker wealth is an increasing function of the fraction of workers in democratic firms. We shall motivate this by an intuitive argument, rather than presenting the full mathematical model. Consider a worker who is just indifferent to holding a position in a capitalist and a democratic firm (that is, $v^d=v^c$ for this worker). We have seen that the worker must be offered a risk premium to induce her to hold equity in the democratic firm. Thus when $v^d=v^c$ her expected income will be higher with the democratic firm, and hence even with a constant savings ratio, her expected future wealth will be higher as well. But the worker's increased risk exposure will induce her to increase her savings ratio as well, assuming she is decreasingly risk averse. The reason for this move is that by increasing her wealth (at the expense of a lower flow of consumption expenditure), the worker moves to a less risk-sensitive region of her utility function. In addition, a higher savings rate, by increasing the worker's non-firm-specific wealth, offers liquidity benefits: the worker can reduce the probability of being credit-rationed on the down-side of economic fluctuations.

It follows that a change in an aspect of the economy that increases the benefits or lowers the costs to participating in the democratic firm (e.g., by lowering the firm's equity requirements), will increase the fraction f of workers in democratic firms, and increase expected worker wealth. Thus we can define the wealth level of workers as an increasing function of the fraction of democratic firms:

$$W=\psi(f),\ \psi'>0. \tag{5}$$

Our analysis implies that the equilibrium values of f and W are jointly determined by two functions, $f=\phi(W)$ and $W=\psi(f)$. We illustrate both function in Figure 5.3. Both functions are increasing, since as we have seen, greater worker wealth entails a larger fraction of democratic firms, and a larger fraction of democratic firms implies greater worker wealth.

In Figure 5.3 we interpret both functions as stationarity conditions for their respective variables. Thus

$$\frac{df}{dt} = \alpha(\phi(W) - f) \qquad \alpha(0) = 0, \qquad \alpha' > 0. \tag{6}$$

and

$$\frac{dW}{dt} = \beta(\psi(f) - W) \qquad \beta(0) = 0, \qquad \beta' > 0. \tag{7}$$

The arrows in Figure 5.3 show the movement of the variables out of equilibrium. The reader may confirm that the equilibrium (W^*, f^*) is stable. The equilibrium distribution of wealth and of workers among firms (W^*, f^*) is that for which the

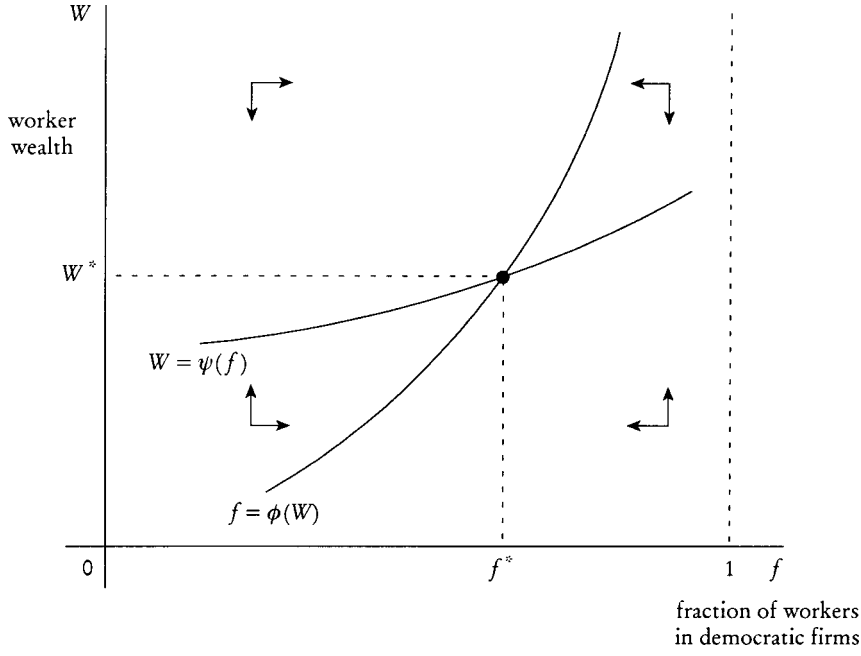

Figure 5.3 Mutual determination of worker wealth and the fraction of workers in democratic firms

savings behaviour generated by f^* supports the wealth level W^* which in turn satisfies $v^c=v^d$ thus supporting f^*.

It follows that the level of worker wealth and the fraction of democratic firms can both be increased by shifting one or both of the functional relationships. The $\phi(W)$ schedule can be shifted out through improving credit availability to workers, insuring worker firm-specific assets, or subsidizing investment in democratic firms, for example by treating worker membership shares as equivalent for tax treatment to investment retirement accounts. The $\psi(f)$ schedule can be shifted up by a direct wealth redistribution toward workers or by subsidizing worker saving.

Given that both schedules are upward rising, the possibility of multiple equilibria cannot be excluded. We illustrate this possibility in Figure 5.4. Here there are two stable equilibria, a low-level equilibrium at (f_*, W_*) and a high level equilibrium at (f^*, W^*). The equilibrium at (f_0, W_0) is unstable, given the out-of-equilibrium dynamics determined by (6) and (7). Should the economy be trapped at the low level equilibrium, the high level equilibrium could be attained by redistributing wealth to some point beyond W_0.

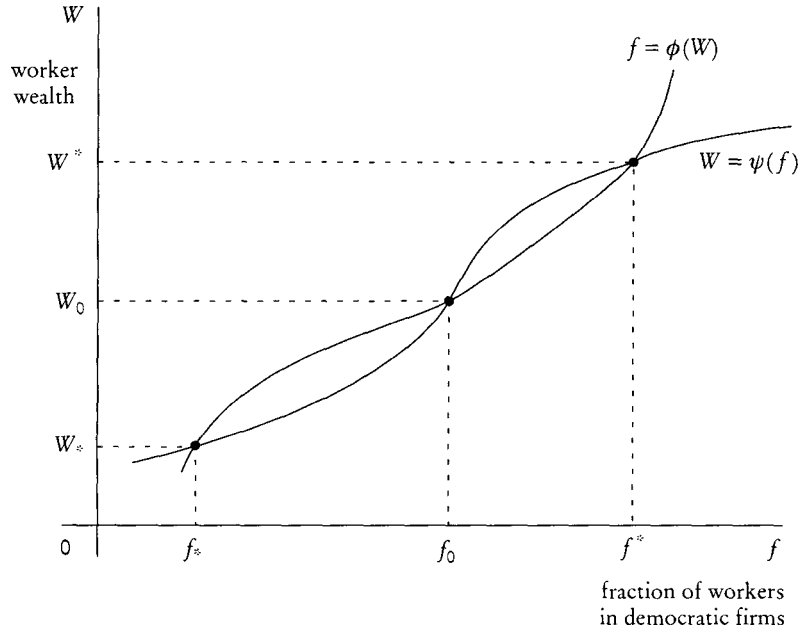

Figure 5.4 Multiple of equilibria in the determination of the fraction of workers in democratic firms

CONCLUSION

We have shown that the level of worker wealth and the incidence of democratic firms are jointly determined. Two implications follow. The first, and most obvious, is that an observed distribution of workers among types of firms does not support inferences about the efficiency or even competitive viability of alternative distributions control and residual claimancy rights. A move from the equilibrium (f_*, W_*) to (f^*, W^*) could be Pareto-improving and capable of being implemented by a one-time intervention without continuing subsidy. But such a move will not occur spontaneously. Also, even if multiple equilibria are precluded, there is no mechanism ensuring the efficiency of the competitive distribution of workers among firms if workers' wealth is less than W^*. We can only say that for each level of wealth W the resulting distribution of workers $f(W)$ is locally constrained-Pareto optimal: given the informational constraints defining the problem, Pareto-superior alternatives do not exist in the neighbourhood of $f(W)$ (recall that the variation in f takes place simply through workers buying out previous non-worker owners).

The second implication is that economic democracy and equality may be considered to be complementary objectives in the sense that policies that displace a (stable) equilibrium towards a greater level of wealth for the less

wealthy class will also support a larger fraction of workers in democratic firms, and conversely.

While these conclusions suggest a greater scope for societal intervention in the pursuit of both democratic and egalitarian objectives (should these values be widespread enough to warrant action), our analysis does not allow any conclusions about the related question of the efficiency costs of various distributions of wealth and allocation of workers among types of firms.

In particular, our model does not address the important question of long-term productivity growth and the possible innovation-dampening effects of the dispersal of control rights implied by the democratic firm. Nor does it permit an exploration of the policy measures that might attenuate these effects (though the technological dynamism associated with dispersed ownership in the agricultural sectors of many economies suggests that such policies might be developed).

NOTES

1 See Akerlof and Yellen (1986), Stiglitz (1987), and Stiglitz and Weiss (1981), Bowles (1985) and Gintis (1989a,b).

2 See Ward (1958), Drèze (1976), Domar (1966), and the works summarized in Bonin and Putterman (1987).

3 While our principal—agent approach can be defended on grounds of realism, the same cannot be said for our assumption that work team members are identical, by which we deliberately avoid consideration of a possibly costly collective choice problem facing the democratic firm, namely how to arrive at decisions. See, for instance, Hansmann (1988).

4 See, for instance, Alchian and Demsetz (1972), Kihlstrom and Laffont (1979), Grossman and Hart (1986), Hölmstrom and Tirole (1988), and Hart and Moore (1990).

5 Other analyses showing the dependence of the assignment of residual claimancy and control on the distribution of wealth include Eswaran and Kotwal (1986), Eaton and White (1991), Newman (1994) and Mookherjee (1994).

6 Because monitoring can be assigned to individuals rather than to multi-agent teams, and because team outputs are costlessly observable, we assume that monitoring services can be contractually specified.

7 This follows from the equation $(1+\rho)=(1-\lambda)\,(1+r^c)$.

8 The fallback present value z might depend on the cost of job search, the expected duration of unemployment, the level of unemployment compensation, and the value of leisure.

9 The probability of job loss function $p=p^c(e^c,\ m^c)$ in this situation can be derived as a solution to an optimal quality control problem, see Gintis and Ishikawa (1987) and Gintis (1994).

10 We use a subscript to a function to represent the partial derivative of the function with respect to the variable subscript.

11 For simplicity we assume other operating parameters of the firm are fixed at their level in the capitalist firm. This includes the capital/labour ratio k_0 and the stochastic element e in the firm's revenue. These assumptions are not innocuous, and may bias our results in favour of the democratic firm. It is now well known that with proper capital accounting, the Domar (1966) critique that the labour managed firm will choose a suboptimal number of worker-members is not correct (Dow 1986). Similar remarks apply to the Furubotn and Pejovich (1970) ctitique that the democratic firm will systematically draw down the firm's capital stock. However if the democratic firm has higher capital costs than the

capitalist firm and its members are more risk-averse than capitalist owners, as is the case in our model, then the democratic firm is likely to choose a lower capital/labour ratio and a less variable stream of future revenues. When these tendencies are strong, and if the increased employment associated with the more labour-intensive technology is not highly valued, the efficiency gains of the democratic firm analysed in this paper may be partly or wholly offset.

12 Models of monitoring in co-operatives have been analysed by Bradley and Gelb (1981), Macleod (1988), Weissing and Ostrom (1991), Putterman and Skillman (1988), Dong and Dow (1993).

13 For empirical evidence on this point, see Levine and Tyson (1990), Weitzman and Kruse (1990) Cable and Fitzroy (1980), Ben-Ner (1988), and Conte and Svejnar (1990). For a recent review of the literature, see Bonin, Jones and Putterman (1993).

14 For empirical evidence on this point, see Holtz-Eakin, Joulfaian, and Rosen (1993).

15 Contingent renewal, the lender promising a perpetual 'line of credit' provided the borrower behaves prudently, may also be an important incentive mechanism in credit markets, but is less widely employed than in the case of the labour market (Bowles and Gintis 1990).

16 The mathematical details of this model and the demonstration of this and other related assertions not proved in the paper are available from the authors upon request.

17 Of course even wealth levels somewhat greater than k_0 will preclude full ownership by team members as the implied concentration of assets would make membership an unattractive investment. However the assumption that $W<k_0$ is not unrealistic. For a rough sense of the relevant wealth constraints consider that in 1988 the average wealth (including car and home) of the least wealthy 80 per cent of US families was about $64,000 (half of which was house and car). The capital stock in the US economy per employee (roughly our k_0) was about $95,000 (Avery and Kennickell, 1990), and the number of employed workers per family was about 1.3. Thus total net worth of a typical worker is about half the value of the capital stock they typically work with.

18 Recall that teams are sufficiently large that no individual team member can affect the probability of success by offering more effort.

REFERENCES

Akerlof, George and Janet Yellen, *Efficiency Wage Models of the Labor Market* (Cambridge: Cambridge University Press, 1986).

Alchian, Armen and Harold Demsetz, 'Production, Information Costs, and Economic Organization', *American Economic Review* 62 (December 1972): 777–795.

Avery, Robert and Arthur Kennickell, 'Measurement of Household Saving Obtained from First Differencing Wealth Equations', Paper presented at the Twenty First General Conference of the International Association for Income and Wealth, Lahnstein, Germany (February 1990).

Ben-Ner, Avner, 'Comparative Empirical Observations on Worker-Owned and Capitalist Firms', *International Journal of Industrial Organization* 6 (1988): 7–31.

Bonin, John P. and Louis Putterman, *Economics of Cooperation and the Labor-Managed Economy* (New York: Harwood, 1987).

Bonin, John P., Derek C.Jones and Louis Putterman, 'Theoretical and Empirical Studies of Producer Cooperatives: Will Ever the Twain Meet?', *Journal of Economic Literature* 31 (3) (September 1993): 1290–1320.

Bowles, Samuel, 'The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models', *American Economic Review* 75(1) (March 1985): 16–36.

Bowles, Samuel and Herbert Gintis, 'Contested Exchange: New Microfoundations of the Political Economy of Capitalism', *Politics and Society* 18 (2) (1990): 165–222.

Bradley, Keith and Alan Gelb, 'Motivation and Control in the Mondragon Experiment', *British Journal of Industrial Relations* 19 (1981): 211–231.

Cable, John and Felix Fitzroy, 'Co-operation and Productivity: Some Evidence from West German Experience', *Economic Analysis and Workers' Management* 14 (1980): 163–180.

Conte, Michael A. and Jan Svejnar, 'The Performance Effects of Employee Ownership Plans', in Alan Blinder (ed.), *Paying for Productivity: A Look at the Evidence,* (Washington: Brookings Institution, 1990) 143–172.

Domar, Evsey, 'The Soviet Collective Farm as a Producer Cooperative,' *American Economic Review* 56 (September 1966): 743–757.

Dong, Xioa-uan and Gregory Dow, 'Monitoring Costs in Chinese Agricultural Teams', *Journal of Political Economy* 101 (3) (1993): 539–553.

Dow, Gregory, 'Control Rights, Competitive Markets, and the Labor Management Debate', *Journal of Comparative Economics* 10(1) (1986): 48–61.

Drèze, Jacques, 'Some Theory of Labor Management and Participation,' *Econometrica* 44 (1976): 1125–1139.

Eaton, B.Curtis and William B.White, 'The Distribution of Wealth and the Efficiency of Institutions', *Economic Inquiry* xxix(2) (April 1991): 336–350.

Eswaran, Mukesh and Ashok Kotwal, 'Access to Capital and Agrarian Production Organization', *Economic Journal* 96 (June 1986): 482–498.

Furubotn, Eirik G. and Svetozar Pejovich, 'Property Rights and the Behavior of the Firm in a Socialist State: The Example of Yugoslavia', *Zeitschrift fur Nationalokonomie* 30(3–4) (1970): 431–454.

Gintis, Herbert, 'Financial Markets and the Political Structure of the Enterprise', *Journal of Economic Behavior and Organization* 1 (1989a): 311–322.

Gintis, Herbert, 'The Principle of External Accountability in Financial Markets', in Masahiko Aoki, Bo Gustafsson, and Oliver Williamson (eds) *The Firm as a Nexus of Treaties* (New York: Russell Sage, 1989b).

Gintis, Herbert, 'Optimal Dismissal Functions in Labor Discipline Models', University of Massachusetts (April 1994).

Gintis, Herbert and Tsuneo Ishikawa, 'Wages, Work Discipline, and Unemployment', *Journal of Japanese and International Economies* 1 (1987): 195–228.

Grossman, Sanford J. and Oliver D.Hart, 'The Costs and Benefits of Vertical and Horizontal Integration', *Journal of Political Economy* 94 (4) (August 1986): 691–719.

Hansmann, Henry, 'Ownership of the Firm', *Journal of Law, Economics and Organization* 4(2) (Fall 1988): 267–304.

Hart, Oliver and John Moore, 'Property Rights and the Nature of the Firm', *Journal of Political Economy* 98 (6) (December 1990): 1119–1158.

Hölmstrom, Bengt, 'Moral Hazard in Teams', *Bell Journal of Economics* 7 (1982): 324–340.

Hölmstrom, Bengt and Jean Tirole, 'The Theory of the Firm', in R.Schmalensee and R. Willig (eds) *Handbook of Industrial Organization* (Amsterdam: North-Holland, 1988).

Holtz-Eakin, Douglas, David Joulfaian, and Harvey S.Rosen, 'Sticking it Out: Entrepreneurial Survival and Liquidity Constraints', Working Paper no. 319, Industrial Relations Section, Princeton University (October 1993).

Kihlstrom, Richard E. and Jean-Jacques Laffont, 'A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion', *Journal of Political Economy* 87(4) (1979): 719–748.

Levine, David I. and Laura d'Andrea Tyson, 'Participation, Productivity, and the Firm's Environment', in Alan Blinder (ed.) *Paying for Productivity* (Washington, DC: Brookings Institution, 1990), 183–244.

Macleod, Bentley, 'A Theory of Cooperative Teams,' in Derek Jones and Jan Svejnar (eds) *Advances in the Economic Analysis of Labor-Managed and Participatory Firms* 3 (1988): 5–23.

Mookherjee, Dilip, 'Informational Rents and Property Rights in Land', Indian Statistical Institute (1994).

Newman, Andrew, 'The Capital Market, Inequality and the Employment Relation', Columbia University (1994).

Putterman, Louis and Gil Skillman, Jr., 'The Incentive Effects of Monitoring under Alternative Compensation Schemes', *International Journal of Industrial Organization* 6 (1988): 109–119.

Stiglitz, Joseph E., 'The Causes and Consequences of the Dependence of Quality on Price', *Journal of Economic Literature* 25 (March 1987): 1–48.

Stiglitz, Joseph and Andrew Weiss, 'Credit Rationing in Markets with Imperfect Information', *American Economic Review* 71 (June 1981): 393–411.

Ward, Benjamin, 'The Firm in Illyria: Market Syndicalism', *American Economic Review* 48 (December 1958): 566–589.

Weissing, Franz and Elinor Ostrom, 'Irrigation Institutions and the Games Irrigators Play: Rule Enforcement without Guards', in Reinhard Selten (ed.) *Game Equilibrium Models II: Methods, Morals, and Markets* (Springer-Verlag, Berlin, 1991): 188–262.

Weitzman, Martin and Douglas Kruse, 'Profit Sharing and Productivity', in Alan Blinder (ed.) *Paying for Productivity* (Washington, DC: Brookings Institution, 1990): 95–142.

6

ORGANIZATIONAL FORM AND ECONOMIC EVOLUTION

A critique of the Williamsonian hypothesis

Geoffrey M.Hodgson[1]

INTRODUCTION

Evolutionary theories have had an enormous influence on modern thought and there have been many cases of economists being inspired by these ideas.[2] However, the conclusions of evolutionary biology are often presumed rather than closely examined. Many notions are inherited from nineteenth-century biology, and do not have universal or even widespread support amongst biologists today.

To address one illustrative and prominent source of misconception, it was Herbert Spencer who coined the term 'the survival of the fittest'. He had as significant an influence on popular ideas of evolution in the nineteenth century as Charles Darwin. Although Darwin was persuaded to adopt Spencer's 'survival of the fittest' phrase in later editions of *The Origin of Species,* it has proved to be misleading. As Stephen Jay Gould (1980, 1989) and other biologists have insisted, evolution is not necessarily a grand road leading towards perfection.

Many other nineteenth-century notions have been ousted from theoretical biology in recent decades, but economists have not taken all these developments on board. For instance, outside theoretical biology it is still widely taken for granted that an evolutionary process necessarily involves the selection of individual units that are in some sense superior or relatively efficient. Thus, for example, Douglass North (1981:7) writes: 'competition in the face of ubiquitous scarcity dictates that the more efficient institutions…will survive and the inefficient ones perish'. The general idea that some kind of competitive evolutionary selection process favours the firms that adapt better to 'social costs and social wants' is also advocated by the antitrust economist Robert Bork (1978:118).

Also alluding to Darwinian 'natural selection', Michael Jensen and William Meckling (1979:473) argue that co-determination or industrial democracy must be relatively inefficient: 'The fact that this system seldom arises out of voluntary arrangements among individuals strongly suggests that co-determination or industrial democracy is less efficient than the alternatives which grow up and

survive in a competitive environment'. However, as indicated below, theoretical biology no longer sustains such unqualified propositions.

It is the purpose of this essay to examine the repeated application of the tenet that evolutionary competition leads to greater efficiency. Particular focus is placed here on Oliver Williamson's use of this proposition in his celebrated theory of the firm. Along with the theoretical argument that hierarchy should be more efficient, Williamson and others frequently appeal to the empirical evidence of the preponderance of hierarchical firms in the real world to support the claim that such forms are more efficient than other types of organization, such as participatory or co-operative firms. It is argued that the competitive process has led to the selection of hierarchical firms and for this reason they must be assumed to be more efficient than their rivals.

It shall be shown here that this type of appeal to evolutionary selection is not well founded. This is not because the application of evolutionary and biological ideas to the social sciences is necessarily misconceived. Instead it is argued there are several good reasons why more efficient firms need not always be selected in a competitive and 'evolutionary' process. Several types of circumstance where evolution does not select the most efficient have been identified in biology, and many of these have a plausible analogue in the economic sphere.

The second section of this paper addresses the hypothesis that competitive selection favours efficiency directly—as expressed in Williamson's work—and raises some preliminary points of contention. The third section examines the relevant ideas in evolutionary biology and discusses their application to economics, involving an extended critique of Williamson's idea. The fourth section concludes the essay. It is shown below that modern evolutionary theory does not give universal or unqualified support for the efficient selection hypothesis that Williamson and others wish to entertain.

WILLIAMSON'S APPEAL TO EVOLUTIONARY SELECTION

In several passages Williamson (1975, 1985) asserts that because hierarchical firms exist, then they must tend to be both more efficient and most suited to survival. Thus, in his theoretical attempt to compare the efficiency of different types of firm structure, Williamson (1980:35) concludes that

> it is no accident that hierarchy is ubiquitous within all organizations of any size…. In short, inveighing against hierarchy is rhetoric; both the logic of efficiency and the historical evidence disclose that nonhierarchical modes are mainly of ephemeral duration.

Careful to note that evolutionary selection does not lead to perfect fitness, Williamson (1985:23) subscribes to 'weak-form selection' and endorses Herbert Simon's (1983:69) statement that 'in a relative sense, the *fitter* survive, but there is no reason to suppose that they are fittest in any absolute sense'.[3] Here Williamson

is on firm ground because 'satisficing' behaviour has a stronger basis in evolutionary theory than global maximization.[4]

However, Simon's statement can be interpreted in either weak or strong terms. The weak interpretation suggests simply that the fitness of a unit is judged relative to other units and does not depend upon an absolute standard. However, stronger interpretations would convey that fitness is not only relative to other units but also to the general environment, or even that there is no inter-temporal concept of fitness at all.

Notably, Williamson's general argument, unlike Simon's, involves comparisons of fitness across different times and situations, necessarily utilizing some invariant standard of comparison. Williamson ignores the important point that the selection of the 'fitter' in evolution is not simply relative to the less successful but is dependent upon the general circumstances and environment in which selection takes place. The 'fitter' are only fit in the context of a given environment, and sometimes the 'unfit' can be rapidly transformed into the 'fit', and vice versa—note the dinosaur—if these environmental circumstances change.

James March and Johan Olsen (1984:737) point out that if evolution is to lead through a selection process to improvements or greater efficiency in some sense, then the environment must be sufficiently stable for selection to take place. Improvement must be accomplished before any disruptive environmental change occurs. In the economic context, however, improvements may not become established before there is such a disturbance in the rapidly-changing environment.

Essentially, in a changing environment there is no guarantee that organizational selection and mutation will proceed at a similar pace. Dominant structures today may in fact be inefficient compared to a minority of emerging rivals. Indeed, Williamson's comparative static evaluation of transaction costs arrangements conflicts with the conception of evolution as a continuous and ongoing process. The importance of the environmental context in evolution is discussed further below.

The appeal to evidence

Williamson repeatedly refers to 'evidence' in support of his contention that efficiency considerations will tend to win out. However, this particular evidence simply consists of the observation that hierarchical firms—rather than non-hierarchical worker co-operatives for instance—are clearly more numerous in the real world. Support for the proposition that participatory and co-operative firms enjoy greater productivity and longevity comes from a large amount of additional case study and econometric evidence.[5] Like most empirical evidence relating to complex issues, it is problematic and controversial, but the weight of testimony in favour or a positive correlation between participation and productivity does not justify its neglect in Williamson's work. Indeed, only a few words are devoted to a very partial glimpse at the relevant literature (Williamson, 1985:269–70). This empirical evidence is largely disregarded because, according to his notion of an evolutionary process, it seems to be inconsistent with the undisputed observation

that in the real world hierarchical firms are far more plentiful. However, as shown below, his notion of evolution is flawed, and in reality the two sets of empirical evidence are not inconsistent.

Contesting the work of Stephen Marglin (1974), Oliver Williamson and William Ouchi (1983) appeal again to 'the logic of efficiency' and the evidence of the predominance of the hierarchical firm in the reality outside. Marglin contends that the hierarchical organization of the capitalist firm arose not because it was more efficient but because capitalists during the Industrial Revolution wished to concentrate and extend their power over their subordinates. Addressing the evolution of different organizational forms, Williamson and Ouchi (1983:29–30) respond that

> power considerations will usually give way to efficiency—at least in profit-making enterprises, if observations are taken at sufficiently long intervals…. This does not imply that power has no role to play, but we think it invites confusion to explain organizational results that are predicted by the efficiency hypothesis in terms of power. Rather power explains results when the organization sacrifices efficiency to serve special interests. We concede that this occurs. But we do not believe that major organizational changes in the commercial sector are explained in these terms. The evidence is all to the contrary.

Unfortunately, this statement involves a number of misconceptions.[6] In particular, the idea that the evolutionary selection processes will tend to favour relatively efficient organizations over time—be they hierarchical or otherwise—is crucial to his argument and worthy of critical consideration.[7]

For our purposes here, it is not necessary to examine Williamson's precise definition of 'efficiency'. Similar problems arise whether efficiency is defined in terms of some kind of profitability, productivity, or whatever. As long as efficiency is not equated simply with the capacity to survive—thereby constructing an obvious tautology—then any reasonable and commonplace definition of the term will suffice for the present discussion.

Later still, Williamson (1988) brushes aside the charges of Panglossian excess raised by Mark Granovetter (1985) amongst others. Whilst Williamson (1988:178) does not endorse the stronger proposition 'that all is for the best in this best of possible worlds', he still holds to the view that competition performs some kind of sort and shifts resources in favour of the more efficient forms of organization. He might thus use the words: 'competition approaches the best in this near-best of possible worlds'. But this article of faith is again juxtaposed with the contemplative observation that a 'more fully developed theory of the selection process' (p. 174) is lacking.[8]

A number of other authors have made relevant points in this context. For instance, Edna Ullmann-Margalit (1978) demonstrates that the explanation of emergence and survival in evolution is not the same thing as an explanation of

efficiency, even if the latter may enhance the chances of survival in the future. Strictly, in order to explain the existence of a structure it is neither necessary nor sufficient to show that it is efficient. Inefficient structures do happen to exist and survive, and many possible efficient structures will never actually emerge or be selected. As Simon (1976:247) insists: 'the assumption so often made in administrative studies, that an arrangement is effective because it exists, is a circular argument of the worst sort'. Gregory Dow (1987:32) similarly observes, 'it is all too easy to abuse economic selection arguments by simply declaring that surviving forms of organization are efficient ipso facto'.[9]

In response to criticism, Williamson (1991:104–8) has more recently attempted a more detailed account of the evolutionary processes involved in the spread of multidivisional structures among large corporations. He attempts to show that evolution selects for efficiency in this case. However, this does not endorse the general proposition that existence implies global efficiency. It simply suggests that relative and local efficiency considerations may be relevant in specific instances.

BIOLOGICAL AND ECONOMIC EVOLUTION

Fecundity, efficiency and organizational form

It has been common in the past to bestow upon competitive natural selection the status of a kind of driving force leading through greater and greater efficiency to a state of perfection. In one of their critiques of such 'adaptationist' ideas, Stephen Jay Gould and Richard Lewontin (1979) undermine the idea of natural selection as an optimizing agent. They point out that there are alternatives to immediate adaptation for the explanation of form, function, and behaviour. One of their examples—which as shown below has a direct application to economics—is the case of a mutation which doubles the fecundity of individuals. As natural selection always favours greater fecundity, a gene promoting it would sweep through a population rapidly, but it need not imply greater survival value. Indeed, if a predator on immature stages is led to switch to the species in question, now that young organisms are more plentiful, the overall population size may actually decrease as a consequence.

The theme of fecundity relates directly to Williamson's argument about the greater density of hierarchical and non-cooperative firms, and their allegedly superior efficiency. Recall Mancur Olson's (1965) analysis of the difficulties of forming collective organizations where individual benefits do not seem to justify the trouble and expense of organizing. More individual or partnership firms may be formed because of the relative ease of appropriability of rents, as raised by Dow (1987). Referring to Olson's argument in their study of the rise of the modern industrial system, Nathan Rosenberg and Luther Birdzell (1986:316) point out that:

> By comparison, the promoter of an investor-owned enterprise can, by retaining part or all of the ownership interest, profit handsomely if the enterprise

succeeds. So one might expect more investor-owned enterprises, small or large, to survive simply because far more of them are likely to be born.

Consequently, even in a rational-choice framework, such as that employed by Olson, there is good reason to doubt that the existence of a greater number of non-cooperative rather than co-operative firms should imply that the former is more efficient than the latter. The greater density of a given organizational form does not necessarily imply greater efficiency. It may be that co-operative firms are less numerous, not because they are less efficient, but simply because they are less likely to emerge than firms created on the basis of individual ownership, involving one person, a partnership or a small group. If circumstances favour the birth of greater numbers of hierarchical firms they may grow in size or number to swamp the non-hierarchical businesses, whatever the relative efficiencies.

Michael Everett and Alanson Minkler (1993) show in more detail that labour-managed firms were originally at a substantial disadvantage compared with their capitalist counterparts. They argue that in Britain the situation of unlimited liability before the Companies Act of 1856 imposed additional risks and costs on labour-managed firms. Furthermore, early financial instruments were ill-suited to the establishment and continuation of worker co-operatives. The subsequent coevolution of firms and supporting institutions involved a path-dependent process where labour-managed firms were at a continual disadvantage, even after many of the earlier impediments were removed. The evaluation of the performance and optimal scale of co-operatives is complex, and no simple verdict is being suggested here. It is simply argued that neither existence nor non-existence, nor survival nor extinction, imply greater or lesser efficiency.

Considerations of fecundity in biology do not simply involve the conditions governing the birth of firms. They also lead us to focus directly on the characteristics of new entrants into an industry. Evolution will also favour the forms more likely to emerge in a given sector in given circumstances, rather than simply the more efficient. In relation to a particular subsystem, such as a national or regional economy, evolution will also favour the more mobile 'immigrant' firms and the subsidiaries thus created. Thus multinational corporations may predominate, not because they are more efficient, but simply because their assets and expertise are able to penetrate national and regional boundaries to become reproducible therein.

If the industry is subjected to a rapid flow of new entrants of hierarchical form, then they may swamp the less hierarchical firms even if other selection processes are working in favour of the latter. The selection of hierarchical or non-hierarchical firms may not simply depend on the existing population, but the capacity of new entrants to acquire or imitate their characteristics. In general, therefore, the rate of immigration, the characteristics of the entrants, and the relationship of these characteristics to the selected population, will effect the chances of particular types of organizational forms being selected. This conclusion is important because it shows that the particular kind of mechanism governing the creation of new entrants is as significant as the selection process *per se*.

To recapitulate the general point here, most 'evolutionary' arguments for the alleged superiority of hierarchical firms concentrate simply on the question of the extinction of the allegedly unfit. However, as Gould (1982:101) writes: 'Natural selection operates either by differential death or differential birth'. Each is important, and the matters promoting or hindering the creation of new firms cannot be ignored in an evolutionary process.

Multiple adaptive peaks and caused environment effects

Biologists use the idea of a fitness surface to describe the fitness of a given organism in characteristic space. The fitness surface, as we shall see below, need not be fixed or stable. The idea has a direct analogue in economics. A simple case would be where 'efficiency' is measured along the vertical axis and the 'degree of hierarchy' is along the horizontal. Williamson uses the apparent evidence of ubiquitous hierarchy in the real world to suggest that the region of maximum 'efficiency' corresponds to a high level of hierarchical organization.

However, what happens if the efficiency curve has more than one maximum? In biological jargon there is the possibility of a 'multiplicity of adaptive peaks on a fitness surface', as noted by Sewall Wright (1931, 1956, 1959) long ago. In these circumstances the selection process may lead to the congregation of units around a local, rather than the global, maximum, and a journey to the global optimum may be ruled out by the distance involved and the depth of the valleys in between. With a multiplicity of adaptive peaks the path followed and thus the peak obtained are path-dependent: a result of history.

Further, with changing cost and efficiency conditions there is no reason why the topography should be constant. Just as in social science the agent is not independent of his or her environment, in biology the actions of agents themselves may alter the 'environment' and the fitness surface. The environment in which selection proceeds includes other species and often the 'social relations' or 'culture' of the subject species itself. Consequently, biological behaviour is not simply a result of environmental change but also in part its cause,

> since it is the animal's behaviour which to a considerable extent determines the nature of the environment to which it will submit itself and the character of the selective forces with which it will consent to wrestle. This 'feedback' or circularity in a relation between an animal and its environment is rather generally neglected in present-day evolutionary theorising.
>
> (Waddington, 1975:170)

Whilst a favourable adaptation may occur in relation to a given environmental situation, and the first few adaptations may be favourable for the units concerned, the accumulation of such adaptations may alter the environment itself, and the eventual result may be that the same adaptation no longer yields beneficial results for any individual unit.[10]

Biologists are aware of the 'frequency dependency' effect where selection coefficients are dependent on population frequency or density (Lewontin, 1974). Clearly, this has a direct application to economics. We shall refer to the more general phenomenon as selection being affected by organism—environment interactions as 'the caused environment effect', of which frequency dependency is a subset.

Take the example of a firm finding a market niche involving the manufacture of a new type or variety of product. Initially, the firm may make large profits from the venture. However, if a large number of other firms perceive and grasp the same opportunity the market may become flooded and the product may no longer be profitable. The 'environment', i.e., the state of market demand, itself may alter as other firms seek out buyers. What was profitable for one or a few alone may not be profitable for many together.[11]

Conversely, Gerald Silverberg, Giovanni Dosi and Luigi Orsenigo (1988) develop models where primary innovators and first entrants to a market are at a disadvantage, partly because in the initial stages there is not an adequate pool of labour with the appropriate skills. Second or later entrants may be favoured, because by then crucial knowledge has been derived from experience and productivity raised. There is a 'penalty of taking the lead', to use Veblen's (1915) appropriate phrase. Consequently, what was unprofitable for a single leading firm may not be unprofitable once many have followed.

Such possibilities, deriving from cybernetic or 'feedback' relationship between a unit and its environment, are significant in both economic and biological evolution. They exemplify a 'fallacy of composition': it is wrong to presume that the selection of fitter individuals always leads to the selection of fitter populations.[12] The neglect of this 'caused environment effect' is equivalent to the adoption of partial equilibrium theorizing for general and system-wide results.

The literature on oligopolistic market structures involves interdependences between firms amounting to caused environment effects. It is well known that in this case partial equilibrium theorizing in the Marshallian sense is clearly non-viable; the market environment is affected by the actions of each firm.

Just as modern biologists have argued that evolution may not necessary produce an optimal or near-optimal outcome for the species involved, economic evolution likewise may not lead to the maximization or near-maximization of efficiency or welfare, defining those terms in any of the accepted senses. The fallacy of composition has been detected in some attempts to deduce global optimization from the presumed struggle to survive or optimize at the individual level. This type of error in economics can have adverse consequences for economic theory and policy. The 'caused environment effect' further undermines the view that the environment can be taken as a given.

The changing topography of the fitness surface resulting from the 'caused environment effect' may further inhibit the selection of given types of firm. A group of non-hierarchical firms, having climbed a sometime global maximum, might find themselves overshadowed by a new and unobtainable global peak, or even plunged into a new depression. A group of hierarchical firms might find themselves lunged

upwards by earth movements in their favour. The possibility of a fitness surface with such a changing topography is considered in biological theory, by Conrad Waddington (1972) amongst others. It is sometimes referred to as the 'dancing landscapes' problem.[13] With a shifting fitness surface we often have no reason for asserting that one 'optimal' solution will prove to be lastingly better than another. This issue becomes crucially important if the evolution of the population is path-dependent. Units may become locked-in to a given type of structure which survives despite it having lost its past efficiency characteristics, due to the changing topography of the 'fitness' surface.

Frequency dependence and selection anomalies

It should be emphasized that in biology that there is no fixed or eternal genotypical formula for success. Evolution does not generate eternal attributes, nor characteristics in accord with some absolute standard of 'fitness'. As the biologist Ernst Mayr (1963:296) argues: 'No gene has a fixed selective value; the same gene may confer high fitness on one genetic background and be virtually lethal on another'. What is 'fit' is always relative to an environmental situation. As Waddington (1969:364) observes: 'The same genotype can therefore produce a number of phenotypes according to what the environment of the developing system has been'. Equivalent or analogous propositions are valid in the economic sphere as well.

Thus even if the 'selected' characteristics of firms were the 'fittest' then they would be so in regard to a particular, economic, political, and cultural environment only; they would not be the 'fittest' for all circumstances and times. Consider the following illustrative example of a type of frequency dependence. Assume two types of firm, Type *A* and Type *B*. The population as a whole is a mix of Type *A* and Type *B* firms, with the associated culture and inter-firm relations. Given that a new entrant can be of either type, their profits can be given by one of the following formulae:

Profit of Type *A* entrant firm = 50 + (per cent of Type *B* Firms)
Profit of Type *B* entrant firm = (per cent of Type *B* Firms)

Such illustrative profit values can be justified in terms of the different types of organization form and inter-firm relations. For instance, Type *B* firms can be associated with more open and participatory structures and more co-operative inter-firm behaviour, including perhaps the informal exchange of technical know-how (von Hippel, 1987, 1988).[14]

Assume, first, that the initial (large) population is composed entirely of Type *A* firms. In this case the profit for each Type *A* new entrant will be 50, and of each Type *B* new entrant will be 0. Clearly, Type *B* firms are unlikely to become established if Type *A* firms are dominant. However, if the initial population is composed entirely of Type *B* firms then the profit for each Type *A* new entrant will be 150, and of each Type *B* new entrant will be 100. Consequently, in this

case, Type *A* firms can successfully invade the Type *B* population. In sum, Type *A* firms are likely to become or remain dominant, whatever the starting position. This will happen even if average profits are greater in an industry composed entirely of Type *B* firms than one composed entirely of Type *A*. Assume that the above equations apply to all firms, and not simply new entrants. Then the average profits of a Type *A* population will be 50 and of a Type *B* population will be 100. Yet Type *B* firms are always at a relative disadvantage.

Furthermore, if the industry was dominated by Type *B* firms then the situation may not last because new entrants of Type *A* would be at a great advantage in those circumstances. Unless corrective action was taken—such as some arrangement for formal or informal regulation of the industry by the state or by an industrial association—the greater overall benefits related to Type *B* dominance would be eventually undermined and destroyed by incoming Type *A* firms.

This hypothetical example illustrates a number of general points. First, given that pay-offs are dependent on the nature of the industry as a whole, then the selected characteristics likewise depend on the overall environment. Indeed, research on co-operatives suggests that their success is highly dependent on the type of financial and cultural regime that prevails in the economy as a whole (Horvat, 1975; Milenkovitch, 1971; Thomas and Logan, 1982).

Second, 'natural selection' does not necessarily favour the more efficient units, nor always the optimal or near-optimal outcomes. The low density of co-operative or participatory firms in the real world should not be taken to mean that either individual firms of this type, or an industry dominated by them, is necessarily less efficient.

Third, and consequently, such circumstances may constitute a pretext for some kind of intervention in the evolutionary process, contrary to the Panglossian attitude of earlier evolutionary theorists such as Herbert Spencer. There is no guarantee that efficient firms will actually be selected in a competitive, evolutionary process.

Prisoner's dilemma, critical mass and intransitivity

We may note here Robert Axelrod's (1984) famous experiments on 'the evolution of co-operation' in an iterated Prisoner's Dilemma. Via a celebrated computer tournament he showed that a simple 'tit for tat' strategy where co-operation is met with co-operation, and hostile 'defection' is met with defection, can rival a formidable sample of rival and often more complex strategies.

Axelrod further shows that in some cases the prosperity of the 'co-operators' may depend on them reaching a critical mass in the population as a whole. Further, the viability of certain populations may depend on the initial population structure (Axelrod and Dion, 1988). In general, this means that what is efficient in one context may not be efficient in another. More particularly, the 'failure' of a type of unit may result not from any inherent deficiency but from the fact that it has not reached a critical mass in the general population.

Further relevant repercussions of this prisoner's dilemma model are suggested by Philip Kitcher (1987:92) and reportedly also by Jack Hirshleifer. It is pointed out

that a population dominated by units playing the tit for tat strategy has no resistance to the invasive drift of others who will always co-operate. If this occurs then the consequent population of co-operators would clearly be vulnerable to an invasion by a species of unit which consistently defects. The tit for tat strategy would thus be completely overturned, and the population would 'regress' to the strategy of defection and non-cooperation.

However, such a population could then be colonised by units playing tit for tat, as long as the problem of critical mass is overcome by, for example, a sufficiently high rate of immigration.[15] Clearly there is a case of intransitivity here. A population of tit for tats is vulnerable to incursion by co-operators; but a population of co-operators is vulnerable to invasion by defectors; and finally a population of defectors is vulnerable to colonisation by tit for tats. Replace each occurrence of the phrases 'is vulnerable to incursion/invasion/colonization by' in the preceding sentence with 'is less efficient than' or with 'is less fit than' then we can see the problem that is raised by such intransitivity. Not only is the general notion of the 'survival of the fittest' questioned, but more particularly any ordinal notion of 'efficiency' becomes groundless. The very idea that 'natural selection' sorts out units in accord with some absolute or relative notion of efficiency is highly dubious in such circumstances.

The idea of critical mass has been examined in other contexts in economics, for instance in regard to the establishment of technological regimes (David, 1987), to the emergence of particular consumer behaviours in situations of interdependence (Granovetter and Soong, 1986), to the stabilization of conservative regimes (Kuran, 1987), to speculation about other individual's behaviour (Schelling, 1978), to solutions to the prisoner's dilemma by collective learning (Witt, 1986), and to the emergence of social institutions (Witt, 1989).

The prisoner's dilemma also corresponds to cases in the socio-biological literature describing the evolution of tendencies to either 'selfish' or 'altruistic' behaviour. Whilst universal altruism may be most beneficial for all members of the species, the possible existence of a such a prisoner's dilemma can lead to the breakdown of the arrangement of universal altruism with its advantages for all. Thus there is not necessarily any universal mechanism 'by which natural selection tends to favour the survival of the species or the population. The population, in fact, may "improve itself to extinction"' (Elster, 1983:54).

Thus the 'survival of the fittest' turns out to be an ill-conceived slogan. Indeed, the mechanism of natural selection in modern biology does not even necessarily lead to survival. Conversely, the mere fact of survival, even to a numerous and sustained extent, need not always imply efficiency at all. The conclusion here concurs with the one Elliott Sober (1981:99) has reached in regard to biology: 'The so-called tautology of the survival of the fittest is no tautology at all; the fitter do *not* always turn out to be more successful'. Likewise, Anthony Arnold and Kurt Fristrup (1982:117) argue that the 'concept of natural selection is sometimes clouded by the equation of fitness with survival—a popular misconception that is reinforced by the phrase "survival of the fittest".'

CONCLUSION

It has been shown here that although competitive 'natural' selection can work in favour of efficient firms, there are reasons to be generally very cautious with the idea. We may highlight the particular proposition that the context of competition may be as significant as the existence or process of competition itself.

There is reason to assume that such frequency dependence is as important in real economies as it is in the biological world. The research programme thus derived would focus, for example, on the institutional and cultural contexts in which economic competition takes place. These are known to differ widely from country to country and even from region to region. Policy proposals would have to focus on the development of an appropriate environment, as well as on the efficacious degree of competition in the industrial sphere. Straightforward reliance on competition alone to enhance efficiency is misconceived.

There is also a historical dimension to the argument. It is suggested here that the development of the factory system and the modern capitalist firm is not simply a question of the evolutionary selection of most efficient organizational forms. Issues of path-dependency (Arthur, 1989), as well as frequency dependence, may be significant. For example, some historical researchers have suggested that the developing factory system was influenced at its origin by the military structures of the time: in Britain during the Napoleonic Wars and in the United States around the time of the Civil War. The circumstances of war prompted militaristic forms of industrial organization, and the hierarchical regimentation of the soldiery has its parallel in the similar organization of the work-force.[16]

Charles Sabel and Jonathan Zeitlin (1985) argue on the basis of historical evidence that in Europe there was an alternative path to industrialization based on small-scale firms and flexible specialization. Also looking at the evolution of the factory system, Maxine Berg (1991) compares explanations based on the supposed dictates of technology with the idea of such an alternative road. She concludes that industrialization could have taken many possible pathways and occurred in different sequences. Ugo Pagano (1991:327) considers the two-way and cumulative interaction of technology with property rights, pointing out that: 'In this context, simple efficiency stories may well lose their meaning. Each outcome is likely to be path dependent and inefficient interactions between property rights and technology are likely to characterize the history of economic systems.'

In the context of modern industrial structures, Richard Langlois (1988) argues explicitly that path-dependency may be relevant in the evolution of organizational form. Likewise, and contrary to his earlier view, Douglass North (1990) now accepts that path-dependent processes also apply to institutions, and therefore the surviving arrangements are not necessarily the most efficient. The kind of economic history which ignored path-dependency and inefficient equilibria, and assumed that historical change involved a sequence of discrete steps to ever-more efficient institutional arrangements, is now widely criticized (Binger and Hoffman, 1989). As we have seen, the issue of path-dependency is raised explicitly by Everett and

Minkler (1993) in their argument concerning the impediments to the formation of labour-managed firms in the earlier phases of the industrial revolution.

The Williamsonian hypothesis would deem the military—industrial parallel to be irrelevant; whatever the original circumstances the more efficient forms would prosper and survive. Also, the alternative industrial roads of flexible specialization or labour-management would be deemed to have been avoided because of their inefficiencies. On the contrary, the possibility of path-dependency suggests that alternative, less-hierarchical or less-regimented forms of organization could have been just as viable. Only painstaking historical research, rather than bold evolutionary generalizations based on dubious 'biological laws', can adjudicate on this and related questions.

Above all, in the present context, much further examination of the performance characteristics of various types of hierarchic and less-hierarchic firm is necessary before generalizations concerning the efficiency of one organizational form rather than another can be made.[17]

NOTES

1 The author is grateful to Mike Dietrich, Dorothy Manning, Maureen McKelvey, Brian Snowdon, Arthur Walker, Mo Yamin, participants at the WIDER seminar in Cambridge in January 1993—particularly Robin Archer—and many others for discussions on the theme of this essay.

2 The place of evolutionary or biological ideas in the economics of Marshall, Marx, Menger, Schumpeter, Veblen and others is discussed in Hodgson (1993). Note also the seminal post-war invocations of the 'natural selection' idea by Alchian (1950) and Friedman (1953); these are criticized in Hodgson (1994). Recent 'evolutionary' approaches include Andersen (1994), Boulding (1981), Clark and Juma (1987), Dosi, Freeman, Nelson, Silverberg and Soete (1988), England (1994), Faber and Proops (1990), Foster (1987), Futia (1980), Hanusch (1988), Hayek (1988), Heertje and Perlman (1990), Nelson and Winter (1982), Silverberg, Dosi and Orsenigo (1988), and Witt (1987, 1992).

3 This echoes Alchian's (1950:213) remark: 'As in a race, the award goes to the relatively fastest, even if all the competitors loaf'. Similarly, in a critique of socio-biology, Sahlins (1977:74–5) writes:

> In the science of economics,…[the] problem of resource allocation…[is answered by] the particular distribution of resources which maximizes utilities from the means at hand. But natural selection is not the one best; it need be only one better. In that sense it is a minimum principle. Selection becomes positive the moment any relative advantage is produced.

4 This is true for biological as well as for economic evolution. For instance, as Dobzhansky *et al.* (1977:98) point out, natural selection in biology does not lead to the superlative fittest, only the tolerably fit.

5 The evidence relating participatory structures to greater productivity seems to be even stronger than the evidence on a correlation between participation and job satisfaction. See the reviews of this substantial evidence in Bonin, Jones and Putterman (1993) and in the articles by Gui and Ben-Ner, Han and Jones in the present volume.

6 For instance, in conceding that 'power explains results when the organization sacrifices efficiency to serve special interests', Williamson and Ouchi seem to regard the organization itself as a purposeful agent, connecting with a functionalism to be found

elsewhere in Williamson's writings. Against the teleology of this statement, it is now widely argued in philosophy and social science that the notion of purposefulness should not be extended, at least without careful qualification, from individuals to organizations.

7 Whilst in a later work Williamson (1985:22, 394) still adopts the assumption that evolutionary processes in a competitive market environment breed efficiency, there are adjoining appeals for the development of a 'fully developed theory of the selection process' (ibid.: 23) and statements of the need to assess such propositions 'more carefully' (ibid.: 394n.).

8 In response, Granovetter (1988:188) touches upon deeper ontological and methodological issues by suggesting that the kind of selection arguments employed by Williamson depend upon 'stylized assumptions about information, productivity, and motivation that can be accurate only in the absence of social structure—i.e. in the presence of atomized actors'. For reasons of space these deeper questions cannot be examined further here.

9 Dow (1993) gives a theoretical explanation why capitalist firms may persist in competitive markets even when labour-managed firms yield a greater surplus.

10 In biology, similar considerations have given rise to such conjectures as the 'Red Queen hypothesis' in which as each species evolves, this itself constitutes an alteration of the environment in which other species coexist, giving rise to further evolutionary change and cumulative feedback effects on the other species (Van Valen, 1973; Stenseth and Maynard Smith, 1984).

11 Seal (1990) points out that real-world firms typically face competition in several markets at once, and that selection pressures in these markets may alter in intensity, form and direction. However, contrary to Seal, this itself is not a decisive rebuttal of Williamson's 'natural selection' argument. For a long while biology has typically encompassed multiple selective pressures in its treatment of the environmental context of evolution. Whatever its validity, Seal's point is different from the caused environment effect discussed here.

12 For further examples of, and references to, the fallacy of composition see Hodgson (1988:69, 233–4).

13 In a rare presentation of an economic model which exhibits such a phenomenon, Kauffman (1988) points out that high degrees of such frequency dependence and interdependence of units can lead to a situation where the attainable local optima are hardly better than situations arrived at by pure chance.

14 In a study of Italian co-operatives, Gherardi and Masiero (1990) argue that the development of a close-knit system of intra-organizational trust relations and networking activities has been crucial to their success.

15 Sober (1992) discusses the precise conditions under which such an invasion may occur.

16 With variations, this idea is proposed in McNeill (1980), Mumford (1934), Nef (1950), Smith (1985) and Winter (1975) amongst others.

17 In this regard note Rotemberg's (1991) argument that under certain conditions the internal organization of the firm may be suboptimal, even if the firm is profit maximizing. This challenges the view that the reason for the existence of the firm is its capacity to reduce transaction costs. Other fundamental criticisms of the transaction costs approach are found in Dietrich (1994), Dow (1987), Foss (1993), Kay (1992) and Pitelis (1993).

REFERENCES

Alchian, A.A. (1950) 'Uncertainty, Evolution and Economic Theory', *Journal of Political Economy,* 58, June: 211–22.

Andersen, E.S. (1994) *Evolutionary Economics: Post-Schumpeterian Contributions* (London: Pinter).

Arnold, A.J. and Fristrup, K. (1982) 'The Theory of Evolution by Natural Selection: A Hierarchical Expansion', *Paleobiology,* 8: 113–29. Reprinted in R.N.Brandon and R.M. Burian (eds) (1984) *Genes, Organisms, Populations: Controversies Over the Units of Selection* (Cambridge, MA: MIT Press).

Arthur, W.B. (1989) 'Competing Technologies, Increasing Returns, and Lock-in by Historical Events', *Economic Journal,* 99(1), March: 116–31.

Axelrod, R.M. (1984) *The Evolution of Cooperation* (New York: Basic Books).

Axelrod, R. and Dion, D. (1988) 'The Further Evolution of Cooperation', *Science,* No. 242, 9 December: 1385–90.

Berg, M. (1991) 'On the Origins of Capitalist Hierarchy', in B.Gustafsson (ed.) (1991) *Power and Economic Institutions: Reinterpretations in Economic History* (Aldershot: Edward Elgar).

Binger, B.R. and Hoffman, E. (1989) 'Institutional Persistence and Change: The Question of Efficiency', *Journal of Institutional and Theoretical Economics,* 145(1), March: 67–84.

Bonin, John P., Jones, Derek and Putterman, Louis (1993) 'Theoretical and Empirical Studies of Producer Cooperatives: Will Ever the Twain Meet?', *Journal of Economic Literature,* 31(3), September: 1290–320.

Bork, R.H. (1978) *The Antitrust Paradox* (New York: Basic Books).

Boulding, K.E. (1981) *Evolutionary Economics* (Beverly Hills, CA: Sage Publications).

Clark, N.G. and Juma, C. (1987) *Long-Run Economics: An Evolutionary Approach to Economic Growth* (London: Pinter).

David, P.A. (1987) 'Some New Standards for the Economics of Standardization in the Information Age', in P.Dasgupta and P.L.Stoneman (eds) *Economic Policy and Technological Performance* (London: Cambridge University Press).

Dietrich, M. (1994) *Transaction Cost Economics and Beyond: Towards a New Economics of the Firm* (London: Routledge).

Dobzhansky, T., Ayala, F.J., Stebbins, G.L. and Valentine, J.W. (1977) *Evolution* (San Francisco: Freeman).

Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L.L.G. (eds) (1988) *Technical Change and Economic Theory* (London: Pinter).

Dow, G.K. (1987) 'The Function of Authority in Transaction Cost Economics', *Journal of Economic Behavior and Organization,* 8, March: 13–38.

Dow, G.K. (1993) 'Why Capital Hires Labour: A Bargaining Perspective', *American Economic Review,* 83(1), March: 118–34.

Elster, J. (1983) *Explaining Technical Change* (Cambridge: Cambridge University Press).

England, R.W. (ed.) (1994) *Evolutionary Concepts in Contemporary Economics* (Ann Arbor: University of Michigan Press).

Everett, M.J. and Minkler, A.P. (1993) 'Evolution and Organizational Choice in 19th Century Britain', *Cambridge Journal of Economics,* 17(1), March: 51–62.

Faber, M. and Proops, J.L.R. (1990) *Evolution, Time, Production and the Environment* (Berlin: Springer).

Farkas, G. and England, P. (eds) (1988) *Industries, Firms, and Jobs: Sociological and Economic Approaches* (New York: Plenum Press).

Foss, Nicolai Juul (1993) 'Theories of the Firm: Contractual and Competence Perspectives', *Journal of Evolutionary Economics,* 3(2), May: 127–44.

Foster, J. (1987) *Evolutionary Macroeconomics* (London: George Allen and Unwin).

Friedman, M. (1953) 'The Methodology of Positive Economics', in *Essays in Positive Economics* (Chicago: University of Chicago Press).

Futia, C.A. (1980) 'Schumpeterian Competition', *Quarterly Journal of Economics,* 94(2), June: 677–95.

Gherardi, S. and Masiero, A. (1990) 'Solidarity as a Networking Skill and a Trust Relation: Its Implications for Cooperative Development', *Economic and Industrial Democracy,* 11 (4), November: 553–74.

Gould, S.J. (1980) *The Panda's Thumb* (New York: Norton).
Gould, S.J. (1982) 'The Meaning of Punctuated Equilibrium and its Role in Validating a Hierarchical Approach to Macroevolution', in R.Milkman (ed.) (1982) *Perspectives on Evolution* (Sunderland, MA: Sinauer Associates), pp. 83–104.
Gould, S.J. (1989) *Wonderful Life: The Burgess Shale and the Nature of History* (London: Hutchinson Radius).
Gould, S.J. and Lewontin, R.C. (1979) 'The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme', *Proceedings of the Royal Society of London, Series B,* 205: 581–98. Reprinted in Sober (1984).
Granovetter, M. (1985) 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology,* 91 (3), November: 481–510.
Granovetter, M. (1988) 'The Sociological and Economic Approaches to Labor Market Analysis', in Farkas and England (1 988 : 187–216).
Granovetter, M. and Soong, R. (1986) 'Threshold Models of Interpersonal Effects in Consumer Demand', *Journal of Economic Behavior and Organization, 7:* 83–100.
Hanusch, H. (ed.) (1988) *Evolutionary Economics: Applications of Schumpeter's Ideas* (Cambridge: Cambridge University Press).
Hayek, F.A. (1988) *The Fatal Conceit: The Errors of Socialism, Collected Works of F.A. Hayek,* Vol. 1 (London: Routledge).
Heertje, A. and Perlman, M. (eds) (1990) *Evolving Technology and Market Structure: Studies in Schumpeterian Economics* (Ann Arbor: University of Michigan Press).
Hippel, E.von (1987) 'Cooperation Between Rivals: Informal Know-How Trading', *Research Policy,* 16: 291–302.
Hippel, E.von (1988) *The Sources of Innovation* (Oxford: Oxford University Press).
Hodgson, G.M. (1988) *Economics and Institutions: A Manifesto for a Modern Institutional Economics* (Cambridge and Philadelphia: Polity Press and University of Pennsylvania Press).
Hodgson, G.M. (1993), *Economics and Evolution: Bringing Life Back Into Economics* (Cambridge, UK and Ann Arbor, MI: Polity Press and University of Michigan Press).
Hodgson, G.M. (1994), 'Optimisation and Evolution: Winter's Critique of Friedman Revisited', *Cambridge Journal of Economics,* 17(4), August: 413–30.
Horvat, B. (1975) 'An Institutional Model of a Self-Managed Socialist Economy', in Horvat, B., Markovic, M. and Supek, R. (eds) (1975) *Self-Governing Socialism* (White Plains NY: International Arts and Sciences Press).
Jensen, M.C. and Meckling, W.H. (1979) 'Rights and Production Functions: An Application to Labor-Managed Firms and Codetermination', *Journal of Business,* 52(4), October: 469–506.
Kauffman, S.A. (1988) 'The Evolution of Economic Webs', in P.Anderson, K.J.Arrow and D.Pines (eds) (1988) *The Economy as an Evolving Complex System* (Reading, MA: Addison-Wesley), pp. 125–46.
Kay, Neil M. (1992) 'Markets, False Hierarchies, and the Evolution of the Modern Corporation', *Journal of Economic Behavior and Organization,* 17(3), May: 315–33.
Kitcher, P. (1987) 'Why Not the Best?', in J.Dupré (ed.) (1987) *The Latest on the Best: Essays on Evolution and Optimality* (Cambridge, MA: MIT Press), pp. 77–102.
Kuran, T. (1987) 'Preference Falsification, Policy Continuity, and Collective Conservatism', *Economic Journal,* 97(3), September: 642–65.
Langlois, R.N. (1988) 'Economic Change and the Boundaries of the Firm', *Journal of Institutional and Theoretical Economics,* 144(4), September: 635–57.
Lewontin, R.C. (1974) *The Genetic Basis of Evolutionary Change* (New York: Columbia University Press).
McNeill, W.H. (1980) *The Pursuit of Power: Technology, Armed Force, and Society Since A.D. 1000* (Chicago: University of Chicago Press).

March, J.G. and Olsen, J.P. (1984) 'The New Institutionalism: Organizational Factors in Political Life', *American Political Science Review,* 78(3), September: 734–49.

Marglin, S.A. (1974) 'What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production', *Review of Radical Political Economics,* 6(2): 60–112.

Mayr, E. (1963) *Animal Species and Evolution* (Cambridge, MA: Harvard University Press).

Milenkovitch, D. (1971) *Plan and Market in Yugoslav Economic Thought* (New Haven: Yale University Press).

Mumford, L. (1934) *Technics and Civilization* (New York: Harcourt, Brace and World).

Nef, J.U. (1950) *War and Human Progress: An Essay on the Rise of Industrial Civilization* (Cambridge, MA: Harvard University Press).

Nelson, R.R. and Winter, S.G. (1982) *An Evolutionary Theory of Economic Change* (Cambridge MA: Harvard University Press).

North, D.C. (1981) *Structure and Change in Economic History* (New York: Norton).

North, D.C. (1990) *Institutions, Institutional Change and Economic Performance* (Cambridge: Cambridge University Press).

Olson Jr, M. (1965) *The Logic of Collective Action* (Cambridge, MA: Harvard University Press).

Pagano, U. (1991) 'Property Rights, Asset Specificity, and the Division of Labour Under Alternative Capitalist Relations', *Cambridge Journal of Economics,* 15(3), September: 315–42.

Pitelis, C. (ed.) (1993) *Transaction Costs, Markets and Hierarchies* (Oxford: Basil Blackwell).

Rosenberg, N. and Birdzell, Jr, L.E. (1986) *How the West Grew Rich: The Economic Transformation of the Industrial World* (New York: Basic Books).

Rotemberg, J.J. (1991) 'A Theory of Inefficient Intrafirm Transactions', *American Economic Review,* 81(1), March: 191–209.

Sabel, C. and Zeitlin, J. (1985) 'Historical Alternatives to Mass Production: Politics, Markets and Technology in Nineteenth Century Industrialization', *Past and Present,* No. 108, August: 132–76.

Sahlins, M.D. (1977) *The Use and Abuse of Biology: An Anthropological Critique of Sociobiology* (London: Tavistock).

Schelling, T. (1978) *Micromotives and Macrobehavior* (New York: Norton).

Seal, W.B. (1990) 'Deindustrialisation and Business Organisation: An Institutionalist Critique of the Natural Selection Analogy', *Cambridge Journal of Economics,* 14(3), September: 267–75.

Silverberg, G., Dosi, G. and Orsenigo, L. (1988) 'Innovation, Diversity and Diffusion: A Self-Organization Model', *Economic Journal,* 98(4), December: 1032–54.

Simon, H.A. (1976) *Administrative Behavior,* 3rd edn (Free Press: New York).

Simon, H.A. (1983) *Reason in Human Affairs* (Oxford: Basil Blackwell; Stanford: Stanford University Press).

Smith, M.R. (ed.) (1985) *Military Enterprise and Technological Change* (Cambridge, MA: MIT Press).

Sober, E. (1981) 'Holism, Individualism and the Units of Selection', in Asquith, P.D. and Giere, R.N. (eds) (1981) *Philosophy of Science Association 1980,* Vol. 2: 93–121. (East Lansing, MI: Philosophy of Science Association). Reprinted in Sober (1984).

Sober, E. (ed.) (1984) *Conceptual Issues in Evolutionary Biology: An Anthology* (Cambridge, MA: MIT Press).

Sober, E. (1992) 'The Evolution of Altruism: Correlation, Cost, and Benefit', *Biology and Philosophy,* 7(2): 177–87.

Stenseth, N.C. and Maynard Smith, J. (1984) 'Coevolution in Ecosystems: Red Queen Evolution or Stasis?', *Evolution,* 38: 870–80.

Thomas, H.T. and Logan, C. (1982) *Mondragon: An Economic Analysis* (London: George Allen and Unwin).

Ullmann-Margalit, E. (1978) 'Invisible Hand Explanations', *Synthese,* 39: 282–6.

Van Valen, L. (1973) 'A New Evolutionary Law', *Evolutionary Theory,* 1: 1–30.
Veblen, T.B. (1915) *Imperial Germany and the Industrial Revolution* (New York: Macmillan).
Waddington, C.H. (1969) 'The Theory of Evolution Today', in A.Koestler and J.R. Smythies (eds) (1969) *Beyond Reductionism: New Perspectives in the Life Sciences* (London: Hutchinson), pp. 357–74.
Waddington, C.H. (ed.) (1972) *Towards a Theoretical Biology,* 4 vols (Edinburgh: Edinburgh University Press).
Waddington, C.H. (1975) *The Evolution of an Evolutionist* (Ithaca: Cornell University Press).
Williamson, O.E. (1975) *Markets and Hierarchies: Analysis and Anti-Trust Implications: A Study in the Economics of Internal Organization* (New York: Free Press).
Williamson, O.E. (1980) 'The Organization of Work: A Comparative Institutional Assessment', *Journal of Economic Behavior and Organization,* 1 (1): 5–38. Reprinted and revised in Williamson (1985: Chs 9–10).
Williamson, O.E. (1985) *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting* (London: Macmillan).
Williamson, O.E. (1988) 'The Economics and Sociology of Organization', in Farkas and England (1988: 159–85).
Williamson, O.E. (1991) 'The Logic of Economic Organization', in O.E.Williamson and S.G.Winter (eds) (1991) *The Nature of the Firm: Origins, Evolution, and Development* (Oxford: Clarendon Press), pp. 90–116.
Williamson, O.E. and Ouchi, W.G. (1983) 'The Markets and Hierarchies Programme of Research: Origins, Implications, Prospects', in Francis, A., Turk, J., and Willman, P. (eds), *Power, Efficiency and Institutions: A Critical Appraisal of the 'Markets and Hierarchies' Paradigm* (London: Heinemann).
Winter, J.M. (ed.) (1975) *War and Economic Development* (Cambridge, MA: Harvard University Press).
Witt, U. (1986) 'Evolution and Stability of Cooperation Without Enforceable Contracts', *Kyklos,* 39: 245–66.
Witt, U. (1987) *Individualistiche Grundlagen der evolutorischen Ökonomie* (Tübingen: Mohr).
Witt, U. (1989) 'The Evolution of Economic Institutions as a Propagation Process', *Public Choice,* 62: 155–72.
Witt, U. (ed.) (1992) *Explaining Process and Change: Approaches to Evolutionary Economics* (Ann Arbor, MI: University of Michigan Press).
Wright, S. (1931) 'Evolution in Mendelian Populations', *Genetics,* 16: 97–159.
Wright, S. (1956) 'Modes of Selection', *American Naturalist,* 90: 5–24.
Wright, S. (1959) 'Physiological Genetics, Ecology of Populations, and Natural Selection', *Perspectives on Biological Medicine,* 3: 107–51.

7

THE COMPETITIVE SELECTION OF DEMOCRATIC FIRMS IN A WORLD OF SELF-SUSTAINING INSTITUTIONS*

Ugo Pagano and *Robert Rowthorn*

INTRODUCTION

It has been often been claimed that, through the use of a different technology, organizations controlled by their in-workers could achieve better results than traditional capitalist firms. The normal counter-argument has been that, if such organizations were superior, they would have already been 'selected' by the market economy. In the present paper we examine this issue by exploring the relations between agency costs, property rights and technologies that characterize alternative organizations.

One school of thought argues that, for a given technology, the ownership of a firm goes to the factor that can save the most on agency costs if it owns the organization. Another school argues that the owning factor chooses a technology which economizes on the agency costs arising from the employment of other factors. Thus, one side stresses that technology influences the allocation of property rights, whilst the other stresses that ownership influences the choice of technology. These approaches are often seen as mutually exclusive, but they are not, since causation may flow in both directions at once. To explore this two-way causation, we introduce the concept of an 'organization equilibrium'. Such an equilibrium is any combination of property rights and technology which has the following characteristics. With the given property rights, the current technology is the most efficient available; conversely, with this technology, the current property rights are most efficient. In such an equilibrium, property rights and technology have a self-reinforcing character since changing one component at a time damages efficiency, and hence reduces the total income available for distribution between the various parties.

* University of Siena and Cambridge University. We thank Elettra Agliardi, Sam Bowles, Lilli Basile, John Earle, Frank Hahn, Geoff Harcourt, Tsumeo Ishikawa and Lionello Punzo for useful comments to early drafts of this paper. We are grateful to CNR for financial support. Substantial parts of this paper are based on Pagano and Rowthorn (1994). The usual caveats apply.

We argue that the 'market selection' argument is subject to the following objections. First, the self-reinforcing nature of a given organizational equilibrium inhibits gradual evolution through piecemeal mutations in property rights or technology. If it occurs at all, the transition from one type of organization equilibrium to another will be abrupt rather than gradual, and hence evolution will have a 'punctuated' character. Secondly, the efficiency of each organizational equilibrium is itself dependent on the frequency of other types of organizational equilibrium. The joint consequence of these objections is that, instead of a simple efficiency story based on market 'selection', there will be a process of cumulative causation between property rights and technology which is such that alternative, and potentially more efficiency combinations, may never have the chance to develop. Although enterprise democracy is not 'selected' by market competition, it may be a superior system which permits a better cumulative causation between the nature of rights, technology and the quality of human labour.

1 SOME QUESTIONS ON THE NATURE OF ORGANIZATIONS

In recent economic theory the firm is defined as an institution where some agents exercise some governance over other agents. Governance can improve on market transactions when agency costs are high because of the existence of specific or difficult-to-monitor assets. Three questions arise in this context:

1 Which factors will control the organization and will have the power to 'design' the production process?
2 How will different factors exercise this power?
3 Will the exercise of this power change the nature of the technology and of the factors employed in the firm?

The first question can be answered by observing that if governance arises to save on agency costs, organizations should be controlled by the most specific or difficult-to-monitor factors: they will able to save the most on the risk-premium due to resource specificity or on the monitoring expenses that would have to be paid if they were employed in other people's organizations. In other words, these agents should control the organization so as to economize on the high agency costs which would be incurred if they were employed in organizations owned by others.

As to the second question, it can be argued that the exercise of power will change according to the particular factor that controls the organization. Observe that the factor owning the organization does not pay for its own agency costs whereas it does pay for the agency costs of the other factors. Thus each type of owner will tend to develop a technology that saves on the agency costs of employing the remaining non-owning factors.

Finally, an answer to the third question can be deduced from the argument outlined above. Owning factors have to pay high agency costs in order to employ difficult-to-monitor and specific factors. Thus they will try to replace these factors by

easy to monitor or non-specific factors: an attempt will be made to change the nature of the non-owning factors and to make them 'easy to monitor' and 'general purpose'. This does not happen to the owning factors because no agency cost for their use has to be expended by the firm. Thus, owning factors choose a technology that tends to make themselves more difficult-to-monitor and specific than would be the case if they did not own the organization. Ownership biases the nature of the factors: owning factors tend to become more specific and more difficult to monitor (compared to the situation where they do not own the organization); non-owning factors tend to become less specific and less difficult to monitor (compared to the situation where they do own the organization).

Observe that the last point concerns something we assumed *to be given* to answer the first question: we have just argued that owning factors tend to become more specific and difficult to monitor but we also argued that ownership goes to those factors that are more specific and more difficult to monitor. If it is accepted (as we do) that both arguments are correct, then it must also be maintained that property rights and the nature of technology tend to be self-reinforcing: the nature of technology and of resources may have a tendency to regenerate itself via property rights while the latter in turn regenerate themselves via technology. Let us define such a self-sustaining construction as an *'organizational equilibrium'*. The following new questions then arise:

1 Does an organizational equilibrium exist for any pattern of agency costs?
2 When do multiple organizational equilibria arise? Are they the exception or the rule? Are there patterns of agency costs that always cause multiple equilibria?
3 How do more or less rigid technologies (or different elasticities of substitution among factors) affect the existence and the multiplicity properties of organizational equilibria?
4 How stable are organizational equilibria to changes in agency costs due to institutional shocks, changes of the social climate and changes of the 'governance technology'?
5 Do inefficient organizational equilibria exist? Are they 'institutionally stable'? Can we justify economic policies that aim to change organizational equilibria?

In this paper we try to answer these questions. In the following section we define more precisely the concept of organizational equilibrium and we show that it can encompass mechanisms and interpretations that are typical of the New Institutional and the Radical literature. In the third section we outline the assumptions of our model and give a formal definition of organizational equilibrium.

In the fourth section we show that for each pattern of agency costs an organizational equilibrium always exists. We identify the conditions under which there are capitalists' or workers' unique equilibria and/or multiple equilibria: we show that for any technology there is always a pattern of agency costs for which multiple equilibria exist and that, for each pattern of agency costs, the likelihood of multiple equilibria increases with the elasticity of substitution.

The elasticity of substitution *s* plays an important role in our argument. We will show that a high *s* acts like a good 'anti-virus': it favours the rejection of the non-owning factors, that, because of the increase in their agency costs, threaten to upset the health of the existing ownership regime. Unfortunately, the 'anti-virus' works particularly well with the factors that are the most efficient potential alternative owners. They are efficient potential alternative owners because of the high agency costs that must otherwise be paid when they are employed by other factors. A high *s* causes an unfortunate 'preventive treatment': these factors are promptly replaced by factors that are cheaper for the present owners. In the evolutionary interpretation of our model a high *s* can also be interpreted as an 'anti-speciation' factor: by allowing adaptations of the present species it prevents major mutations that would bring about the emergence of new species of organizational equilibria.

In the fifth and sixth sections we consider the 'institutional stability' and efficiency properties of organizational equilibria: we show that, for sufficiently high values of the elasticity of substitution between factors, inefficient but institutionally stable equilibria are likely to exist.

In the seventh section we observe that our analysis can explain institutional diversity and the 'fitness' of inefficient organizations; the 'complementarities' within property rights and technology within each organization and those between rights and technology existing among different organizations may prevent 'market selection' from achieving efficient organizational outcomes. This offers a possible argument in favour of policies for the extension of democracy to economic life.

Finally, in the concluding section we consider some limitations of our analysis and we indicate some consequences of factor heterogeneity and of the collective action problems.

2 THE 'INVERTED' ARGUMENTS OF NEW INSTITUTIONALISTS AND RADICALS

Consider a traditional capitalist firm organized on strict Tayloristic principles and suppose that a representative Radical economist and a representative New Institutional economist[1] agree to examine and explain the nature of this firm. They agree that two sets of facts, one concerning the property rights and the other the nature of the technology and of the resources, characterize this firm:

(a) the rights that the owners of the resources have on the firm

They observe that the owners of capital own the organization and they have hiring and firing rights. By contrast, workers have no rights in the organization, they can be fired whenever the employers decide that it is convenient for the firm.

(b) the technological nature of the resources employed in the firm

Much capital equipment is specific to the firm: many machines appear to be tailored to the production needs of that particular organization and could not be used in

other organizations. Moreover, machines are 'difficult-to-monitor':[2] in the sense that it is not possible to infer their user-induced depreciation by simply observing their physical state before and after they have been used: the use of the machine must be directly monitored if one wants to assess user-induced depreciation. The characteristics of the workers lie at the opposite pole: they perform simple movements at the assembly line that require no firm-specific skills. It is easy for supervisors to monitor the workers who are often also 'monitored' by the pace of the machines themselves.

Does the consensus on these facts imply some consensus on the theory explaining them?

We believe not. Each one of the two economists can claim that the correlation between these two sets of facts is not inconsistent with their own theory about the direction of causation among them.

According to the New Institutionalist,[3] (b) causes (a).

The New Institutional economist maintains that capital controls the organization because it is a difficult-to-monitor or a specific factor. Workers lack these rights because they are general or easy-to-monitor factors. Thus, the nature of the resources employed in the organization shapes 'efficiently' the structure of rights: 'efficiency' implies that capital should hire labour, not vice versa.

For, suppose that we change the system of property rights and assume that workers own the organization and hire the machines. The fact that easy-to-monitor or general labour hires difficult-to-monitor or specific capital increases the agency costs in the form of monitoring or insurance against opportunistic behaviour. For example, firm-specific capital would be rented to others without rights or safeguards only at a very high price: an insurance premium would need to be paid to cover the risks due to the absence of alternative employment for specific resources. Conversely, the owner-workers would be willing to employ these factors only if their productivity compensates for the risk that it is difficult to replace specific factors. Analogous arguments apply in the case of difficult-to-monitor capital.

Under some alternative sets of unforeseen circumstances, each factor could be a victim of the opportunism of the other—a circumstance that makes very high the transaction costs of employing difficult-to-monitor and/or specific factors. These costs are saved in the 'Tayloristic' firm, examined by our two economists. Here, following the New Institutionalist 'predictions', difficult-to-monitor or specific capital does 'efficiently' hire easy-to-monitor or general labour.

However, the Radical economist[4] can also claim that the correlation of facts observed in the Tayloristic firm is not inconsistent with his or her theory. Indeed, according to Radical theory, (a) explains and is the cause of (b).

The Radical economist believes that the argument of the New Institutional economist can be turned upside down. According to such an economist the workers have become 'easy-to-monitor' factors without firm-specific skills because they do not have any rights in the organization.

This lack of rights implies that the workers do not identify themselves with the

goals of the firm. As a result, monitoring workers is very expensive and capitalists have replaced difficult-to-monitor with easy-to-monitor labour. This substitution has occurred also in cases when difficult-to-monitor labour was (net of agency costs) considerably more productive than easy-to-monitor labour.

According to the Radical economist a similar explanation holds also for the nature of labour skills: the development of firm-specific skills is inhibited by the absence of rights and safeguards for these factors; this makes their employment very costly. On the one hand, the workers fear that, in unforeseen circumstances, in case of dismissal, they may lose their firm-specific investment in human capital. On the other hand, the employers fear that, in other unforeseen circumstances, the workers, lacking rights and attachment to the firm, may opportunistically exploit the fact that the specificity of their skills makes it difficult to replace them.

Thus, according to the Radical economist, under capitalist property rights there is a strong incentive to replace difficult-to-monitor with easy-to-monitor labour and there is a similar incentive to replace specific with 'general purpose' labour. The 'substitution effect', due to 'capitalist property rights', explains the fact that the firm makes such an intensive use of assembly line unskilled workers. These workers repeat simple movements that are easy to monitor and do not require any firm-specific skill—an outcome that is perfectly consistent with the 'predictions' of Radical Theory. By contrast, under this system of property rights, capital tends to become relatively difficult-to-monitor and firm-specific because, unlike the workers, no risk premium or monitoring costs have to be expended on this factor.

According to the radical approach the asymmetric information and specificity characteristics cannot be taken as given but should be endogenously explained on the basis of the system of property rights prevailing in the firm.

The Radical and the New Institutional economists disagree also on the desirability of policies aimed at changing the situation of the firm. According to the New Institutionalist the change will 'spontaneously and correctly' come about if technology requires a new set of property rights that minimizes transaction costs; policies intending to change rights will be counterproductive and inefficient. By contrast, according to the Radical the existing property rights are shaping the development of the technology in a way that is undesirable: new rights are required to change the type of development which is occurring within the context of the present technological paradigm.

We have constructed our imaginary debate between a New Institutionalist and a Radical economist in such a way that their differences come out very sharply and clearly. But are the Radical and the New Institutionalist theories really incompatible?

We strongly believe that the answer to this question is no. Indeed the main thrust of this paper is that the *self-sustaining nature of economic institutions* can be properly understood only by unifying these two approaches. The fact that (a) causes (b) and (b) causes (a) are not mutually incompatible; rather, they imply that (a) can reinforce itself via (b) and (b) can reinforce itself via (a). When this occurs, the New Institutional and Radical mechanisms taken together imply that an institution of production such

as the Tayloristic firm is self-sustaining. In this case we can say that we are in a situation of *'organizational equilibrium.'*.[5]

Thus an organizational equilibrium is defined by the fact that property rights 'regenerate' themselves via technology and technology 'regenerates' itself via property rights. An organizational equilibrium is therefore characterized by equilibrium property rights and technologies. We may interpret an organizational equilibrium as a property right or a technological equilibrium according to the nature of the initial shock: a *property rights equilibrium* is an organizational equilibrium when the initial shock is to the property right system whereas a *technological equilibrium* is a an organizational equilibrium where the initial shock is a technological change such as a new invention.

In many cases it is impossible to identify a single initial shock and we cannot say whether we are in a technological equilibrium or in a property right equilibrium. However, we may still define an institution as an organizational equilibrium as long as we can identify the 'New Institutional' and 'Radical' mechanisms that make it self-sustaining after its establishment.

In this respect, independently of its historical origins (which may be different in different countries) the 'Tayloristic firm', visited by our two economists, defines an organizational equilibrium: the rights of management and capital on the organization induce a Tayloristic technology (difficult-to-monitor or specific capital and easy-to-monitor general purpose labour) that can only be cheaply operated under capitalist ownership; or, alternatively, the Tayloristic technological specification of resources induces capitalist ownership under which it is optimal to choose a Tayloristic technology.

Our concept of 'organizational equilibrium' is related to the Marxian notion of 'mode of production'[6] that is also based on a close interaction between property rights (relations of production) and technology (productive forces). This relation, however, is subject to two qualifications:

(a) our analysis is related to what Hirschman (1981:89) has aptly defined as 'micro-Marxism'. Hirschman observes that Marx 'oscillated between the grand generalisation with which to characterise an entire epoch or process and the discriminating analysis of events which made differences between countries and subperiods stand out in richly textured detail'.[7] Our analysis is clearly related to the second approach. For example, we would define as alternative 'organizational equilibria', or modes of production, Fordist-type firms and Japanese-type firms.

(b) Marxist analysis has often oscillated between 'technological determinism' (technology invariably gives rise to a unique set of property rights) and 'property rights romanticism' (alternative property rights can invariably bring about an alternative technology).[8] We claim that our concept of organizational equilibrium can clarify and overcome the limitations of these two extreme views.

This last point takes us to the threshold of the formal analysis of the next section. A consequence of this analysis is that 'technological determinism' is untenable because, for whatever technology, there is always some combination of agency costs such that multiple organizational equilibria are possible. At the same time, we show that 'property rights romanticism' is also seriously flawed because the set of agency cost combinations under which multiple property rights equilibria are possible is both bounded and conditioned by the possibilities of 'technological substitution' existing in the economy. The analysis of the institutional stability and efficiency have additional consequences for these issues.

3 A FORMAL DEFINITION OF ORGANIZATIONAL EQUILIBRIUM

The two fundamental assumptions of our model may be traced back to the two fundamental 'Radical' and 'New Institutionalist' mechanisms that we have considered in the preceding section.

The 'Radical' assumption is that capitalists and workers face different costs when they own (and run) the organization (and are therefore likely to choose different technologies). When workers own the organization they pay an additional agency cost Z in order to employ a unit of difficult-to-monitor or specific capital K—a cost that is saved when K is employed under capitalist ownership. By contrast when the capitalists own the organization they pay an additional agency cost H when they employ a unit of difficult-to-monitor or specific labour L—a cost that is saved when L is employed under labour ownership. No such additional costs are paid for easy-to-monitor and general purpose labour and capital k and l when they are employed by either capitalists or workers.[9] Thus, denoting by r and w the prices of respectively easy-to-monitor and/or general capital and labour and by R and L the prices (net of agency costs) of respectively difficult-to-monitor and/or specific capital and labour, we can formulate our 'Radical' assumption as follows.

Assumption 1

Under capitalist ownership, firms maximize profits equal to:

$$R^{c}=Q(k, K, l, L)-[rk+RK+wl+(H+W)L] \quad (1)$$

Under labour ownership firms maximize profits equal to:

$$R^{L}=Q(k, K, l, L)-[rk+(Z+R)K+wl+WL] \quad (2)$$

The New Institutionalist assumption is that the firm is owned by that factor which can earn the highest ownership rent. This rent is equal to the difference between the cost of employing the factor in a firm that is the property of the owners of the factor and the cost of employing it in a firm that is the property of other owners.

Assumption 2

For any given combination of factors employed in the firm, ownership of the firm will be acquired by the factor which can get the highest ownership rent. Therefore: capitalist property rights can prevail if, given the factors currently employed, $R^c \geqslant R^L$ or, alternatively,

$$ZK - HL \geqslant 0 \tag{3}$$

Workers' property rights can prevail if, given the factors currently employed, $R^L \geqslant R^c$, or alternatively,

$$HL - ZK \geqslant 0 \tag{4}$$

Thus 'the Radical assumption' concerns the behaviour of the firm for any *given (capitalist or workers') ownership*. By contrast the 'New Institutionalist assumption' concerns the ownership conditions of the firm for any *given combination of factors employed in the firm*. We say that we are in an *organizational equilibrium* when both the Radical and New Institutionalist assumptions are simultaneously satisfied: in an organizational equilibrium the behaviour of the firm under particular ownership conditions must bring about technologies characterized by factor intensities that do not upset the initial ownership conditions. We can therefore give the following definition of an organizational equilibrium:

Definition 1

An institution of production is an *organizational equilibrium* when it is defined by a system of property rights P and a technology T such that T is the technology that maximizes rent under the property rights system P, and P is the property rights system that maximizes ownership rent with the factor intensities associated with T. In particular, we will be in a capitalist organizational equilibrium when the capitalist rights P^c and the technology T^c are such that:

$$\rightarrow P^c \rightarrow T^c \rightarrow P^c \rightarrow$$

and we will be in a labour organizational equilibrium when the labour rights P^L and the labour technology T^L are such that:

$$\rightarrow P^L \rightarrow T^L \rightarrow P^L \rightarrow$$

In other words, there will be a capitalist organizational equilibrium (COE) if there is a technology that maximizes (1) and satisfies (3) and there will be a labour organizational equilibrium (LOE) if there is a technology that maximizes (2) and satisfies (4). Let:

$$(k^c, K^c, l^c, L^c) = \text{argmax } R^c(k, K, l, L) \tag{5}$$

$$(k^L, K^L, l^L, L^L) = \text{argmax } R^L(k, K, l, L) \tag{6}$$

Then a firm will be in a capitalist organizational equilibrium (COE) if:

$$ZK^c - HL^c \geqslant 0 \tag{7}$$

and in labour organizational equilibrium (LOE) if:

$$HL^L - ZK^L \geqslant 0 \tag{8}$$

Condition (7) has an immediate intuitive meaning. Suppose that a firm is under capitalist ownership and the technique of production is such as to maximize profits. Condition (7) implies that, *with this technique,* the ownership rent occurring to capitalists is at least as great as the rent which workers could obtain if they owned the firm. Hence *with this technique of production,* the workers would have no incentive to buy out the capitalists. This is what is meant by a capitalist organizational equilibrium. Condition (8) has an analogous intuitive meaning.

It will also be useful to write the conditions for COE and LOE in the following equivalent ways:

$$K^c/L^c \geqslant H/Z \tag{7'}$$

$$K^L/L^L \leqslant H/Z \tag{8'}$$

Conditions (7') and (8') have also an intuitive meaning. Observe that K/L is the ratio of high-agency-cost (H-A-C) capital to H-A-C labour or *the H-A-C capital intensity;* observe also that H/Z is the *agency cost ratio* between the capitalist's extra cost in employing H-A-C labour and labour's extra-cost in employing H-A-C capital. Thus (7') means that a COE is feasible when the intensity of H-A-C-capital is greater than the agency cost ratio and (8') means that an LOE is feasible when the intensity of H-A-C capital is lower than the agency cost ratio. For instance, high agency costs per unit of labour could be compensated by the employment of a great amount of H-A-C capital and make it a feasible COE.

The conditions for the existence of organizational equilibria can also be interpreted as a Nash equilibrium. Organizational equilibria may be defined by the fact that 'production managers' choose that technology that maximizes profits *given the existing property rights system* and by the fact that 'financiers' arrange property rights that maximize ownership rent *given the existing technology*. In this sense condition (7) says that capitalist property rights are the best response of 'financiers' given the technology chosen by the 'production managers'. The same condition says also that an H-A-C capital intensive technology is the best response of the 'production managers' given the capitalist property rights chosen by the 'financiers'. Condition (8) has an analogous interpretation.[10]

4 EXISTENCE AND MULTIPLICITY OF ORGANIZATIONAL EQUILIBRIA

We now establish some propositions concerning the conditions under which we have multiple and unique organizational equilibria.

We start by defining by R^0 as the profits of a traditional neo-classical firm where agency costs are equal to zero. Thus:

$$R^0=Q(k,\ K,\ l,\ L)-[rk+RK+wl+WL] \tag{9}$$

and

$$(k^0,\ K^0,\ l^0,\ L^0)=\text{argmax}\ R^0(k,\ K,\ l,\ L) \tag{10}$$

Since

$$(H+W)/R \geqslant W/R \geqslant W/(Z+R)$$

it follows under standard assumptions about technology that:

$$K^c/L^c \geqslant K^0/L^0 \geqslant K^L/L^L \tag{11}$$

and therefore:

$$K^c/L^c \geqslant K^L/L^L \tag{12}$$

The value of H/Z either falls in the interval defined by these two values or outside it. This has the following consequences:

(A) Suppose that H/Z is such that:

$$K^c/L^c \geqslant H/Z \geqslant K^L/L^L \tag{13}$$

Then both (7') and (8') are satisfied and we have multiple (capitalist and labour) organizational equilibria.

(B1) Suppose that H/Z is such that:

$$K^c/L^c \geqslant K^L/L^L > H/Z \tag{14}$$

Then (7') is satisfied but (8') is not satisfied. In this case only a COE exists.

(B2) Suppose that H/Z is such that:

$$H/Z > K^c/L^c \geqslant K^L/L^L \tag{15}$$

Then (8') is satisfied but (7') is not satisfied. In this case only an LOE exists.

(C) Since the ratio H/Z must necessarily fall in one of the three intervals just considered, for any H/Z ratio at least one organizational equilibrium must always exist.

We can now state the following proposition:

Proposition 1

(A) Multiple organizational equilibria exist if the closed interval defined by the H-A-C capital intensities under the two property rights regimes includes the agency cost ratio H/Z.

(B1) A unique capitalist equilibrium exists if the agency cost ratio H/Z is smaller than the H-A-C capital intensity with the labour ownership.
(B2) A unique labour equilibrium exists if the agency cost ratio H/Z is greater than the H-A-C capital intensity with capitalist ownership.
(C) For any agency cost ratio H/Z at least one organizational equilibrium exists.

How likely is it that the ratio H/Z falls in a multiple organizational equilibria interval or in one of the two unique organizational equilibria intervals?

Given any exogenous agency costs ratio H/Z the values of the H-A-C capital intensities depend on the shape of the production function and it is impossible to say a priori whether they will define an interval including or excluding H/Z.

We can, however, show that under fairly general assumptions there is *always* some value of H/Z such that multiple organizational equilibria exist:

Proposition 2

For any 'standard' production function and for any set of factor prices (w, W, r, R), there exists at least one pair (H, Z) of agency costs such that multiple organizational equilibria exist.

Proof: Choose the rate H/Z such that:

$$H/Z=K^0/L^0 \quad (16)$$

It follows from (11) that

$$K^c/L^c \geqslant H/Z \geqslant K^L/L^L$$

This is identical to condition (13) for the existence of multiple organizational equilibria.

Thus, under standard assumptions about technology and factor prices, there always exists at least one agency cost ratio for which multiple organizational equilibria exist: multiple organizational equilibria are clearly something more than an intellectual curiosity! Still this does not give us much information about the 'size' of the set of agency costs for which multiple organizational equilibria exist. Economic intuition suggests the 'rigid' or 'malleable' nature of the technology may have a lot to do with the size of this set. The more 'malleable' are input ratios, the easier it is for any set of property rights to adjust input ratios to its own needs. The set of agency costs, for which we have multiple organizational equilibria, should then be fairly wide when the inputs ratios are very 'malleable'. By contrast rigid input ratios should limit the ability of property rights to shape the 'technology' in such a way that they become self-sustaining institutions. Rigid input ratios should reduce the set of agency costs under which COE and LOE are feasible and therefore diminish the set of agency costs for which multiple equilibria are feasible. Consider the following proposition:

Proposition 3

If the elasticity of substitution is equal to zero, i.e., if K and L are perfect complements, there is only one H/Z agency cost ratio for which multiple equilibria are possible.

Proof: If K and L are perfect complements, then (11) become equalities:

$$K^c/L^c=K^0/L^0=K^L/L^L \qquad (11')$$

From which it follows we have multiple equilibria only when (16) is satisfied, and a unique equilibrium otherwise.
In particular:

$$H/Z<K^0/L^0$$

implies that

$$K^c/L^c=K^L/L^L>H/Z$$

and hence a unique COE.
Conversely

$$H/Z>K^0/L^0$$

implies that

$$H/Z>K/^c/L^c=K^L/L^L$$

or a unique LOE.

Thus, in the case of perfect complementarity the set of agency costs for which multiple equilibria exist shrinks to one single point. We may gain additional intuition on the influence of 'malleability of technology' on organizational equilibria by considering the opposite case of perfect substitutability. We concentrate our attention on a particular case—the knife-edge in which both inputs are used when agency costs are zero, and we obtain the following proposition:

Proposition 4

Suppose that $K^0>0$ and $L^0>0$. If the elasticity of substitution is infinite, i.e., if K and L are perfect substitutes, then any positive combination of agency costs (H, Z) will imply that multiple organizational equilibria exist.

Proof: By assumption $K^0>0$ and $L^0>0$. Since these factors are perfect substitutes, any deviation in relative user prices (inclusive of agency costs) from the knife-edge situation will imply that one factor or the other is no longer employed. Under capitalist ownership $K^c>0$ and $L^c=0$; under labour ownership $K^L=0$ and $L^L>0$. These imply that:

$$K^c/L^c=\infty \quad \text{and} \quad K^L/L^L=0$$

which in turn imply that any positive combination (H, Z) will always satisfy the following conditions

$$K^c/L^c \geqslant H/Z \geqslant K^L/L^L \tag{13}$$

for which multiple equilibria exist.

Denote by *s* the elasticity of substitution between K and L. Propositions 3 and 4 show that, for the two extreme values of *s,* the relation between technology and organizational equilibria behaves in the way in which our economic intuition suggests. In order to explore this type of relation for other values of *s* consider the following definition of 'neutral' changes of *s*.

Definition 2

A change in the elasticity of substitution of the factors *s* is *neutral* if is accompanied by compensatory changes in other parameters such that the ratio K^0/L^0 remains unchanged at existing factor prices.

It can be shown that the following proposition holds for any CES production function:

Proposition 5

A 'neutral' increase in *s* strictly enlarges the set of (H,Z) for which:

(a) A capitalist organizational equilibrium is feasible.
(b) A labour organizational equilibrium is feasible.
(c) Multiple organizational equilibria are feasible.

Proof: see Appendix.

The content of Proposition 5 is clarified by Figure 7.1 (the derivation of which is explained in the Appendix).

The pair of (H, Z) for which a COE exists lies above the curve OC. A neutral increase of *s* has the effect of lowering this curve to OC' and, so, enlarging the set of points for which a COE is feasible. Similarly, the pair of (H, Z) for which an LOE exists lies to the right of the curve OL. A neutral increase in *s* moves the curve leftwards to OL', so enlarging the set of points for which an LOE exists. Both movements also have the effect of enlarging the set of points for which multiple organizational equilibria are possible.

We conclude this section by observing that the notion of complete 'technological determinism' is not valid because there are always combinations of agency costs for which an arbitrary organizational equilibrium may prevail. Moreover, even in the case of 'rigid' technologies there are combinations of agency costs for which multiple property rights equilibria are possible. However, the degree of 'rigidity' of technology has an important implications for property rights. The more rigid is the

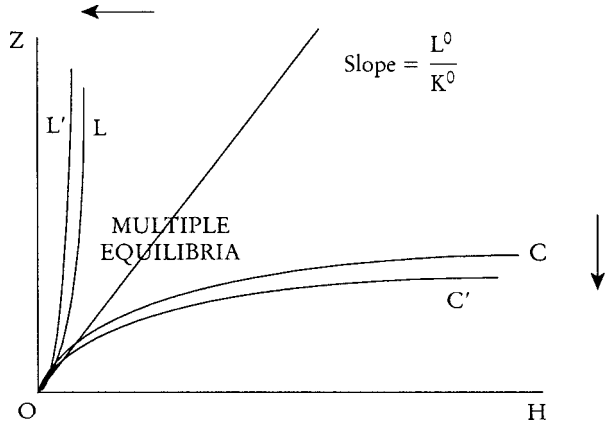

Figure 7.1 The content of Proposition 5

technology the smaller is the set of agency costs for which any given type of property right system can shape the technology in such a way as to become self-sustaining; consequently, the smaller is the set of agency costs for which multiple organizational equilibria exist and the less justified is 'property rights romanticism'.

5 INSTITUTIONAL STABILITY

Agency costs may change for various reasons. An increase in social conflict or an innovation in the monitoring technology can cause changes in agency costs. The agency costs paid for the employment of specific resources can also be subject to shocks: specificity is not a stable natural characteristic of the resources employed in one firm but it is a measure of the difficulty of employing these resources in other organizations. Suppose that we are in a particular organizational equilibrium and agency costs change for one of the reasons that we have just considered. Will this organizational equilibrium be 'institutionally stable' in the sense that the agency cost shock will not imply any change in the ownership of the organization?

We start by observing that 'institutional stability' is *a matter of degree:* institutions can be more or less 'stable'. We try to capture this point in the following definition:

Definition 3

The *institutional stability* of an organizational equilibrium is the *probability* that an equilibrium is still feasible after a stochastic shock to agency costs.

We now consider the relation between institutional stability and the degree of 'malleability' of the technology.

Suppose that agency costs (H, Z) are subject to a proportionate stochastic shock (r_h, r_z) where $r_h, r_z \in (0, \infty)$ and the density function $f(r_h, r_z)>0$ for values in this range.

For a given (H, Z), let $P^c(H, Z)$ and $P^L(H, Z)$ be the probability that capitalist and property rights equilibria *remain* feasible following a stochastic shock to agency costs. We can now show the following proposition:

Proposition 6

Any neutral increase in *s* will increase the probability that any given organizational equilibrium is stable with respect to a stochastic shock in agency costs.

Proof: Let A^c be the set of (H, Z) for which a COE is feasible at existing factor prices. Suppose (H, Z) $\in A^c$ and there is a stochastic shock (r_b, r_z) to (H, Z). The new agency costs will be (r_bH, r_zZ). A COE will remain feasible at the new agency costs if:

$$(r_bH, r_zZ) \in A^c.$$

Thus,

$$P^c(H, Z)=\text{Probability } \{(r_bH, r_zZ) \in A^c\}$$

From Proposition 5, for any neutral increase in σ, the set A^c is strictly enlarged. Hence $P^c(H, Z)$ is increased. Analogous arguments apply in the case of an LOE.

Social and technological changes challenge the institutional stability of organizational equilibria through agency costs shocks. Organizational equilibria absorb shocks in the following way. When agency costs change, the owning factors reduce the employment of those non-owning factors whose agency costs have increased and may, therefore, threaten to become owners of the firm; this characteristic of institutional stability is clearly related to the ability to absorb shocks by substitution and it is not surprising that P^c and P^L are increasing functions of *s*. A high *s* acts like a good 'anti-virus': it favours the rejection of the non-owning factors, that, because of the increase in their agency costs, threaten to upset the health of the existing ownership regime.

6 THE (IN)EFFICIENCY OF ORGANIZATIONAL EQUILIBRIA

The definition of efficiency in the present context is not free from ambiguities. Some *'partial'* type of efficiency is built into the definition of organizational equilibria themselves: in each organizational equilibrium, property rights are efficient in the sense that they give maximum ownership rent *given* the structure of the resources employed in the firm and technology is efficient in the sense that it maximizes profits *given* the ownership structure of the firm.

However, the type of 'partial' efficiency considered above may be the cause of *'overall' inefficiency*. Alternative more efficient owners are such because they are

very costly to employ for other owners; however, precisely for this reason it is not efficient for other owners to employ them. Thus, more efficient potential owners may never get employed in such quantities that the agency costs sustained to employ them become greater than the ownership rent of the present proprietors. Thus the 'partial' efficiency, built into the present organizational equilibrium may prevent the achievement of 'overall' efficiency which requires a change of organizational equilibrium. Observe that this inefficiency is linked to factor substitution: the most efficient potential owners are substituted for by the least efficient potential owners because, *ceteris paribus,* the latter are cheaper than the former when they do not own the firm.

In order to make these points more clear let us define what we mean by the (overall) efficiency of an organizational equilibrium. In the present context efficiency can only refer to 'second best' situations because the existence of agency costs makes it impossible to achieve any first best solution. Moreover, the 'agency costs' per unit of factor, which are assumed to be given in our model, should be endogenously determined in order to state general efficiency criteria. Although we are aware of these problems, we suggest two possible definitions of the (overall) efficiency of organizational equilibria.

The first definition is very simple. We can consider profits (as defined in Assumption 1) as an index of efficiency. When factor prices express genuine social scarcities, there is much to be said in favour of this criterion of efficiency that may be summarized as follows:

Definition 4

A capitalist (labour) organizational equilibrium is said to be *efficient* if R^c is greater (smaller) than R^L.

If factor prices do not represent social opportunity costs we can use a more restrictive definition of efficiency that is based only on direct agency costs and say that overall efficiency involves minimum direct agency costs.

Definition 5

A capitalist (labour) organizational equilibrium is efficient when ZK^L is greater (smaller) than HL^c.

According to both definitions, except for the particular cases in which $R^c=R^L$ or $ZK^L=HL^c$, the existence of multiple organizational equilibria implies the existence of an inefficient equilibrium. The fact that an organizational equilibrium may be inefficient means that the self-reinforcing characteristics of an institution may hold in spite of its inefficiency. We have already observed that this self-sustaining mechanism works by substituting potential efficient alternative owners (that can only be employed at high agency costs) for cheap factors (that cannot be efficient owners). Inefficiency is therefore related to the malleability of the technology. This

same point may also be made by observing that inefficiency is necessarily linked to the existence of multiple equilibria and that the size of the set of agency costs for which multiple equilibria arise increases when the elasticity of substitution increases. Thus an increase of *s* increases the size of the set of (H, Z) for which inefficient organizational equilibria exist. We may summarise the argument considered above in the following proposition:

Proposition 7

Suppose that $R^c \neq R^L$ and $ZK^L \neq HL^c$. A neutral increase in *s* will strictly enlarge the set of (H, Z) for which inefficient organizational equilibria exist.

Proof: Under the conditions assumed here multiple organizational equilibria necessarily imply the existence of one inefficient equilibrium. Proposition 7 follows from Proposition 5 according to which a neutral increase in *s* strictly enlarges the set of (H, Z) for which multiple organizational equilibria exist.

Thus, when *s* is sufficiently large there will be a fairly large set of agency costs for which inefficient equilibria exist.

Using the terminology used in Definition 1, denote by (P^c, T^c) the property rights and the technology that characterize a capitalist organizational equilibrium and by (P^L, T^L) the property rights and the technology defining a labour organization equilibrium. Moreover, define by (P^c, T^L) and (P^L, T^c) the two 'hybrids' obtained by mixing together the technology and the property rights of each one of the two organizational equilibria. Recall that in an organizational equilibrium the technology is optimal given the property rights and vice versa. Then, when multiple equilibria exist, efficiency will rank organizational equilibria and 'hybrids' in one of the following ways:

$$(P^c, T^c) \geqslant (P^L, T^L) \geqslant (P^c, T^L) \geqslant (P^L, T^c)$$
$$(P^c, T^c) \geqslant (P^L, T^L) \geqslant (P^L, T^c) \geqslant (P^c, T^L)$$
$$(P^L, T^L) \geqslant (P^c, T^c) \geqslant (P^c, T^L) \geqslant (P^L, T^c)$$
$$(P^L, T^L) \geqslant (P^c, T^c) \geqslant (P^L, T^c) \geqslant (P^c, T^L)$$

or, in other words, organizational equilibria can be inefficient in the sense that they may be inferior to another organizational equilibrium but they are always superior to hybrids.

In the following section we are going to show that the inferiority of hybrids implies that competition may fail to help the generation and the selection of efficient organizational equilibria.

7 THE SELECTION OF ORGANIZATIONAL EQUILIBRIA

Because of the inferiority of hybrids, organizational equilibria cannot easily evolve into superior organizational arrangements by changing gradually, one at a time,

technology or property rights. The emergence of different organizational equilibria is likely to follow a pattern that is closer to the theory of 'punctuated equilibria' discussed by Eldredge and Gould (1972) with reference to the evolution of new species than to any 'gradualist' conception of speciation.[11]

The analogy between the emergence of new organizational equilibria and speciation is appropriate because the emergence of new organizational equilibria must satisfy one of the typical aspects of speciation: the inferiority of the 'hybrids'.[12] For instance, as in the case of natural species, any hybrid combination of property rights and technology drawn from different types of organizational equilibria, is inferior to the pure equilibria (capitalist or labour) from which its components derive.

In the case of organizational equilibria, as in the case of natural species, each part of the whole tends to become optimal *given* the nature of the other parts. For this reason, a substantially better arrangement cannot be approached by individual, gradual modifications. It requires simultaneous, complementary modifications. Because of the 'complementarities'[13] that are necessary for a successful change, such changes may be exceedingly uncommon and so, like species, organizations may be characterized by long periods of stasis punctuated by relatively short periods of intense change. If we pursue the biological analogy, the elasticity of substitution s in our model may be interpreted as a measure of the degree of flexibility of the present 'species' of organizations: a greater s facilitates minor mutations which are compatible with the present 'gene pool' and thereby helps this species of organization to adapt to variations in the economic environment.[14] In other words, a high s can also be interpreted as a good 'anti-speciation factor'.

When the pressure of the competition is strong, the inferiority of hybrids makes it difficult to change, one by one, the characteristics of each species are, for the same reason, those of organizations. Therefore, like the evolution of natural species, the history of organization is likely to be 'punctuated' by sudden complementary changes followed by a relatively short period of one-by-one adjustments and, after that, by long periods of stasis. Although many economists argue that the contrary is true, the biological analogy shows that the speciation of more efficient organizations may be made more difficult by a strong competitive pressure. In evolutionary biology, the force of competition favours the optimal adaption of a *given species* but it may also inhibit the type of 'macromutations' that are necessary to the formation of a *different and potentially viable species*.

The 'punctuated' nature of evolution may help to explain some features of real life institutions and some of the obstacles to organizational change. There is a wide diversity in the institutions of production across the developed capitalist economies. This diversity may be explained by the different major institutional shocks that have characterized their history.

A major institutional shock, affecting the basic ownership and control rights, implies that, for some time at least, it is impossible to go back to the old institutions. This creates conditions analogous to those required for 'allopatric' speciation in

biology—where some physical barrier prevents interbreeding between two geographically-separated populations. In the economic case, a major institutional shock prevents technology 'interbreeding' with the old property rights, and may allow a new technology to evolve which is such that the new property rights and the new technology are mutually reinforcing in the sense we have defined in this paper. This new organizational equilibrium may be more efficient than the old and capable of competing without continuing protection.[15]

If the shock is 'weak' it is possible to go back soon to the old institutions and, according to the theory of organizational equilibria, this is very likely to happen: the technology inherited by the new institutions has been chosen under the old institutions and can be better operated under them. By contrast, if the institutional shock is sufficiently strong, a new technology that maximizes the surplus under new institutions is likely to be developed, and with this new technology it will be optimal to stick to the rights defined by the new institutions. For example, the institutional shocks caused by the American occupation may provide an important explanation for the different kind of 'organizational equilibrium' that characterizes Japanese firms where the specificity of labour, its difficult-to-monitor nature, and the strong job rights held by the workers seem to reinforce each other.[16]

The nature of organization equilibria may offer a possible argument for the extension of democracy to economic life. Authoritarian institutions, where the owners of capital and a few managers control an organization, may in principle be institutionally stable even when they are inefficient. Under these conditions, economic democracy and workers' rights will be more efficient on purely economic grounds. However, the self-sustaining nature of capitalist institutions may block the establishment of this alternative organizational equilibrium: whenever technological substitution is possible, those workers, who would be the most efficient alternative owners, are replaced by other factors which cost less under traditional capitalist property rights.[17]

These reasons may justify an active policy in favour of economic democracy. They also imply that such a policy will meet considerable obstacles; indeed, it can only succeed if it breaks the self-sustaining interplay between property rights and technology. Action only on property rights is likely to fail: the new democratic property rights may look useless and empty if they are not supported by a technology where workers exercise skills that require those rights; without the support of the associated technology the new rights will fade away and will be eventually re-acquired by the owners of those factors which value them most. Likewise, action only on technology is also likely to fail: the skills necessary for the exercise of this technology will never be developed without the existence of democratic property rights under which these skills can be utilized and cultivated without fear.

There is some truth in the claim that, *if a more efficient organizational equilibrium happens to exist,* market selection, as well as imitation, should favour the diffusion of this equilibrium. However, as in many evolutionary processes, the efficiency of a particular organizational equilibrium may, in turn, depend on its

own frequency.[18] The more efficient organizations are such only in the sense that they are more profitable when their number is not (much) smaller than that of the other organizations. In these cases, if the less efficient organizations happen to be more numerous than the more efficient organizations, then the former may prevail against the latter: market competition may end up selecting inefficient organizational equilibria.

Frequency dependent organizational equilibria, that are inefficient, are likely to arise whenever there are strong network externalities among firms. In our context network externalities may either arise among the technological standards or among the ownership systems of the organizations. The case of technology has attracted considerable attention.[19] For instance, it may be argued that network externalities can arise from the fact that imitating one particular technology involving a certain combination of inputs is cheaper than trying to develop and learn a new one; we may also observe that network externalities can also arise from the fact that common inputs, produced under a regime of economies of scale, may be used by all the firms operating under a certain property rights system.

However, the case of network externalities among ownership systems is equally important: it is far cheaper to set up organizations according to established property rights, used by other firms, than according to a new system of rights; moreover, for all the firms using the same property right system, legislation is a common input that is also produced under a system of pronounced economies of scale: the same type of legislation may be used by many firms without being destroyed.[20]

The nature of organizational equilibria implies that the network externalities that characterize property rights and technology may reinforce each other: the need to standardize technology may cause the 'homogenization' of property rights and the need to homogenize property rights may cause the 'standardization' of technology. The uniform path taken by technological development may also be due to the homogeneity of the existing 'ownership standards'; at the same time, the uniform path taken by legislation and by the other institutions that favour a certain ownership system may also be due to the homogeneity of the existing 'technological standards'. Changing the property rights and the technology that are the outcome of this 'homogenization' process may not be convenient for each individual agent; however, in some cases, if the costs of co-ordinating actions could be reduced, many agents could benefit from the change.

Institutional diversity and the survival and fitness of inefficient organizations are strictly related to the nature of organizational equilibria: mutations that improve efficiency are difficult and path dependent; moreover the environment that should select the efficient mutations is not neutral because its characteristics depend on the number and the character of these mutations. The 'complementarities' existing within each organizational equilibrium may easily prevent the emergence of a better organizational outcome; economic policies that deal with these 'complementaries' may in principle, achieve this result.

CONCLUSION

We are aware of the fact that, while our analysis of organizational equilibria may answer the 'market selection' argument against enterprise democracy, it does not show that policies favouring this organization are necessarily desirable. Our analysis is perfectly symmetrical. Even where the market does select worker-controlled organizations, it is still theoretically possible that capitalist firms could provide a better organizational arrangement.

Although our model refers explicitly to capital and labour, the analysis is more general and could, in principle, refer to any pair of distinct factors such as two different types of workers or owner of different types of capital.

From a certain point of view this 'generality' is an advantage of our model: it may allow extensions of our approach to other factors. We believe that the concept of organizational equilibrium might be usefully applied to the labour market to study the relation between technology and the rights of insiders and outsiders. Likewise the same model could be used to study the relation between the financial structure of the firm and its technology. In both cases we should expect to observe the same kind of self-reinforcing relations between rights and technology.

At the same time this 'generality' can be rather misleading. One weakness of our model is its neglect of collective action problems.[21] These problems are by no means symmetrical for capital and labour. In the case of capital, the collective action problem can in principle be solved by concentrating the ownership of physical capital in few hands. At the same time, the nature of capital also implies that its ownership can be highly dispersed—an outcome that aggravates the collective action problem but allows risk-sharing and encourages investments.

In both respects the situation is different for workers. In modern society, each worker owns his or her own body and cannot sell their labour power permanently to another, as would be the case in a slave society. This prevents the permanent concentration of labour power in a few hands. At the same time, for the same reason, the nature of labour power also implies that its ownership cannot be very dispersed: individuals cannot own more or less than themselves—a point that may limit the aggravation of the collective action problem but may make it more complex to organize forms of risk-sharing than encourage investments in human capital.

We may conclude by suggesting that the study of the asymmetric nature of labour and capital—and the different collective action problems that they imply—would greatly improve the analysis of the self-reinforcing relations between rights and technology that we have considered in this paper.

APPENDIX

Proof of Proposition 5

Suppose the elasticity of substitution between all variables is constant in the production function:

$$y=F(x_1, x_2 \ldots x_n) \tag{A1}$$

Let $(p_1,\ldots p_n)$ be the vector of prices and suppose all factors receive their marginal products. Then it can be shown that for all *i, j:*

$$(x_i/x_j)=(p_j/p_i)^s(a_i/a_j)^s \tag{A2}$$

for some constants $(a_1,\ldots a_n)$ and s is the constant elasticity of substitution. The above formula applies whether there are constant or variable returns to scale.

In the present case, our production function is y=Q(k, l, K, L).

In the no-agency cost case, factor prices are (R, r, W, w). Hence in equilibrium:

$$K^0/L^0=(W/R)^s(a_k/a_L)^s \tag{A3}$$

Under capitalist property rights, factor prices are (R, r, w, H+W). Hence in equilibrium:

$$K^c/L^c=(1+H/W)^\sigma(W/R)^\sigma(a_k/a_L)^\sigma=(1+H/W)^s(K^0/L^0) \tag{A4}$$

For $K^0>0$, $L^0>0$ this implies that $K^c/L^c>K^0/L^0$.

With workers property rights factor prices are (r, Z+R, w, W). Hence in equilibrium:

$$K^L/L^L=[1/(1+Z/R)^\sigma](W/R)^\sigma(a_k/a_L)^\sigma=[1/(1+Z/R)^\sigma](K^0/L^0) \tag{A5}$$

For $K^0>0$, $L^0>0$ this implies $K^L/L^L<K^0/L^0$.

Thus, for H, Z>0 the following strict inequalities hold for any CES production function:

$$K^c/L^c>K^0/L^0>K^L/L^L \tag{A6}$$

The condition for *capitalist organizational equilibrium* (COE) is:

$$ZK^c-HL^c\geqslant 0$$

or:

$$Z\geqslant H(L^c/K^c)$$

In the CES case this condition is equivalent to:

$$Z\geqslant Z^c$$

where from (A4):

$$Z^c=[H/(1+H/W)^{\sigma}](L^0/K^0) \tag{A7}$$

An analogous condition holds for *labour organizational equilibrium* (LOE).

We now investigate the conditions under which each type of equilibrium holds separately and, in particular, the conditions for a capitalist organizational equilibrium.

Differentiating Z^c with respect to H we find after manipulation that:

$$\partial Z^c/\partial H=(L^0/K^0)[(1+(H/W)]^{-(\sigma+1)}[1+(1-\sigma)(H/W)] \tag{A8}$$

For a sufficiently small H the expression (A8) is approximately equal to L^0/K^0

Differentiating again:

$$\partial^2 Z^c/\partial^2 H=\{(-\sigma)/[W(1+H/W)^{(\sigma+2)}]\}[2+(1-\sigma)(H/W)](L^0/K^0) \tag{A9}$$

For H small and $\sigma>0$ we have: $\partial^2 Z^c/\partial^2 H<0$.

Thus the range of Z for which a COE is possible lies above a frontier of the type shown in Figure 7.2.

Now consider the effect of 'neutral' change in *s*. Recall that a change in *s* is said to be *neutral* if it is accompanied by changes in parameters (i.e., the ratio a_k/a_L) such that the ratio K^0/L^0 remains unchanged at existing factor prices.

To see the effect of a neutral increase in *s* write (A7) in logarithm form:

$$\log Z^c=\log H-\sigma \log[1+(H/W)]+\log(L^0/K^0)$$

Holding H constant and differentiating with respect to *s* (remember (L^0/K^0) is constant):

$$(1/Z^c)(\partial Z^c/\partial \sigma)=-\log[1+(H/W)]$$

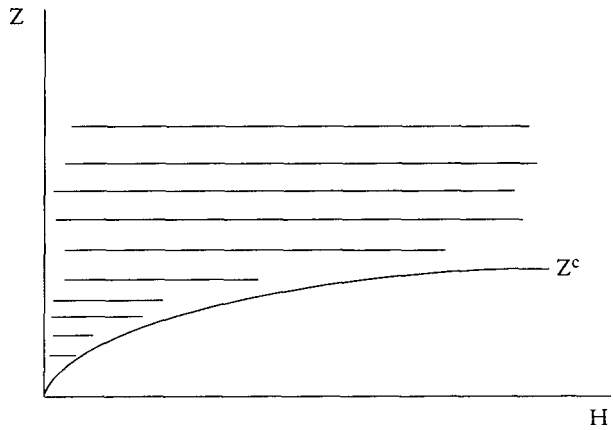

Figure 7.2 Above Z^c: values of Z for which COE is possible

Hence:

$$\partial Z^c/\partial\sigma = -Z^c \log[1+(H/W)]$$

which implies that $\partial Z^c/\partial\sigma < 0$.

Thus for any given value of H, a larger σ implies a smaller value of Z^c. Diagrammatically this means the frontier shifts downwards from $Z^{c'}$ to $Z^{c''}$ as in Figure 7.3.

Thus for any neutral increase in σ, the range for which a COE is possible expands.

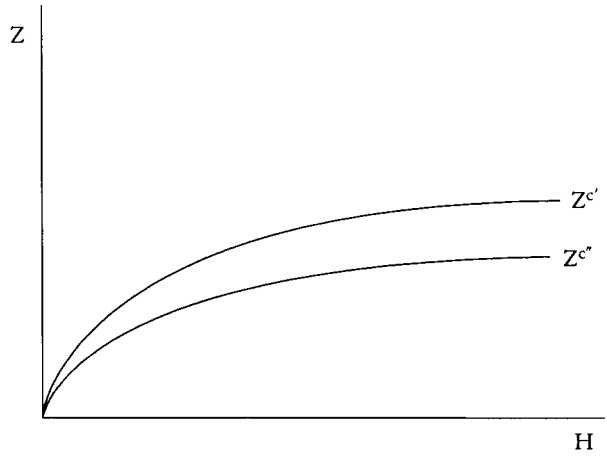

Figure 7.3 Effects of a neutral increase of σ on Z^c

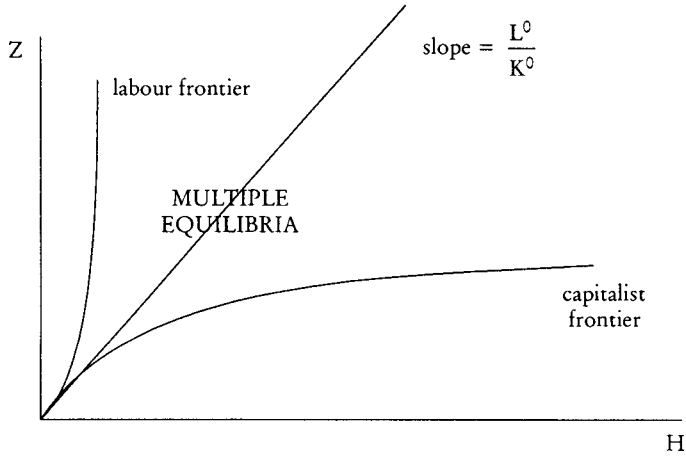

Figure 7.4 Range of multiple organizational equilibria

By symmetry it follows that for any neutral increase in *s,* the range of H, Z for which a LOE is possible also expands.

Multiple equilibria occur for (H,Z) in the intersection of the two sets (see Figure 7.4).

The effect of a neutral increase in σ (as shown Figure 7.1 in the text) is to enlarge the set of points in the intersection. This increases the range over which multiple organizational equilibria are possible. QED.

NOTES

1 Both New Institutionalist and Radical theories are so complex and developed that it is very difficult to make any clear-cut division between them. No economist will completely identify himself/herself with the ideal types considered above. However, we believe these ideal types to be fair representations of these alternative view points.

2 The concept of 'difficult to monitor capital' is due to Alchian and Demsetz (1972a). If the owners of the firm own the capital employed in the organization, then they have an incentive to take care of their capital. When user-induced depreciation is difficult to monitor, the possibility of careless use makes the rental of 'difficult-to-monitor capital' more expensive than its ownership (ibid.). A possible objection to this argument is that, instead of renting machines, the workers may borrow money, buy the machines and use them as collateral. Still, this objection can be answered by observing that difficult-to-monitor machines are less valuable as collateral than easy-to-monitor machines because it is more difficult to liquidate them in case of bankruptcy. In both cases it will be more expensive to rent difficult-to-monitor capital than easy-to-monitor capital. An analogous argument applies for firm-specific machines. Of course, labour can be 'difficult to monitor' in many other different and more complex ways.

3 The New Institutionalist school stems from Coase (1937, 1960). It includes the contributions of Alchian (1987), Alchian and Demsetz (1972a and 1972b), Jensen and Meckling (1976), Demsetz (1966), North (1981), and Williamson (1985). They see the firm and the property rights structure of the firm as an efficient answer to the cost of using the market mechanism. From this point of view also Grossman and Hart (1986) and Hart and Moore (1990) can be considered part of this school even if, from other points of views there are very relevant differences (Basile and Casavola 1994). Useful readers are Putterman (1986) (that includes also 'radical' contributions) and Williamson and Winter (1991). The relation between the modern transaction cost approach and earlier approaches based on the disequilibrium costs of the market mechanism is considered in Pagano (1992a).

4 Radical contributions start with Braverman (1974) and Marglin (1974) and Rowthorn (1974). They include Bowles (1985), Bowles and Gintis (1986), Edwards (1979), Pagano (1985) and Putterman (1982). They emphasise that property rights and power relations shape technology and the organization of labour.

5 The concepts of organizational equilibria and property rights equilibria are developed in Pagano (1991b, 1992b and 1993).

6 Rowthorn (1974) argues that what is missing in both neo-classical and neo-Ricardian economics is the concept of 'mode of production'.

7 Such a definition of 'micro-Marxism' does not necessarily have a 'left-wing' political connotation. It could include Demsetz's (1966) contribution and many other so-called 'right-wing' analyses. The fact is that when we come to 'theories of history' 'there is so little in the way of an alternative vision which is available' (Hicks, 1969:3).

8 Marx contains both types of elements and is not often able to find the right balance between them. Marxists have given different importance to the 'primacy' of the productive forces or to the influence of property rights on technology. For instance Cohen (1978) defends this 'primacy' whereas Brenner (1986) criticizes it. Roemer (1980) offers a useful survey of both. Observe that both New Institutionalists and Radicals could claim that Marx is one of their predecessors.

9 We concentrate our attention on a model with two types of capital and labour. Likewise we consider only the extreme cases of pure capitalist and pure labour ownership. This is done for analytical simplicity. Observe that the symbols could stand for different factors: this allows alternative interpretations of the model that could be used to study the outsider-insider problem in labour markets or the relation between financial and industrial capital.

10 Thus the concept of organizational equilibria is based on the assumption that 'financiers' have perfect knowledge of the value of the company for alternative owners using the existing technology but they are ignorant of the value of the company under alternative technologies. This informational structure is based on the idea that technology is not a 'menu' that is available for free to everybody but has to be created, developed and transmitted at certain costs in a given institutional framework, characterized by certain property rights. When certain property rights are missing, much of the knowledge about the associated 'optimal' technology is also likely to be missing.

Our point is consistent with the idea that it is very unlikely that an isoquant, describing all the production techniques, can ever be 'produced' and be known to all the agents. The techniques, that are currently used, are likely to determine the 'piece' of the 'new' isoquant that is 'produced'. Property rights act similarly to factor prices and, indeed, affect these prices (when they include also agency costs). In this way, they influence the choice of the current technique and the set of new techniques that are going to be 'produced'. On the 'path dependency' characteristics of technological development see David (1975, 1994), Nelson and Winter (1982), Dosi (1988), and Inkster (1991).

11 For a stimulating analysis of the analogies between economics and evolutionary biology see Hodgson (1993).

12 On the role of the inferiority of hybrids, see Ridley (1993:412). We can defend this analogy with the following words used by Gould in defence of his own analogy between the QWERTY system and the evolution of the panda's thumb:

> My main point, in other words, is not that typewriters are like biological evolution (for such an argument would fall right into the nonsense of false analogy), but that both keyboards and the panda's thumb, as products of history, must be subject to some regularities governing the nature of temporal connections. As scientists, we must believe that general principles underlie structurally related systems that proceed by different overt rules. The proper unity lies not in the false applications of these overt rules (like natural selection) to alien domains (like technological change) but in seeking the more general rules of structure and change themselves.
>
> (Gould, 1992)

13 On the concept of complementarities see Milgrom and Roberts (1992:108).

14 In other words, only technologies-genes that are compatible with the present team of genes are likely to be selected by a process of gradual evolution.

> It is the 'team' that evolves. Other teams might have done the job just as well, or even better. But once one team has started to dominate the gene pool of a species it thereby has an automatic advantage. It is difficult for a minority team to break in, even a minority team which would, in the end, have done the job more efficiently, The majority team has an automatic resistance to being

> displaced, simple by virtue of being the majority. This doesn't mean that the majority team can never be displaced. If it couldn't, evolution would grind to a halt. But it does mean that there is a kind of built-in inertia.
>
> (Dawkins, 1988:171–172)

15 In biology, the inferiority of hybrids implies that a gradual process, whereby only one mutation occurs at a time, is inhibited by competition from the existing species. Even if complementary mutations do occur simultaneously, there will at first be few members of the new species, and the old species will still be numerically preponderant. This implies that members of the new species will mostly mate with members of the old species, producing hybrids that are inferior to both species. Thus, in spite of the fitness of the new species, it may be eliminated through interbreeding with the more numerous old species. In the case of allopatric speciation, such interbreeding is prevented by geographical isolation of the new species. Shielded from competition by a physical barrier, the new species may evolve to the point where it will no longer interbreed on a significant scale with the old species, even if the barrier is removed and the two populations are re-united.

16 See the concluding section of Pagano (1993).

17 In the model considered in this paper we have concentrated our attention on the extreme cases of complete 'capitalist' and 'labour' ownership. This has only been done for reasons of analytical simplicity. Intermediate forms of ownership such as the labour-capital partnerships advocated by James Meade (1972) and (1993) may be a more appropriate alternative when both some high-agency-cost capital and labour must both be employed. However, we claim that the self-sustaining nature of property rights and technology also holds for these more complex cases. The same argument applies for job rights and other workers' rights.

18 For instance, according to Darwin more numerous species would not only show greater fitness because they were less liable to accidental extermination but also because 'these from existing in greater numbers will, in the aggregate, present more variation, and thus be further improved through natural selection and gain further improved through natural selection and gain further advantages' (Darwin 1968, p. 211).

19 See Arthur (1989) and Agliardi (1991).

20 For instance, consider the case of the legislation on limited liability and its importance for the case of joint stock companies. Leijonhufvud (1986) considers the importance of the creation of these institutions to make capitalism overcome asset-specificity problems. Rowthorn (1988) and Pagano (1991a) point out the relative underdevelopment of corresponding labour institutions.

21 We should allow for the fact that many agents exercise their 'influence' on the design of the production process. On the role of influence costs in the theory of the firms see Breton and Wintrobe (1982) and Milgrom and Roberts (1990).

REFERENCES

Agliardi, E. (1991) *Essays on the Dynamics of Allocation under Increasing Returns to Adoption and Path Dependency,* PhD thesis, University of Cambridge.

Alchian, A. (1987) 'Property Rights', in J.Eatwell, M.Millgate and P.Millgate, eds, *The New Palgrave,* pp. 1031–1034, Macmillan, London.

Alchian, A. and Demsetz, H. (1972a) 'Production, Information Costs and Economic Organization', *American Economic Review,* 62: 777–795.

Alchian, A. and Demsetz, H. (1972b) 'The Property Rights Paradigm', *Journal of Economic History,* 33: 16–27.

Arthur, B. (1989) 'Competing Technologies, Increasing Returns, and Lock-in by Historical Events', *Economic Journal,* 99: 116–131.

Basile, L. and Casavola, P. (1994) 'The Firm as an Institution: Recent Evolution in the Contractual Perspective', *Reserches Economiques de Louvain,* 2: 249–270.

Bowles, S. (1985) 'The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models', *The American Economic Review,* 75: 16–36.

Bowles, S. and Gintis, H. (1986) *Democracy and Capitalism,* Basic Books, New York.

Braverman, H. (1974) *Labour and Monopoly Capital,* Monthly Review Press, New York.

Brenner, R. (1986) *The Social Basis of Economic Development,* in Roemer (1986).

Breton, A. and Wintrobe, R. (1982) *The Logic of Bureaucratic Control,* Cambridge University Press, Cambridge.

Coase, R.H. (1937) 'The Nature of the Firm', *Economica,* 4: 386–405.

Coase, R.H. (1960) 'The Problem of Social Costs', *Journal of Law and Economics,* 3: 1–44.

Cohen, G.A. (1978) *Karl Marx's Theory of History: a Defence,* Oxford University Press.

Darwin, C. (1968) *The Origin of Species,* Penguin Books, Harmondsworth.

David, P.A. (1975) *Technical Choice, Innovation and Economic Growth,* Cambridge University Press, Cambridge.

David, P.A. (1994) 'Why are Institutions the "Carriers of History"? Path Dependence and the Evolution of Conventions, Organisations and Institutions', *Structural Change and Economic Dynamics,* 5, 2: 205–221.

Dawkins, R. (1988) *The Blind Watchmaker,* Penguin Books, Harmondsworth.

Demsetz, H. (1966) 'Towards a Theory of Property Rights', *American Economic Review. Papers and Proceedings,* 2: 347–359.

Dosi, G. (1988) 'Sources, Procedures and Microeconomic Effects of Innovation', *Journal of Economic Literature,* XXVI (September): 1120–1171.

Edwards, R. (1979) *Contested Terrain,* Basic Books, New York.

Eldredge, N. and Gould, S.J. (1972) 'Punctuated Equilibria: an Alternative to Phyletic Gradualism', in Schopf, T.J.M., ed., *Models in Paleobiology,* pp. 82–115, Freeman Cooper & Co, San Francisco.

Gould, S.J. (1992) 'The Panda's Thumb of Technology', in S.J.Gould, *Bully for Brontosaurus,* Penguin Books, Harmondsworth.

Grossman, S. and Hart, O. (1986) 'The Costs and the Benefits of Ownership', *Journal of Political Economy,* 94, 4: 691–719.

Hart, O. and Moore, J. (1990) 'Property Rights and the Nature of the Firm', *Journal of Political Economy,* 98, 6: 1119–1158.

Hicks, J. (1969) *A Theory of Economic History,* Oxford University Press, Oxford.

Hirschman, A.O. (1981) *Essays in Trespassing. Economics to Politics and Beyond,* Cambridge University Press, Cambridge.

Hodgson, G.M. (1993) *Economics and Evolution. Bringing Life Back into Economics,* Polity Press, Oxford.

Inkster, I. (1991) *Science and Technology in History,* Macmillan, London.

Jensen, M.C. and Meckling, W. (1976) 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', *Journal of Financial Economics,* 3.

Langlois, R.N. (1986) *Economics as a Process, Essays in the New Institutional Economics,* Cambridge University Press, Cambridge.

Leijonhufvud, A. (1986) 'Capitalism and the Factory System', in R.N.Langlois (1986).

Marglin, S. (1974) 'What Do Bosses Do?' *Review of Radical Political Economy,* 6: 60–112.

Marx, K. (1967) *Capital,* New York International Publishers.

Meade, J.E. (1972) 'The Theory of Labour-Managed Firms and Profit Sharing', *Economic Journal,* 82: 402–428.

Meade, J.E. (1993) *Liberty, Equality and Efficiency. Apologia pro Agathopia Mea,* Macmillan, London.

Milgrom, P. and Roberts, J. (1990) 'Bargaining Costs, Influence Costs and the Organization of Economic Activity', in Alt, J.E. and Shepsle, K.J. (eds), *Perspectives on Positive Political Economy,* Cambridge University Press, Cambridge.

Milgrom, P. and Roberts, J. (1992) *Economics, Organization and Management,* Prentice Hall, Englewood Cliffs, New Jersey.

Nelson, R. and Winter, S.G. (1982) *An Evolutionary Theory of Economic Change,* Harvard University Press, Cambridge, Mass.

North, D.C. (1981) *Structure and Change in History,* Norton, New York.

Pagano, U. (1985) *Work and Welfare in Economic Theory,* Basil Blackwell, Oxford.

Pagano, U. (1991a) 'Property Rights, Asset Specificity, and the Division of Labour under Alternative Capitalist Relations', *Cambridge Journal of Economics,* 15, 3: 315–342. Reprinted in Hodgson, G.M. (1993) *The Economics of Institutions,* Edward Elgar, Cheltenham.

Pagano, U. (1991b) 'Property Rights, Equilibria and Institutional Stability', *Economic Notes,* 2, 2: 189–228.

Pagano, U. (1992a) 'Authority, Co-ordination and Disequilibrium: an Explanation of the Co-existence of Markets and Firms', *Economic Dynamics and Structural Change,* 3, 1: 53–77. Reprinted in Hodgson, G. (1993) *The Economics of Institutions,* Edward Elgar, Cheltenham.

Pagano, U. (1992b) 'Organisational Equilibria and Production Efficiency', *Metroeconomica,* 43, 1–2: 227–246.

Pagano, U. (1993) 'Organisational Equilibria and Institutional Stability', in Bowles, S., Gintis, H. and Gustafsson, B., eds, *Markets and Democracy,* Cambridge University Press, Cambridge.

Pagano, U. and Rowthorn, R. (1994) 'Ownership, Technology and Institutional Stability', *Structural Change and Economic Dynamics,* 5, 2: 221–243.

Putterman, L. (1982) 'Some Behavioural Perspectives On the Dominance of Hierarchical over Democratic Forms of Enterprise', *Journal of Economic Behaviour and Organisation,* 3: 139–160.

Putterman, L. (1986) *The Economic Nature of the Firm. A Reader,* Cambridge University Press, Cambridge.

Ridley, M. (1993) *Evolution,* Blackwell Scientific Publications, Oxford.

Roemer, J. (1980) *Free to Lose. An Introduction to Marxist Economic Philosophy,* Radius, London.

Roemer, J. (1986) *Analytical Marxism,* Cambridge University Press, Cambridge.

Rowthorn, R. (1974) Neo-classicism, Neo-Ricardianism and Marxism', *New Left Review,* 86: 63–82.

Rowthorn, R. (1988) 'Solidaristic Corporatism and Labour Process Performance', in *Economics and Institutions,* Proceedings of the International School of Economic Research, Siena.

Williamson, O.E. (1985) *The Economic Institutions of Capitalism,* The Free Press, New York.

Williamson, O.E. and Winter, S.G. eds, (1991) *The Nature of the Firm. Origins, Evolution and Development,* Oxford University Press, New York and Oxford.

8

FLEXIBILITY, POWER AND WAGE BARGAINING*

Matti Pohjola

INTRODUCTION

The rise of corporatism in Western Europe in the 1960s and early 1970s was closely related to the growth of mass unions and the welfare state. The corporatist model of industrial relations is based on class organization of both labour and capital, and it implies regulation of the economy at the macro-level (for a survey see Pekkarinen, Pohjola and Rowthorn 1992). As demonstrated by Therborn (1992), differences between countries in their historical and legal traditions make some societies more likely than others to exhibit this type of associative action. In particular, the Germanic type of labour movement and the Nordic type of employer organizations are conducive to politico-economic deals.

The Nordic variant of corporatism (called 'social' corporatism by Pekkarinen, Pohjola and Rowthorn (1992)) is based on the institutionalization of the conflict between labour and capital. Both social classes are organized from below according to the principles of democracy and are regarded as labour market parties whose autonomy and conflict rights are respected and not violated (Therborn 1992). This system of industrial relations can be seen as an extension of citizens' political rights to cover economic activities. Its two basic features—centralized wage bargaining and the non-exclusion of any interest group—make it resemble representative democracy.

Since the early 1980s corporatism has been in retreat in most, if not all, countries where it was ever rooted. The trend has been the same in one country after another. Industry and enterprise level bargaining is taking over interest intermediation at the national level in those countries, like the Nordic ones, where bargaining has been highly centralized. Wage setting at the enterprise and plant levels is replacing industry-level bargaining systems in countries where the corporatist legacy has been weaker. There are various possible explanations for these centrifugal tendencies, such as the world-wide economic recession, the financial crisis of the welfare state and increasing economic integration. In this paper, I shall, however, concentrate on the role of new production technologies and worker participation

* I wish to thank Greg Dow and Bob Rowthorn for helpful comments but I am alone responsible for the views expressed and the errors which may remain.

systems. It is often claimed (see, for example, Windolf 1989) that these are the factors which make the shift toward decentralized bargaining and the formation of 'micro-corporatism' permanent phenomena. Some even argue that both labour and capital benefit from this transformation. In any case, industrial relations in Europe seem to be undergoing a structural change.

The search for a new form of industrial relations was prompted by the recognition of the fact that Japan's economic success was not based on superior technological knowledge but on a more efficient way of organizing production and work at the plant level. High levels of real interest rates and decreases in the relative price of information have made it profitable to speed up all aspects of the firm's operations. Many Western companies are now attempting to emulate 'just-in-time' (JIT) practices whose goal is to tailor manufacturing to the needs of a market and to produce instantaneously, with perfect quality and minimum waste. Highly-centralized 'push' systems of production control are replaced by 'pull' systems to make production more responsive to customer demands.

The implementation of the JIT philosophy is not, however, merely a technical and operational problem but a social one as well. To facilitate the adoption of more flexible ways of organizing work, manufacturers are offering workers new compensation policies and participation systems. It is often claimed that the new model of production results in an employment structure in which low-skilled repetitive tasks are reduced but high-skilled work is increased. Physical work is replaced by workers' human capital needed in a theoretical understanding of the production process. Narrow job assignments are abandoned in favour of broader ones. Both cooperation and the flexibility of work assignment are seen as critical in an environment where production is being continually reorganized to adapt to the market or to incorporate technological change. These changes are accompanied by practices designed to bind the workers more closely to the firm: profit-sharing, quality circles, 'company culture', peer pressure and worker representation on company boards.

In the second section of the paper, this optimistic view of the prospects of the new production concept is contrasted with a more pessimistic one. Many empirical analyses have brought out that the experiences from the new model have been rather mixed. The implementation of 'flexibility' has created both winners and losers among workers, increased conflicts, intensified the control of workers and maintained, if not improved, the relatively strong bargaining position of the management. The lesson is that, in analysing and designing organizations, efficiency cannot be separated from distribution. Consequently, the case should be analysed in a framework which explicitly recognizes this fact.

The third section introduces such a framework, the well-known shirking model of the efficiency wage theory. In a two-agent model of the firm it is shown that the worker's autonomy to choose his effort level unilaterally and the management's inability to monitor employee behaviour perfectly increases the worker's power capacity. The fourth section considers the role of flexible technology as a counter-control of the firm. It is shown in a framework symmetrical to the efficiency wage

model how the management's ability to 'shirk' by choosing a low productivity technology can enhance its bargaining position. Flexibility is thus valuable to the firm. The fifth section combines these two non-contractible aspects of the worker-firm relationship and demonstrates how flexibility polarizes wage bargaining, reduces the parties' ability to compromise and makes the outcome quite sensitive to the parameters of the model. The analysis gives an explanation for the coexistence of firms applying either fixed or flexible production technologies. It is also shown that the firm is likely to benefit from flexibility under the conditions in which work is easy to monitor. This may explain the management's observed desire to intensify the monitoring and control of workers when new production methods are implemented.

FLEXIBILITY AND THE WORK PROCESS

The argument is often made that modern computer-integrated manufacturing increases the importance of shop-floor skill in production. Piore and Sabel (1984) offer three reasons. First, a firm cannot afford repeated trials to perfect each production run in small-batch production and, consequently, workers play a critical role intervening when there are disturbances or errors in the production process. Second, workers' knowledge is important to both product and process innovation. Third, workers require broader skills to master new responsibilities and to perform multiple tasks when firms repeatedly change product lines.

Aoki (1986, 1990) and Koike (1990) take this argument even further and claim that workers' skills make them constituent members of the firm. Koike defines intellectual skill as knowledge that workers can utilize to deal efficiently with various changes occurring on the shop floor. These changes can be classified as usual and unusual operations. The former are those that require routine work and can, in principle, be replaced by machines. The latter, instead, consist of dealing with changes, treating problems and preventing errors in the production process. This is an indispensable element of workers' skills and can only be acquired by combining theoretical knowledge with on-the-job training and in-house experience. Koike makes the claim that the efficiency of Japanese manufacturing systems derives from on-the-spot use of workers' knowledge and problem-solving capabilities.

Aoki (1986, 1990) has argued that the new model of production has to rely more than the traditional 'Fordist' one on workers' participatory information processing and communication capabilities. Such integrative skills generate informational rents and make workers constituent members of the firm entitled to share in the rents through participatory local bargaining. The generation of such rents is firm-specific but truly collective, meaning that it cannot be embodied in individual employees. The rotation of workers between jobs ensures that work experience and knowledge are shared throughout the shop floor and that no individual gains sole competence in any one area. Consequently, the (Japanese) firm has to be seen as a co-operative game between its constituent members—the

owners who provide capital, the managers who supply the organizational framework and the workers who possess the information-processing capacities. Aoki also speculates that this participatory mode of production is not just a Japanese cultural phenomenon, but that it also reflects a rational response of universal relevance by competing firms to their changing environment.

An argument is also often made in the sociology of work that the new model of production reverses a historic tendency, as described for example in Braverman (1974), for the deskilling of work. To fully realize the benefits of flexibility, workers have to undertake a number of tasks and to possess a number of skills. Workers are characteristically employed in a general category and not for specific tasks. Wages are related to the skills acquired and not to the tasks performed. This, in turn, calls for new ways of personnel management in which hierarchical and authoritarian control is superseded by autonomous work groups. The old working-class culture will eventually break down and a new co-operative one will emerge.

If the reskilling hypothesis were correct, the new production model would mean a new economic justification for the existence of the trade union movement in the world where the old one may be losing its relevance. The fact that product markets are monopolistic and labour markets have monopsonistic elements has traditionally been regarded as the basic economic justification for organizing workers. Growing international trade and increasing economic integration intensify competition between firms and erode the basis of worker unionization. There is a new role for the unions, however, in the participatory model of production. Workers' skills are firm-specific but collective. They generate rents which cannot be written into individual contracts but can be agreed upon collectively. But such bargaining has to take place at the firm or plant level for proper conditions for an efficient generation of the rents to arise.

Against this optimistic view of the prospects of the new production concept we can set the findings of some empirical studies whose conclusions are more pessimistic. Kortteinen (1991) has surveyed those Finnish engineering industry companies which adopted the new production concept in the late 1970s or early 1980s. Table 8.1 presents the results of his interview of all the 700 NC/CNC-using employees in the ten companies using FM-systems in 1990.

Kortteinen's (1991) conclusion is that there is no evidence of a shift towards a more co-operative workplace culture. On the contrary, the contradictions workers perceive seem to become more predominant and all-embracing as the new model of rationalization proceeds. It is interesting to observe that workers regard conflict over wages, effort and work organization to be more intense than conflict over the adoption of new technology. Contradictions seem to exist with respect to the way the new production concept is implemented rather than with respect to the concept itself.

This evidence is confirmed by a number of British surveys by Daniel (1987). He finds relatively little opposition among workers to new technology, but conflicts on other aspects of the employment relation (e.g. wages) seem to be more intense.

Table 8.1 The percentage of employees who think that their interests are in 'full contradiction' or in 'some contradiction' with the interests of the employer when the following things are considered:

	Manual machinists	*NC/CNC machinists*	*Group work and NC/CNC*	*FMS machinists*
Wage	69	78	80	83
Amount of work	45	50	56	63
New machinery	29	30	26	39
Economic success of the employer	45	50	46	51
New oganization of work	–	57	48	63
NC/CNC training	–	35	34	45

Oliver and Davies (1990) report on the experiences of two UK factories of a manufacturing company in the engineering industry. They both adopted Japanese-style manufacturing methods as a response to existing or anticipated business problems, particularly with respect to manufacturing costs and lead times. The experiences turned out to be rather mixed. First, both factories had difficulties in introducing the new team-based method of work organization. Flexible working was resisted due to fear of erosion of skills and loss of status, particularly among skilled workers. This resistance led the management to take measures aimed at reducing the size of the labour force. Second, although the direct supervision of workers appeared to be declining in significance, the management tightened control through a greater use of output-based controls, such as targets for volume, quality, lead times and cash performance. The authors' conclusion is that the introduction of the new production methods created both winners and losers within the organizations and that their successful implementation is not merely a technical problem but requires solutions to problems of power and influence.

Shaiken, Herzenberg and Kuhn (1986) have examined the consequences of the reorganization of production for workers and for shop-floor skills in US manufacturing. They studied ten firms which were among the leading users of programmable automation. One of their findings was that managers perceived the ability to limit operator control of the work pace as an important advantage of the modern FM-system compared to stand-alone NC-machines. They attempted to remove planning responsibility and autonomy from the shop floor more often than they tried to combine flexible technology with broadly-skilled workers.

Given these Western experiences, it is interesting to see that the 'Japanese model' is not working according to the idealized picture even in Japan. Marsh's (1992) study of 48 Japanese manufacturing plants reveals that the management delegates the authority to make only routine, programmed, sub-unit and individual-level decisions to lower hierarchical levels but reserves for itself the right to take strategic, non-programmed and organization-wide decisions. Workplace democracy is not an outcome of the participatory decision-making system. On the contrary, power

is concentrated in the hands of the top management in more or less the same way as it is in other countries. Rank-and-file workers have the right to present ideas and suggestions, but the right to make and implement a decision is reserved for relative high-level managerial personnel.

Delbridge, Turnbull and Wilkinson (1992) argue in a similar vein in their review of the relevant literature that the new (JIT or flexible) production system entails a devolution of responsibilities traditionally held by management to the level of team leader or operator but that this does not lead to autonomy. The result is instead an increasing and demanding set of tasks which are closely monitored and controlled by the management. This control is extended and work intensified through the increased surveillance, accountability, peer pressure and waste elimination characteristics of the new system. Workers' collective autonomy is limited to task design. The authors' conclusion is that this kind of production system ultimately tilts the balance of power in favour of the capitalist over the worker.

We may summarize this debate on the potential role of new production technology by saying that much theoretical and empirical work has to be done before robust conclusions can be drawn. It is not yet clear for example whether the described problems are only transitory, diminishing over time as new social conventions evolve in the workplace. One definite conclusion, however, is that we should not view the situation merely as a problem of industrial engineering but as one of social control. Therefore, in the following analysis we shall explore the consequences of the new system in an explicit bargaining theory framework which quantifies the aspects of power, control and flexibility referred to in the preceding.

WORK EFFORT AND WAGE BARGAINING

We shall now introduce the familiar shirking model (see, e.g., Shapiro and Stiglitz 1984; Bowles 1985) of efficiency wages as the basis of our analysis. Consider the agency problem between a firm and its single employee when a wage is to be paid in exchange for the employee's promise to work faithfully for the employer. For such promises to be enforceable via third parties like the courts of law, worker effort has to be both observable and verifiable. It can, however, be argued that the modern production system requires effort which is hard to quantify. What is required from the workers is their ability to deal with changes occurring on the shop floor as well as to treat problems and prevent errors in the production process. Not all of this is routine work which can be standardized and measured. At least some tacit knowledge of the production process is required. Effort can here be interpreted as the intensity with which the worker uses his human capital, i.e., knowledge of the system of production.

Kortteinen (1991) describes a number of ways in which FMS operators can make their system produce either nothing or only substandard quality products even when all seem to be working hard. Alternatively, there are ways in which the workers can make their systems produce at full capacity even when left unattended

during night shifts. Such 'counter-control' measures have always been and still are an important feature of the workplace culture.

In the absence of binding contracts on effort levels, the firm has to use pay as an incentive device to extract the desired amount of labour effort. We assume that explicit incentive contracts are ruled out for measurability or other reasons and concentrate on efficiency wages instead. Entry fees are also ruled out. The implicit assumption we make here then is that the issues of distribution and efficiency cannot be separated.[1]

The firm consists of two risk-neutral agents. The capitalist owns the equipment and knows the technology of production. His machine is indivisible and technology has fixed coefficients. The worker supplies labour in exchange for an hourly wage rate w and chooses an effort level e. Wages are contractible but effort is not. The pay-off functions are

$$\pi = Qe - wl \tag{1}$$

and

$$u = [w - v(e)]l \tag{2}$$

for the firm and the worker, respectively. Here Q is the value of output and l the number of hours required to produce it. Assume that the effort level can have only two values: $e=1$ when the employee works faithfully and $e=0$ when he shirks. Let the pain from effort be

$$v(e) = \begin{cases} v > 0 & \text{if } e = 1 \\ 0 & \text{if } e = 0. \end{cases} \tag{3}$$

For the maximum provision of effort to be socially profitable it must be assumed that $Q > vl$, i.e., that the value of output exceeds its effort costs.

In this section we regard technology (Q, l) as fixed and concentrate on the analysis of the choice of effort. Suppose that as an incentive the firm promises to pay an hourly wage rate w that exceeds the rate $\bar{w}$ available elsewhere in the economy. To keep the notation simple, let $\bar{w}=0$. Besides providing monetary incentives the employer also monitors the worker but given the complexity of the production system this monitoring is imperfect. Let p, $0<p<1$, be the probability that the worker is detected when he is shirking. If caught, the worker is fired, in which case he obtains $\bar{w}=0$.

The wage rate that induces the worker to supply the maximum effort has to satisfy the non-shirking condition

$$(w - v)l \geq p\bar{w}l + (1-p)wl = (1-p)wl \tag{4}$$

or, equivalently,

$$w \geq v/p \equiv u^e > \bar{w} = 0. \tag{5}$$

The pay is set higher than the standard rate in order to motivate the employee to work more efficiently. He earns rents because his effort cannot be perfectly monitored. Only by paying a large enough wage premium can proper incentives be provided. We shall here assume the monitoring level to be fixed and confine the analysis to the choice of the wage rate. Consequently, the fixed costs of monitoring are left out of the profit function (1).

If the firm can set the wage, it will choose the minimum level, w^e, satisfying the non-shirking condition, given that the expected profits are positive. This holds if the benefits from greater effort exceed the costs of providing it, that is, if $Q>vl/p$. Note that this condition may fail to hold even if working at the maximum effort level is socially profitable simply because effort can only be imperfectly monitored ($p<1$).

Consider next wage bargaining between the firm and the worker. It is assumed that the worker is a constituent member of the firm entitled to share in the rents, which are firm-specific. The possible sources of such rents were pointed out in the previous section. They are not specified here because the analysis is focused on the implications of flexibility for the distribution of revenues between wages and profits. Here, wage bargaining at the local level is the relevant form of worker participation.

The expected value of worker utility is

$$U \equiv Eu = \begin{cases} (w - v)l & \text{if } w \geq w^e \\ (1 - p)wl & \text{otherwise.} \end{cases} \tag{6}$$

The expected profits are

$$\Pi \equiv E\pi = \begin{cases} Q - wl & \text{if } w \geq w^e \\ -(1 - p)wl & \text{otherwise.} \end{cases} \tag{7}$$

Thus, the frontier of the bargaining set is defined by

$$U + \Pi = \begin{cases} Q - vl & \text{if } w \geq w^e \\ 0 & \text{otherwise.} \end{cases} \tag{8}$$

As illustrated in Figure 8.1, this set is non-convex. This fact has interesting implications for wage bargaining.

Consider Nash bargaining and suppose that the wage is set so as to maximize the product

$$\phi = U^{\delta}\Pi^{1-\delta} \tag{9}$$

subject to the non-shirking condition (5). Here δ denotes the worker's relative bargaining strength. The fallback pay-offs are the expected utility and the profit levels obtainable elsewhere in the economy: $\bar{U} = 0$, $\bar{\Pi} = 0$. It is clear that the worker may benefit from the fact that effort can only be imperfectly monitored. This is illustrated in Figure 8.1, where N denotes the Nash solution in the case where

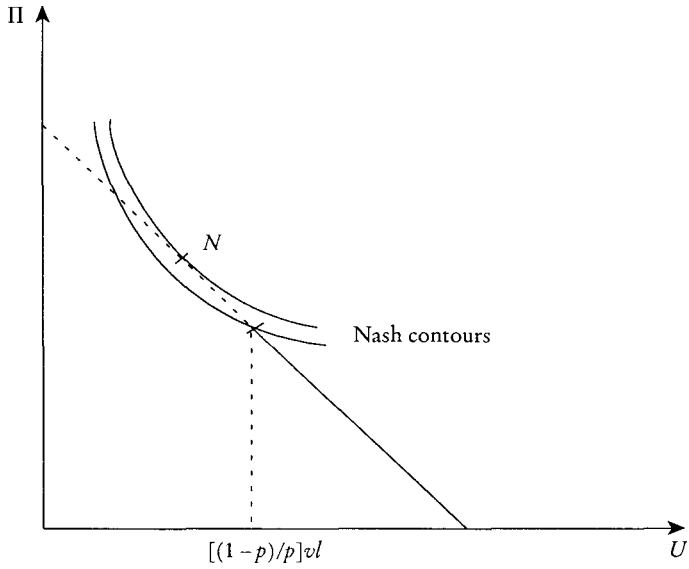

Figure 8.1 Nash bargaining under fixed technology

effort is contractible. It is defined by e=1 and

$$w^N = v + \delta \frac{Q - vl}{l}. \tag{10}$$

The corresponding pay-offs are

$$U^N = \delta(Q - vl) \tag{11}$$

and

$$\prod^N = (1 - \delta)(Q - vl). \tag{12}$$

The worker may benefit from his capacity to choose effort because the non-shirking condition (5) eliminates a whole range of wage rates from the bargaining table. This follows from the fact that the worker shirks if the negotiated wage is not high enough. The Nash solution (10) dominates the switching wage (5) only if

$$\delta(Q - vl) \geq \left(\frac{1}{p} - 1\right)vl, \tag{13}$$

i.e., if the rent the worker receives from bargaining exceeds the rent he obtains on the basis of the efficiency wage relationship.

The worker's power capacity is high when work is difficult to monitor, i.e., when p is small, even if his bargaining strength δ is low. The role of such counter-control measures as 'working into buffers' and 'banking' work for a 'rainy day' have always been an important aspect of worker autonomy even in the 'Fordist' mass production system (see, for example, Wilkinson and Oliver 1989). The

management's inability to prevent the worker from using this power capacity leads to seek ways of reducing the worker's motivation to exert power and influence. Let us next consider what implications flexible technology has in this respect.

FLEXIBLE TECHNOLOGY AND WAGE BARGAINING

There are various ways of defining flexibility. One is to regard the degree of flexibility as the ease with which the firm can switch its production capacity from one good to another (von Ungern-Sternberg 1991). As mentioned earlier, the aim of 'just-in-time' practices is to tailor manufacturing to the needs of a market and to make production more responsive to customer demands. One of the ways in which firms try to adjust to fluctuating demand is by diversification into several product markets. An alternative but related interpretation is to view flexibility as the ability of the production system to modify itself in the face of uncertainty. The value of such an option can be derived from the theory of option pricing (Kulatilaka and Marks 1988).

However, to deal properly with flexibility we should extend the analysis to the case of multiple products and uncertain demands. As we are not interested in production planning but, instead, in the implications of flexibility for bargaining between management and workers, we borrow the basic results from the relevant literature and apply them to the single-product case.

As Milgrom and Roberts (1990) and von Ungern-Sternberg (1991) demonstrate, non-concavity of the profit function is a characteristic aspect of the flexible manufacturing system. The basic point made by von Ungern-Sternberg (ibid.) is that there is a trade-off between the advantages of specialization (the 'old' production concept) and the degree of flexibility (the 'new' model). It is not usually optimal for a firm to choose an intermediate level of flexibility. Rather, some firms reap the benefits of specialization while others exploit the advantages of flexibility. Thus, the successful adoption of production methods may not be a marginal decision but may result in the coexistence of heterogenous firms on the market. Milgrom and Roberts (1990) attribute such non-convexities to the existence of complementarities between groups of activities within the firm. For example, the adoption of computer-aided design may reduce the cost of adopting and using programmable manufacturing equipment (like FM-systems). Similarly, the computerization of marketing practices, such as order processing, reduces the costs of adopting computer-based manufacturing. Thus, it may be unprofitable for the firm to invest in any of these activities separately but highly profitable to invest in them all together.

It is hard, if not impossible, to study the implications of such non-convexities in single-product models which assume continuous production functions. Consequently, the choice of technology is here regarded as discrete. Using the approach of Kulatilaka and Marks (1988), it will be shown that flexibility reduces the ability to compromise and that very similar parameter values may lead to very different results as to the value of flexibility.

Let us consider the model presented in the previous section but assume here that the worker's effort level e is fixed. This will be relaxed in the next section. Instead, let us make the number of hours l variable. The firm faces the choice between three different technologies, two of which are fixed and one flexible. Suppose that these are equal in terms of capital costs. Let the first technology generate fixed revenue A requiring $l=a$ hours of work. Thus, its value to the firm is

$$\pi^A=Ae-wa \tag{14}$$

when the effort level is accounted for. The second technology provides the revenue flow B but needs $l=b$ hours. Thus,

$$\pi^B=Be-wb. \tag{15}$$

Without loss of generality, it can be assumed that $A>B$.

The flexible technology F has as its modes of operation the two fixed technologies A and B. The mode is chosen by the management after an agreement on the wage rate w is reached. However, the management has to make a choice between A, B and F before the bargaining round. Now,

$$\pi^F=\begin{cases} Ae-wa & \text{if } w \leqslant w^s \\ Be-wb & \text{otherwise} \end{cases} \tag{16}$$

where the switching (efficiency) wage is

$$w^s \equiv \frac{A-B}{a-b}\, e. \tag{17}$$

It must be assumed that $a>b$ for flexibility to have any positive value to the management. This value arises from the possibility to adopt mode B if the wage rate is high. To be credible, this threat must involve a smaller labour input.

The frontier of the bargaining set is defined as

$$u+\pi=\begin{cases} Ae-v(e)a & \text{for } w \leqslant w^s \\ Be-v(e)b & \text{otherwise.} \end{cases} \tag{18}$$

Assume further that technology A is socially preferable to its alternative in the sense that $Ae–v(e)a>Be–v(e)b$. If this were not the case, then the A mode would never be chosen by the management.

As illustrated in Figure 8.2, the bargaining set is again non-convex.[2] Assume as before that the conflict pay-offs equal zero for both bargaining parties. Then, if technology were contractible the choice of A would maximize efficiency and Nash bargaining over the wage rate would result in

$$w^N=v(e)+\delta\,\frac{Ae-v(e)a}{a}. \tag{19}$$

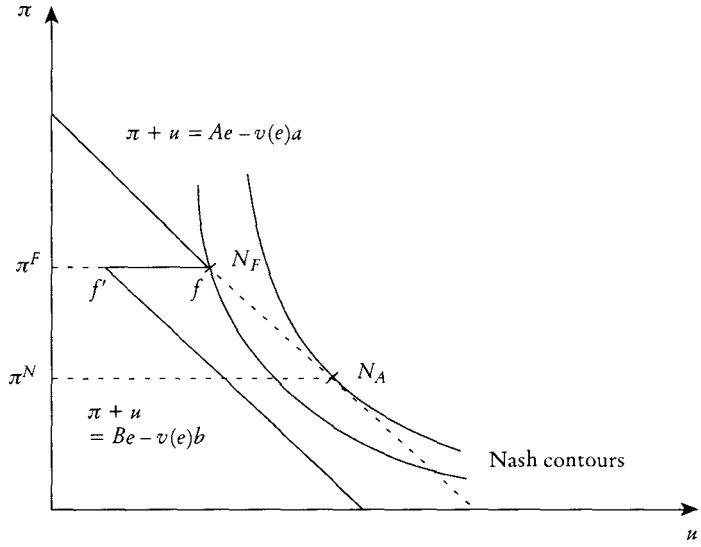

Figure 8.2 Nash bargaining under flexible technology

This would generate the pay-offs

$$u^N=\delta[Ae-v(e)a] \tag{20}$$

and

$$\pi^N=(1-\delta)[Ae-v(e)a]. \tag{21}$$

Under flexible technology the management can unilaterally choose its mode of operation after the wage bargain is struck. Consequently, the efficient A mode is implementable only when it satisfies the incentive compatibility constraint $\pi^N \geqslant Ae-u^s a$ or, equivalently,

$$w^N \leqslant u^s. \tag{22}$$

The solution is illustrated in Figure 8.2, which is adopted from Kulatilaka and Marks (1988). The outcome of bargaining is N_A if fixed technology A is adopted but N_F if the flexible alternative is chosen. Clearly, in the case illustrated here flexibility is valuable to the firm. This value is given by $\pi^F-\pi^N$ in Figure 8.2. The worker, however, loses.

An interesting feature of flexibility is the fact that it removes a whole set of wages from consideration when bargaining takes place. This is the range $(w^s, \hat{w}]$ where $\hat{w}=v(e)+(a/b)[w^s-v(e)]$, described by ff' in Figure 8.2. Any wage in this range is Pareto-dominated by w^s. The firm is worse off if the wage rate increases. The worker benefits from the increase in the unit wage but suffers an income loss because the number of working hours is reduced from a to b. Thus, as shown in Figure 8.3, both parties are worse off in the interval $(w^s, \hat{w}]$ than at w^s.

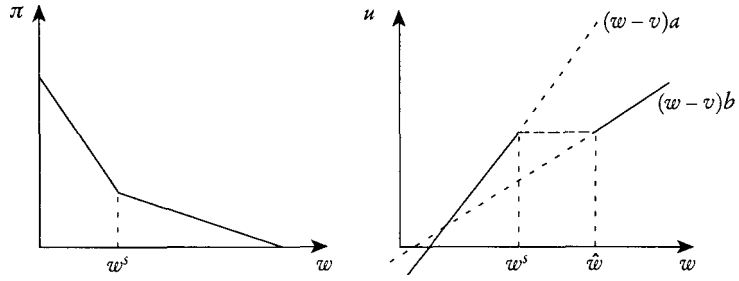

Figure 8.3 Profit and worker utility under flexible technology

Then, as Kulatilaka and Marks (1988) point out, if the bargaining solution under fixed technology falls in this range, the adoption of flexible technology removes this middle range from the bargaining table. The firm benefits and the worker loses if the outcome falls to w^s or below. Exactly the opposite conclusion is obtained if flexibility results in a wage rate higher than w. What is interesting here is that flexibility can be detrimental to the firm as well. Which case will occur depends on the parameters of the model.

Another interesting aspect of flexibility is the feature that the possibility to adopt B lowers the surplus over which the parties are bargaining. This occurs in the wage range $(\hat{w}, \infty)$. Both these effects polarize bargaining and make compromise more difficult.

The conclusions obtained here mean that flexibility also carries strategic value in wage bargaining. This could explain some of the empirical findings referred to earlier according to which the adoption of new technology may intensify the conflict over wages and effort between workers and management. To confirm this conjecture, let us combine the two models considered.

WORK EFFORT, FLEXIBLE TECHNOLOGY AND BARGAINING

To begin with, assume that w is given. Then, for either of the two modes of flexible technology, it is optimal for the worker to apply the following strategy:

$$e = \begin{cases} 1 & \text{if } w \geq v/p \\ 0 & \text{otherwise.} \end{cases} \tag{23}$$

This follows directly from the non-shirking condition (5). The worker's behaviour is independent from the choice of technology. The firm's strategy, however,

depends on the worker's choice since from equation (16) it follows that

$$(Q, l) = \begin{cases} (A, a) & \text{if } w \leq \dfrac{A-B}{a-b}\, e \\ (B, b) & \text{otherwise.} \end{cases} \tag{24}$$

Thus, only those wages which deter the worker from shirking qualify for bargaining: $w \geq v/p$. We can now confine the analysis to this range.

There are three cases to be considered depending on the value of $u^e = v/p$. It is helpful to interpret these from the viewpoint of how difficult it is for the management to monitor the worker. When monitoring is hard, p is low and, therefore, v/p is high. Consequently, the agency relationship between the firm and the worker is dominated by the problems created by the fact that effort is not contractible. But when monitoring is easy, p is close to unity and the efficiency-wage problems play a smaller role. The non-contractibility of production technology is now the source of inefficiency.

Case (i): Work difficult to monitor

This is the case where p is so small that

$$\frac{v}{p} > \hat{w} \equiv v + \frac{a}{b}(w^s - v) \tag{25}$$

Here $u^s = (A-B)/(a-b) < \hat{w}$. This is the wage range, considered in the previous section, where the socially superior A mode of the flexible technology results in lower profits than its alternative.

To assess the value of flexibility to the firm, we can now ask to which type of technology the firm commits itself before wage bargaining takes place. The flexible alternative gives

$$\prod^F = min\{(1-\delta)(B - vb),\ B - vb/p\}. \tag{26}$$

The *min*-operator is relevant here because the worker can secure himself the expected utility level $U = (1/p - 1)\, vb$ by shirking if the wage rate is lower than v/p.

Exactly the same expected profit level is obtained if the firm chooses the fixed B technology, whereas the A technology yields

$$\prod^A = min\{(1-\delta)(A - va),\ A - va/p\}. \tag{27}$$

We can then immediately conclude that flexibility has no value to the firm. Thus, it is not a relevant issue here but the question to be answered is which one of the two fixed technologies the firm chooses. The answer depends on the exact values of the parameters in a rather complicated way. One definite conclusion, however, is that the firm chooses the socially inefficient B technology when its bargaining position is strong, that is, when δ is low. This is easily seen by setting $\delta = 0$, in which case equations (26) and (27) give $\prod^B = \prod^F > \prod^A$.

The conclusion from the analysis of the first case is that flexibility is not beneficial to the firm when work is difficult to monitor. This may explain the empirical findings, referred to in the second section, according to which increased monitoring and control of workers often seems to be associated with the introduction of new, flexible production methods. It was also learnt that the difficulty of monitoring combined with the management's strong bargaining position is likely to result in the implementation of the socially inefficient technology.

Case (ii): Work moderately difficult to monitor

The second case is the intermediate range where

$$\frac{A-B}{a-b} < \frac{v}{p} \leqslant \hat{w}. \tag{28}$$

Here, given that the technology is flexible, all the possible bargaining outcomes are dominated by $w^s=(A–B)/(a–b)$ if the effort level is fixed at e=1 (see Figure 8.2). This was already considered in greater detail in the previous section. But now when effort is variable and at the worker's discretion this outcome is different simply because w^s is not obtainable.

This case collapses to the one considered above, since the non-shirking condition $w \geqslant v/p$ eliminates from consideration the A mode of the flexible technology. All the conclusions already obtained hold here as well. The only difference is that when the firm makes a choice between the types of technology, the fixed A technology now has a greater likelihood of being chosen than in the previous case. This follows from the fact that efficiency-wage problems are not as severe as before since work is easier to monitor and, consequently, p is higher.

Case (iii): Work easy to monitor

The final case is the one where

$$\frac{v}{p} \leqslant \frac{A-B}{a-b}. \tag{29}$$

Now the firm can realize the full benefits of flexibility. All the conclusions obtained in the previous section apply here as well. Thus, flexibility removes a whole set of wages from consideration when bargaining takes place and also lowers the surplus over which the parties are bargaining. These effects polarize bargaining and make compromises more difficult to reach.

Since the probability p of being caught shirking is high for the worker, the efficiency wage is rather low. Consequently, the problems arising from the non-contractible nature of technology dominate those arising from the non-contractibility of effort.

The crucial fact here is that flexibility makes it possible for the management to threaten the worker, either implicitly or explicitly, that too high a wage rate will

lead to the implementation of the inefficient B mode of the flexible technology. The low value of the efficiency wage makes such a bargaining strategy feasible. The result is that the worker settles for a lower rate than he would if the fixed A technology prevailed.

The outcome of the choice between the types of technology is quite sensitive to the parameters of the model. It is important, however, to observe that the flexible technology may be adopted by the management even for an intermediate range of the parameter values, as illustrated in Figure 8.2. The model can thus be applied in explaining the diverse experiences, described in the second section, in the implementation of new production methods. In particular, the fact that flexibility polarizes bargaining by removing a middle-range of wages from the bargaining table can be interpreted as an explanation to the observed increase in the intensity of the conflict over wages as well as other aspects of the employment relation.

In analysing cases (i)–(iii) we have taken the level of monitoring as fixed. But suppose for a moment that it is one of the firm's choice variables. Then we can conjecture that the management is inclined to increase monitoring to reap the benefits of flexibility. Increased monitoring of workers means a higher value of p and, consequently, a smaller minimum wage that deters shirking. This conclusion is opposite to the conventional prediction, described in the second section, that hierarchical and authoritarian control is superseded by autonomous work as a result of flexible technology.

CONCLUSIONS

It is commonplace to argue that the advanced industrialized countries are experiencing a great transformation of their industrial relations. It is caused by the widespread adoption of new, microelectronics-based technology. Views, however, differ as to the implications of such a change. The optimists see that the new model of flexible production entails benefits for both labour and capital. Profits increase, wages rise and the deskilling of work is reversed. On the contrary, the pessimists see that capital obtains disproportionate benefits by dividing labour and intensifying the labour process. The monitoring and control of workers are likely to increase as a result of the implementation of new technology.

Industry case studies confirm that the new production paradigm does not have any clear-cut implications. In some cases its implementation has been successful to both labour and capital, whereas in others the impacts on workers have been adverse. Consequently, an analytical framework is needed to explain the diverse empirical findings. Such a model should feature incomplete contracts since the Pareto-optimal, first-best outcome can always be achieved in the world where the parties can sign binding contracts on all relevant aspects of industrial relations.

Two such non-contractible aspects—work effort and the mode of technology—were considered in this paper. Effort was assumed to be within the worker's

discretion, whereas the choice of technology was taken to be one of the management's prerogatives. This assignment of the decision rights is determined directly on the basis of the property rights. Only the wage rate was considered to be contractible.

The first conclusion obtained is that the non-contractible aspect of flexible technology removes a middle range of wages from consideration when bargaining takes place. The adoption of flexible technology thus polarizes bargaining, making compromises more difficult. Which bargaining side benefits depends on the parameters of the model. These results may explain the coexistence of firms applying either fixed or flexible technologies as well as the diversity of experience with the adoption of the new production concept.

The second conclusion relates to the combined effects of effort and technology. It was seen that flexibility is likely to benefit the firm when work is easy to monitor. This explains why more intensive monitoring and control of workers can be associated with the implementation of the new production methods. Firms recognize that the new technology provides certain bargaining advantages but that these benefits can only be realized if the firms simultaneously adopt more intensive monitoring and lower efficiency wages. Labour-management conflict can increase because worker rents are being reduced as the process goes along.

The final conclusion concerns bargaining power. If work is difficult to monitor, the agency costs in the form of socially inefficient technology arise from the non-contractibility of effort. Then, the superior mode of technology is likely to be implemented only if workers' bargaining power (parameter d) is high. On the other hand, if work is easy to monitor, the agency costs result from the non-contractible aspect of flexible technology. Efficiency is now ensured when the management's bargaining position is strong. Observing that the firm is in fact run by the factor whose bargaining power is high, these results are seen to be in line with the conventional view about the assignment of the ownership rights. The important implication, however, is that technology and property rights are not independent but should be analysed in conjunction, as explained in greater detail by Pagano and Rowthorn in this volume.

It should be emphasized that these conclusions follow from the strategic aspects of flexibility in a world of incomplete contracting. This strategic value is conceptually different from the advantages of flexibility associated with the ability of the production process to modify itself in the face of uncertainty. The value of such an option is independent from the bargaining process and, consequently, is beneficial to both the firm and its workers.

NOTES

1 See Dow (1993) for some economic arguments about why capitalist firms cannot charge positive entry fees in a market equilibrium.

2 This may cause some problems concerning the uniqueness of the bargaining outcome. These can, however, be here controlled for by a proper choice of the parameter values.

REFERENCES

Aoki, M. (1986), 'Horizontal vs. vertical information structure of the firm', *American Economic Review,* 76: 971–983.

Aoki, M. (1990), 'The participatory generation of information rents and the theory of the firm', in M.Aoki, B.Gustafsson and O.E.Williamson (eds), *The Firm as a Nexus of Treaties,* London: Sage, 26–52.

Bowles, S. (1985), 'The production process in a competitive economy: Walrasian, neo-Hobbesian, and Marxian models', *American Economic Review,* 75: 16–36.

Braverman, H. (1974), *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century,* New York: Free Press.

Daniel, W.W. (1987), *Workplace Industrial Relations and Technical Change,* London, Frances Pinter.

Delbridge, R., Turnbull, P. and Wilkinson, B. (1992), 'Pushing back the frontiers: management control and work intensification under JIT/TQM factory regimes', *New Technology, Work and Employment,* 7: 97–106

Dow, G.K. (1993), 'Entry fees, firing threats, and work incentives: capitalist and labor-managed firms in market equilibrium', Research paper no. 93–9, University of Alberta.

Koike, K. (1990), 'Intellectual skill and the role of employees as constituent members of large firms in contemporary Japan', in M.Aoki, B.Gustafsson and O.E.Williamson (eds), *The Firm as a Nexus of Treaties,* London: Sage, 185–208.

Kortteinen, M. (1991), 'The problematic character of Finnish industry's new modernization strategies. A comment on Alasoini's paper', in A.Kasvio, C.Mako and M.McDaid (eds), *Work and Social Innovations in Europe,* Work Research Centre, University of Tampere, 69–78.

Kulatilaka, N. and Marks, S.G. (1988), 'The strategic value of flexibility: Reducing the ability to compromise', *American Economic Review,* 78: 574–580.

Marsh, R.M. (1992), 'The difference between participation and power in Japanese factories', *Industrial and Labor Relations Review,* 45: 250–257.

Milgrom, P. and Roberts, J. (1990), 'The economics of modern manufacturing: Technology, strategy, and organization', *American Economic Review,* 80: 511–528.

Oliver, N. and Davies, A. (1990), 'Adopting Japanese-style manufacturing methods: A tale of two (UK) factories', *Journal of Management Studies,* 27: 555–570.

Pekkarinen, J., Pohjola, M. and Rowthorn, B. (eds) (1992), *Social Corporatism—A Superior Economic System?* Oxford: Clarendon Press.

Piore, M.J. and Sabel, C.F (1984), *The Second Industrial Divide: Possibilities for Prosperity,* New York: Basic Books.

Shaiken H., Herzenberg, S. and Kuhn, S. (1986), 'The work process under more flexible production', *Industrial Relations,* 25: 167–183.

Shapiro, C. and Stiglitz, J. (1984), 'Equilibrium unemployment as a worker discipline device', *American Economic Review,* 74: 433–444.

Therborn, G. (1992), 'Lessons from "corporatist" theorizations', in J.Pekkarinen, M. Pohjola and B.Rowthorn (eds), *Social Corporatism—A Superior Economic System?,* Oxford: Clarendon Press.

von Ungern-Sternberg, T. (1991), 'The flexibility to switch between different products', *Economica,* 57: 355–369.

Wilkinson, B. and Oliver, N. (1989), 'Power, control and the Kanban', *Journal of Management Studies,* 26: 47–58.

Windolf, P. (1989), 'Productivity coalitions and the future of European corporatism', *Industrial Relations,* 28: 1–20.

9

IS THERE A CHANCE FOR THE WORKER-MANAGED FORM OF ORGANIZATION?

*Benedetto Gui**

> The firm is primarily an association of persons engaged together in production.
>
> (J.Drèze, 1990:42)

INTRODUCTION

This paper investigates the chances for success of the worker-managed firm (WMF), defined primarily by the assignment of the ultimate decision-making power to those working in the firm,[1] in the context of a market economy.

Since the primary agents in the adoption of the WMF organizational form and the best judges of its performance are the workers involved, I approach the theme of WMFs' success (or failure) from the perspective of workers' objectives. I try to assess the ability of WMFs to satisfy these objectives, in comparison with capitalist firms (CFs), on the basis of both theoretical considerations and available evidence. This is mainly drawn from the experience of worker co-operatives, especially in Western Europe and North America.[2]

The next section presents a simple framework that connects members' satisfaction to the organization's structural characteristics, its performance, and environmental conditions. While some of the links between such variables are briefly discussed in the next section itself, those concerning the firm's economic performance—the key variables of the scheme as far as economic analysis is concerned—are dealt with more extensive in the third section. Similarly, but more briefly, the fourth section deals with WMF's 'social performance'. Some conclusions are drawn in the fifth section.

* Useful comments have been provided by Ottorino Chillemi, Svetozar Pejovich, Milica Uvalic, and other participants in the Conference 'Participation and Cooperation in Economic Enterprises', Cambridge (UK), January 1993, and in the Annual Meeting of the Italian Association for Comparative Economic Studies, Milan, September 1993. Financial support by the Italian Ministry for University and Research (40 per cent grants) is gratefully acknowledged.

FROM EXTERNAL CONDITIONS TO WORKERS' SATISFACTION: ADOPTION, DESIGN AND SUCCESS OF THE WMF FORM OF ORGANIZATION

Figure 9.1 displays the main links between the variables that determine members' satisfaction. To read it I proceed backwards. The arrows indicate causal influence of one variable on another (the broken-lined arrow represents feedback).

Workers' objectives in the productive sphere, whose satisfaction represents the final performance variable of a WMF, are various. They comprise: high remuneration; access to a job, or job security; accumulation of human capital; career advancement; pleasant workplace characteristics, including the organization of work, and the social climate; desire for self-governance, autonomy and participation.

Satisfaction of some of these objectives—especially those at the beginning of the above list—directly depends on the firm's economic performance. Indeed, a WMF's economic performance is not easy to measure correctly, as there are costs and revenues that are not reported in the books but importantly affect worker satisfaction.[3]

Workers' satisfaction is of course also a function of the other intermediate performance variable, the group social performance. By this expression I refer to the outcome of interaction among members—both informal (e.g., within work groups) and formal (e.g., in meetings) —in two main areas: the ability to reach satisfactory agreement on the many issues that concern members (e.g., organization of work, or wage structure) and the quality of the social climate members find themselves in. Beyond having an obvious, direct impact on some workers' objectives (those in the second part of the above list), social performance also exerts an indirect effect on satisfaction of workers' objectives by influencing economic performance. One channel of this influence is workers' co-operative attitudes. Others are the effectiveness of communication and the functioning of the internal polity—with effects, for instance, on the cost of decision processes.

Then, both economic and social performance are affected by the structural characteristics of the WMF. These include the statutory rules governing both

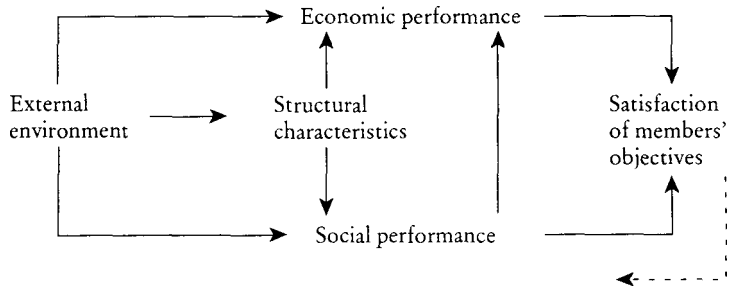

Figure 9.1 The main links between the variables that determine workers' satisfaction

distribution and decision-making. Here the choice is not only between a WMF or a CF (or some intermediate participatory organization). Indeed, within the WMF various mixtures of individual and collective ownership are possible, and the same holds as to the scope of power delegated to both the board of directors and management. Furthermore, some order of priority among the various objectives of members is usually specified, either in statutes or in less formal agreements, thus constraining, to some extent, subsequent choices. Examples of priority objectives, are job security in WMFs resulting from workers' takeovers (see Browning and Lewchuk, 1990), or participation and autonomy in 'alternative co-operatives' (see Cornforth *et al.,* 1988). Other structural characteristics that exert straightforward influences on both economic and social performance are the nature of production and marketing processes, and members' characteristics (technical and social skills, values, age, etc.).

Structural characteristics can be seen as fixed in the short run, but have to be shaped when the firm is formed, and then vary to some extent over time (continuously, albeit slowly, in the case of members' characteristics; only exceptionally in the case for instance of statutory rules). Structural characteristics are clearly influenced by the external environment, with its many facets: not only economic (for instance the conditions of the labour market), but also social, cultural and political (an instance is the role of trade unions in the adoption—and shaping—of WMFs).[4]

The external environment exerts a direct influence not only on WMFs' economic performance relative to CFs,[5] but also on social performance (Rothschild and Whitt, 1986: Ch. 5, refer to adhesion to values instilled by social and political movements as a condition facilitating collective governance).

The last arrow represents the feedback from the satisfaction of workers' objectives to the other endogenous variables, and in particular: social and economic performance, through members' morale; the decision to modify statutory rules—within the WM spectrum, or even converting the WMF into a conventional business enterprise; membership composition, since success attracts good applicants (as it occurs in Mondragon industrial co-operatives), while negative prospects induce members with better opportunities elsewhere to quit.

ECONOMIC PERFORMANCE

Economic analysis of WMFs has initially focused on the allocative effects of their particular rules, with special reference to input use: WMFs (especially those that do not hire non-member workers), supersede labour market transactions by membership relations; and also the market for risk-capital is severely restricted, if not completely abolished. However, WMFs' distributive rules also affect internal efficiency by modifying the behaviour of internal agents, especially effort supply and accumulation of human capital, with respect to capitalist firms.

Input use

Labour

The most famous theoretical prediction as to labour use by WMFs is employment restriction by prosperous firms—those able to pay their members labour remunerations exceeding market levels. In fact, the threshold level of marginal labour productivity that makes incumbents willing to admit additional worker-members on an egalitarian basis, equals the current pay, and it is therefore too high for a socially efficient use of labour. Furthermore, WMFs would respond in a 'perverse' manner to variations in output prices: higher prices, by increasing per capita incomes, would enhance the restrictive orientation of WMFs' employment policies, leading to employment and output reductions (see, for instance, Bonin and Putterman, 1987:13). These propositions, especially the latter, have been criticized for disregarding several important factors, all leading to less bizarre supply behaviour, such as: workers' concern for the employment level;[6] variability in work hours; multiplicity of outputs; intertemporal substitution (see among others: Ireland and Law, 1982; Bartlett and Uvalic, 1986). In fact, the empirical investigations available find WMFs' supply elasticities ranging from zero to those of comparable CFs, but never 'perverse' reactions (see Bonin, Jones and Putterman, 1993).

In the context of a mixed economy, characterized by organizational pluralism, what matters primarily is whether WMFs' employment behaviour is going to be counterproductive.[7] As for incumbent members, who are free to decide the firm's employment policy at their will, employment restriction could only be harmful if the performance of the firm will be affected at a later time, but still within the expected tenure of the members. However, workers' short-sightedness should be invoked in order to support the prediction of a systematic tendency to such self-damaging outcomes. Rather, one may wonder if restrictive employment tendencies could harm the firm as such, preventing it from taking advantage of both static and dynamic scale advantages, while incumbent workers might still extract benefits from its decline. This is the scenario depicted by Vanek (1977), who suggests that several self-extinction forces are at work in WMFs, especially when collective ownership invites transformation of capital into personal incomes.

The empirical relevance of these arguments does not seem to be great. In fact, first of all the use, at least temporary, of non-member labour—which becomes the object of marginal employment decisions—is very common (Ben-Ner, 1988b:18, Table 6; Seravalli, 1988:64 ff.). As a consequence, a recurrent pattern of WMF demise is, rather, transformation into a CF, following a progressive reduction in the ratio of members to employees (see, for instance, Gunn, 1984, with reference to US plywood co-operatives). Secondly, some form of pay differentiation between senior and junior members is a common feature of WMFs.[8]

On the other hand, there are circumstances—when the market for products is sluggish or the firm's ability to pay wages is reduced—in which labour use by

conventional firms is inefficiently low due to sticky wages. WMFs, instead, are in a better position to adjust labour compensation downward, and thus display greater employment stability over the business cycle (see Prasnikar, in this volume).[9]

Indeed, the evidence on WMFs' employment behaviour is far from unambiguous. While some studies have found signs of restrictiveness, especially when firms are collectively owned (see Prasnikar and Svejnar, 1988:282, who refer to Yugoslav self-managed firms), relative overmanning has often been reported in Western WMFs.[10]

Another alleged allocation problem of WMFs concerns internal pay scales. Firstly, while the relative market price of different skills fluctuates under the pressure of supply and demand, within WMFs relative remunerations are determined according to internal conventions that are necessarily rigid over time, and tend to reflect more the progression of competence within each specialization than the relative scarcity of the various specializations (Meade, 1980). (However, the problem should not be overstated, since also in conventional firms trade unions do not allow relative wages to be determined by the market in the short run). Secondly, egalitarian ideals reduce differences in remuneration between blue-collar and white-collar workers, or managers.[11] These phenomena can make WMFs unable to retain (or attract) particular skills—and highly skilled people in general—especially when the bulk of members are blue collar workers, firm profitability is low, and the demand for qualified workers in the economy is high.[12] In fact, it is not uncommon that high-rank managers operate as non-member employees,[13] or even independent professionals (see Wiener and Oakeshott, 1987:17–19).

Investment and cost of capital

It is one of the defining characteristics of WMFs that firm control and residual income are not a prerogative of shareholders, but rather of labourers. Then one wonders why anybody should supply equity capital to such firms. In fact, some theoretical proposals try to solve the problem by suggesting that WMFs do without equity capital, and secure use of capital goods through leasing contracts, or make recourse to loan capital (Vanek, 1977). Unfortunately, for most durable goods leasing contracts are not available at all, or else are prohibitively expensive, due to high transaction costs; and furthermore, not all the assets on the balance sheet are in the nature of durable goods. Furthermore, 100 per cent loan financing is also unfeasible or prohibitively costly, if lenders are to be compensated for both exogenous risk and moral hazard (see Gui, 1985).

If someone has to contribute equity capital, the candidates are workers themselves, who are already entitled to firm control and residual income. This is a binding constraint, the more so as workers' wealth is typically scarce (see on this Bowles and Gintis, Ch. 5 in this volume). As a consequence, for WMFs the marginal cost of equity capital is, as a rule, greater with respect to investor-owned firms.[14] As to the return worker-managers can expect from contributing

equity capital, several differences can be identified with respect to other investors. First of all, investing in the very firm they work for exposes worker-managers' non-human wealth to risks strongly correlated to those their human capital is subject to. Secondly, when contributing equity capital, worker-managers can expect, apart from a possible direct return as shareholders, also an indirect return as workers, e.g., in the form of greater remuneration or job security (see Abell and Mahoney, 1987:526). Thirdly, worker-members as a group need not fear expropriation of returns of their investment by other social groups, while CF shareholders face the danger that workers' unions do just that through hard bargaining when, as an effect of the additional capital injected, firm's profits increase (see Ireland, 1984). On the other hand—the fourth difference—the rules governing WMFs usually restrict (sometimes to a significant extent) the benefits individuals can expect from additional contributions of capital. Then, some expropriation of the yield of one's investment may also take place in WMFs, this time to the benefit of younger generations of worker-members.[15] The extreme case is when the net assets of the firm are fully regarded as collective property, and decisions to retain earnings do not give rise to any individual financial claim, so the only benefit members can expect from reinvesting profits is higher wages and more secure employment in the future.[16] This is the long discussed property rights regime of Yugoslav firms, known as social property. Not surprisingly, at a certain point Yugoslav authorities imposed a minimum share of earnings to be retained (see Uvalic, 1992). In non-socialist countries, instead, WMF statutes usually provide for individual financial claims, in addition to collective funds to which a minimum share of profits has to be allocated (e.g., the Italian law on co-operatives and Mondragon internal rules impose a minimum allocation of 20 per cent). Since collective reserve funds share in losses too, they act as a sort of intertemporal wage insurance (Gui, 1984). In such a way members' contributions of equity capital are no longer the result of a year-by-year choice, but, to some extent, of a once and for all choice made when entering the firm (or when establishing internal distribution rules).

Then one wonders if recourse to loan capital can reduce WMFs' disadvantage *vis-à-vis* capitalist firms as to the cost of capital *tout court*. Three arguments are to be considered here, (1) The lower the ratio of equity to the firm assets, the greater the expected lenders' loss in case of failure; (2) the weaker the incentive of those who control the firm to do their best to save it, when it is in trouble, the greater the probability of failure; (3) dealing with unusual types of organizations, as WMFs certainly are in mixed economies, is perceived by lenders as an additional element of risk (Ben-Ner, 1988b:21).[17] When worker-managers have little individual claims in the firm's assets and face good employment opportunity elsewhere, the second argument adds to the third and, most likely, also to the first, in reducing the lenders' willingness to finance a WMF, relative to a CF. So one is led to predict that under most circumstances also the cost-of-borrowing schedule of WMFs stays above that of CFs.

So far we have not considered forms of financing in between equity and loan

capital ('quasi-equity'), which let financiers bear not only major risks, but also minor fluctuations in firm profitability. Here the importance of the environment in which WMFs operate is particularly apparent. I refer especially to the ability of existing financial intermediaries to provide such non-traditional forms of credit at low cost, or, even more, to the existence of special financial bodies tailored to the specific needs of the WMF sector, promoted either by public authorities or WMF associations.[18] Indeed, recourse to institutions well aware of and sympathetic to the special nature of WMFs can help combine adequate prevention of borrowers' misconduct with substantial respect for workers' self-management.

Empirical evidence substantially confirms the prediction that, as to financing, WMFs are at a disadvantage with respect to CFs. First of all WMFs tend to self-select themselves into industries characterized by low capital intensity,[19] such as clothing, textiles and leather, printing, and construction (Ben-Ner, 1988b:10). However, several WMFs resulting from take-overs survive in capital-intensive (most often mature) industries, sometimes even successfully (Thomas, 1990:186; Sterner, 1990). Among WMFs formed from scratch, counter-examples are US plywood co-operatives (Gunn, 1984), and some European co-operatives that operate successfully in industries such as domestic appliances, foundries, machine tools, or ceramic tiles (Thomas and Logan, 1982: Ch. 5; Seravalli, 1988).

Secondly, WMFs find it hard to invest as much as their CF competitors. Signs of underinvestment by WMFs are found by several authors who report lower capital intensities with respect to CFs operating in the same industry;[20] here too, however, in some cases (including the Mondragon group) no significant differences with CFs are found (see Bonin, Jones and Putterman, 1993).[21] Signs of financial constraints to WMFs' growth are also found in some recent comparative studies of worker co-operatives and CFs in several European countries (Defourny, 1990b; Geron, 1990; Mygind, 1990).

Entrepreneurial skills

Allegedly, WMFs are also at a disadvantage in attracting entrepreneurial skills (see for instance Ben-Ner, 1987). Indeed, for potential entrepreneurs WMFs present significant limitations in the appropriation of the firm's surplus and, possibly, also in the practice of decision-making power, at least in comparison with small and medium size proprietary firms.

On the other hand, nonconventional patterns of entrepreneurship find a space in WMFs. First of all, thanks to the role that solidarity and ideals play in their formation, WMFs are specially attractive for entrepreneurs with nonpecuniary motivations.[22] Secondly, WMFs must rely on—but at the same time lend themselves to—forms of 'collective' entrepreneurship. In fact, not only risk capital, but also those skills that are needed to shape an economic enterprise have to be contributed by relatively large number of people.[23] Conditions for collective entrepreneurship are more easily satisfied in worker take-overs, since only an organizational

reshaping is needed and incumbent employees already possess some of the skills required. Lastly, WMFs often receive technical and organizational support from external entities, either *ad hoc* institutions or sympathetic professionals (Rothschild and Whitt, 1986:121 ff.).

Lack of entrepreneurial skills, besides capital, is often responsible for WMFs' unsatisfactory performance, that sometimes takes the form of complete commercial and technical dependence on other firms (see Mellor, Hannah and Stirling, 1988:81 ff.).

Internal efficiency

Differences in incentives, information and decision-making power between WMFs and CFs give rise to other differences in behaviour that are responsible for different productive outcomes for given quantities of inputs. If these are measured at their initial opportunity costs, not only workers' and managers' effort, but also on-the-job training is of interest here.

Workers' effort

While in CFs greater workers' effort benefits primarily shareholders, WMF worker-members are in a position to collectively appropriate the results of any increase in their own effort supply. However, as it has often been noticed, the same cannot be said for an individual worker, for given effort levels of colleague workers. This means that, if one had to rely on individual incentives, included penalties for negligence or rewards such as promotions, the situation of workers in the two types of firm would not be very different. However, in participatory firms greater identification with the firm's objectives and horizontal monitoring by peer workers helps reconcile individual and firm interests,[24] while in CFs peer workers' pressure may even work in the opposite direction—i.e., discourage excessive diligence, which may cause upward revisions of hourly work loads (Fitzroy and Kraft, 1987).

One can rephrase these considerations saying that in CFs monitoring by supervisors has a greater role to play in eliciting workers' effort, so the cost of monitoring is expectedly higher than in WMFs. This statement has some empirical support. Gunn (1984) reports that the number of supervisors per shift is smaller in plywood co-operatives than in CFs of similar size. Similarly, the interpretation by Bartlett *et al.* (1992) of the significantly smaller percentage of white collar workers and managers in the WMFs in their sample is precisely the reduced need for supervision.

Another possible advantage of WMFs has to do with those dimensions of workers' effort that cannot easily be obtained by monetary incentives or threats, but require an internalized motivation. One of these is shop-floor-level innovation, allegedly one of the strengths of Japanese quasi-participatory style of management. Another is the willingness to co-operate in training junior colleagues.[25]

Managers' effort

Another important aspect of the incentive problem is disciplining managers. According to the 'property rights school', WMFs have a systematic disadvantage. In fact, dispersion of claims among members conflicts with the requirement that the 'central monitor' be motivated by substantial residual claimancy. Furthermore, in non-closely-held CFs, managers with less than majority (if any) residual claimancy are to some extent disciplined by financial and managerial markets, that keep a check on agency costs (Jensen and Meckling, 1976). WMFs are at a disadvantage also as to these indirect control mechanisms: their equity is only rarely marketed,[26] and the mobility of managers between CFs and WMFs faces special obstacles.

On the other hand, WMFs devote residual claimancy to increasing workers' incentives. As to managers' discipline, WMFs enjoy smaller costs of direct control, as the presence of workers in the firm's premises is continuous and pervasive (see Smith, 1991: sect. 2).[27] As a result, the net effect cannot be clear.

In WMFs the structure of power does not follow the usual uni-directional pattern, from proprietors down to management and then down to workers, but rather a circular one, since the two extreme links of the chain coincide.[28] On the one hand, WMFs' managers may enjoy greater legitimation (Russell, 1985:239, mentions empirical works supporting this prediction). On the other hand, this can weaken managers' position *vis-à-vis* their subordinates, thus reducing the effectiveness of their activity (Jensen and Meckling, 1979), especially if delegation of power is not suitably designed.[29]

Human capital

Investment in general human capital (HC) increases the trainee's productivity but also the wage to be paid in order to retain him. Thus the cost of this investment falls primarily on the trainee himself—typically in the form of low wages during the training period. However, the trainee's discount rate is usually higher than the firm's, so the latter can find it profitable to finance up to a certain share of the investment. There are at least three elements that make the behaviour of WMFs and CFs differ in this regard. On the one hand, the discount rate of CFs may be lower than WMFs'. On the other, the less mobile workers are, the greater the share of investment the firm is willing to finance (empirical evidence suggests that labour turnover is lower in WMFs).[30] Furthermore, for the CF the expected flow of returns from the investment in HC is truncated at the date of worker's separation, while the worker will enjoy higher wages until retirement. So, the CF might even be willing to incur a cost to reduce the general component of a specific training programme, in order to diminish the wage it will have to pay later in order to retain the trainees. For the WMF, instead, no externality is caused by general training, as all benefits are reaped by worker-members themselves.[31] However, the WMF's ability to better approach efficiency in general training depends, first of all, on the ability to solve distributional conflicts among worker-members (with different

opportunity to invest in HC), and, secondly, on the relative priority they collectively assign to improving their own opportunities in the external market (in fact, this may conflict with the tension to improve the performance of the enterprise). Here the concept of priority interest is of some relevance. An extreme case is that of Italian 'social solidarity co-operatives' that aim precisely at training disadvantaged workers in order for them to qualify for jobs elsewhere (see Borzaga, 1991). Alternatively, worker-members may view training as a component of personal development, not only an immediate productive resource (Thomas and Logan, 1982: Ch. 3).[32]

Instead, investment in purely firm-specific HC, which vanishes upon separation, has to be paid by the employer (Becker, 1975). However, both incentive and self-selection arguments suggest that workers advance part of the cost. In fact, having compensation increase along with tenure, first of all reduces the probability that random outside offers cause inefficient quits of trained workers; if, furthermore, pay increases are made contingent on the worker's evaluation by superiors, the former is compensated for non-verifiable—and, therefore, non-contractible—effort spent in acquiring firm-specific skills (see Prendergast, 1992); in addition, the more able and hard-working are self-selected into careers entailing more investment in specific HC. WMFs have some advantages in motivating workers to such a shared investment. First of all, expected tenures are longer (however, here the causality might be reversed). Secondly, mutual trust favours such largely implicit contracts, and co-operation among workers helps enforce them. Furthermore, also the cost of on-the job training depends on senior colleagues' co-operation. On the other hand, WMFs' tendency toward egalitarian pay structures hinders the use of monetary incentives.

Specific human capital—or, more precisely, specific immaterial workers' assets—play a significant role in workers' take-overs. As a matter of fact, as the tenure with a firm increases, the worker accumulates a substantial stake in the continuation of his association with the firm. Beyond investment in firm-specific productive skills by the worker himself, other assets would be lost in case of separation. These may be both firm-specific (for instance, friendship relations with colleagues), and location-specific (such as non-recoverable expenditure in tailoring a house to one's own needs, or valuable relationships with neighbours). Furthermore, practice of an acquired skill may confer a sense of pride that makes an unskilled job much less attractive, even at the same wage. So, when both the current employer and other entrepreneurs lose interest in the continuation of the firm's operation, the workers usually maintain a stake in it.[33] The hopes of success of workers' take-overs of ailing CFs lie, beside possible greater efficiency or wage flexibility under worker-management, in the possible support by local communities or public and philanthropic institutions.[34]

Empirical evidence regarding WMFs' internal efficiency

Unfortunately, most empirical evidence does not allow for a breakdown of the various components of WMFs' relative internal efficiency. The existing empirical

studies can be divided into econometric and non-econometric studies. In the former individual firm data are used to estimate production functions (or, more precisely, value added functions) that include, among explanatory variables, some measures of participation (in particular profit-sharing, worker ownership and participation in decision-making). This literature has been recently surveyed by Bonin, Jones, and Putterman (1993).[35] The main conclusion that can be drawn from studies of samples comprising only WMFs is that the effect of all participation variables taken together is significantly positive. The participation variable that is most often individually significant is profit-sharing.[36] Instead, from those econometric studies that compare WMFs and CFs it is not clear which organizational form performs better (Bonin, Jones and Putterman, 1993). An ambiguous picture also emerges from non-econometric comparisons, in particular of value added per capita (or per hour worked, or per unit of capital). CFs' superiority would emerge for instance from Geron's (1990) study based on Belgian data, while the opposite would occur in Mondragon co-operatives (Thomas and Logan, 1982: Ch. 5) and in the Italian co-operatives studied by Bartlett *et al.* (1992).

In appraising these comparative results one has to keep in mind the peculiarities of WMFs' life cycle. First of all, 'degeneration' of successful WMFs into CFs may occur,[37] which biases downward the productivity observed in the sample. Furthermore, WMFs' economic performance is liable to marked changes, due to fluctuations in enthusiasm (that is typically highest immediately after a worker buy-out). Thirdly, the pattern of capital accumulation is almost completely based on retained earnings, often in the form of collective reserves (Estrin and Jones, 1992). Finally, the share of non-member workers tends to increase as time goes by.[38]

A BRIEF TREATMENT OF WMFs' SOCIAL PERFORMANCE

As mentioned above, several important elements exist that contribute to the success of WMFs, but do not fall satisfactorily under the heading 'economic performance'. I refer to them under the heading 'social performance', as they are connected to workers' interactions both in the meeting room and in the workplace.

The first aspect to be considered here is the functioning of internal political processes. Insufficient attention has been devoted to this issue in the literature on industrial organization (Hansmann, 1990:1779 ff.), even when dealing with CFs. That shareholders are only interested in the income stream they derive from their shares is often an acceptable assumption. Still, with incomplete markets, different preferences as to the probability distribution of returns at the various dates are sufficient to prevent stockholders' unanimity as to investment projects, so recourse to voting procedures enters importantly into play (Drèze, 1990). When turning to WMFs, one finds that, in addition to their remuneration (in the various states of nature and dates) members, *qua* workers, are also interested in the numerous other characteristics of their 'compensation packages'. So, the scope of decisions that are left to WMFs' internal polity is much greater than in CFs. Therefore, the

ability of WMFs to improve upon CFs, in particular in the choice of workplace characteristics, strongly depends on the functioning of its internal polity.

In a less than perfect labour market, full correspondence of workplace characteristics to workers' preferences cannot be obtained (mobility costs are a major obstacle). So, when choosing their workplace characteristics packages, CFs are prompted to take into account the preferences of the marginal worker, while efficient provision of local public goods requires that the average individual be considered. In WMFs, instead, but only to the extent that political procedures correctly reflect the preferences of their constituencies, the median worker would end up being satisfied, and this should provide a better approximation of the average worker's preferences.[39] Another alleged advantage of WMFs has to do with eliciting truthful and credible preference revelation, thanks to the elimination of the conflict of interest with non-worker residual claimants (see Hansmann, 1990:1767; Ben-Ner, 1988b:293). However, one has to acknowledge that conflicts of interest among members are still found in WMFs, especially when they are heterogeneous as to skills, wealth, or objectives,[40] so preference revelation still finds obstacles. Thus, improving upon CFs seems easier in face of generalized workers' desires that CFs cannot properly satisfy due to contractual inflexibility (stemming from adversarial relationships between workers and employers), or barriers in communication and managers' cultural rigidity.[41]

Another members' objective that is directly affected by the operation of internal political processes is, of course, the desire for self-governance. However, implementing a satisfactory direct democracy is a difficult task (see Mellor, Hannah, Stirling, 1988: Ch. 5), and, while collectively autonomous from external owners', worker-members are still dependent on colleagues.

Other dimensions of workers' satisfaction are mainly connected, instead, with informal interactions with co-workers. These are sometimes more demanding than in CFs, due to unconventional choices as to the organization of work (e.g. job rotation, or mutual monitoring), and more ambitious goals (such as social change or service to the surrounding community). Interestingly, Rothschild and Whitt (1986: Ch. 6) find that worker-members often experience greater work satisfaction (despite higher expectations), but also more stress than CF employees. Similarly, Oliver (1987), finds that the responses of the workers involved range from greater satisfaction, or indifference, to disillusionment.

As to the relationship between social and economic performance, the former affects the latter in various ways, among which: motivation to work, co-operative attitudes, speed and cost of decision-making.[42] That the two performances usually go together is argued from another point of view by Hirschman (1984), who finds that the internal climate can be an important source of satisfaction for the members, but it is hardly a substitute for economic success—or, at least, viability.

CONCLUSIONS

WMFs have two main strengths, in comparison with CFs. First of all, while in the latter the satisfaction of workers' objectives is an indirect and unintended result, mediated by an imperfect labour market, WMFs adopt workers' objectives as their own objectives. Vice versa, by being themselves the residual claimants, workers are uniquely motivated to promote the firm's objectives in a context free from the most typical source of conflict in labour-management relations.

On the other hand, WMFs have two main weak points. Firstly, they are at a disadvantage in attracting an adequate quantity and quality of resources (especially capital and entrepreneurial skills), at least as far as economic incentives are concerned. Secondly, their success depends more than CFs on their achieving satisfactory 'social performance'. This is due to greater expectations as to quality and meaning of working life and to the unusually great role that collective decision-making plays in their governance.

These weak points have kept the presence of WMFs in mixed economic systems at a low level, and this is also to be expected in the future. Still, there are circumstances in which WMFs either represent more efficient organizational forms (e.g., when monitoring by superiors is ineffective), or realize important workers' aspirations (saving a threatened job, or the desire for active participation) that otherwise would remain frustrated.

However, circumstances often change in manners that lead to questioning the maintenance of the worker-managed form of organization. Therefore, transformations of WMFs into CFs are not necessarily to be seen as failures. Even only providing an emergency option when labour markets are least effective in satisfying workers' objectives—and retreating as changes occur in either circumstances or workers' objectives themselves—is in itself a valuable function. Then, paradoxically, by-laws envisaging the possibility of a future transformation (thus reducing its cost) can serve the firm's continuity, and therefore societal and workers' interests. This applies in particular to the proposals of direct worker involvement in the process of privatization of state enterprises in Eastern Europe (see among others Estrin, 1991). In fact, in the present situation workers' participation (if coupled with partial ownership) can contribute to ensure responsible governance of state enterprises that would otherwise face serious risks of being opportunistically mismanaged by representatives of the previous 'nomenklatura'. However, it is hoped that within a few years conventional organizational arrangements will become more effective and reliable than they are now.

The ability of WMFs to represent a workable organizational option depends especially on two conditions, the former concerning the external environment and the latter WMFs' internal characteristics: the existence of special support institutions capable of supplementing their functionings, where defective; and the adoption of proper internal rules and procedures. Here I refer first of all to the distribution of income and the allocation of property rights among members:

WMFs must find an adequate balance between a regime of strictly collective ownership and one of conventional share ownership. However, wise rules and procedures are to be adopted also regarding organizational structure and social and political processes. Consulting a specialist in group dynamics or internal political processes certainly seems a far stranger idea than consulting a specialist in marketing or finance. However, the former's contribution to WMFs' success can be no less than the latter's. And similarly important is to maintain promoters' ideals. This is no surprise. In fact—as it has been said—a co-operative is a firm within an association.

NOTES

1 As Bonin, Jones and Putterman correctly note (1993:4–5), profit-sharing and employee ownership, whatever their scope, do not suffice to qualify a firm as worker-managed.
2 WMFs can also be organized, for instance, as joint stock companies or companies limited by guarantee. Note that only in a minority of Employee Stock Ownership Plans (ESOPs) do workers exert majority control, so they can be considered WMFs (see Ellerman, 1990). Reliable data on WMFs' number and employment are scarce. Anyway, according to CECOP (the European Federation of Worker Cooperatives), in 1986 34,800 worker co-operatives operated in the European Community, with 846,000 members.
3 For instance, if workers improve working conditions above prevailing standards at the expense of end-of-year dividends, this is recorded as a (fictitious) decrease in the firm's economic performance (see discussion in Levin, 1982). The opposite occurs when worker-managers forgo remuneration of overtime labour or tolerate unusually hard working conditions (see Mellor, Hannah and Stirling, 1988:87–89, 121).
4 See Bradley and Gelb (1983); Paton (1989).
5 Among the environmental conditions that favour WMFs, Levine and Tyson (1990: 214 ff.) indicate low cyclical variability of demand and narrow wage differentials between more and less skilled workers. Bradley and Gelb (1982:157) also mention low population mobility.
6 Concern for employment has been confirmed by Smith's (1984) and Craig and Pencavel's (1993) econometric studies of US plywood cooperatives.
7 When WMFs represent a minor share of productive organizations, their possible restrictive behaviour does not significantly affect employment.
8 Pay differentiation typically occurs through seniority pay, admission fees, or remuneration of members' capital shares accumulated through time out of retained earnings (all these features are found in Mondragon co-operatives). Other WMFs go even farther, as they practise the 'sale of jobs', as recommended by Fehr, 1993.
9 Another possible situation in which a conventional firm is inefficient as to employment is when it is a monopsonist in the local labour market. Transformation of the firm into a WMF, apart from distributional effects, may then improve labour allocation (see Ben-Ner, 1987:437 ff.).
10 Defourny (1990a:149) finds that French worker co-operatives employ more workers and have lower capital intensity than the average CF in the same industry. A similar statement is reported by Sterner (1990) with reference to the Mexican co-operative cement producer Cruz Azul (this could be due to emphasis on quality and plant maintenance).
11 Keeping wage differentials below the standard prevailing outside has been a purposive

policy in the Mondragon co-operative group, where the ratio of the highest to the lowest paid employee was set formerly at 3—exceptionally at 4.5—and after 1987 at 6:1 (White, 1991). Pay scales more egalitarian than in CFs seem to be the rule in worker cooperatives (see: Bartlett *et al.,* 1992; Mygind, 1987:309).

12 A model describing, under such circumstances, the downgrading of workers' average abilities in a vicious circle, or even the collapse of egalitarian WMFs, is presented in Gui (1987).

13 Bartlett *et al.* (1992) notice that it is only for managers that non-members earn more than members.

14 Only in cases when collective reserves accumulated in the past exceeded capital requirements, could the opposite be true (see Vanek, 1977).

15 For a recent discussion of this problem see Chillemi (1994).

16 Note that separation from the firm truncates such benefit, future reinvestment decisions may further delay it—possibly beyond the worker's tenure with the firm—and, finally, even during such tenure incumbent members must share the benefits from reinvestment with members later admitted. Interestingly, a reaction to this state of affairs is hiring preferentially the children of incumbent or departing workers. This happened both in Yugoslav self-managed enterprises and in Italian worker co-operatives with large collective property (Seravalli, 1988:66).

17 Bowles and Gintis (Ch. 4 in this volume, seventh session) suggest with this regard that organizational forms generate external diseconomies for different institutional forms, so when one form (namely the CF) prevails the others are at a disadvantage.

18 Various examples exist beside Mondragon's famous cooperative bank (Thomas and Logan, 1982), including the French 'Institut de développement de l'économie sociale', set up by government and co-operative federations, that provides various forms of financing to WMFs (and other organizations), including performance-based loans called 'titres participatifs' (see Laville and Marchat, 1990). In Italy a new law on co-operatives provides for non-voting shareholders and 'financial-backer' members (see Zevi, 1993).

19 Hansmann, who observes that transportation is an industry relatively overpopulated by WMFs, suggests that another characteristic of industries WMFs cluster in is low firm-specificity of assets (1990:1771).

20 At least in the case of US plywood co-operatives studied by Berman and Berman (1989), this finding cannot be imputed to over-employment of members, as there is widespread use of hired labour.

21 Even if looking at the data one does not find apparent scarcity of capital, the opportunity cost of equity capital for worker-members may be very high.

22 See Young's (1983) study of nonprofit entrepreneurship.

23 Conversely, neither a substantial contribution of capital, nor prestigous skills are required in order to become an influential member.

24 See among others Kandel and Lazear (1992). Reduced absenteeism and strikes (Bartlett *et al.,* 1992) seem to confirm this view.

25 Here promotion rules (see Drago and Turnbull, 1991) and forms of group, as opposed to individual, performance reward exert important influences.

26 However, worker-members retain (and sometimes actually use) the right to sell their company to outside investors (Hansmann, 1990:1768).

27 Also the costs of collective action (in controlling managers) may be smaller for workers than for dispersed shareholders (Hansmann, 1990:1768).

28 Ben-Ner, Montias and Neuberger (1993:231) suggest with this regard the image of two coexisting power pyramids, one of which is resting on its point.

29 Mellor, Hannah and Stirling (1988:121 ff.) report several instances in which worker-managers ideologically committed to combat hierarchies failed to implement an effective authority structure.

30 See for instance Bartlett *et al.* (1992:115). Indeed, the expected length of stay also depends on firm mortality. According to the evidence presented by Ben-Ner (1988b) and Pérotin (1987), WMFs do not compare negatively with CFs in this regard.
31 See Askildsen and Ireland, 1993, who present a model that focuses on this comparison.
32 This can also contribute to explain the wide recourse by Italian cooperatives to formal, publicly subsidized, training courses, noticed by Bartlett *et al.* (1992).
33 Sometimes potential buyers are interested in the firm's physical assets or goodwill, not in the continuation of its production activity (see, for instance, Paton, 1989:31).
34 Support includes privileged access to public works, voluntary donations of money or expertise, loans at favourable conditions, orders from sympathetic organizations (see for instance, Quarter and Brown, 1992).
35 See also surveys in Levine and Tyson (1990:193, 201–203), Chillemi and Gui (1992), Conte and Svejnar (1990:168–170).
36 However, its measurement is not at all obvious. Moreover, the problem of reverse causality is hard to tackle. Interestingly, Ben-Ner, Han and Jones (in this volume) show that productivity effects of return rights are not independent of control rights, and vice versa.
37 See, for instance the case of the Vermont Asbestos Group (Bradley and Gelb, 1983: 103). See also Ben-Ner (1988a).
38 Grunberg (1991) connects the recent deterioration in the performance of US plywood co-operatives exactly to this process. Jones (1984) finds a deterioration in economic performance after a certain age.
39 Note that, in principle, collective bargaining might lead to the same result. However, usually it operates under stricter constraints.
40 See for instance Askildsen, Ireland and Law (1988).
41 Greater flexibility in individual time schedule, especially for women with young children, is reported by Mellor, Stirling and Hannah (1988:89) as a factual advantage of WMFs.
42 In a study of Third World co-operatives, Abell and Mahoney (1987) find evidence in support of such a relationship.

REFERENCES

Abell, P. and Mahoney, N. (1987) *The Socio Economic Potential of Producer Co-operatives in Developing Countries,* Oxford: Oxford University Press.

Askildsen, Jan-Erik and Ireland, Norman (1993) 'Human Capital, Property Rights and Labour-Managed Firms', *Oxford Economic Papers* 45 (2): 229–242.

Askildsen, Jan-Erik, Ireland, Norman J. and Law, Peter J. (1988) 'Some Consequences of Different Shareholding among Members in a Labour-Managed and Labour-Owned Firm', in D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labour-Managed Firms,* vol. 3, Greenwich (Conn.): JAI Press, pp. 65–81.

Bartlett, W. and Uvalic, M. (1986) 'Labour-Managed Firms, Employee Participation and Profit Sharing: Theoretical Perspectives and European Experience', *Management Bibliographies & Reviews* 12 (4): 3–66.

Bartlett, Will, Cable, John, Estrin, Saul, Jones, Derek C. and Smith, Stephen C. (1992) 'Labour Managed Cooperatives and Private Firms in North Central Italy: An Empirical Comparison', *Industrial and Labour Relations Review,* 46 (1): 103–118.

Becker, Gary S. (1975) *Human Capital,* New York: Columbia University Press.

Ben-Ner, Avner (1987) 'Producer Co-operatives: Why Do They Exist in Market Economies?', in Powell, W.W. (ed.) *The Nonprofits Sector: A Research Handbook,* New Haven: Yale University Press.

Ben-Ner, Avner (1988a) 'The Life-Cycle of Worker-Owner Firms in Market Economies: A Theoretical Analysis', *Journal of Economic Behaviour and Organization* 10: 287–313.

Ben-Ner, Avner (1988b) 'Comparative Empirical Observations on Worker-Owned and Capitalist Firms', *International Journal of Industrial Organization* 6: 7–31.

Ben-Ner, Avner, Han, Tsu-Shian, Jones, Derek K. 'The Productivity Effects of Employee Participation in Control and in Economic Returns: A Review of Econometric Studies', Ch. 11 in this volume.

Ben-Ner, Avner, Montias, J.Michael and Neuberger, Egon (1993) 'Basic Issues in Organizations: A Comparative Perspective', *Journal of Comparative Economics* 17 (2): 207–242.

Berman, Katrina V. and Berman, Mattew D. (1989) 'An Empirical Test of the Theory of the Labour-Managed Firm', *Journal of Comparative Economics* 13: 281–300.

Bonin, John and Putterman, Louis (1987) *Economics of Cooperation and the Labor-managed Economy,* Chur (Switzerland): Harwood Academic Publishers.

Bonin, John, Jones, Derek and Putterman, Louis (1993) 'Theoretical and Empirical Studies of Producer Cooperatives: Will Ever the Twain Meet?', *Journal of Economic Literature* 31 (3): 1290–1320.

Borzaga, Carlo (1991) 'The Italian Nonprofit Sector', *Annals of Public and Cooperative Economics* 62 (4): 695–709.

Bowles, Samuel and Gintis, Herbert 'Is the Demand for Workplace Democracy Redundances in a Liberal Economy?', Ch. 4 in this volume.

Bowles, Samuel and Gintis, Herbert 'The Distribution of Wealth and the Viability of the Democratic Firm', Ch. 5 in this volume.

Bradley, Keith and Gelb, Alan (1982) 'The Mondragon Cooperatives: Guidelines for a Cooperative Economy, in: D.C.Jones and J.Svejnar (eds) *Participatory and Self-Managed Firms,* Lexington (Mass.): Heath, pp. 153–172.

Bradley, Keith and Gelb, Alan (1983) *Worker Capitalism: The New Industrial Relations,* London: Heinemann.

Browning, Martin and Lewchuk, Wayne (1990) 'Workers' Preferences for Co-operatives versus Private Buyouts', *Journal of Economic Behavior and Organization* 14: 261–283.

Chillemi, Ottorino (1995) 'Allocative Efficiency and Discrimination in Labour Managed Firms: A Multiperiod Analysis', in: D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labor-Managed Firms,* vol. 5, Greenwich (Conn.): JAI Press.

Chillemi, Ottorino and Gui, Benedetto (1992) 'On the Performance of Worker-Managed Firms: Does Participation only Exert Technical Effects?', *Journal of Comparative Economics* 16 (2): 294–301.

Conte, Michael A. and Svejnar, Jan (1990) 'The Performance Effect of Employee Ownership Plans', in Blinder, Alan (ed.), *Paying for Productivity,* Washington DC: The Brooking Institution, pp. 143–182.

Cornforth, C., Thomas, A., Lewis, J. and Spear, R. (1988) *Developing Successful Workers' Co-operatives,* London: Sage.

Craig, Ben and Pencavel, John (1993) 'The Objectives of Worker Co-operatives', *Journal of Comparative Economics* 17 (2): 288–308.

Defourny, Jacques (1990a) *Démocratie coopérative et efficacité economique: La performance comparée des coopératives ouvrières de production françaises,* Bruxelles: De Boeck.

Defourny, Jacques (1990b) 'Financial Equilibrium and Risk Aversion in French Workers' Co-operatives', *Annals of Public and Cooperative Economics* 61 (2–3): 331–351.

Drago, Robert and Turnbull, Geoffrey K. (1991) 'Competition and Cooperation in the Workplace', *Journal of Economic Behavior and Organization* 15 (1991): 347–364.

Drèze, Jacques (1990) *Labor-Management, Contracts and Capital Markets,* Oxford: Basil Blackwell.

Ellerman, David (1990) *The Democratic Worker-Owned Firm: A New Model for the East and the West,* Boston: Unwin & Hyman.

Estrin, Saul (1991) 'Some Reflections on Self-Management, Social Choice and Reform in Eastern Europe', *Journal of Comparative Economics* 15: 349–366.

Estrin, Saul and Jones, Derek C. (1992) 'The Viability of Employee Owned Firms: Evidence from France', *Industrial & Labor Relations Review* 45 (2): 323–338.

Fehr, Ernst (1993) 'The Simple Analytics of a Membership Market in a Labour-Managed Economy', in S.Bowles, H.Gintis and B.Gustafsson (eds) *Markets and Democracy: Participation, Accountabily and Efficiency,* Cambridge: Cambridge University Press.

Fitzroy, Felix and Kraft, Cornelius (1987) 'Co-operation, Productivity, and Profit-Sharing', *Quarterly Journal of Economics* 107: 23–35.

Geron, Jean L. (1990) 'Le financement des coopératives de travailleurs en Belgique', *Annals of Public and Co-operative Economics* 61 (2–3); 245–265.

Grunberg, Leon (1991) 'The Plywood Cooperatives: Some Disturbing Findings', in R. Russell and V.Rus (eds) *International Handbook of Participation in Organizations,* vol. 2, *Ownership and Participation,* Oxford: University Press, 103–122.

Gui, Benedetto (1984) 'Basque versus Illyrian Labor-Managed Firms: The Problem of Property Rights', *Journal of Comparative Economics,* 2: 168–181.

Gui, Benedetto (1985) 'Limits to External Financing: A Model and an Application to Labour-Managed Firms', in D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labor-Managed Firms,* vol. 1, Greenwich (Conn.): JAI Press, pp. 107–121.

Gui, Benedetto (1987) 'Internal Pay Schedules and Labor Mobility: The Problem of Firm Survival', *Economic Notes* 16, (2): 89–101.

Gunn, Cristopher E. (1984) *Workers' Self-Management in the US,* Ithaca (N.Y.): Cornell University Press.

Hansmann, Henry (1990) 'When Does Worker Ownership Work?', *Yale Law Journal* 99 (8): 1749–1816.

Hirschman, Alfred (1984) *Getting Ahead Collectively,* New York: Pergamon Press.

Ireland, Norman (1984) 'Codetermination, Wage Bargaining and the Horizon Problem', *Zeitschrift für Nationalökonomie* 44 (1): 1–10.

Ireland, Norman J. and Law, Peter J. (1982) *The Economics of Labour-Managed Enterprises,* London: Croom Helm.

Jensen, Michael C. and Meckling, William H. (1976) 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure', *Journal of Financial Economics* 3: 305–360.

Jensen, Michael C. and Meckling, William H. (1979) 'Rights and Production Functions: An Application to Labor-Managed Firms and Co-determination', *Journal of Business* 52 (4): 469–506.

Jones, Derek C. (1984) 'American Producer Cooperatives and Employee Owned Firms: An Historical Perspective', in R.Jackall and G.H.Levin (eds) *Worker Cooperatives and Employee Owned Firms in America,* Berkeley: University of California Press.

Kandel, Eugene and Lazear, Edward P. (1992) 'Peer Pressure and Partnerships', *Journal of Political Economy,* 100 (4): 801–817.

Laville, Jean L. and Marchat, Jean F. (1990) 'Le financement des coopératives de travail en France', *Annals of Public and Co-operative Economics* 61 (2–3): 309–329.

Levin, Henry (1982) 'Issues in Assessing the Comparative Productivity of Worker-Managed and Participatory Firms in Capitalist Societies', in D.C.Jones and J.Svejnar (eds) *Participatory and Self-Managed Firms,* Lexington (Mass.): Heath, pp. 45–64.

Levine, David I. and D'Andrea Tyson, Laura (1990) 'Participation, Productivity, and the Firm's Environment', in Blinder, Alan (ed.), *Paying for Productivity,* Washington D.C.: The Brookings Institution, 183–237.

Meade, James (1980) 'Labour Cooperatives, Participation and Value-Added Sharing', in A. Clayre (ed.), *The Political Economy of Cooperation and Participation,* Oxford: Oxford University Press.

Mellor, Mary, Hannah, Janet and Stirling, John (1988) *Workers' Cooperatives in Theory and Practice,* Milton Keynes (UK): Open University Press.

Mygind, Niels (1987) 'Are Self-Managed Firms Efficient? The Experience of Danish Fully and Partly Self-Managed Firms', in D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labor-Managed Firms,* vol. 2, Greenwich (Conn.): JAI Press, pp. 243–323.

Mygind, Niels (1990) 'The Financing of Self-Managed Firms in Denmark', *Annals of Public and Cooperative Economics* 61 (2–3): 287–308.

Oliver, Nick (1987) 'Commitment and Satisfaction in Producer Cooperatives', *Journal of Interdisciplinary Economics* 2: 117–130.

Paton, Rob (1989) *Reluctant Entrepreneurs: The Extent, Achievements, and Significance of Workers' Take-overs in Europe,* Milton Keynes: Open University Press.

Pérotin, Virginie (1987) 'Conditions of Survival and Closure of French Worker Coops: Some Preliminary Findings', in D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labor-Managed Firms,* vol. 3, Greenwich (Conn.): JAI Press, pp. 201–224.

Prasnikar, J. 'Participation and Self-Management in Developing Countries', in this volume.

Prasnikar, Janez and Svejnar, Jan (1988) 'Economic Behavior of Yugoslav Enterprises', in D.K.Jones and J.Svejnar (eds) *Advances in the Economic Analysis of Participatory and Labor Managed Firms,* vol. 3, Greenwich (Conn.): JAI Press, pp. 238–311.

Prendergast, Canice (1992) 'Career Development and Specific Human Capital', *Journal of the Japanese and International Economics* 6: 207–227.

Quarter, Jack and Brown, Judith (1992) 'Worker Buyout in Canada: A Social Networking Analysis', *Economic and Industrial Democracy* 13: 95–117.

Rothschild, Joyce and Whitt, J.Allen (1986) *The Cooperative Workplace,* Cambridge: Cambridge University Press.

Russell, Raymond (1985) 'Employee Ownership and Internal Governance: An "Organizational Failures" Analysis of Three Populations of Employee-Owned Firms', *Journal of Economic Behavior and Organization* 6: 217–242.

Seravalli, Gilberto (1988) *Cooperazione e autogestione nel settore industriale,* Roma: Nuova Italia Scientifica.

Smith, Stephen (1984) 'Does Employment Matter to the Labour-Managed Firm?', *Economic Analysis and Workers' Management* 18: 303–318.

Smith, Stephen C. (1991) 'On the Economic Rationale for Codetermination Law', *Journal of Economic Behavior and Organization* 16: 261–281.

Sterner, Thomas (1990) 'Ownership, Technology and Efficiency: An Empirical Study of Co-operatives, Multinationals, and Domestic Enterprises', *Journal of Comparative Economics* 14: 286–300.

Thomas, Alan (1990) 'Financing Worker Cooperatives in EC Countries', *Annals of Public and Cooperative Economics* 61 (2–3): 175–211.

Thomas, Henk and Logan, Chris (1982) *Mondragon: An Economic Analysis,* London: Allen & Unwin.

Uvalic, Milica (1992) *Investment and Property Rights in Yugoslavia,* Cambridge: Cambridge University Press.

Vanek, Jaroslav (1977) *The Labor-Managed Economy,* Ithaca (N.Y.): Cornell University Press.

White, William F. (1991) 'Learning from Mondragon', in R.Russell and V.Rus (eds) *International Handbook of Participation in Organizations,* vol. 2, *Ownership and Participation,* Oxford: Oxford University Press, pp. 83–102.

Wiener, Hans and Oakeshott, Robert (1987) *Mondragon Revisited,* London: Anglo German Foundation.

Young, Dennis (1983) *If Not for Profit for What?,* Lexington (Mass.): Heath.

Zevi, Alberto (1993) 'The Italian Cooperative Movement and Cooperative Principles', Paper presented at the meeting of the CIRIEC Working Group 'Co-operative Principles', Paris, 3 May.

10

EFFICIENCY, EQUALITY AND ENTERPRISE DEMOCRACY[1]

Domenico Mario Nuti

1 THE STANDARD LABOUR CONTRACT AND ENTERPRISE DEMOCRACY

The dominant labour contract that emerged with the development of capitalism has three basic characteristics:

(a) a **fixed wage** payment per unit of time, for a 'normal' level of effort monitored by the employer. Since most production activities stretch over time and require a prefixed flow of labour inputs, their undertaking on a recurrent or continuous basis requires a certain stability in the price of labour in terms of their input/output mix; hence the orderly continuity of production is at odds with spot pricing of labour, and the wage is normally negotiated **at intervals,** with only quantities (i.e. employment) varying in between.
(b) both parties' ability to end the contract at **very short notice,** i.e., no employment tenure.
(c) **workers' subjection** to their employer's authority, both in the organization of labour and in the overall allocation of labour and other resources.

Piece-rate work looks different but basically it is not; it replaces effort supervision, as effort-equivalence is measured by output.[2] Indexation of money wages to the price of a basket of goods also seems to but does not change the nature of the labour contract sketched above: the numéraire simply changes from monetary to real, and in terms of the chosen basket the wage still remains fixed regardless of enterprise performance and individual effort.[3] When workers are given full or limited tenure this is an option to sell their labour in future at a prefixed wage or wage-formula, not an obligation to deliver it at that wage; this employment option is not usually costless but is compensated by a correspondingly lower wage.

The position of dependent workers is exactly opposite to that of the capitalist/entrepreneur, for whom (i) income is a residual over and above contractual payments including wages; (ii) connection with the enterprise is as permanent as he/she wishes, until the natural end of the enterprise or its transfer to others; (iii) there is full authority over the organization of labour and over the whole range of decisions over input purchases, output level and mix, sales, stocks and investment.

Why do workers not hire capital, instead of capitalists hiring workers? They sometimes have in a distant past, in the beginnings of proto-capitalism, as individual workers or small groups; they still do it today in co-operatives, but only in low-risk small-size low-capital-intensity activities. Outside such activities, workers do not have enough capital of their own to employ themselves as a group, or to use as collateral to secure loans; moreover, they cannot diversify the employment of their labour, as capitalists do with their capital, and therefore cannot reduce their income risk; both factors make them risky borrowers in the eyes of potential lenders. Ultimately, wage labour is dominant in the capitalist economy, especially in risky and highly capitalized activities, simply because property is unevenly distributed. An economy of workers-owned enterprises leasing all their fixed capital could be contemplated in a system where all capital goods are state owned (see Liska 1963; Barsony 1982) but would have other drawbacks (see Nuti 1991a) and has never been realized other than partially on a small scale (in the Soviet Union during the New Economic Policy, 1921–6, and in the current transformation of post-communist economies).

The three basic features of wage employment singled out above have ensured a number of significant achievements: labour mobility towards its most productive uses, workers' employment uncertainty but certainty of income while employed, the possibility of 'central planning' within the enterprise. Thus the standard labour contract promoted efficient employment and redeployment of labour, high levels of effort for fear of dismissal, productivity gains from large scale and from rational organization.

These basic features have also some negative implications. First, there is a need for and a cost of supervision for the monitoring and enforcement of individual exercise of 'normal' effort. Second, there is no necessary, direct connection between earnings and enterprise performance—because workers normally have no ownership stake—and therefore no incentive to raise the level of effort above norm, or to improve labour organization, or to co-operate in facilitating labour redeployment. Third, a conflictual, antagonistic relation between 'us' and 'them' usually prevails between workers and owners, in wage determination and in the employment policy of firms. Employment insecurity, with a permanent pool of unemployed, falls totally on workers; in particular, workers are exposed to unemployment risks due to enterprise performance, which in turn depends on entrepreneurial decisions in which they have no part; hence the perceived unfairness of exposure to this kind of unemployment risk, as it represents responsibility without power. These acknowledged drawbacks have provided the stimulus for experiments and discussions of alternative formulas of employment contracts, especially towards profit-sharing, decision-making participation (or 'power-sharing') and equity sharing by employees—all moves towards the partial transformation of dependent workers into potential entrepreneurs.[4]

Enterprise democracy involves the reduction or elimination of workers' subjection to their employers, whether limited to the organization of labour (industrial democracy) or extended to entrepreneurial decision-making (power-

sharing). The basic argument developed in this paper is that, in order to avoid collateral adverse effects on efficiency and/or equality, the full implementation of enterprise democracy requires the radical transformation also of the first two characteristics of the employment contract, i.e. of the fixed wage and of employment tenure.

2 INDUSTRIAL DEMOCRACY: PARTICIPATION IN THE ORGANIZATION OF LABOUR

Workers' participation in decisions affecting internal division and reorganization of labour within the enterprise is bound to raise their welfare through the gratification of exercising initiative, and the reduction of boredom and of unnecessary effort. Such welfare improvements could be appropriated at least partly by employers, who could then offer industrial democracy in lieu of higher wages. However the impact of industrial democracy on labour productivity is indeterminate: possible improvements in the use of all inputs or in the quality of output may be more than offset by productivity losses due to workers avoiding—when they have the choice—disagreeable but more productive labour processes. Employers will have an incentive to grant this kind of participation only if its combined effect on productivity and wage levels is expected to reduce unit labour costs. Moreover employers may be inclined to implement discipline for its own sake, thus requiring significant efficiency improvements before agreeing to industrial democracy. Hence the degree of workers' participation in the organization of labour is just one of the many aspects of wage negotiations.

3 POWER-SHARING: PARTICIPATION IN ENTREPRENEURIAL DECISION-MAKING

A more substantial participation, for instance through membership of workers' representatives in company boards, involves a broader range of enterprise decisions, affecting employment, output, profits, loans, reinvestment and growth.

There is an ethical and political case for matching responsibility (i.e. workers' exposure to unemployment risk) with power (i.e. participation in the decisions from which unemployment might result as a consequence of entrepreneurial failure).

Power sharing is also bound to reduce the number and intensity of conflicts between labour and capital, by providing formal channels of information about objective conditions and prospects, and for the communication and negotiation of respective policy stances: through this kind of participation workers may achieve greater identity with the enterprise and become more 'incorporated' in it.

The best known instance of employee power-sharing is German 'Mitbestimmung' (co-determination), involving various degrees of employee representation in different industries. Empirical evidence suggests that co-determination enhances productivity and therefore indirectly also has employment promotion properties

(although it may reduce the direct effects of profit-sharing on employment, see below). While the German experience confirms that co-determination is perfectly compatible with a modern market economy and private enterprise, the impact of minority membership in company boards is bound to be effective only in case of a divided board. Its impact on resource allocation can only be very limited.

Suppose workers' participation in entrepreneurial decisions was made truly effective, i.e. determinant, for instance through a majority membership of company boards. Shareholders would then be effectively disenfranchised; now employees could successfully both resist dismissal and award themselves wages higher than compatible with even the maintenance of the value of equity capital, possibly right up to the consumption of the entire equity capital. Shareholders would be dispossessed through the ensuing reduction or even elimination of the enterprise capital value. Fresh risk capital would be made available by investors on a smaller scale, if at all, and fresh loans would be available only if amply secured by enterprise collateral. A fixed predetermined wage for all those employed could no longer be guaranteed. Any enterprise with effective, determinant participation in entrepreneurial decisions would quickly tend to degenerate into a workers' owned enterprise (see section 5).

4 PARTICIPATION IN ENTERPRISE RESULTS: PROFIT-SHARING

Taken by itself, i.e. without changes in either participation in decision-making or employment tenure, the replacement of fixed wage by an equivalent mixed pay formula, consisting of a lower fixed component and a share in enterprise profits, has three main beneficial effects, directly or indirectly affecting employment.

First, profit-sharing is bound to raise productivity through higher individual motivation of employees; through their collective reciprocal monitoring of effort—a possibly disagreeable feature but no less effective for that; through a more cooperative attitude in the resolution of day-to-day problems and conflicts. Indirectly, higher labour productivity will promote greater employment.

Second, profit-sharing will stabilize enterprise profitability over the cycle, by making average earnings automatically more flexible, thus improving the financial viability of firms, especially at times of recession and capacity restructuring.

Third, profit-sharing is expected to directly promote higher employment, through the reduction of the marginal cost of labour which, from the viewpoint of the individual enterprise for a given profit-sharing formula, is only the fixed component of earnings (Vanek 1965). However, enterprises using profit-sharing formulas appear to regard as marginal cost average earnings, rather than their fixed component (Estrin *et al.* 1987), and for the very good reason that average earnings have to match the supply price of labour.

Suppose a fixed wage regime was replaced with a profit-sharing formula initially (i.e., for the current employment level) yielding equivalent average labour earnings: additional unemployment would dilute individual profit shares. If share parameters

were raised to restore earnings to the value of the initial fixed wage, enterprise profits would be lower than for the equivalent fixed wage (as well understood by Vanek 1965). If, after employment expansion, initial share parameters were left unchanged, average labour earnings would be lower and the necessary additional labour supply might not materialize. One way or another, additional employment would result from either lower profits or lower labour earnings or a combination of both, just as if a subsidy on additional employment was introduced and financed out of a tax on profits or on the wages of those currently employed. Neither arrangement would be introduced contractually and would have to be imposed by legislation; the only advantage of compulsory profit-sharing with respect to explicit equivalent taxes and subsidies is that support of new employment would be financed within the enterprise and thus would be preferable—especially in economies afflicted by fiscal deficits—to open-ended employment subsidies financed out of the state budget.

Additional advantages of profit-sharing are alleged by Weitzman (1983, 1984): non-inflationary full employment and over-full employment, resilient to recessionary shocks. These should be dismissed as over-claims (see Nuti 1987a, 1987b, 1987c).

Profit-sharing exhibits three important limitations. First, such participation usually excludes the most important element of entrepreneurial reward, i.e., the growth of the value of the enterprise as a going concern due to its success; moreover often employees share only *distributed* profits, thus losing also their claim to self-financed investment (see section 11, for a more appropriate definition of profits as dividends plus capital gains).

Second, the parameters of the mixed-pay formula, i.e., the fixed element of pay and the share of profits to be distributed, will not be fixed for all and forever but only for those who remain employed in the enterprise and for the period that goes from one negotiation of the employment contract to the next. At each renegotiation presumably the average earnings expected from a mixed pay formula will be brought down (or up) to the level of alternative wage employment available elsewhere in the economy. Thus the earnings differentials between wage employment and profit-sharing employment will not be allowed to grow cumulatively over time. Indeed, the benefits of profit-sharing can last for even less than the period in between wage negotiations, for any employee quitting before the end of that period: hence the need for a somewhat more secure employment to accompany profit-sharing provisions (see section 6).

Third, profit-sharing exposes workers to greater variability of earnings when employed, a risk which unlike capitalists they cannot reduce through diversification of employment, and which may or may not be overcompensated by the likely associated reduction in the risk of unemployment. The higher employment expected of profit-sharing, in any case, does not mean more stable employment throughout the cycle as the fixed part of the profit-sharing formula, regarded as the marginal cost of labour, remains unchanged over the cycle. Conversely, the greater stability of profits may or may not be regarded as an improvement by firms, who in any case can reduce risk through their product differentiation or portfolio selection,

and may be able to do this more 'cheaply' than through profit-sharing schemes. Thus Samuelson (1977) seems to be right when he argues that the possible productivity increase is in fact the only source of society's net gain resulting from the move to a share economy.[5]

5 COMBINED PARTICIPATION IN ENTERPRISE DECISION-MAKING AND RESULTS

The case for power-sharing and profit-sharing reinforce each other. We have already seen (section 3) that effective, determinant power sharing is incompatible with a guaranteed fixed wage (just as voting shares cannot have the guaranteed rates of return typical of privileged shares). In turn profit-sharing, involving greater exposure of employees to income variability, strengthens the case for power-sharing in order to counterbalance it, as well as to reduce their unemployment risk. Power-sharing is also made more likely by the establishment of profit-sharing: participation in profits leads to access to information and therefore discussions about past enterprise performance and about current plans; formal or informal consultation is only a small step from participation in decision-making and is bound to lead to it naturally.

Among participatory enterprises combining profit-sharing and power-sharing the highest degree of both is to be found in old-style Yugoslav enterprises[6] and in traditional co-operatives everywhere,[7] neither having an outside equity holder.

Participation in both enterprise decisions and performance is expected to defuse conflicts, and facilitate restructuring and redeployment, by eliminating or at any rate reducing internal antagonism between labour and capital.

Paradoxically, the combination of profit-sharing and power-sharing generates—through the understandable temptation of selfish search for the maximization of earnings-per-man on the part of self-management organs—a tangible risk of inefficient behaviour. Other things being equal, the incentive structure of such an enterprise—unless modified appropriately, or counterbalanced by altruistic behaviour, or disactivated by economic rigidities—leads to additional inefficiencies with respect to the traditional wage employment contract. A massive body of literature from Ward's seminal model of the 'Illyrian' firm (1958) and its generalization by Vanek (1970) to date, probably larger than for any other single economic issue, has accumulated on the economic implications of the presumed maximand of self-managed enterprises, revealing several built-in rigidities and inefficiencies (for a review see Nuti 1991b). These are:

(a) employment restrictive policies compared with an otherwise identical profit-making capitalist enterprise;[8]
(b) rigid or even perverse short-run response to changes in the price of output and of fixed inputs rentals, due to the resulting changes in average earnings and marginal value product of labour; this involves reliance on the birth of new firms, rather than on the growth of existing firms, for adjustment to a

higher economy-wide equilibrium; it also involves the ineffectiveness—or worse—of macroeconomic demand management;

(c) a propensity to indulge in more restrictive output policies than those of a pure monopolist;

(d) a propensity to distribute rather than reinvest profits;

(e) a bias towards labour-saving investment (to the point of undertaking projects which, at the current level of labour earnings, might have a negative present value) and therefore towards financial investments which typically do not create employment in the enterprise.

Usually economic policy faces a trade-off between equality and efficiency, which can justify a degree of loss of one for a gain of the other, but this is not the case for the Illyrian enterprise, whose systemic inefficiencies are associated with additional inequality.

First, the employed as insiders can appropriate part of the quasi rents of their enterprises, excluding not only the unemployed but also less fortunate workers employed in other enterprises. There is an incentive to keep out outsiders even when their marginal product would be greater than their reservation earnings, or greater than their earnings in current employment, for fear of diluting current average earnings when these are higher than such marginal product. Thus—barring altruistic behaviour—there is inequality between the employed and the unemployed and among employees of different enterprises and sectors (see Estrin 1979, 1981; Estrin and Bartlett 1982; Stellaerts 1984; mergers, or employee subcontracting among enterprises, might contain but cannot eliminate such earnings dispersion, see Nuti 1986).

Second, there is inequality in the distribution among employees of the burden of past investment, with less senior members participating equally in the fruits of the past reinvestment of income generated by more senior members.

Given this unholy association of inequality and inefficiency attributable to the combination of power-sharing and profit-sharing, for this type of enterprise to be recommended the direct benefits of participation *per se* must therefore be thought to be overwhelming.

While there is little empirical evidence of this kind of rigid or inefficient behaviour for participatory enterprises, including co-operatives and Yugoslav firms, it would be facile to dismiss it even as an underlying tendency (for instance, Horvat 1986), since it corresponds to perfectly plausible and sensible economic behaviour. Rowthorn's introductory draft praises Basque and Emilian co-operatives that 'have been very successful and have shown themselves capable of competing effectively in world markets'. However, the Basque co-operatives of Mondragon have an untypically high degree of protection of members' property rights (see note 7). More generally, we can consider as evidence of the limited viability of the Illyrian firm the demise of old-style self-managed enterprises now being privatized in most of the ex-Yugoslav successor states; the concentration of traditional cooperatives (including Emilian ones) in a ghetto of low capital

intensity, low risk, mostly small-size activities (such as construction, agriculture, food processing, handicraft, transport and other services); their tendency towards financial growth, and difficulties in raising risk capital; the recent evolutionary trends of Italian cooperatives towards the protection of members' capital rights and the association of capital-contributing members. Recently, in transitional economies and especially in Poland where a considerable degree of self-management is still in operation, there is evidence that enterprises have maintained employment and earning levels regardless of profitability, tax regimes and even cash flows. Oxbridge Colleges, also combining elements of self-management and *de facto* profit-sharing, seem to partake of the same kind of drawbacks predicted by the Ward-Vanek literature (such as restrictive employment, the maintenance of high living at the expenses of self-financed investment, their tendency to turn into financial institutions).

6 PARTICIPATION AND EMPLOYMENT TENURE

By itself, employment tenure can be expected to strengthen workers' identification with the interests of the enterprise, reduce risk from participation and amplify the effects of profit participation even when this excludes increases in the capital value of the firm, by lengthening workers' time horizon.

Employment tenure, however, has also significant drawbacks. Obviously the indiscriminate protection of job-rights eliminates any incentive to exercise above minimum effort, unless significant satisfaction is derived from doing a good job; to co-operate, to raise skill levels, to improve the efficiency of labour organization. In enterprises and sectors where demand grows more slowly than productivity, to a higher extent than can be accommodated by retirements and voluntary quits (as, for instance, frequently today in mining, steel, textiles, chemicals), employment tenure involves inefficient overmanning, to the point of undermining the financial viability of enterprises.

A conspicuous example of these adverse effects is provided by the experience of centrally-planned economies, where a labour market always existed and the same kind of wage employment contract prevailed in spite of state ownership and planning, but where the protection of job-rights obtained *de facto* as a result of endemic excess demand for commodities and labour.[9] High rates of employment turnover and low productivity, typical of centrally-planned economies, can be attributed to a very great extent to employment tenure.

The net disadvantages of employment tenure on its own can be tempered by profit-sharing and reinforce the benefits of power-sharing; in turn, any form of participation comes to an abrupt end with dismissal and this very possibility must significantly reduce its effectiveness. The best option, however, is the transformation of employment tenure into 'income tenure': what really matters is income security, so that job security could and should be replaced by compensatory payments topping up the income of dismissed workers (i.e., their unemployment benefits or

their income in new employment if lower than in their former employment in the enterprise) to the level enjoyed prior to dismissal (see, section 12).

The combination of power-sharing, profit-sharing and modified tenure, can be expected to reduce but does not resolve the adverse effects of enterprise democracy on efficiency and equality illustrated above. Five main basic approaches have been proposed to reduce or eliminate them: James Meade's unequal partnerships, the marketability of jobs by enterprises and employees (Schlicht-Weiszacker and Sertel), free access of workers to any enterprise of their choice (Hertzka and Lange-Breit), workers ownership stakes in the enterprise which employs them (through ESOPs or ESOTs, i.e., Employee Stock Ownership Plans or Trusts), James Meade's fully participatory enterprise. The first four approaches are only partial solutions and raise other problems, whereas a version of James Meade's latest proposal seems to provide a satisfactory solution.

7 JAMES MEADE'S UNEQUAL PARTNERSHIPS

James Meade (1972) proposes a labour partnership differing from the traditional co-operative in the inequality of members depending on the conditions prevailing at the time of their joining the co-operative. Founders presumably stipulate equal shares, but new members are hired at an income equal not to current average earnings per member but to the value of labour marginal revenue product, i.e., new members are given a number of 'shares' such as to guarantee that level of current income, and are exposed to its fluctuations per share for the rest of their membership.

The object of the co-operative now becomes the maximization of income not per man but per share. At the cost of income inequality between members, and the inequality of voting power involved in unequal shares, most of the drawbacks of co-operatives are eliminated. The proposed institution remains—like the traditional co-operative—unsuitable to capital-intensive and risky ventures, and retains a reinvestment aversion, but the other drawbacks are no longer present. Restrictive employment policies would end; any worker whose supply price is no higher than the marginal revenue product of labour will be offered employment. The over-monopolistic bias of co-operatives also ends, again because total earnings of existing members are maximized, not earnings per man seeing that new men do not get more than their contribution to additional monopoly profits. When a rise in product price lifts average earnings more than labour marginal revenue product, the partnership will recruit new members instead of seeking to reduce its size—offering an income lower than that of existing members but higher than offered before the price rise; hence no perverse or rigid response ensues. The same will happen with technological change, or rental change. There will be none of the macroeconomic implications of perverse responses; nor any need to rely exclusively on the birth of new firms to move towards a higher equilibrium.

There will be no labour-saving bias in the selection of investment projects, since

lower than average earnings can be offered not just for the current period but for the rest of new members' working life within the unequal partnership (though Meade does not seem to be aware of this problem, asserting instead the equal attraction of credit-financed investment for capitalist firms and co-operatives even in their more traditional form).

Meade advocates provisions for workers leaving the partnership: they may be 'bribed' to leave voluntarily to the benefit of all parties, if their marginal revenue product becomes lower than their average earnings (as would result from a product price increase); they may also, however, have to compensate those who remain, if their departure leads to a fall in average earnings per member and jeopardizes the co-operative's ability to repay loans or pay fixed charges.[10]

The basic drawback of the proposal, apart from the residual limitations of traditional co-operatives indicated above, is the introduction of unequal pay for equal work, a principle generally accepted in professional partnerships but unlikely to be acceptable in industrial enterprises. Inequality now at least is traded off for efficiency, but remains in a different form, internally rather than across enterprises and sectors.

8 MARKETABILITY OF THE LABOUR CONTRACT (SCHLICHT-WEISZACKER AND SERTEL)

Another proposal seeks to eliminate the inefficiency of combined profit-sharing and power-sharing also through unequal treatment of members, by making jobs freely marketable at a price by member/employees and by expanding enterprises; here the inequality is not in the income per equal work, as in Meade's unequal partnerships, but in the price that each worker will have paid for his/her job. This institutional set up has been investigated by Schlicht and von Weiszacker (1977) in the search for efficient modifications of labour-managed enterprises: 'These tradable job rights are the precise analogue of tradable shares in a capitalist environment' (Schlicht and Weiszacker 1977:60). This system may be unpalatable or at any rate unrealistic as a possible arrangement for industrial labour in large-scale production, but is not all that absurd: it is, after all, the system prevailing in professional partnerships, and even in conventional co-operatives sometimes there is a *de facto,* if not *de jure,* ability to nominate a successor or to transfer one's job to a relative.

Schlicht and Weiszacker presume that 'Holders of these job rights will make decisions in accordance with the long run interest of the firm, because they want to maximize the present market value of their tradable job rights' (1977:60). This is not so; here the two authors make precisely the kind of mistake carefully avoided by James Meade: maximization of return *per job,* i.e., per physical unit of input, is not the same as profit (or present value) maximization. The value of a job right must be equal to the present value of expected job differentials over time, with respect to the supply price of labour at the same times; this is maximized by maximizing the present value of net income *per man,* which takes us back to the

Ward-Vanek problems, except for the anti-reinvestment bias, which here disappears due to members' time horizon becoming virtually infinite. Any incumbent worker receives the same earnings as the other employees, who cannot appropriate the increase in the net worth of the enterprise deriving from additional employment. Unless newcomers can be paid less than the other employees—in which case we are back to Meade's unequal partnership—or present workers acquire an ownership stake in any increase in the enterprise net worth resulting from investment (see, section 11), all adverse implications of earnings-per-man maximization remain under this scheme.

The same proposal, with the same limitations, is put forward by M.R.Sertel (1987), who in addition confuses potential with reality when he claims, in the title of his contribution, that 'Workers' enterprises are not perverse'.

9 WORKERS' FREE ACCESS TO EMPLOYMENT

The most radical, Utopian modification of labour relations is that envisaged by Theodor Hertzka (1891), echoed in Poland by Mark Breit and Oskar Lange (1934): 'free access' by workers to employment in any enterprise of their choice (See also Chilosi 1986 and 1992). This would guarantee the elimination of involuntary unemployment, but has a number of devastating drawbacks. First, competition would equalize the average instead of marginal product of labour in different enterprises, thus leading to inefficient allocation of labour employment. This could be reduced by mergers between firms with different marginal product of labour, though the process would lead to excess industrial concentration of an artificial kind, as it would not be dictated by economies of scale nor by the internalization of external economies. Alternatively, additional arrangements would have to be introduced, such as the tradability of enterprises' obligation to hire workers, an obligation which enterprises characterized by the higher marginal productivity of labour would be able to discharge at a profit (see Nuti 1983).

Second, the problem arises of measuring both skill and effort, of checking a worker's suitability to a particular job, independently and not by insiders presumably adverse to employment expansion for fear of income dilution. This problem, incidentally, arises also in the case of tradable jobs: professional partnerships, as well as co-operatives, usually vet beforehand the suitability of potential new members—not everybody can join.

Third, if there are private owners they are effectively disenfranchized, losing control over the variables determining their profits; not even employees would have any incentive to reinvest in their enterprises; even in a state owned economy, investment would have to be centrally funded.

Although unworkable, the Hertzka-Lange-Breit formula is closely associated with a number of ideas which on the contrary might be useful and practical, such as: (i) the idea of work-sharing, of which this formula is an extreme case; (ii) the idea of an obligation to hire (of course limited instead of unlimited as in their model), vested in the ownership of enterprises, as it was done for instance in Italian farms

after the last war (the so-called *imponibile di manodopera*), or in some of the state enterprises privatized by Treuhandanstalt in Eastern Germany after German reunification; (iii) the idea of a generalized claim, *qua* citizens, to a basic income or a basic capital endowment if not to basic employment; (iv) the idea of an Employer of Last Resort, as an agency which, subject to budgetary constraints set in the state budget, might employ as many workers as it can afford at the going minimum rate and then 'lease' them out to enterprises at the highest spot rate that it might be able to obtain, or employ them in public works. These, however, are wider forms of economic democracy, rather than of enterprise democracy; they belong partly to discussions and achievements of the Nordic or Scandinavian model of social corporatism (see Pekkarinen *et al.* 1992), partly to an uncharted area of institutional engineering.

10 WORKERS' SHAREHOLDINGS IN THEIR ENTERPRISE

Automatic participation in both profits and decision-making is involved in workers' shareholdings in the enterprise which employs them. Distribution of shares to employees is today a growing form of profit-sharing, which lays the foundations for continued further and wider participation. ESOPs, or Employee Share Ownership Plans, typically involve the payment of part of employee earnings into a trust fund used to buy the company's shares and to hold them either to pay cash benefits to all employees thereafter (in which case it is more appropriate to talk of ESOTs, or Employee Share Ownership Trusts), or to distribute them to employees after a period of time or on retirement (see Uvalic 1991).

ESOPs and ESOTs can be expected and indeed appear to have the beneficial effects of profit-sharing and power-sharing. In view of the modest share of equity capital that is usually attributed to employees the degree of power-sharing and profit-sharing gained by workers is equally modest;[11] this has the redeeming feature that the inefficiencies involved by full participation can be ruled out, but in turn there is no basic transformation of the employment contract towards significant enterprise democracy.

A potentially more important form of collective equity holdings by employees is that of workers' investment funds, of a kind introduced in Scandinavian countries after the Rehn-Meidner Plan in the 1980s (Meidner 1978, 1987). The payment of a small share of wages into a nation-wide and diversified investment fund, which would pursue a policy of profit reinvestment, was originally proposed—and feared—as an automatic mechanism of gradual collectivization of private capital. However this is only a temporary effect, which must necessarily stop once the fund is used to pay out redemptions or benefits, well short of 'nationalizing' a significant equity stake in national capital (George 1985). Thus wage earners' funds have become no more than supplementary pension funds (Pontusson 1987). These are certainly better than those pension funds which obtain a below-market return on their own and their employers' pension contributions; or where contributors, as in the UK, do not have access to surpluses arising after the payment of pensions,[12]

or control over them. Wage-earners' funds, however, especially if managed in the interest of employees rather than of the labour force as a whole (including the unemployed), alter only very marginally the labour contract, for the delayed and contingent pay represented by supplementary pensions.

Conventional ESOPs and ESOTs have additional limitations. If shares are distributed directly to workers and are immediately transferable they are equivalent to a cash benefit and the scheme is no different from ordinary profit-sharing, out of which employees always can buy, if they wish, an equity interest in their enterprises. If the shares are not transferable immediately, or are held in trust for later distribution to employees after a number of years or on retirement, there is an element of illiquidity and of involuntary, non-diversifiable risk-taking; the provision smacks of paternalism (if workers were given cash they would not invest in their enterprises, whereas this is good for them, so it has to be done willy nilly on their behalf…).

As long as the shares are immediately or (as in ESOPs) eventually distributed to employees, the scheme has the advantage of extending profit-sharing also to a participation in any increment in the value of the enterprise which employs them. This is an important improvement over ordinary profit-sharing, which is also a feature of the version of Meade's fully participatory enterprise considered below; it therefore deserves a brief digression.[13]

11 A REDEFINITION OF PROFITS: DIVIDENDS PLUS CAPITAL GAINS

The definition of profit as a cash flow excludes workers from participation in a most important element of entrepreneurial reward (penalty), namely the likely increase (decrease) in the value of the enterprise as a going concern. For full participation in entrepreneurial profit workers ought to share also such a change in value which is due to a market reassessment of future profits prospects out of old and new investments. This 'full' net profit, in line with an economist's though not an accountant's definition of profit, can be easily calculated as the sum of distributed profits plus the increment in the value of the enterprise during the period (whether due to net investment or to a revaluation of future profits expected from older capital).[14]

The workers' share of full profits can be paid out of distributed profits or, necessarily if their claims jointly with those of shareholders add up to more than distributed profits, in enterprise bonds and/or shares free of charge.

This fuller form of profit-sharing would have to apply to capital losses as well as gains, if necessary through withdrawals of shares and bonds also without payment, or through transfers of debt to workers; their earnings in cash and capital issues (or withdrawals) would be markedly more variable than if they shared profit as a cash flow (and, moreover, if they did not share losses). Because of workers' inability to diversify their labour employment to any meaningful extent, they would be bound to accept this kind of exposure only if it were to be partial, i.e. affect

only part of workers' earnings—a part which could be collectively or individually negotiated—and preferably if it was compensated by economy-wide forms of income support (see next section).

This approach presumes a competitive market valuation of enterprise assets; for listed joint-stock companies this could be provided, for better or worse, by the Stock Exchange; for other enterprises some alternative procedure would have to be devised, such as a challengeable self-valuation of assets on the part of enterprise managers, accompanied by an obligation to surrender or revalue enterprise assets at the self-assessed prices (this is a variation of a method proposed by Maurice Allais for the purpose of assessing the tax basis of a capital tax; see Nuti 1988). Alternatively, we could imagine introducing the marketability of jobs as in the Schlicht-Weiszacker proposal, however with the provision that capital distribution by enterprises should be such as to make the market price of jobs equal to zero.

Once employees share not only profits as cash flow, but also increases (and falls) in capital values, they will not be tempted to restrict employment (as long as capital gains from employment expansion are not at first shared among newcomers) or respond perversely to price changes; other things being equal, they will behave no more monopolistically than a conventional monopolist; they will be indifferent between self-financed investment, now fully credited to them, and distribution of profits; they will not favour labour-saving biases in investment projects. If conventional co-operatives were put on this footing, they would also be in a better position to attract risk capital, thus potentially moving out of their traditional preserve of low-risk small-size low-capital-intensity activities.

It is no accident that the current trend in the development of co-operatives, both in the transitional countries of Central—Eastern Europe and in the West, is to extend workers-members' capital rights (as it is already done in the Mondragon group; see Thomas and Logan, 1982; Wiener and Oakshott 1986) and to open membership to suppliers of risk capital (Nuti 1992). These developments would bring co-operatives closer to the kind of labour-capital partnerships envisaged by James Meade (1989).

12 FULL ENTERPRISE DEMOCRACY: FROM DEPENDENT WORKERS TO PART-TIME ENTREPRENEURS (A READING OF JAMES MEADE'S 'AGATHOTOPIA')

James Meade (1989) proposes the fullest form of enterprise democracy. His participatory enterprise is a development of the unequal partnership (Meade 1972) discussed above (section 7), extended from partner-workers to members contributing only capital, including the recognition of capital contributions of member-workers in the form of self-financed investment (Meade, 1982 Appendix E and 1986a,b, and above all, 1989), with the inequality transferred from income from work (which is likely to be unacceptable) to capital stakes (which is no different from wealth inequality in a capitalist economy). Meade (1989) labels his book 'Agathotopia', i.e.,

literally, a possible 'Good Place' where his participatory enterprise might be implemented, rather than a 'Utopia' nowhere ever to be found.

The simplest way of illustrating Meade's scheme—or at any rate my own interpretation[15] of its latest version—is by imagining the transformation of an already existing capitalist firm. At the point of transition the level of enterprise value added (net of amortization and tax) in the last period and the number of existing shares are considered; workers and all other recipients of contractual incomes (rents, interest, patents, etc.) are given a number of free shares—let us call them contractual shares—which have the same duration of the underlying contractual relation but otherwise are paid a full dividend like ordinary shares; all value added and capital gains are distributed as cash dividends or issues of free ordinary shares or bonds. Initially contractual income recipients receive the same income they would have obtained contractually; from then on they obtain a yield on their temporary shares. Workers can choose to continue to be employed at a fixed wage, wholly or partially (say, 75 per cent of their work time as partners and 25 per cent as fixed wage workers). Workers are entitled not to job security as such but to a continued income at a guaranteed level even if they are dismissed (as indicated in section 9).

Here the degree of power sharing is no more and no less than that which is justified by parallel risk-taking; the desired degree of workers' control over the organization of labour may be added to the scheme. Any remaining inequality would be due to differences in risk taking and saving, not to unjustified appropriation of quasi rents due to insider/outsider positions. Even those workers who chose to remain employed under a standard employment contract would do so through choice, not out of necessity; this would alter the whole nature of the standard employment contract even if participation remained simply potential. The other advantages of participation in decision-making and results would remain, and would not have to be overwhelming as they would have to be otherwise.

In order to alleviate the riskiness of variable incomes Meade envisages a social dividend[16] paid out of state revenue on state assets, which are presumed to have been accumulated out of a sequence of budget surpluses and to be managed through state holding companies. This last feature makes Meade's model unattainable for the time being by most countries except those with a large state capital net of national debt. This condition was achieved recently, for a brief period, by the countries least inclined to introduce it: the UK, which having almost entirely repaid public debt has now built it up again; and most of the 'transitional' economies of Central—Eastern Europe, where public domestic debt was almost entirely monetized, external debt has been rescheduled or forgiven, and a large net state capital stock was potentially available but most of which is now being privatized free of charge. The alternative is a complex but still very burdensome mixture of income subsidies and taxes, unlikely to be viable at a time of deep and protracted recession.

It is perhaps unlikely that shareholders and managers of joint stock companies might accept this broader notion of profit- and power-sharing, which would

effectively dilute entrepreneurship by extending it to employees, unless they were subjected to very considerable political pressure and workers' contractual power. It is more likely that this kind of arrangement might come into being—on a small scale—through the evolution of co-operative enterprises, with a possible further enhancement, as a result, of the growth prospects of co-operatives and of the scope of activities covered by them.

It is tempting to suggest, on the basis of the reflections developed in this paper, that there is an evolution of the labour contract away from dependent labour—with money income security, subjection to authority and job insecurity—to entrepreneurial labour—with higher income risk tempered by partial fixed earnings and by fiscal support, with participation in decision-making and with job-related-income security which is as good as job security. If this is not a convincing actual trend in positive economics, it is a bench-mark against which to assess alternative proposals for enterprise democracy, and certainly a feasible and desirable evolution path worthy of consideration—whether by normative economics or by political action.

13 SUMMARY AND CONCLUSIONS

This paper investigates the implications—for economic efficiency and income equality—of alternative forms and degrees of economic democracy within enterprises, and the parallel institutional transformations which would be needed in order to reduce or eliminate adverse effects.

The standard employment contract is characterized by (i) a fixed wage payment per unit of time; (ii) no employment tenure; (iii) workers' subjection to their employer's authority, both in the organization of labour and in the overall allocation of labour and other resources. Enterprise democracy involves the reduction or elimination of such subjection, whether limited to the organization of labour (industrial democracy) or extended to entrepreneurial decision-making (power-sharing, which can be symbolic or determinant). The basic argument developed in this paper is that, in order to avoid collateral adverse effects on efficiency and/or equality, the full implementation of enterprise democracy requires the radical transformation also of the first two characteristics of the employment contract.

Industrial democracy yields workers' welfare improvements, with undetermined effects on labour physical productivity; employers may willingly agree to such provisions as long as these do not raise unit labour costs. Fuller participation in entrepreneurial decision-making also yields benefits, through workers' 'incorporation' and reduction or better composition of conflicts. Effective—i.e., determinant—participation, however, would allow employees to appropriate the enterprise through control over its employment and earnings; it would virtually eliminate enterprise access to risk capital; it is also incompatible with a prefixed wage and leads naturally to participation in enterprise results, in the form of profit-sharing.

Participation in enterprise results by itself, without power-sharing, may yield

some advantages, but these are much more limited than claimed in the literature (Weitzman) and are the negation of full enterprise democracy. Combined participation in both decisions and results, however, raises strong presumptions of both greater inefficiency and greater inequality, illustrated in the vast literature on self-managed enterprises *à la* Ward-Vanek (co-operatives, old-style Yugoslav enterprises). Moreover, full participation in both decisions and results is illusory without some employment tenure, which unaccompanied by participation at least in enterprise results has adverse effects.

A number of possible solutions of these dilemmas can be found in the literature but are not satisfactory: (i) Unequal partnerships (Meade) resolve efficiency problems at the expense of equality; (ii) The marketability of the employment contract (Schlicht—von Weiszacker and Sertel) introduces a semi-feudal element and raises additional problems; (iii) Workers' free access to any enterprise of their choice (a Hertzka and Lange-Breit Utopia) resolves the inequality aspects of profit-sharing at the cost of large scale inefficiency; (iv) Workers' ownership stakes in their enterprises are a form of modest participation in both decision-making and results, at the cost of greater risk than for a diversified portfolio of workers' shareholdings.

The paper suggests that the best, indeed the only solution to the efficiency/equality dilemmas of enterprise democracy is the simultaneous transformation of all three main features of the employment contract, i.e., the establishment of (i) participation in entrepreneurial decision-making, (ii) participation in enterprise results redefined to include also changes in the capital value of enterprises, and (iii) job-related-income-maintenance in lieu of employment tenure. These provisions, corresponding to a reading of James Meade's Agathotopia, effectively transform dependent workers into entrepreneurs. The ensuing exposure to greater income risk would have to be reduced by workers exercising an option as to the proportion of their labour time to be covered by this or by the standard employment contract (thus becoming part-time entrepreneurs and part-time dependent workers); and by parallel provisions guaranteeing a basic income.

NOTES

1 An earlier version of this paper was presented at the WIDER Conference on 'Participation and Cooperation in Economic Enterprises: Democracy and Efficiency', King's College, Cambridge, January 1993. Acknowledgements for helpful comments and suggestions are due to Conference participants and in particular to Matti Pohjola; they bear no responsibility for opinions and remaining errors and omissions.

2 Typically, piece rates are frequently renegotiated; workers may raise their income individually and temporarily—over and above what they would get under a standard employment contract—at the cost of forcing themselves and others to work harder subsequently once norms are raised. Under piece rates labour income is bound to be redistributed towards the extra-skilled and the extra-keen but on average—apart from savings in the cost of monitoring and enforcing effort—average earnings are unlikely to be affected.

3 An indexed contract is characterized by five parameters: the part of the wage which is indexed, the elasticity of the indexed part with respect to the selected price index, the time lag between price increase and wage increase, the frequency of indexed changes, the frequency of wage contract renegotiation. Such a contract protects the purchasing power of wages only partly (since usually less than 100 per cent of wages are indexed with an elasticity with respect to prices which is less than 1), intermittently and with a lag, and only within the period in between a wage negotiation and the next, when the new money wage level can be renegotiated independently of the level previously achieved through indexation. At times of expected inflation the wage level in an indexed contract, with respect to that of a non-indexed contract covering the same period, will be initially lower and—if the expected inflation materializes—eventually higher. At times of accelerating inflation the arrangement has the advantage of defusing inflationary expectations and thus facilitates the control of inflation; at times of unexpected inflationary shocks it may temporarily amplify the resulting inflation. If a large share of total earnings is strongly indexed with a short lag and frequent indexed changes the indexation provision, of course, is likely to be inflationary; a uniform indexed threshold will flatten differentials in between wage renegotiations; perverse cases are known to have happened, of over-indexed wages rising in real terms thanks to inflation. But, by and large, over time indexation provisions are bound to be offset by lower wage settlements than would take place without indexation. The nature of the labour contract is not altered at all.

4 Among bibliographical reviews see Pettman 1978; Bartlett and Uvalic 1986; on cooperatives, Hill, McGrath and Reyes, 1981; on the history of these ideas, see Morley-Fletcher 1986; on recent European developments in profit-sharing and capital-sharing, see Uvalic 1991.

5 Claims about the superiority of profit-sharing contracts in dealing with risk are based on rather special stipulations. Pohjola (1987, extending Atkinson 1977) shows that profit-sharing contracts are superior to fixed wages when trade unions and risk-neutral firms negotiate non-binding contracts stipulating not only labour earnings but also employment levels, in which case profit-sharing converts employment risk into income risk in the presence of random shocks. However, when information is asymmetric and the firm has private information about production profitability (as in the case of owner-managed firms where profits can be concealed) firms have an incentive to protect their private information and profit-sharing schemes can never be incentive compatible (Pohjola 1990). Hart and Hölstrom (1985), on the contrary, claim the superiority of profit-sharing contracts over state-contingent wage contracts—for risk-averse employees and employers—precisely on the ground of asymmetric information, which requires wages being made conditional to something observable also by workers, such as profits. Aoki (1977) claims that there exists a superior profit-sharing contract over the fixed wage contract, for employees being relatively more risk averse than employers. All these propositions, however, neglect other ways of reducing risk (e.g., through product and portfolio diversification) alternative to profit-sharing contracts.

6 Recent research suggests that in reality the Yugoslav enterprises and indeed the whole Yugoslav economy behaved in ways very similar to conventional centrally planned economies, exhibiting for instance a strong investment drive, socialization of losses, central direction through the credit system (Uvalic 1992). Nevertheless, old-style Yugoslav enterprises (i.e. before the current privatization drive) embodied distinctive features such as workers' self-management, temporary usufruct of state assets by employees for their employment duration, sharing of after-tax value added net of amortization and interest on loans. These features are similar to those of traditional cooperatives.

7 By traditional co-operative I mean an enterprise whose employees collectively and

through appointed self-governing bodies appoint managers and take strategic decisions, sharing out net value added (net of both amortization and the service of debt) for the duration of their employment (including retirement) but have no right to enterprise capital, which belongs to either the state (as initially in Yugoslavia) or to the cooperative movement (to which it must be devolved in case of liquidation, for instance in Italian co-operatives), or simply remains unattributed. There are also instances of somewhat greater protection of capital rights of members, for instance in professional partnerships (where new members pay out a capital stake to existing members), the well-known instances of Mondragon co-operatives in Spain (where reinvested profits are credited to members for collection on departure or retirement, together with accumulated profits), or in formerly-Soviet co-operatives (where members are free to adopt a capital regime of their choice).

8 Conversely, co-operatives have a chance of surviving where loss-making capitalist enterprises do not—but only at the cost of lower average earnings than the wage paid by capitalist firms. The acceptance of lower earnings on the part of co-operative members is only likely for temporary, cyclical difficulties, in which case co-operative members can be seen as 'lending' their loss of income (relatively to the wage rate) in the expectation of subsequent positive 'returns' under the guise of positive income differentials at times of recovery and boom.

9 In centrally planned economies the labour contract was basically the same as in the capitalist economy. Thus workers' power, initially exercised through councils ('soviets'), was rapidly curtailed: 'Soviet' degenerated from substantive to adjective, turning into a geographical designation, and one-man management *(edinonachaliye)* was rapidly established. Fixed wages prevailed, with bonuses largely unimportant and left first to managerial discretion, then made more automatic (in the Soviet Union since the mid-1960s) but still erratic and unrelated to economic performance. In the mid-1930s Stakhanovism appeared, which turned out to be a gimmick and an instrument to force higher productivity, just like piece rate (see the Polish film *The Man of Marble*). Enterprises had wage guidelines fixed in nation-wide incomes policy but had considerable latitude in wage-fixing (e.g., through job evaluation, labour classification, fringe benefits, promotions) and exercised it, as they were subjected to planned limits only for their wage fund and could trade-off average wage levels for employment levels and affect the wage structure. Even in the most centrally planned economy at the height of Stalinism there was effectively a labour market: enterprises had to match their labour demands with the wages levels and structure necessary to attract labour supply, and that level and structure had to be broadly uniform at least locally, in view of large labour turnover—significantly higher than in capitalist economies.

This is not to say that the standard contract yielded the same beneficial effects of wage employment and the labour market in market economies. Apart from the adverse impact of job security on workers' effort supply, already lowered by shortages reducing the utility of money, there were other adverse effects: dependence on enterprises for social services, normally provided instead by the state in the capitalist economy, led to lower labour mobility; opportunities for labour redeployment were not validated by markets; cheap finance (Kornai's 'soft budget constraints') and emphasis on physical targets induced enterprises to permanently hoard labour.

With the current transition to capitalism, in post-communist economies there has been a tendency everywhere to leave wage labour as it was, simply adding the formerly missing ingredients: the incentives of private property, through mass privatization, and the discipline role of unemployment, through mass redundancies. Disenchantment with a discredited socialist model has prevented the exploration of forms of enterprise democracy, indeed leading to the elimination of residual forms of self-management as a precondition of privatization.

10 This penalty on departure goes both against the notion of limited liability, presumably not ruled out by co-operative membership, and against the basic freedom of labour mobility that since the advent of capitalism workers have always enjoyed. There seems to be no need for members to take on more personal responsibility for their cooperative's loans than is the case for joint-stock holders and, in any case, this can be stipulated at the time loans are taken. Unless members at the time of joining have specifically taken on personal responsibility for the co-operative's liabilities the cooperative, if one member's departure makes the co-operative insolvent and he cannot be replaced, simply will have to go into liquidation.

11 Even minority stakes may assign potential corporate control: Pohjola (1988) calculates that a 30 per cent share of voting rights is enough to obtain a working control of any industrial company in Finland, and that less would be needed in countries where share ownership is more dispersed. However, usual degrees of employee stock ownership are well wide of this mark.

12 Such a lack of access to surpluses can only be justified if it is matched by a parallel employers' obligation to make up any shortfall that might arise.

13 The following two section are taken almost entirely from Nuti, 1992.

14 Should a proof be needed, it is provided in Nuti, 1992:

Let us call

FNP = Full net profits (understood as 'full enterprise income' over a time period, i.e. operating profits net of depreciation but inclusive of that part—positive or negative—of the change in enterprise value which is over and above the value of self-financed net investment);
P = operating profits (gross of depreciation but net of interest payments on external finance);
D = depreciation;
DV = change in the market value of the enterprise as a going concern;
DP = distributed operating profits;
RP = reinvested operating profits;
NIP = net investment out of operating profits;
DVR = change in the value of the enterprise over and above reinvested profits, i.e., revaluation of profit prospects from already existing capital plus net present value of all investment over the period regardless of source of finance.

By definition,

1 $FNP = P - D + DVR;$
2 $P = DP + RP;$
3 $RP = NIP + D;$
4 $DVR = DV - NIP.$

Therefore using (2)–(4) we can rewrite (1) as:

(1') $FNP = DP + RP - D + DV - RP + D = DP + DV.$

Thus, although *D* is a purely arbitrary accounting convention and *DVR* is not directly observable, full profits can be expressed as the sum of distributed profits and the total increment in the value of the enterprise due to both revaluation of profit prospects and net investment over the period. (Since the net contribution of external finance to enterprise value is included under *DVR,* the value of new loans is automatically matched by a corresponding amount of new assets and therefore does not appear in the enterprise valuation).

15 Strictly speaking Meade's original scheme involves inequality among workers in the form of a different number of shares held *qua* workers; this creates difficulties such as unequal pay for equal work, and continuous renegotiation of everybody's shares when new members are hired (see Nuti 1991b). My version of Meade's scheme would eliminate

these difficulties, all workers receiving the same current income for the same current work but obtaining unequal additional income from ordinary shares. Employees do not seem to have the option of partial or full participation. At least in the initial formulation (Meade 1982 and 1986a) Meade is concerned about accumulation and would only distribute the real rather than the monetary rate of return on enterprise capital. The version given above is closest to Meade 1989.

16 This 'basic income' could take the form of either a citizen's income paid out to all, or a graded supplementary payment topping up incomes below a minimum level. See Standing, 1989.

REFERENCES

Aoki, Masahiko (1977), 'Linear wage contracts vs the spot market in their risk-bearing functions', *Economic Studies Quarterly,* 30: 97–106.

Aoki, Masahiko, Bo Gustafsson and Oliver E.Williamson (1990), *The Firm as a Nexus of Treaties,* Sage Publications, London.

Atkinson, Anthony B. (1977), 'Profit-sharing, collective bargaining and "employment risk"', *Zeitschrift für die gesamte Staatswissenschaft,* 133 (Special issue on Profit Sharing): 433–452.

Barsony, J. (1982), 'Tibor Liska's concept of socialist entrepreneurship', *Acta Oeconomica,* 28, (13–14): 424–455.

Bartlett, Will and Milica Uvalic (1986), 'Labour managed firms, employee participation and profit-sharing—theoretical perspectives and European experience', EUI Working Paper no. 86/236 and *Management Bibliographies and Reviews,* 12 (4).

Breit, Marek and Oskar Lange (1934), 'Droga do socjalistycznej gospodarki planowej', reprinted in O.Lange, *Dziela,* 2, PWN, Warsaw, 1973.

Chilosi, Alberto (1986), 'Self-managed market socialism with "free mobility of labor"', *Journal of Comparative Economics,* 10: 237–254.

Chilosi, Alberto (1992), 'Market socialism: a historical view and a retrospective assessment', *Economic Systems,* 16:(1): 171–185.

Estrin, Saul (1979), 'An explanation of earnings variation in the Yugoslav self-managed economy', *Economic Analysis and Workers' Management,* 13: 175–199.

Estrin, Saul (1981), 'Income dispersion in a self-managed economy', *Economica,* 48: 181–194.

Estrin, Saul and William Bartlett (1982), 'The effects of enterprise self-management in Yugoslavia: an empirical survey', in D.Jones and J.Svejnar (eds), 1982.

Estrin, Saul, Paul Grout and S.Wadhwani (1987), 'Profit-sharing and employee share ownership', *Economic Policy,* 4: 14–62.

George, Donald A.R. (1985), 'Wage-earners' investment funds in the long run', *Economic Analysis and Workers' Management,* Vol. XIX, n. 1: 13–28.

Hart, Oliver D. and B.Hölmstrom (1985), 'The theory of contracts', mimeo.

Hertzka, Theodor (1891), *Freeland: a social anticipation,* Chatto & Windus, London (a translation from the German edition, Dresden 1890).

Hill, P.M., M.McGrath and E.Reyes (1981), 'Cooperative bibliography—an annotated guide to works in English on cooperatives and cooperation', University Center for cooperatives, University of Wisconsin, Madison.

Horvat, Branko (1986), 'The theory of the worker-managed firm revisited', *Journal of Comparative Economics,* 10: 9–25.

Jones, Derek C. and Jan Svejnar (eds) (1982), *Participatory and Self-Managed Firms,* Lexington Books, Lexington, MA.

Jones Derek C. and Jan Svejnar (eds) (1987), *Advances in the Economic Analysis of Participatory and Labour Managed Firms,* Vol. 3, JAI Press, Greenwich, CT and London.

Jones, Derek C. and Jan Svejnar (eds) (1991), *Advances in the Economic Analysis of Participatory and Labour Managed Firms,* Vol. 4, JAI Press, Greenwich, CT and London.

Liska, Tibor (1963) 'Kritika es Konceptio. Tezisek a gazdasagi mechanizmus reformjahoz' ('Critique and construction. Theses for a reform of the economic mechanism'), *Kozgazdasagi Szemle,* 9.

Meade, James E. (1972), 'The theory of labour managed firms and of profit-sharing', *Economic Journal,* 82: 402–28.

Meade, James E. (1982) *Stagflation, Vol. 1: Wage-fixing,* Allen & Unwin, London.

Meade, James E. (1986a), *Alternative Forms of Business Organization and of Workers' Remuneration,* Allen & Unwin, London.

Meade, James E. (1986b), *Different Forms of Share Economy,* Public Policy Centre, London.

Meade, James E. (1989), *Agathotopia—The Economics of Partnership,* Aberdeen University Press, Aberdeen.

Meidner, Rudolf (1978), *Employee Investment Funds: an approach to collective capital formation,* Allen and Unwin, London.

Meidner, Rudolf (1987), 'A third way—the concept of the Swedish labour movement', Arbetslivscentrum-Swedish Centre for Working Life, Stockholm.

Morley-Fletcher, Edwin (ed.) (1986), *Cooperare e competere (Cooperation and competition),* Feltrinelli, Milan.

Nuti, D.Mario (1983), 'Efficiency and mergers in self-managed economies' (in Italian), *Rivista Internazionale di Scienze Sociali,* XCI, (4): 487–495.

Nuti, D.Mario (1986), 'Merger conditions and the measurement of disequilibrium in labour-managed economies', *Annals of Public and Co-operative Economy,* 1, March: 47–53.

Nuti, D.Mario (1987a), 'The share economy: plausibility and viability of Weitzman's model', in Stefan Hedlund (ed.), *Incentives and Economic Systems,* Croom Helm, London and Sidney, pp. 267–290.

Nuti, D.Mario (1987b), 'Co-determination, profit-sharing and full employment', in Jones and Svejnar (eds), 1987.

Nuti, D.Mario (1987c), 'Profit-sharing and employment: claims and overclaims', *Industrial Relations,* (Berkeley) 26 (1); 18–29.

Nuti, D.Mario (1988), 'Competitive valuation and efficiency of capital investment in the socialist economy', *European Economic Review,* 32: 2–6.

Nuti, D.Mario (1991a), 'On Tibor Liska's entrepreneurial socialism', in Marguerite Mendell and Daniel Salee (eds), *The Legacy of Karl Polanyi—Market, State and Society at the end of the Twentieth Century,* St. Martin's Press, New York, pp. 215–230.

Nuti, D.Mario (1991b), 'On traditional co-operatives and James Meade's labour capital discriminating partnerships', in D.Jones and J.Svejnar (eds), 1991, pp. 1–26.

Nuti, D.Mario (1992) 'Profit sharing' in G.Szell (ed.) *Concise Encyclopedia of Participation and Co-management,* de Gruyter, Berlin and New York, pp. 680–686.

Pekkarinen, P., Matti Pohjola and Bob Rowthorn (1992), *Social Corporatism—A Superior Economic System,* Oxford University Press, Oxford.

Pettman, B.O. (1978), *Industrial Democracy: a selected bibliography',* MCB publications, Bibliography n. 11 from the Institute of Business, Bradford—West Yorkshire.

Pohjola, Matti (1987), 'Profit-sharing, collective bargaining and employment', *Journal of Institutional and Theoretical Economics (JITE),* 143: 334–342.

Pohjola, Matti (1988), 'Concentration of shareholder voting power in Finnish industrial companies', *The Scandinavian Journal of Economics,* 90 (2): 245–253.

Pohjola, Matti (1990), 'Profit-sharing, information and employment: implications of the utilitarian monopoly union model', in Masahiko Aoki *et al.* 1990, pp. 77–93.

Pontusson, Jonas (1987), 'Radicalisation and retreat in Swedish social democracy', *The New Left Review,* September-October, no. 165.

Samuelson, Paul (1977), 'Thoughts on profit-sharing', *Zeitschrift für die gesamte Staatswissenschaft,* 133 (Special issue on Profit Sharing) 9–18.

Schlicht, E. and Christian C.von Weiszacker (1977), 'Risk financing in labour-managed

economies: the commitment problem', *Zeitschrift für die gesamte Staatswissenschaft,* (Special issue on Profit Sharing): 53–66.

Sertel, M.R. (1987), 'Workers' enterprises are not perverse', *European Economic Review* 31: 1619–1625.

Standing, Guy (1989), 'European unemployment, insecurity and flexibility: a social dividend solution', with a preface by Ralph Dahrendorf, Labour market analysis and employment planning—Working Paper no. 23, ILO, Geneva.

Stellaerts, R. (1984), 'The interindustry wage structure of a labour-managed economy: the Yugoslav case 1976–1981', *Economic Analysis and Workers' Management,* 2: 109–123.

Thomas, H. and Logan, C. (1982), *Mondragon: An economic analysis,* Allen & Unwin, London.

Uvalic, Milica (1991), *The PEPPER Report (Promotion of Employees Participation in Profits and Enterprise Results),* DG-V EEC, Brussels.

Uvalic, Milica (1992), *Investment and Property Rights in Yugoslavia,* Cambridge University Press, Cambridge.

Vanek, Jaroslav (1965), 'Workers' profit participation, unemployment and the Keynesian equilibrium', *Weltwirtschaftliches Archiv,* 94 (2): 206–214.

Vanek, Jaroslav (1970), *The General Theory of Labor-managed Market Economies,* Cornell University Press, Ithaca, N.Y.

Ward, Benjamin M. (1958), 'The firm in Illyria: market syndicalism', *American Economic Review,* 48 (4) September: 566–589.

Weitzman, Martin L. (1983), 'Some macroeconomic implications of alternative compensation systems', *Economic Journal,* XCIII, (4): 763–783.

Weirzman, Martin L. (1984), *The Share Economy,* Harvard University Press, Cambridge, MA.

Wiener, H. with R.Oakeshott (1986), *Worker-owners: Mondragon Revisited,* Anglo-German Foundation, London.

Part III

EXPERIENCE AND EVIDENCE

11

THE PRODUCTIVITY EFFECTS OF EMPLOYEE PARTICIPATION IN CONTROL AND IN ECONOMIC RETURNS

A review of empirical evidence

*Avner Ben-Ner, Tzu-Shian Han and Derek C.Jones**

INTRODUCTION

There has been much recent discussion of the effects of employee involvement, empowerment, participation in decision-making, team work, self-managed groups, profit-sharing, and stock ownership on economic performance. In developed economies, such 'human resource' practices are envisioned as organizational innovations that may improve competitiveness in the global market. In the emerging market economies of Central and Eastern Europe and the former Soviet Union, these issues are prominent due to the drastic reorganization of firms after the fall of the communist regimes. This paper is aimed to inform these discussions by offering a theoretical perspective on the productivity effects of various 'human resource' practices, which we regard as manifestations of different degrees of employee ownership, and by reviewing the empirical literature that bears on it.

The paper first offers a broad conceptual framework that helps examine the meaning of terms such as 'employee participation in decision-making,' 'employee stock ownership' and 'profit-sharing' along the two principal dimensions of shared ownership, participation in control and in economic returns. This is followed by a brief discussion of theory concerning the expected economic effects of such schemes. In the main part of the paper we survey evidence of the effects on productivity of diverse forms of employee participation in control and in economic returns. We focus on productivity both because this has been the concern of most studies, and because it is a better measure of social welfare than profitability. The principal finding is that the evidence suggests that productivity is enhanced in firms where there are arrangements that link participation in control and participation in economic returns.

CONCEPTUAL FRAMEWORK[1]

There are many ambiguities concerning what exactly is meant by schemes including 'employee participation in decision-making', 'employee ownership' and 'profit-sharing'. Ownership of an asset is viewed in the legal and economics literature as a bundle of rights to financial or physical returns from the asset and/or to control the use of the asset. This enables us to distinguish differing schemes both in theory and in practice according to the extent of employee participation in economic returns and/or control, and view them as different degrees of employee ownership. A third right concerns the transfer of control and return rights, and affects the expected duration and uncertainty about the exercise of the other rights.

Consider as the benchmark firm one in which employees receive a fixed wage and have no formal machinery for participation in decision-making; this is equivalent to the firm in the OA_1 cell in Table 11.1 (reproduced from Ben-Ner and Jones, 1995). Examples of firms in which employees have no rights to participate in either control or in economic returns include the typical private capitalist firm and state-owned firm in a planned economy. But as Table 11.1 shows there are many other arrangements which, broadly speaking, can be classified into three groups.

First, there are plans which provide for participation in economic returns alone, and involve moving down the first column. Return rights may be exercised through sharing directly in returns (profits, productivity gains, etc.) or in the assets that generate them. The major examples include schemes such as Profit-sharing Plans (PSPs), whereby some groups of employees share in company profits, and many Employee Stock Ownership Plans (ESOPs) that enable employees to become individual owners of the company's stock entitling them only to economic returns but not to participation in decision-making (cells OA_5, OA_9, and OA_{13}). Despite the similarity in plan names, the form and nature of the return sharing arrangement may vary with consequences for productivity. With PSPs, it is especially important to distinguish among different ways in which the 'profit share' is allocated: whether it is a cash or a stock-based plan; whether rewards are paid currently or (as in pension schemes) are deferred; whether participants share in both profits and losses; and whether or not the plan has an announced formula linking compensation with an indicator of performance.[2] Similarly, there is an enormous variety of ESOPs. Compare, for example, the average US ESOP with its Japanese counterpart on matters such as which employees are eligible to participate and the degree of liquidity. In Sweden recently there has been a spectacular growth of schemes that give individual employees an option to accumulate equity in the company in which they work at very low risk.

Second, some schemes allow only for participation in control, represented by a movement along the top row in Table 11.1. Institutionally there are a wide number of types of plans. These include: quality circles; autonomous work groups; joint consultation scheme; works councils; work teams; and co-determination. In Table 11.1, plans which provide for minimal employee influence (e.g., quality circles)

Table 11.1 Typology of employee ownership according to control and return rights and examples

Return rights held by employees	*Control rights held by employees*			
	None	*Participation in control*	*Sharing of control*	*Dominant control*
None	OA_1 Conventional firms	OA_2 Quality circles involving majority of workers	OA_3 Employee representation on board of directors	OA_4 British industrial common ownership: e.g., Scott Bader
Small	OA_5 Profit-sharing: ESOPs: e.g. Occidental Petroleum; Kimberly Clark	OA_6 Profit-sharing with participation programmes	OA_7 Co-determination with another programme; e.g., in Sweden co-determination sometimes exists with convertibles	OA_8 British Retail Co-ops[1]
Moderate	OA_9 ESOPs;[2] e.g., Procter and Gamble; Corning; Rucker Plans;	OA_{10} Scanion Plans; John Lewis; Lincoln Electronics; Polaroid; Japanese Mfg.	OA_{11} Producer Co-operatives[3]: e.g., UK Clothing Denmark	OA_{12} Producer Co-operatives;[4] e.g., UK footwear
Majority	OA_{13} ESOPs; e.g., Vermont Asbestos; Harcourt, Brace and Jovanovich; Lincoln S & L	OA_{14} ESOPs: e.g., Brooks Camera; Hyatt Clark; Ruddick	OA_{15} ESOPs: e.g., Weirton Steel; Rath; French building PCs	OA_{16} Producer Co-operatives; e.g., Mondragon, Italy; French Consulting; US Plywood

1 In some cases workers constitute a majority of the decision-making board and employees have tiny amounts of profit-sharing and ownership.
2 Information on ESOPs is largely derived from Blasi and Kruse (1991:14–20 and Ch. 4) and Rosen *et al.* (1991).
3 Workers share control with other organizations, such as labour unions and consumer co-operatives.
4 Workers have majority control of decision-making bodies, but modest amounts of profit-sharing and/or individual ownership.

belong in cell OA_2. These are distinguished from plans that provide for joint decision-making (e.g., certain kinds of board-level employee representation plans) assigned to cell OA_3. In turn, these should be distinguished from plans which provide for majoritarian control by employees without formal provision for participation in economic returns, (e.g. British common ownership firms, such as Scott Bader). Forms of participation in control that use the same label can vary enormously. Thus Swedish 'co-determination' is both by law and in practice very different from German 'co-determination' (Blanpain, 1992).

Third, there are schemes with participation both in economic returns and in decision-making, represented by plans in Table 11.1. Examples include Japanese manufacturing firms in which quality circles coexist with profit-sharing and ESOPs. Wage-earner funds, plans whereby revenues primarily from a tax on profits are used to purchase equities in companies which are then partially collectively owned and controlled, are located approximately in cell OA_6. Employee-owned firms/producer co-operatives (PCs), where employees are the residual claimant to all economic returns and have majoritarian control over strategic issues, belong approximately in cell OA_{16}. There is, however, great heterogeneity amongst PCs, for example, regarding conditions for membership, the tradability of shares, etc.

There are very few reliable ongoing representative scientific surveys for most forms of participation in economic returns and/or control in part because of the aforementioned definitional problems. None the less, the extant evidence suggests that currently employee participation in economic returns and/or in control is growing on all continents (Jones, 1987a; Ben-Ner and Jones, 1992a; Uvalic, 1991). Prompted in part by concerns of slow rates of productivity growth, often legislation has played an important role in fostering some of this growth (e.g., profit-sharing in France and the US). But in other cases, as with employee ownership in Japan, growth has occurred in the absence of legislation or public action.

There is enormous variation across countries in the incidence of employee participation schemes. Very broadly, in the US it is plans which provide for participation in economic returns alone, especially ESOPs, which have grown most rapidly. In the main this is also the recent dominant experience in the UK where it is profit-sharing that has grown most rapidly. In some countries the main form has been to provide for participation in control alone. Germany, with its co-determination arrangements, is one example. In many other countries, the principal form of employee participation involves schemes which combine participation in control and in economic returns. In Sweden, for example, there is an interesting combination of co-determination, wage-earner funds and individual employee ownership. The typical arrangements in Japanese and French corporations also combine some restricted employee participation in both control and economic returns.

The polar form of combination of control and return rights, represented approximately by PCs, has grown rapidly since the mid 1970s, though the incidence varies tremendously (Ben-Ner, 1988).

THEORY

This section examines the impact of varying degrees and combinations of rights to control and to economic returns upon individual motivation, individual performance, organizational structural variables and organizational performance. Depending on the particular institutional structure, attitudes of the participants and the historical context, we find that a range of hypothesized outcomes can be expected. We focus on productivity (rather than profits, wages, etc.) because this is the best measure of social welfare and we proceed in the same order as in the last section.

Consider first the effects of increasing return rights in the absence of control rights (i.e., moving from cell OA_1 in the first column of Table 11.1 down to cell OA_{13}). Along with efficiency wage theory, the argument for return rights is that if return rights result in greater compensation then employees will be motivated to exercise more effort, which in turn leads to improved individual performance. However, this argument ignores the possible existence of the free-rider problem, which tends to eliminate these gains. In sharing schemes, the magnitude of the returns is determined, in part, by the effort exercised by other employees. Without effective monitoring or enforcement mechanisms (e.g., employee participation in decision-making, union effects, etc.), an individual employee may have incentives to 'free-ride' on others' efforts without making any effort beyond the minimum. Along with game theory, the argument here predicts that non-cooperative behaviour of one party may generate non-cooperative behaviour from another party, thus nullifying the effects of sharing schemes. Also, sharing returns with employees may have actually deleterious effects on the incentives of owners or their agents to manage and to monitor employee performance (Jensen and Meckling, 1979). From this perspective, therefore, the greater the share of employees in returns the poorer will be individual and organizational performance. If return rights are contingent on the will of employers, the effect of sharing returns will be weakened because employers may change or manipulate the sharing schemes at their convenience. Without any control rights held by employees, the motivational effect of sharing returns will be reduced as employees fear that their efforts will not be rewarded. In the first column of Table 11.1, a positive effect of return rights may be expected from the union effects, if the union can enforce effort standards (e.g., through union shop stewards) better than management appointed supervisors. In general, we would expect that increasing return rights (while divorced from control rights) would have very limited, though either positive or negative, consequences for productivity.

Relative to return rights, increasing control rights in the absence of any return rights will be expected to have a somewhat stronger impact on performance, though it may also be negative as well as positive. Cell OA_2 in Table 11.1 represents a weak form of employee ownership, which may have negative or positive effects on organizational productivity. The positive effect will dominate if: (1) participation is meaningful enough to enhance employees' autonomy and their ability to choose

some aspects of their working conditions, (2) there are ways to ensure that employees do not make decisions that trade-off organizational productivity in favour of their individual welfare via working conditions and reduced effort, and (3) the benefit of participation to individual employees is greater than the cost of engaging in it. In the absence of these conditions the motivational effect of control rights may be non-existent. The more extensive form of employee participation in control is represented by cell OA_3. This scheme provides greater employee autonomy and the ability to make choices regarding working conditions (especially if board level participation is complemented with workers' councils). In such a scheme, employees are likely to gain more access to information as well as obtain access to decision-making on issues that affect the entire organization, rather than just their own units. The informational gain improves the basis for the conclusion of agreements between employees and management, whereas access to strategic decision-making places employee representatives in a better position to ensure that agreements are enforced. This enlarges the scope of desirable agreements that can be reached in the firm and therefore further increases organizational productivity. On the other hand, in the absence of return rights, employees will be less careful in reaching decisions that affect returns in which they do not share, and will try to enhance the decisions that affect their utility through working conditions and the like. Therefore, organizational performance may be worse under OA_3 than under OA_2. Thus, the theory hypothesizes that OA_3 may have a negative effect on productivity. The effect will be even stronger under full employee control, hence organizational performance under OA_4 will be inferior to that under OA_3, and possibly worse than OA_1. Thus, full employee control, when divorced from return rights, is potentially quite damaging to productivity because of the total separation of decision-making responsibility from financial returns.

The combination of the two rights gives the strongest performance results. OA_6 in Table 11.1 represents a small share of employee rights in control and returns. Employee participation in control may create an enforcement mechanism because employees may mutually monitor work efforts of each other. Mutual monitoring is supported by sharing in returns, thereby leading to better individual performance than OA_2 or OA_5. On the other hand, ownership arrangements that entail only a small share of employee rights in control and returns are likely to be anchored in groups rather than the entire organization. This kind of ownership arrangements (represented primarily by OA_6) has the disadvantage of strengthening group identity and forming group objectives which may come at the expense of cooperation among groups, with the attending consequence of lowering organizational performance, although it may not have negative productivity effects. The move from OA_6 to OA_{11} along the diagonal in Table 11.1 has two important structural consequences. First, greater control and return rights will help to better align interests across groups. Second, parity control rights improve employees' access to information. Better information enables employees and management to arrive at better agreements and rules, especially in unionized

firms, and will allow employees to enforce them more effectively, thus leading to better productivity. On the other hand, parity sharing of control and return rights may have negative structural effects, which may be much more severe than in OA_6. Since management and employee representatives make decisions and rules together, each party will act in ways that further its best interests. The conflict of interests between these two parties may result in disagreements over issues affecting both parties. Lengthy haggling and bargaining between these two parties may also lead to impasses, thereby lowering organizational performance. Hence the move from OA_6 to OA_{11} along the diagonal is possibly associated with a deterioration in productivity. Thus, we conclude that initially simultaneously increasing control and return rights held by employees (that is, moving along the OA_1–OA_{16} diagonal) will generate productivity gains until employees and other owners hold approximately parity ownership rights, at which point a decline in productivity may occur. Beyond the parity point, however, productivity increases reach a higher level than when ownership rights were concentrated mainly in the hands of non-employee owners. The main impact of full employee ownership is likely to be manifested in structural organizational variables. In OA_1, the group of firm owners and the group of employees may have diverse (and even conflicting) interests between each other, whereas in OA_{16} the two parties are merged into one party. This merger eliminates an important source of conflict in the organization by internalizing its negative consequences. The internalization of conflict between owners and employees may improve the flow of information in the organization, and enhance the ability of the organization to respond more flexibly to events in its environment because the need for rules, regulations and agreements that are designed with a view to guarding each party's interests against the other is reduced. The internalization of conflict occurs because employees have majority return rights, but this alone does not suffice. Control rights held by employees safeguard their return rights, and more importantly, guarantee that the organization will make choices that reflect the true value of working conditions versus monetary income because employees will enjoy (or suffer) the full monetary and other consequences of their choices. Furthermore, with the fear of opportunistic behaviour by parties being reduced, and therefore the threat of future changes in the allocation of rights being curtailed, the organization can act more towards a long-term optimization of its structural variables. Hence, an improvement in the organizational performance is expected, with productivity being greater than under other ownership arrangements.

These hypotheses of the effects of different employee ownership arrangements are summarized in Table 11.2. Figures in the table represent an ordinal representation of the hypothesized effects of different employee ownership arrangements for each cell relative to the conventional firm (OA_1). The numbers represent the range of hypothesized effects. Negative numbers indicate lower productivity than in the conventional firm.

Table 11.2 Summary of hypotheses on the influence of employee ownership on organizational productivity

Return rights held by employees	*Control rights held by employees*			
	None	*Participation in control*	*Sharing control*	*Dominant control*
None	0	−1,1	−1,0	−1
Small	−1,1	−1,2	0,1	−1,1
Moderate	−1,1	0,2	−1,1	0,2
Majority	−2,1	0,1	1	2,3

Note: Figures in the table represent an ordinal representation of the hypothesized effects of different ownership arrangements for each cell relative to the conventional firm (OA_1). The numbers represent the range of hypothesized effects. Negative numbers indicate lower productivity than in the conventional firm.

EVIDENCE

This section reviews some of the literature on linkages between employee participation in control and/or in economic returns and organizational productivity in industrialized market economies. While such an exercise is a challenge for many reasons, four are of special note.

First, space constraints mean that we must be highly selective in reviewing studies, which are of various kinds. Of the three basic categories of study—regression analysis using standard econometric methods, hypothesis testing studies which compare average productivity, and case studies—we choose to concentrate on empirical work in the first two categories, with an emphasis on the first. Key features of these studies are summarized in Table 11.3.

Second, there are enormous differences in the quality of the various studies and, in turn, in the reliability of their findings; however, space limitation prevents us from giving detailed consideration to the diverse methodological issues of empirical strategy. Prior studies often suffer from methodology problems, which may adversely affect the regression results. Some studies, for instance, concentrate on the effects of participation in economic returns, ignoring the possible effects of schemes for participation in control or other structural variables and vice versa. Omitting relevant variables may bias the regression coefficients if the omitted variables are correlated with the included variables. In addition, many studies usually do not control for the endogeneity problem while investigating the effect of employee ownership on organizational performance. The endogeneity problem may lead to biases in the regression results. In addition, studies usually use measures of *de jure* employee participation in control, but not *de facto* measures, thereby having imperfect measurement of key concepts of employee ownership. A few studies have relatively small sample size. We summarize, in Table 11.3, the

main econometric studies reviewed here and some of the potential methodological problems with each study.

Third, since we aim for a review that is consistent with our conceptual approach, we must first classify studies in an appropriate way. However, assigning the work of others to one's own typology is not an easy task and we may have inadvertently mis-classified some of the studies which we review.

Finally, our conceptual framework yields predictions about the magnitudes of the productivity effects for arrangements for firms in different cells usually compared to OA_1 as a benchmark. Ideally this means that econometric studies would include firms in the OA_1 cell as well as in other cells that we can identify. But the available studies are often restricted to forms of employee ownership (and do not include firms in the OA_1 cell.) Moreover, often the empirical studies report evidence only on the direction (and not the size) of the productivity effects. Also, when the magnitudes of effects are reported, it is difficult to know whether the estimated effect would carry over to firms with other forms of employee ownership that are not included in that study. Hence our attempts in some cases to abstract inferences on these empirical magnitudes and then to compile a summary of the productivity effects of the different employee ownership arrangements is necessarily fraught with difficulty. Consequently, the results of this exercise (reported in Table 11.4) must be viewed with caution.

We begin by considering evidence for firms with plans providing *only for participation in economic returns (represented by the first column in Table 11.1).* For profit-sharing, the evidence overwhelmingly indicates that profit-sharing is associated with higher productivity (see especially the exhaustive review, including reviews of employer and employee attitudes, by Weitzman and Kruse, 1990).[3] However, large and sustained positive effects are rare.

Two of the few careful and large-scale econometric studies for which the bulk of firms probably belongs in the weak employee stock ownership and profit-sharing category (i.e., OA_5) are Bloom (1986) and Kruse (1988). Unlike many other studies, by including conventional firms (CFs) in their samples they try to address the selection problem. Also, by using a longitudinal data set they are able to investigate performance before and after the institution of profit-sharing. Kruse (1988) examined almost 3000 US firms about 40 per cent of which were profit sharers. All firms with profit-sharing had deferred-payment plans, hence they may be considered as examples of firms where workers had limited rights to returns. Kruse finds evidence of 'consistently positive and statistically significant increases in productivity associated with the adoption of profit-sharing plans, with a range of 2.8–3.6% for manufacturing firms and 2.5–4.2% for non-manufacturing firms'. The bulk of the ESOP firms studied by Bloom (1986) provides for limited degrees of employee ownership and then only small fractions of the labour force typically participated in the plan; therefore these firms also may be regarded as having only weak forms of participation in economic returns. When dummy variables are used to capture the presence (of an ESOP), for the most part Bloom finds that the ESOP effect is positive but statistically insignificant. While firms that

Table 11.3 Summary of econometric studies

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
Bloom (1986)	610 ESOP firms and 2625 non-ESOP firms; time-series and cross-section data	Explicit endogeneity controls; Cobb-Douglas production function	OA_5 vs OA_1	*Cross-Section Regression:* Dependent Variable: – Sales/employment in 1981 Independent Variables: – Dummy for existence of ESOP in 1981 – Beginning book value of gross plant in 1981 – Ending book value of net plant in 1981 – Beginning book value of net plant in 1981 – Depreciation/employment in 1981 – Ending book value of gross plant/employment in 1981 – Employment in 1981 – Dummy variable; 1 = durable manufacturing; 0 = otherwise – 2-digit dummies for industries – Proportion of participation in ESOP *Longitudinal Regression:* Dependent Variable: – Change in sales/employment, 1971–1981 Independent Variables: – Dummy; 1 = non-ESOP in 1971 and ESOP in 1981; 0 = otherwise – Dummy; 1 = non-ESOP in 1974 and ESOP in 1981; 0 = otherwise – Dummy; 1 = ESOP in 1971 and 1981; 0 = otherwise – Dummy; 1 = ESOP in 1974 and 1981; 0 = otherwise – Change in ending gross plant/employment, 1971–1981 – Change in ending net plant/employment, 1971–1981 – Change in employees, 1971–1981 – Change in the proportion of participation in ESOP, 1971–1981	(2), (3)

Bradley, Estrin and Taylor (1992)	John Lewis Partnership 4 conventional firms	Examination of the firm's pattern of growth and sources of investment between 1970 and 1989; Simple comparison of key performance indicators between John Lewis Partnership and its conventional counterparts	OA_{10} vs OA_1	Compound growth rate of key economic variables over the period of 1970–1989; – Nominal sales – Fixed sales – Full-time employment – Part-time employment – Capital productivity – Labour productivity	(2), (3), (4)
Cable and Fitzroy (1980)	42 German firms from 1974 to 1976; time-series and cross-section data	OLS estimation; Cobb-Douglas production function	OA_6 vs OA_1; OA_7 vs OA_1; within OA_7	Dependent Variable: – Value added Independent Variables: – Total assets – Number of white-collar workers – Total man-hours of blue-collar workers – Total profit distributed to workers – Workers' capital – Piecework earnings – Employee participation in decision-making	(1), (2), (3), (4)
Conte and Svejnar (1988)	40 US firms with different degrees of participation; years not reported	OLS and IV estimation; Translog production function	OA_9, OA_{10}, OA_{13} OA_{15}, OA_{16}	Dependent Variable: – Value added Independent Variables: – Total hours worked – Value of electricity and fuels used – Dummy for existence of profit-sharing plan – Dummy for existence of employee particpation in decision-making – Dummy; 1 = right to participate in decisions over wages 0 = otherwise – Dummy; 1 = right to participate in decisions over production 0 = otherwise	(2), (3), (4)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				– Dummy; 1 = no non-mangerial employee ownership; 0 = otherwise – Proportion of company stock owned by non-managerial employees directly – Proportion of company stock owned by non-managerial employees indirectly through an employee stock ownership trust – Proportion of the firm's labour force that is covered by a collective bargaining – Dummy; 1 = the reason of employee ownership was the bankruptcy of the firm; 0 = otherwise – a time trend	
Cooke (1989)	194 US unionized manufacturing firms; cross-section data	Ordered probit maximum likelihood estimation	OA_2 vs OA_1	Dependent Variable: – Change in productivity per unit of labour Independent Variables: – Dummy for existence of a joint programme which is a labour-management or productivity committee – Dummy for existence of a joint programme which is a team-based programme and teams regularly meet less often than once every two weeks – Dummy for existence of more than 5 union representatives in the top steering committee – Dummy, 1 if number of union representatives who are members of the top steering committee is not reported; 0 otherwise – Dummy; 1 if more than one joint programme exists; 0 otherwise – Programme duration – Dummy; 1 if any bargaining unit employees have lost their jobs in the plant because of the introduction of new technologies or automation since 1975; 0 otherwise	(1), (2), (3)

				– Dummy; 1 if the proportion of bargaining unit jobs have been subcontracted out on a permanent basis since 1975; 0 otherwise – Number of negotiations characterized as 'concession bargaining' since 1975 – Unionization rate – Dummy; 1 if average plant employment in 1983, 1985 is less than average plant employment in 1979, 1980, 1981; 0 otherwise – Average size of plant during 1983, 1985 – Average length of employment wihin bargaining unit – Proportion of bargaining unit employees who are female	
Defourney, Estrin and Jones (1985)	440 French co-ops in 1978; 550 French co-ops in 1979; cross-section data	OLS and IV estimations; Cobb-Douglas and Translog production functions	OA_{16}	Dependent Variable: – Value added Independent Variables: – Capital – Labour – Profit sharing per worker-member – Proportion of workers who are members of the firm – Worker's individual ownership stake – Proportion of total loan capital lent by worker-members – Formation process – Legal forms – Age of the firm – Industry dummies – Region dummies	(2), (3)
Estrin, Jones and Svejnar (1987)	500 French co-ops (1978–79); 150 Italian co-ops (1976–1980); 50 British co-ops (1948–1968); panel data	OLS and IV estimations; Translog and Cobb-Douglas production functions	Within OA_{11}, OA_{12} and OA_{16}	Dependent Variable: – Value added Independent Variables: – Employment – Capital – Profit sharing per worker – Capital stake per worker-member	(3)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				– Average capital stake per worker member – Average loan capital per worker member – Average collectively-owned reserves per worker member – Age of the firm	
Katz *et al.* (1983)	18 General Motors plants, pooled time-series and cross-section plant-level data (1970–1979)	OLS estimation	OA_2	Dependent Variable: – Direct-labour efficiency: an index comparing the actual hours of direct labour input to standardized hours adjusted for differences in product attributes Independent Variables: – Quality of work life rating – Total annual work hours of all production workers – Annual number of overtime hours divided by the number of straight-time hours worked by all production workers – Number of grievances filed per 100 workers – Absentee rate as a percentage of straight-time hours, excluding contractual days off	(1), (2), (3), (4)
Katz *et al.* (1983)	25 plants in a large durable goods manufacturer in the US; pooled time-series and cross-section data (1978–1980)	OLS estimation	OA_2	Dependent Variable: – Direct labour efficiency Independent Variables: – Measures of efforts to improve quality of working life – Proportion of hourly employees that submitted at least one suggestion during the year to a plant's suggestion programme – Salaried workers' attitudes towards compensation and benefits, working environment, supervisor–subordinate relationship, and career progress – Absenteeism rate of hourly workers	(1), (2), (3), (4)

				– Number of disciplinary actions involving suspension or some more severe penalty per 100 workers – Number of grievances filed per 100 workers – Average number of hourly workers – Ratio of the annual number of overtime hours over the number of straight-time hours worked by all production workers	
Katz *et al.* (1983)	53 plants of a major US auto manufacturer, pooled time-series and cross-section data (1979 and 1986)	Weighted least squares estimation	OA_2	Dependent Variable: – Labour hours Independent Variables: – Team-related score – Extent of managerial discretion and pace of work – Extent of worker and union participation in work group decisions – Extent of worker and union participation in new technology – Wage differentials between the plant and the local labour market – Unemployment rate in the local labour market – Absenteeism rate – Grievance rate – Type of plant – Dummy, 1 if the plant is in the midst of starting up production on a new production; 0 otherwise	(1), (2), (3), (4)
Kaufman (1992)	104 US firms; longitudinal data	After-adoption comparison	OA_{10}	Dependent Variable: – Percentage change in productivity Independent Variable: – Bonuses	(1), (2), (3), (4)
Kruse (1988)	2976 US publicly traded firms (1971–1985); longitudinal data	Cobb-Douglas production function; endogeneity control	OA_5 vs OA_1	*Cross-Section Regression:* Dependent Variable: – Total sales/employment in 1984 Independent Variables: – Dummy for existence of profit-sharing plan in 1984	(2), (3)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				– Average capital stake per worker member – Average loan capital per worker member – Average collectively-owned reserves per worker member – Age of the firm	
Katz *et al.* (1983)	18 General Motors plants, pooled time-series and cross-section plant-level data (1970–1979)	OLS estimation	OA_2	Dependent Variable: – Direct-labour efficiency: an index comparing the actual hours of direct labour input to standardized hours adjusted for differences in product attributes Independent Variables: – Quality of work life rating – Total annual work hours of all production workers – Annual number of overtime hours divided by the number of straight-time hours worked by all production workers – Number of grievances filed per 100 workers – Absentee rate as a percentage of straight-time hours, excluding contractual days off	(1), (2), (3), (4)
Katz *et al.* (1983)	25 plants in a large durable goods manufacturer in the US; pooled time-series and cross-section data (1978–1980)	OLS estimation	OA_2	Dependent Variable: – Direct labour efficiency Independent Variables: – Measures of efforts to improve quality of working life – Proportion of hourly employees that submitted at least one suggestion during the year to a plant's suggestion programme – Salaried workers' attitudes towards compensation and benefits, working environment, supervisor–subordinate relationship, and career progress – Absenteeism rate of hourly workers	(1), (2), (3), (4)

				– Number of disciplinary actions involving suspension or some more severe penalty per 100 workers – Number of grievances filed per 100 workers – Average number of hourly workers – Ratio of the annual number of overtime hours over the number of straight-time hours worked by all production workers	
Katz *et al.* (1983)	53 plants of a major US auto manufacturer, pooled time-series and cross-section data (1979 and 1986)	Weighted least squares estimation	OA_2	Dependent Variable: – Labour hours Independent Variables: – Team-related score – Extent of managerial discretion and pace of work – Extent of worker and union participation in work group decisions – Extent of worker and union participation in new technology – Wage differentials between the plant and the local labour market – Unemployment rate in the local labour market – Absenteeism rate – Grievance rate – Type of plant – Dummy, 1 if the plant is in the midst of starting up production on a new production; 0 otherwise	(1), (2), (3), (4)
Kaufman (1992)	104 US firms; longitudinal data	After-adoption comparison	OA_{10}	Dependent Variable: – Percentage change in productivity Independent Variable: – Bonuses	(1), (2), (3), (4)
Kruse (1988)	2976 US publicly traded firms (1971–1985); longitudinal data	Cobb-Douglas production function; endogeneity control	OA_5 vs OA_1	*Cross-Section Regression:* Dependent Variable: – Total sales/employment in 1984 Independent Variables: – Dummy for existence of profit-sharing plan in 1984	(2), (3)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				– Dummy for existence of ESOP in 1984 – Dummy for existence of combination of ESOP/profit-sharing plan in 1984 – Ending book value of gross plant/employment – Ending book value of net plant/employment – Beginning book value of gross plant/employment – Beginning book value of net plant/employment – Total employment in 1984 – Dummy for existence of union in current wage developments – 2-digit industry dummies *Longitudinal Regression:* Dependent Variable: – Change in ln(sales/employment) from earlier to later year Independent Variables: – Dummy for profit-sharing in later year but not earlier year – Dummy for profit-sharing in both years – Dummy for ESOP in later year but not earlier year – Dummy for ESOP in both years – Dummy for combination profit-sharing/ESOP in later year but not earlier year – Dummy for combination profit-sharing/ESOP in both years – Change in ln(gross book value of plant/employment) from earlier to later year – Change in ln(employment) from earlier to later year *Panel Regression:* – Sales/employment – Dummy for profit-sharing plan	

				– Number of years since profit-sharing established – Dummy for ESOP – Number of years since ESOP established – Proportion of employees in profit-sharing plan – Proportion of profit sharing, multiplied by age of profit-sharing plan – Proportion of employees in ESOP – Proportion of ESOP, multiplied by age of ESOP – Gross book value of plant/employment – Employment	
Kruse (1993)	500 US publicly-traded firms, panel data	Fixed-effect estimation; control for endogeneity; Translog production function	OA_{5-6} vs OA_1	Dependent Variables: – Sales per worker – Value added per worker Independent Variables: – Net assets – Number of employees – Profit-sharing adoption – Profit-sharing trend – Defined-benefit adoption – Defined-benefit trend – ESOP adoption – ESOP trend – Union trend – Personnel policies – Information sharing variables – Year dummies – Industry dummies	(3)
Kumbhakar and Dunbar (1993)	123 US publicly-traded firms; panel data (1981–1987)	Fixed-effect and random effect estimations; Cobb-Douglas production function	OA_5 vs OA_1	Dependent Variable: – Net sales	(1), (2), (3)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				Independent Variables: – Gross or net property, plant, and equipment – Number of employees – Age of ESOP – Age of profit sharing – Year dummies	
Marks *et al.* (1986)	A manufacturing department of a decentralized multidivisional firm in an urban area in the eastern United States; longitudinal data (6 months prior to the implementation of the quality circle programme and 24 months after the programme's inception	Before–after comparisons	OA_2 vs OA_1	Dependent Variables: – Proportion of hours spent on production – Number of products produced within quality specifications divided by industrial engineering output rate – Overall productivity Independent Variable: – Participation	(1), (2), (3), (4)
Morishima (1991)	97 Japanese firms; cross-section data	OLS estimation	OA_{10} vs OA_1	Dependent Variables: – Total value added, divided by total firm employment – Difference in productivity between 1979 and 1980 Independent Variables: – Fixed assets in million yen/total employment – *Ln*(sales volume) – Average monthly wage in yen – Proportion of males in employment	(1), (2), (3)

				– Average tenure of firm employees in years – Industry unionization rate in per cent – Industry concentration ratio (proportion of sales by top 4 firms in the industry) – Rate of growth from 1979 to 1980 in industry total sales in per cent – Industry's average monthly wage in yen – Dummy; 1 = manufacturing and 0 = otherwise – Dummy; 1 = continuous process technology and 0 = otherwise – Degree of information sharing	
Quarrey and Rosen (1986)	45 ESOP firms and 292 non-ESOP firms from the early or mid-1970s to 1986; longitudinal data	Simple comparison of ESOP and non-ESOP firms	OA_{13} vs OA_1	Dependent Variables: – Rate of sales growth – Rate of employment growth Independent Variables: – Contribution to ESOP – Management philosophy – Employee participation in decision-making – ESOP communications – Percentage owned – Voting rights – Board representation – Company size – Change in management – Tax preference	(1), (2), (3)
Schuster (1983)	9 US manufacturing plants; monthly data over a period of 4 to 5 years	Before-and-after comparisons; interrupted time-series design	OA_{10}	Dependent Variable: – Sales value of production divided by hours worked	(2), (3), (4)
Shepard (1987)	20 US chemical firms (1975–1982); panel data	Before–after comparisons OLS and 2SLS estimations; Cobb-Douglas production function	OA_9 vs OA_1	Dependent Variable: – Value-added for firm i in time t	(2), (3), (4)

continued

Table 11.3 (Continued)

Study	*Data*	*Methods*	*Comparison cells*	*Variables*	*Problems (see Notes)*
				Independent Variables: – Number of workers for firm i at time t – Profit sharing incentive variable (binary and continuous) – Capital for firm i at time t – Time trend variable – Rate of utilization variable (assumed constant across firms during a given time period)	
Svejnar (1982)	German firms with co-determination; time-series and cross-section data	OLS estimation; Cobb-Douglas and CES production function	OA_3	Dependent Variable: – Value added Independent Variables: – Capital – Labour – Co-determination dummy	(2), (3)
US GAO (1987)	111 US ESOP firms and non-ESOP firm (1974–1982); panel data	OLS estimation	OA_{13}, OA_{14} or OA_{15} vs OA_1	Dependent Variable: – Productivity Independent Variables: – Type of ESOP – Assets per participant – Level of employee participation – Voting rights – Percentage owned by ESOP – Change in participation – Industry – Size	(1), (2), (3)

Wadhwani and Wall (1990)	96 British manufacturing firms; panel data (1972–1982)	Before–after comparison; Cobb-Douglas production function	OA_9 vs OA_1	Dependent Variable: – *Ln*(Sales), Independent Variables: – *Ln*(Employment), – *Ln*(Capital stock), – Dummy for profit-sharing for firm *i* at time *t* – *PSDM*,*Ln*(Capital stock),	(2), (3)

Notes:

1 Endogeneity problem refers to the simultaneous determination between productivity and employee ownership.
2 Omitted variables problem refers to the absence of relevant variables (e.g., employee participation in decision-making) in regression.
3 Measurement problem refers to imperfect definitions and measurement of key variables (e.g., employee participation in decision-making).
4 Small sample size.

Table 11.4 Summary of findings in empirical studies on the effects of employee ownership on organizational productivity

Ownership arrangement	*Evaluation of the Effects*			
	Positive			
	Large	*Small*	*Neutral*	*Negative*
OA_2	Marks *et al.* (1986)	Cooke (1989)		Katz *et al.* (1983) Katz *et al.* (1985)
OA_3			Katz *et al.* (1987) Svejnar (1982)	Fitzroy and Kraft (1987)
OA_4				
OA_5	Kruse (1993)	Kruse (1988) Kumbhakar and Dunbar (1993) Kruse (1993)	Bloom (1986) Kruse (1993)	Bloom (1986)
OA_6	Kruse (1993)	Cooke (1989) Kruse (1993)	Jones (1974) Kruse (1993)	Kruse (1993) Cable and FitzRoy (1980)
OA_7		Cable and Fitzroy (1980) Fitzroy and Kraft (1987)		
OA_8		Jones (1987b)	Jones (1987b)	Jones (1987b)
OA_9	Kaufman (1992)	Shepard (1987) Wadhwani and Wall (1990)		
OA_{10}	Bradley *et al.* (1992) Jones and Kato (1993, 1995a) Schuster (1983)	Morishima (1991)		

OA_{11}	Jones (1982)	Jones (1974) Estrin *et al.* (1987) Jones (1982)	Estin *et al.* (1987) Jones (1982)
OA_{12}	Jones (1982)	Estrin *et al.* (1987) Jones (1982)	Estrin *et al.* (1987) Jones (1982)
OA_{13}		Conte and Svejnar (1988)	Quarrey and Rosen (1986) US GAO (1987)
OA_{14}		US GAO (1987)	
OA_{15}		Quarrey and Rosen (1986) US GAO (1987)	
OA_{16}	Defourny *et al.* (1985) Estrin *et al.* (1987) Jones (1993) Jones and Svejnar (1985)		

had introduced ESOPs registered higher rates of productivity growth than a matched sample of CFs, these same firms also experienced higher rates of growth of productivity in the period prior to the implementation of the ESOP. Moreover, in some cases, when continuous measures of employee ownership are used, Bloom finds that 'productivity falls by between 5 and 8% for every additional 10% of stock owned by the employees' (p. 186).

Kruse (1993) is another thorough and sizeable econometric study of the productivity effects of profit-sharing which includes firms that fall within the OA_5 category.[4] Indeed, for several reasons, findings derived from this study of the productivity effects of employee ownership are probably more reliable than are those from many other studies. In particular, by using a new panel data set of US publicly traded firms that spans many years, this study is able to compare pre- and post-adoption performance of the adopters, thereby correcting selectivity bias which tends to plague the validity of the findings of many studies. Also, by using the first-difference method, the availability of panel data enables any unobservable firm-specific fixed effects (e.g., managerial quality) to be removed.[5]

Kruse found that the adoption of a profit-sharing plan was associated with a 3.5 to 5 per cent increase in productivity (measured by sales per employee and value-added per employee) that was statistically significant. While the presence of a profit-sharing plan was associated with small increases in productivity (around 0.2 to 1.9 per cent), none of these estimates was found to be significantly different from zero. Similarly, the adoption of an employee stock ownership plan (ESOP) led to small productivity gains, but these were statistically insignificant. The size of the profit share was also found to have productivity effects. Adoption of a low-contribution plan (defined as profit-sharing contributions less than 3.63 per cent of participants' payroll), was estimated not to have a significant association with productivity change. But the adoption of a high-contribution plan (profit-sharing contributions exceeding 3.63 per cent of participants' payroll), was estimated to have significant associations with productivity gains from 7–13 per cent.

In another recent study using panel data procedures, Kumbhakar and Dunbar (1993) also found that the productivity effects increased with the age of the profit-sharing plan at the rate of 3.9 to 4.6 per cent per annum and with the age of the ESOP at the rate of 1.8 to 2.7 per cent per annum. All estimates were significantly different from zero in both the fixed effect and random effect models in this study.

Consider now firms which provide for more moderate sharing in economic returns, but make no provision for participation. Firms that fall within category OA_9 have quite pronounced arrangements for sharing in returns—e.g., a high degree of profit-sharing—coupled with no form of employee participation in decision-making whatsoever. Unfortunately many studies of this type of firms do not report either the extent of profit-sharing or whether other employee-ownership arrangements exist. Consequently, often it is difficult to know whether the available evidence is for firms in cell OA_9 or instead for related types such as OA_5, OA_6, and OA_{10}. This is especially the case for much of the literature which uses case study approaches and qualitative measures to gauge the impact upon productivity (again

see for example the many surveys of employee and employer attitudes to profit-sharing reported by Weitzman and Kruse, 1990:109–123). As before, all parties viewed profit-sharing as having a positive effect upon company productivity, though seldom are claims made of large and sustained positive effects.

Econometric studies provide more relevant detail and more reliable results. Shepard (1987) investigated a sample of 20 US chemical firms, nine of which were profit-sharers. After estimating production functions this study indicated that profit-sharing firms had 9–10 per cent higher levels of productivity (value added) than other firms. By comparison, in a study of UK firms, Wadhwani and Wall (1990) found profit-sharing was associated with a 2 per cent increase in productivity, though this was measured using real sales.

For gain-sharing schemes, while the evidence is less extensive, it is also suggestive of a positive association with enterprise performance. In particular, in a study of IMPROSHARE plans, Kaufman (1992) reported that IMPROSHARE led to significant increases in productivity. The median productivity increase was about 8 per cent in the first year, and the cumulative productivity gains rose to 17.5 per cent by the third year. However, since the empirical strategy is derived from a loose conceptual framework, one must be cautious in accepting these results. Moreover, the productivity gains were found to level off after three years.

Turning to plans which provide for only employee ownership, here the evidence on the productivity effects of employee ownership is more ambiguous. When employees own stock in a collective trust (as in the typical US ESOP) there is no body of evidence that this form of participation in economic returns alone consistently leads to enhanced company productivity. Similar findings emerge from studies of German firms (e.g., Cable and Fitzroy, 1980). Equally, the available evidence often finds a positive link between individual share ownership and enterprise productivity. In sum, for many plans that provide only for participation in economic returns, and perhaps especially for profit-sharing, there is strong evidence that the plan enhances enterprise productivity. At the same time, however, the evidence usually is much less clear concerning possible relationships between the degree of participation in economic returns (e.g., variation in the proportion of earnings that are dependent on profits) and enterprise performance.

For firms in cells OA_{13}–OA_{15} often it is especially difficult to separate out from the available evidence exactly which findings, if any, relate to any of these particular types. Of the vast literature for firms which span these types, perhaps it is findings for category OA_{13} type firms that are clearest. In general, the evidence suggests that, where ESOPs provide for strong sharing in returns (but provide for no sharing in control), there is at best a weak positive link between productivity and this form of employee ownership (see, for example, the reviews by Blasi, 1988). A study by Conte and Svejnar (1988) examined a sample of 40 US firms, many of which were ESOPs as well as a handful of plywood PCs. By estimating production functions the authors investigated the effects of both participation in control and sharing in returns (via profit-sharing). They found that profit-sharing usually had positive and statistically significant effects upon productivity. Also, firms that offered employee

participation in decision over wages tended to be more productive ones. However, other studies found no significant positive productivity effects of ESOPs (see US GAO, 1987; Quarrey and Rosen, 1986).

We now consider the evidence for firms with *only varying degrees of participation in control (but no rights to returns) i.e., schemes which fall within the first row of Table 11.1.* In a survey of (mainly US) plans which typically provide for limited participation (i.e., falling within the OA_2 cell), Levine and Tyson (1990) reported that in two-thirds of cases enterprise productivity was helped by employee participation (e.g., Marks *et al.,* 1986; Cooke, 1989). But Katz *et al.* (1983, 1985) found a negative effect of employee participation on productivity. Surprisingly little multivariate analysis exists for the productivity effects of board-level representation (co-determination). However, a recent review of the evidence (mainly for Germany) finds that this tends to indicate either that co-determination enhances productivity or that it has no discernible effects (Smith, 1991). Also, in a study of German firms with board-level co-determination (corresponding to cell OA_3), Svejnar (1982) found no appreciable effect of these differing institutional practices on productivity. Fitzroy and Kraft (1987) found a significant negative productive effect of works councils in Germany. In a study of the US automobile industry, Katz *et al.* (1987) found no productivity effects of employee participation in decision-making. In addition, there is evidence that usually, though not always, there is a strengthening tendency for there to be a positive productivity effect as the extent of participation increases. At the same time, studies of firms with participation arrangements tend not to reveal very large (say, more than 10 per cent) productivity effects.

Next we consider the available evidence on firms which *combine sharing in returns and in control.* First we consider firms which provide for modest sharing in returns and modest participation in control. While there do not seem to have been any econometric studies that focus exclusively on firms that we designate as belonging in cell OA_6, there are relevant results from studies that span more than one category. For example, for those firms described as 'low participation' scoring below a critical level on an index of worker involvement in decision-making, Cable and Fitzroy (1980) found negative and insignificant productivity gains. Other studies use various productivity indices so as to compare the performance of firms with this form of employee ownership and CFs. Thus in a study of UK printing firms, Jones (1974) found that this particular arrangement (a co-partnership combining profit-sharing with modest employee participation) usually had negligible productivity effects. Cooke (1989) reported that some of the team-based efforts under study 'were coupled with direct and indirect financial incentives (i.e., gainsharing, profit sharing, and stock ownership plans)' (p. 301). These team-based programmes may belong to OA_6 according to our typology. Using ordered probit models, he found that team-based programmes which met more often were more effective in improving productivity than less active teams which met less often than once every two weeks. In his most recent study, Kruse (1993) interacted profit-sharing with other personnel policies and had several interesting findings. First, the interaction of profit-sharing adoption and

information-sharing on competitors' performance was associated with a 1.4 to 20 per cent increase in productivity in four estimates, of which two were significantly different from zero. Second, the interaction terms of profit-sharing adoption and employee participation programmes (e.g., job enrichment, autonomous work-teams, employee involvement and suggestion system) were, in general, associated with small positive productive effects, but only one of them (employee involvement) was statistically significant at the 10 per cent significance level. Third, depending on which models were estimated, a few interaction terms of profit-sharing adoption and employee participation programmes even had small negative productivity effects, although none of them were statistically significant at the 10 per cent level.

We now turn to firms which provide for sharing of employee control in decision-making and yet only modest sharing in economic returns; these we designate as belonging to cell OA_7. Again, while there do not seem to have been any econometric studies that are restricted to such firms, there is evidence from samples of firms that include this type as well as other categories of firm. Thus Cable and Fitzroy (1980) identified a set of firms that they labelled 'high participation'—there is some profit-sharing as well as a significant level of sharing in control. For these firms the authors found a positive and significant coefficient on profit-sharing for high participation firms. More recently, Fitzroy and Kraft (1987) used another sample of firm level data for German enterprises to examine the influence of profit-sharing on productivity. They always found a positive and significant relationship that, relative to a firm with no profit-sharing, amounts to about 3 per cent higher productivity.

As for OA_8, with dominant employee control and modest return rights, a study of British retail co-operatives by Jones (1987b) includes some firms that formally are representative of the type of ownership arrangement. The author found that the presence of worker-directors modestly increased productivity, while employee participation in financial returns reduced productivity.

Since Japanese firms in the large manufacturing sector make considerable provision for profit-sharing (Freeman and Weitzman, 1987), information-sharing (Morishima, 1991) and employee stock ownership (Jones and Kato, 1995b), they may be viewed as firms 'strongly' representative of OA_{10}. While the available empirical studies have tended to emphasize only one of these dimensions of employee ownership, broadly defined, most tend to find a significant positive productivity effect. For example, Jones and Kato (1995a) used firm level data to estimate the effects of employee ownership on enterprise productivity. They found that if the typical Japanese ESOP were introduced into a firm without an ESOP then value added could be expected to increase by about 5 per cent. Morishima (1991) found that joint consultation committees enhance firm performance. Many broader case studies of Japanese industrial relations also found strong evidence of more organizational flexibility and improved industrial relations, compared to firms elsewhere where the participatory environment was often judged to be less amenable.

In several studies, Schuster (e.g., 1983) has reported on selected gain-sharing plans, mainly Scanlon plans, which combine employees having fairly significant rights to share in returns with a modest degree of employee involvement. After extensive case analyses, including tracking monthly physical productivity data over more than ten years, he concluded that 'most firms that introduce gain-sharing experience productivity improvements of 5–15 per cent in the first year'. In an imaginative case study of the John Lewis partnership, Bradley, Estrin and Taylor (1992) found far higher levels and growth rates of productivity in John Lewis compared to CFs in the same (retailing) industry.

There do not appear to be many studies which focus on our category OA_{11}. For firms that, on average, represent examples of this type, Jones (1974: Ch. 5) used census data for CFs on labour productivity and cost structure to make comparisons with similar firms in the clothing industry. The data reveal no major differences. However, by estimating production functions so as to examine for the impact of variation in degrees of employee ownership for firms within this category, Estrin, Jones and Svejnar (1987) found that additional profit-sharing in British clothing PCs was associated with higher productivity. This larger positive effect of profit-sharing was also found in Jones (1982) for British clothing PCs, with smaller effect for British printing PCs. Equally, for these firms, both variation in individual equity ownership and employee participation were found to have a neutral effect on enterprise performance.

By now, there is also a voluminous body of theory and evidence, on the performance of PCs within market economies (e.g., Bonin, Jones and Putterman, 1993). One of the principal findings that emerges from that literature (and which many studies point to) is the ability of democratically managed firms operating within capitalist economies to register strong economic performances (i.e., compared to conventional firms) and to remain economically viable over long periods (Estrin and Jones, 1995). In terms of our conceptual framework, the heterogeneity of actual PCs means that we would assign many such cases to cells such as OA_{11} and OA_{12}, rather than to the cell for majoritarian employee control PCs, namely OA_{16}.

There are not so many empirical studies for cell OA_{12}, entailing moderate return and dominant control rights for employees. One example is British footwear PCs. In an analysis including British footwear PCs, Jones (1982) found that employee participation in decision-making had a small positive effect on productivity, especially for PCs with high levels of employee participation in decision-making. However, the results were not statistically significant. Also, profit-sharing had an insignificant positive effect on productivity. Share capital owned on average by each worker-member had an insignificantly mixed effect on productivity, depending on types of the specifications used in the study. A similar pattern of results was found in another study (Estrin, Jones and Svejnar, 1987) including British footwear PCs, though the various participatory variables were jointly significant and the net effect was positive.

Cells OA_{14} and OA_{15} represent the ownership arrangements of combining majority returns and consultative participation for employees. Examples include US ESOP firms, such as Hyatt Clark Ruddick, Brooks Camera, Weirton Steel and Rath (for details see Blasi and Kruse, 1991). A study of 111 US ESOP firms by the US GAO (1987) compared various productivity indicators for samples of CFs and firms with ESOPs, both before and after they adopted an ESOP. Though identities of individual firms are unknown, presumably this study includes (but is unlikely to be restricted to) firms we designate as OA_{14} and OA_{15}. Their key finding was that '…productivity measures for firms that adopted ESOPs did not show consistent, statistically significant patterns of improvement after the ESOP was introduced' (p. 3). However, for firms that introduced formal structures which enabled employees to participate in control as well as an ESOP, they found that in such enterprises there were sustained and significant productivity gains after the introduction of the ESOP. In another study comparing US ESOP firms with their non-ESOP counterparts, Quarrey and Rosen (1986) found that employee participation in decision-making was most important in explaining positive productivity effect of employee ownership. The successful companies in the sample used a variety of formal and informal participation programmes, but they shared a number of underlying values, such as high trust relationship between management and employees, and management commitment to the idea of employee participation in decision-making.

The theory argues that the employee ownership arrangement with full control and return rights (represented by cell OA_{16}) can better align the conflicting interests between owners and employees, thus leading to higher productivity than other ownership arrangements. Empirical evidence is consistent with this hypothesis, and shows that, on average, it is PCs in cell OA_{16} that have higher levels of productivity, compared to hybrid forms of PCs that we assign to other cells. Also, for PCs within the OA_{16} cell, typically it is those PCs which have the highest degrees of participation in control and in economic returns that perform best. In a study of French and Italian PCs, Estrin, Jones and Svejnar (1987) showed that the coefficient signs on profit-sharing, capital ownership and employee participation in decision-making were positive and almost all were highly statistically significant (except for Italian construction PCs), strongly supporting the hypothesis that full employee ownership increases productivity. Another study of French co-operatives by Defourney, Estrin and Jones (1985) also showed that workers' participation in profits, in co-operative membership and in capital stakes had a significant positive effect on productivity, although the results varied by industry. Similarly, in a study of Italian co-operatives, Jones and Svejnar (1985) found that individual worker ownership had significant positive effects on productivity in manufacturing, and other insignificant or positive effects, depending on the functional form used. In addition, the effect of profit-sharing was increased in magnitude by instrumental variables estimates.

Finally, the proposition that productivity is typically higher in producer cooperatives than in participatory capitalist firms has received strong support from a

recent meta-analysis study by Doucouliaogos (1995), who examines 43 published studies. His findings apply especially to producer co-operatives we designate OA_{16} compared to participatory capitalist firms we designate as being close to OA_1.[6]

In sum, when we compare the predictions that emerge from our conceptual framework with the available evidence we find that, in general, there is a broad measure of support. For firms with arrangements that provide for both sharing in economic returns and in control—firms in the body of the grid—the evidence usually indicates a tendency for there to be a positive productivity effect. Further, as we examine firms with increasing degrees both of sharing in economic returns and in control—moving in a south-east direction across the cells in our matrix of types of participation—for many adjacent cells the evidence usually, though again not always, indicates an even stronger tendency for there to be positive and sizeable productivity effects. However, there are some reversals (e.g., compare the performance of firms in OA_{11} with firms in OA_{10} or OA_7). As such, these tentative findings provide support for the key predictions of our conceptual framework.

CONCLUSION

The paper has formally discussed a conceptual framework to define and differentiate among diverse forms of employee ownership. The framework is based on identifying two central rights associated with ownership, return and control rights, and evaluating their impact on individual motivation, individual performance, organizational structural variables, and organizational performance. Focusing on the link between alternative ownership arrangements and organizational performance, especially productivity, we arrive at four major theoretical conclusions. First, return rights divorced from control rights have limited positive or even negative organizational performance consequences. Second, control rights have a somewhat stronger productivity effect than return rights, although it may be negative as well as positive. Third, the combination of the two rights gives the strongest productivity results. Fourth, productivity does not improve monotonically in control and return rights; that is, increasing at the same time both return and control rights does not always improve productivity. Rather, we conclude that initially an increase in both rights improves productivity, then a minimum (still possibly positive relative to the conventional firms) occurs at approximately parity control and return rights, and then an improvement is expected again.

We use the theoretical framework as a basis for selectively reviewing some of the available empirical evidence. From that process, and subject to the gaps in and weaknesses of the available data, as well as being well aware of the difficulties involved in this type of exercise, we arrive at the following tentative conclusions. In general, as one examines the evidence for either firms with increasing degrees of participation in control (but no return rights) —moving across the first row in Table 11.1 —or increasing return rights (but no control rights)—moving down the first column—there is evidence that usually, though not always, the tendency for there to be a positive productivity effect strengthens. Furthermore, studies of

employee ownership arrangements such as these, which are limited to only one of the two dimensions that we have identified, tend not to reveal very large (say, more than 10 per cent) productivity effects.

If instead we examine the evidence for firms with arrangements that provide for both increasing degrees of sharing in returns and control—moving in a south-east direction across the cells in our matrix of theoretical types of employee ownership—then the evidence usually, although again not always, indicates an even stronger tendency for there to be positive and sizeable productivity effects. This tendency is especially evident from a recent meta-analysis. As such, these tentative findings provide preliminary support for the key hypotheses of our theory. Moreover, this concurs with others' findings, such as Levine and Tyson (1990). However, it should be noted that the empirical literature has many limitations. Most studies suffer from endogeneity, omitted variables, measurement, and/or sample selection problems.[7] This, in combination with enormous data limitations, calls for caution in interpreting most studies' findings, and for further research that overcomes them.

NOTES

* Jones acknowledges support from NSF 9223359.

1 This and the following section are summarized from Ben-Ner and Jones (1995). Citations to the theoretical literature can be found there.

2 For example, in 1986 in fully 46 per cent of US plans normally classified as 'profit-sharing plans', the bonus was based on employer discretion.

3 Using a meta-analysis, Weitzman and Kruse (1990) show that the median productivity difference associated with profit-sharing is 4.4 per cent.

4 The firms reported in Kruse (1993) tend to be located in at least the OA_5 and OA_6 cells. The productivity effects of the OA_5 arrangements are summarized here. The productivity effects of the OA_6 ownership arrangement are discussed later.

5 Also, by including variables on other personnel practices and policies (e.g., employee involvement programmes, autonomous work-teams, information-sharing, etc.), this provides guidelines for classifying these types of ownership arrangements according to our analytic framework. Moreover, as we have argued, such practices may each have independent effects on productivity. Hence, in estimating the effects of employee ownership, Kruse is able to eliminate biases resulting from the omission of these dimensions of ownership arrangements.

6 There is also some, though more limited, econometric evidence available for the effects of employee participation in control and in economic returns for firms that operated in pre-reform centrally-planned economies. Jones (1993) used a sample of Polish producer co-operatives in three industries during 1976–1978, i.e., when Poland was a centrally-planned economy, to estimate the effects of employee ownership, broadly defined. The results indicated that, in general, increasing either worker participation in control and/or in economic returns provided positive effects on productivity. The pattern of the different effects of employee ownership varies significantly across sectors. This evidence strongly suggests that workers within soviet-type economies are responsive to economic incentives.

7 Thus econometric studies, such as Kruse (1993) which do not find evidence that

information-sharing and team production reinforced the productivity effects of profit-sharing, might be considered preliminary because of the unsatisfactory measures of these policies.

REFERENCES

Ben-Ner, Avner (1988). 'Comparative Empirical Observations on Worker-Owned and Capitalist Firms', *International Journal of Industrial Organization,* 6: 7–31.

Ben-Ner, Avner and Derek Jones (1992). 'Employee Ownership: An Overview of Its Growing Incidence Around the World', in John F.Burton (ed.), *Proceedings of the Forty-Third Annual Meeting,* Industrial Relations Research Association Series, pp. 374–384.

Ben-Ner, Avner and Derek C.Jones (1995). 'Employee Participation, Ownership and Productivity: A Theoretical Framework', *Industrial Relations,* 34, October: 532–544.

Blanpain, Roger (1992). 'Introductory Remarks and a Comparative Overview', *Bulletin of Comparative Labour Relations,* 23.

Blasi, Joseph (1988). *Employee Ownership: Revolution or Ripoff?* New York: Ballinger.

Blasi, Joseph, and Douglas Kruse (1991). *The New Owners.* Harper Business, NY.

Blinder, Alan (ed.) (1990). *Paying for Productivity.* The Brookings Institution, Washington, DC.

Bloom, Steven (1986). 'Employee Ownership and Firm Performance', Ph D. dissertation , Harvard University.

Bonin, John, Derek C.Jones and Louis Putterman (1993). 'Theoretical and Empirical Studies of Producer Cooperatives: Will the Twain Ever Meet?', *Journal of Economic Literature,* 31, Sept.: 1290–1320.

Bradley, Keith, Saul Estrin and Simon Taylor (1992). 'Employee Ownership and Company Performance', *Industrial Relations,* 29 (3): 385–402.

Cable, John and F.Fitzroy (1980). 'Productive Efficiency, Incentives and Employee Participation: Some Preliminary Results for West Germany', *Kyklos,* 33: 100–121.

Conte, M. and Jan Svejnar (1988). 'Productivity Effects of Worker Participation in Management, Profit Sharing, Worker Ownership of Assets and Unionization in U.S. Firms,' *International Journal of Industrial Organization,* 6: 139–151.

Cooke, William (1989). 'Improving Productivity and Quality Through Collaboration,' *Industrial Relations,* 28 (2): 299–319.

Defourney, J., Saul Estrin and Derek C.Jones (1985). 'The Effects of Worker Participation upon Enterprise Performance, 1985', *International Journal of Industrial Organization,* 3 (2): 197–217.

Doucouliagos, C. (1995) 'Worker Participation and Productivity in Labour Managed and Participatory Capitalist Firms: A Meta Analysis', *Industrial and Labour Relations Review,* 49, 1: 58–77.

Estrin, Saul and Derek C.Jones (1995). 'Why Workers Want Participation and Ownership and their Effects upon Productivity', in *Advances in the Economic Analysis of Participatory and Labor Managed Firms,* 5: 3–24.

Estrin, Saul, Derek C.Jones and Jan Svejnar (1987). 'The Productivity Effects of Worker Participation: Producer Co-operatives in Western Europe', *Journal of Comparative Economics,* 11:(1): 40–61.

Fitzroy, F. and K.Kraft (1987). 'Cooperation, Productivity and Profit Sharing', *Quarterly Journal of Economics,* 102: 23–35.

Freeman, Richard and Martin Weitzman (1987). 'Bonuses and Employment in Japan', *Journal of the Japanese and International Economies,* 1: 168–194.

Jensen, M. and W.Meckling (1979). 'Rights and Production Functions: An Application to Labor-managed Firms and Co-determination', *Journal of Business,* 52: 469–506.

Jones, Derek C. (1974). 'The Economics of British Producer Cooperatives', Ph D. dissertation , Cornell University.

—— (1982). 'British Producer Co-operatives, 1948–1968: Productivity and Organizational Structure,' in Derek C.Jones and Jan Svejnar (eds) *Participatory and Self-Managed Firms: Evaluating Economic Performance*. Lexington, Ma: Lexington Books, pp. 175–198.

—— (1987a). 'Alternative Sharing Arrangements: A Review of the Evidence of their Effects and Some Policy Implications for the United States', *Economic and Industrial Democracy,* 8 (4): 489–516.

—— (1987b). 'The Productivity Effects of Worker Directors and Financial Participation by Employees in the Firm: the Case of British Retail Cooperatives,' *Industrial and Labor Relations Review,* 41 (1): 79–92.

—— (1993). 'The Productivity Effects of Employee Ownership Within Command Economies: Evidence from Poland', *Managerial and Decision Economics,* 14 (5): 475–485.

—— and Takao Kato (1993). 'Employee Stock Ownership Plans and Productivity in Japanese Manufacturing Firms', *British Journal of Industrial Relations,* 31 (3): 331–346.

—— (1995a). 'The Productivity Effects of Employee Stock-Ownership Plans and Bonuses: Evidence from Japanese Panel Data', *American Economic Review,* 85: 391–414.

—— (1995b). 'Japan: Financial Participation in the Context of Human Resourses and Heightened Competitiveness', in *Workers' Financial Participation: East-West Experience,* ed. D.Vaughan Whitehead, Geneva: ILO.

—— and Jan Svejnar (1985). 'Participation, Profit Sharing, Worker-Ownership and Efficiency in Italian Producer Cooperatives', *Economica,* 52: 449–465.

Katz, Harry, Thomas Kochan and Kenneth Gobelille (1983). 'Industrial Relations Performance, Economic Performance, and QWL Programs: An Interplant Analysis,' *Industrial and Labor Relations Review,* 37 (1): 3–17.

Katz, Harry, Thomas Kochan and Jeffrey Keefe (1987). 'Industrial Relations and Productivity in the U.S. Automobile Industry', *Brookings Papers on Economic Activity,* (3): 685–715.

Katz, H.C., T.A.Kochan and M.R.Weber (1985). 'Assessing the Effects of Industrial Relations Systems and Efforts to Improve the Quality of Working Life on Organizational Effectiveness', *Academy of Management Journal,* 28 (3): 509–526.

Kaufman, Roger (1992). 'The Effects of IMPROSHARE on Productivity', *Industrial and Labor Relations Review,* 45 (2): 311–322.

Kruse, Douglas (1988). 'Essays on Profit-Sharing and Unemployment', Ph D. dissertation , Harvard University.

—— (1993). *Profit Sharing: Does It Make A Difference?* Kalamazoo, MI: W.E.Upjohn Institute for Employment Research.

Kumbhakar, Subal and Amy Dunbar (1993). 'The Elusive ESOP-Productivity Link: Evidence from U.S. Firm-level Data,' *Journal of Public Economics,* 52: 273–283.

Levine, D. and L.Tyson (1990). 'Participation, Productivity and the Firm's Environment' in, A.Blinder (ed.) *Paying for Productivity*. Washington, DC: The Brookings Institution.

Marks, Mitchell *et al.* (1986). 'Employee Participation in a Quality Circle Programe: Impact on Quality of Work Life, Productivity, and Absenteeism', *Journal of Applied Psychology,* 71 (1): 61–69.

Morishima, Motohiro (1991). 'Information Sharing and Firm Performance in Japan', *Industrial Relations,* 30 (1): 37–61.

Quarrey, M. and C.Rosen (1986). *Employee Ownership and Corporate Performance*. Oakland, Ca: National Center for Employee Ownership.

Rosen, Corey, Gianna Durso and Paul Rothblatt (1990). *International Developments in Employee Ownership*. Oakland, Ca: National Center for Employee Ownership.

Shepard, Edwin (1987). 'The Effects of Profit Sharing on Productivity,' Ph D. dissertation , Boston College.

Schuster, Michael (1983). 'The Impact of Union-management Cooperation on Productivity' *Industrial and Labor Relations Review,* 36: 355–368.

Smith, Stephen (1991). 'On the Economic Rationale for Codetermination Law,' *Journal of Economic Behavior and Organization,* 16: 261–281.

Svejnar, Jan (1982). 'Codetermination and Productivity: Empirical Evidence from the Federal Republic of Germany', in Derek Jones *et al.* (eds), *Participatory and Self-Managed Firms: Evaluating Economic Performance.* Lexington, Ma: Lexington Books, pp. 199–211.

US General Accounting Office (1987). *Employee Stock Ownership Plans: Little Evidence of Effects on Corporate Performance,* Washington, DC.

Uvalic, M. (1991). *The Pepper Report—Promotion of Employee Participation in Profits and Enterprise results in the Member States of the European Community,* Report for the Commission of the European Communities, published in *Social Europe,* Supplement 3/91, C.C.E., DG V, Brussels.

Wadhwani, Sushil and Martin Wall (1990). 'Effects of Profit Sharing on employment, wages, stock returns and productivity: evidence from micro-data', *Economic Journal,* 100: 1–17.

Weitzman, Martin and Douglas Kruse (1990). 'Profit Sharing and Productivity: A Look at the Evidence', in Alan Blinder (ed.). *Paying for Productivity,* Washington, DC: The Brookings Institution.

12

PEOPLE'S CAPITALISM: PROFIT-SHARING AND FINANCIAL PARTICIPATION IN CAPITALIST ENTERPRISES[1]

Milica Uvalic

INTRODUCTION

In the co-operative enterprise, there can be up to a 100 per cent participation of workers both in decision-making and income.[2] In the traditional capitalist enterprise, the scope of employee participation is more limited, and the two forms of participation do not always coincide. Existing arrangements on employee participation in capitalist firms can be classified into two broad categories.

The first group includes various forms of employee participation in decision-making, usually referred to as 'industrial democracy' (Abell, 1985), 'participation in control' (Cable, 1988), or 'non-material participation'. Such participation can be both direct (e.g., through workers' councils) and indirect (through employee representatives on company boards) and ranges from information disclosure and consultation, to minority or full parity co-determination (such as the most well-known system of *Mitbestimmung* in Germany). Most European countries have experienced both direct and indirect forms of employee participation in decision-making,[3] enhanced by the promotion of industrial democracy by the European Community, during the 1970s through the encouragement of co-determination laws, and today as part of the Social Charter and the project for the harmonization of company laws.[4] The second group includes various forms of employee participation in enterprise performance, usually referred to as 'economic democracy' (Abell, 1985), 'financial participation' (Cable, 1988), or 'profit-sharing' (in the widest sense). Financial participation need not involve the participation of workers in decision-making (depending on the form it takes and other specific arrangements), but in practice makes a strong theoretical case for decisional participation. From a historical perspective, industrial democracy has had a much more important role in most West European countries throughout this century and consequently has also been vastly discussed in the literature, whereas research on economic democracy has been much more limited and, until recently, has been prevalently theoretical.

The present paper will therefore concentrate on the recent developments in economic democracy—profit-sharing and other schemes of employee financial participation in conventional capitalist enterprises[5] —by relying mainly on the West European experience. After these introductory remarks, an overview of recent developments in workers' financial participation is given, including a typology of financial participation schemes most frequently encountered in practice. This is followed by a more detailed discussion of two main issues, based on the experience in financial participation of individual EC countries: the political and legislative framework; and the extent of the phenomenon today, i.e., the principal types of schemes applied in different European countries and their diffusion. Available empirical evidence on the effects of employee financial participation is also presented. Finally, some concluding remarks are made.

AN OVERVIEW OF RECENT DEVELOPMENTS IN FINANCIAL PARTICIPATION

General trends

Forms of economic democracy have, until the 1980s, been limited in extent, and it is only in the past decade that a new and growing interest in performance-related compensation schemes has emerged. Theoretical discussions in the mid-1980s, inspired by Weitzman's (1984) work, have contributed to a lively debate among academics and policy-makers on the possibility of financial participation having a series of positive effects (see the fifth section). The desire to introduce greater flexibility in payments systems, along with commitments to a property-owning democracy, have influenced official government policies in several countries, leading to the adoption of favourable legislation offering tax benefits to firms introducing financial participation, which in turn has contributed to the continuous rise in the number of enterprises adopting some form of financial participation for their employees.

In addition to active individual government policies promoting economic democracy, the Commission of the European Communities (CEC) had in 1989 announced its intention to present, as part of its Action Programme for the implementation of the Social Charter, a new Community Instrument on employee participation in company results.[6] This initiative led to the preparation of the PEPPER Report (Uvalic, 1991), 'PEPPER' standing for 'Promotion of Employee Participation in Profits and Enterprise Results'.[7] On the basis of the PEPPER Report, a Proposal for a Council Recommendation on employee participation in enterprise results was prepared by the Commission (CEC, 1991) and forwarded to the Council in late 1991, and the recommendation was officially adopted on 27 July 1992 (see Council of the European Communities, 1992). Among the reasons why the CEC has decided to promote financial participation is probably the fact that its two main competitors, the USA and Japan, both practise financial participation on a more substantial scale than the Community.

In fact, the USA and Japan have had a long tradition in financial participation. Some estimates for the USA suggest that the number of profit-sharing plans has risen from 300,000 to 500,000 over the 1977–87 decade (see Smith, 1988), while others indicate that already in 1978, there were some 560,000 registered employee profit-sharing schemes, covering around 17 million workers (see Estrin and Shlomowitz, 1988).[8] Following tax concessions encouraging a specific form—Employee Stock Ownership Plans (ESOPs) —the growth of the number of ESOPs has been impressive. In 1983, there were already some 4,174 active ESOPs (Estrin and Shlomowitz, 1988); by 1988 their number had almost doubled, reaching 8,777 and involving 9 million employees, or 7 per cent of the working population employed in the private sector of the US economy (Conte and Svejnar, 1990). According to the National Center for Employee Ownership, in 1990 there were 10,000 ESOPs, covering 10 million employees.[9]

Japan is also well-known for its long tradition in financial participation. Profit-sharing is widely diffused among Japanese enterprises; profit-sharing bonuses are usually paid twice a year and are estimated to account for as much as 25 per cent of total employee earnings (Blanchflower and Oswald, 1987). Freeman and Weitzman (1987) argue that Japan's low unemployment and inflation rates are indeed attributable to profit-sharing.[10] What is less known is that the practice of encouraging employees to purchase company shares is also frequent, as recently illustrated by Jones and Kato (1991); the authors show that ESOPs in Japan are an important institution, as more than 90 per cent of firms listed on Japanese stock markets and 60 per cent of all corporations have an ESOP.

Typology of financial participation

Employee financial participation schemes can be grouped under two main categories: profit-sharing and employee share-ownership (see Uvalic, 1991).

Profit-sharing implies the sharing of profits by providers of both capital and labour, by giving employees, in addition to a fixed wage, a variable part of income directly linked to profits or some other measure of enterprise results. Profit-sharing provides employees with a regular bonus paid out of profits which would normally be allocated to capital but, contrary to traditional bonuses linked to individual performance (e.g., piece rates), profit-sharing is a collective scheme applied to all, or a large group of employees.

In practice, profit-sharing can take various forms. At the enterprise level, it can provide employees with immediate or deferred benefits; it can be paid in cash, enterprise shares or other securities; or it can take the form of allocation to specific funds invested for the benefit of employees. At above-enterprise level, profit-sharing takes the form of economy-wide or regional wage-earners' funds.

Cash-based profit-sharing links employee bonuses directly to some measure of enterprise performance (profits, revenue, value-added, or other), most frequently providing an immediate payment. However, it can also be a deferred scheme: e.g., if a certain percentage of profits is allocated to an enterprise fund which is then

invested in the name of employees; or schemes envisaging the freezing of cash bonuses on special accounts for a determined amount of time. A further distinction is also made between gain-sharing and profit-sharing (although the two are clearly related); gain-sharing typically consists of a group incentive pay system that is geared to productivity, cost reduction, or other, less comprehensive than profitability (Weitzman and Kruse, 1990).

Share-based profit-sharing consists of giving employees, in relation to profits or some other measure of enterprise performance, a portion of shares of the enterprise where they work, which are usually frozen in a fund for a certain period of time after which workers are allowed to dispose of them. Since shares are subject to a minimum retention period, the term 'deferred profit-sharing' is also used to denote share-based profit-sharing.[11]

Beside enterprise-level schemes, profit-sharing can also be set up at the regional or national level,[12] in which case it takes the form of *wage-earners' funds* financed by contributions from enterprise profits, which are then invested for the benefit of all wage-earners. Although wage-earners' funds have been discussed during the 1970s and 1980s in a number of European countries as a potential way of achieving a more even distribution of income and wealth, only the Swedish plan has actually been implemented, although in a diluted version of the original Meidner Plan.

Employee share-ownership provides for employee participation in enterprise results in an indirect way, i.e. on the basis of participation in ownership, either by receiving dividends, and/or the appreciation of employee-owned capital. While such schemes are not directly related to enterprise profits, they are related to enterprise profitability and hence enable participants to gain from the growth of company profits (Coldrick, 1990).

Employee share-ownership can also take different forms. Typically a portion of company shares is reserved for employees and offered at privileged terms; or employees are granted options to buy their enterprise's shares after a determined amount of time, under favourable fiscal provisions. Alternatively, an employee benefit trust is set up through Employee Share Ownership Plans (ESOPs), which acquires company stock that is allocated by periodic payments to each employee's ESOP account. A special form of employee share-ownership is workers' buy-outs of their enterprises. Finally, there are also external share-ownership schemes offered to the whole population (e.g. Personal Equity Plans in the UK) which, however, concern individual share-ownership, in no way linked to the enterprise of employment.

These different types of schemes are often discussed jointly in the literature. The generic term 'employee share-ownership' is frequently used to denote both share-based profit-sharing, and employee share-ownership, as both types of schemes provide workers with their enterprise shares, and both are of a collective nature (offered to all, or a group of employees); but the main difference is that employee share-ownership most frequently depends on the individual worker's decision to participate in the scheme and not, as in the case of profit-sharing, primarily on the enterprise's initiative.[13] Similarly, 'profit-sharing' is sometimes used

in reference to both profit-sharing in the sense of profit-related pay, and share-based profit-sharing. And the distinction between individual and collective employee share-ownership is also not always clear cut, as they are not mutually exclusive: certain individual share-ownership schemes which envisage shares being held in trusts bear similarities with a collective scheme; while certain collective schemes offered to all employees in practice involve only a limited number of individuals. Therefore, there are a number of ambiguities deriving from the overlapping of different forms. The present paper primarily considers schemes which are internal (applied within an enterprise); collective (available for all, or a major part of employees); and providing for employee participation, whether directly or indirectly, in some measure of enterprise performance (and not of the individual worker).

FINANCIAL PARTICIPATION IN THE EC: THE POLITICAL AND LEGISLATIVE FRAMEWORK[14]

The political climate

In the past, policy measures in Western Europe aimed at promoting financial participation have been hampered by a series of factors: strong opposition from trade unions; reluctance of employers to implement such schemes if they increase workers' bargaining power, or require information disclosure on company policies and profits; limited government interest in schemes and unwillingness to grant specific fiscal benefits; tax and other legal barriers, etc.

Today, many of these impediments are no longer present (or are gradually being removed) in most European countries, as the official position towards employee financial participation of individual governments, employers, and even trade unions, has substantially changed. Nevertheless, a variety of positions towards financial participation can be found both among EC member states and within each individual country.

At the government level, financial participation has for the moment been given priority in government policies, leading to active encouragement of a variety of schemes through specific laws, primarily in two EC countries—France, and the UK. In France, financial participation has been in the centre of political debates since the 1950s, and despite fierce opposition by both employers and trade unions, already in 1959 a system of cash-based profit-sharing was introduced. During the 1960s, a form of deferred profit-sharing—to be termed 'participation in the benefits of growth'—was considered by General de Gaulle 'the big reform of the century', a starting point for establishing a 'third way', which led to the introduction, in 1967, of obligatory participation schemes in all enterprises employing more than 100 workers. Contrary to the aims of profit-sharing, which was seen as a means for increasing labour productivity, the aim of participation was primarily redistributive: to enable employees, in addition to wages, to share in the proceeds of growth. During the 1980s, various forms of employee share-ownership have been

encouraged, also within general privatization measures, with the aim (as in the UK) of developing 'genuine popular capitalism'. In 1986, existing laws have been harmonized in a unique legislation regulating all types of financial participation schemes, and stronger incentives were introduced, in particular for cash-based profit-sharing.

In the UK, there was a resurgence of interest in financial participation in the late 1970s. Following pressure from the traditional advocate of financial participation, the Liberal Party, significant tax concessions were introduced in 1978 by the Labour Government to encourage share-based profit-sharing (termed 'approved profit-sharing'). During the 1980s, these concessions have been extended and additional fiscal incentives for new types of financial participation were introduced (in 1980 for Save As You Earn—SAYE—share options schemes, and in 1984 for discretional share options schemes). The Thatcher government has also encouraged individual employee share-ownership within the privatization measures, as a means of broadening capital ownership and promoting a 'property-owning democracy', and has introduced tax concessions for new types of schemes (in 1987 for profit-related pay, and in 1989 for ESOPs).

In other EC countries, financial participation has been the subject of national debate, and despite official proposals advanced in some of these countries, direct government support has either been limited (as in Belgium, Denmark, Germany, Ireland, and the Netherlands), has emerged only in the last few years (as in Greece and Portugal), or has been completely lacking (as in Italy, Luxembourg, and Spain). An important issue in past and present discussions in many countries has been whether enterprise-level, or collective schemes at a higher level, ought to be encouraged. Particularly in Denmark, Germany and Italy, a large part of the national debate has focused on the issue of economy-wide wage-earners' funds, but due to the absence of a general consensus and the opposition to obligatory arrangements (primarily from employers' associations), none of the proposals advanced have been adopted.

Employers' associations in most EC countries have usually persistently opposed any binding higher-level arrangements, but have been generally supportive of enterprise-level schemes, if these are introduced on a voluntary basis leaving the design of the scheme to enterprise discretion; but they have also argued for the introduction or improvement of tax incentives.

As to the trade union position, many trade unions have traditionally opposed financial participation at the enterprise level, and for a variety of reasons: the danger that such schemes would create additional income inequality between workers in profitable and non-profitable firms; the fact that traditionally, schemes were being introduced unilaterally by employers, in some cases also in order to discourage trade unionism; their non-negotiable nature, since schemes often remained outside the framework of negotiations; the dual risk for workers that financial participation inevitably poses, of unemployment and variable income; higher dependence of workers on the enterprise, without real participation in its policies, etc. As opposed to financial participation at the enterprise level, trade unions in most West European

countries have pushed in the other direction, advancing proposals on wage-earners' funds at a higher level, where workers would also be directly represented in decision-making.

Nevertheless, the present position on financial participation of most trade unions is more pragmatic, as it has evolved with the actual diffusion of schemes in practice. Some Dutch, Irish and German trade unions today officially support financial participation, regarding it as a welcome means of skimming off 'excess profits'. In other countries, such as France and the UK, although central trade union associations do not yet fully accept financial participation, many local trade unions have actively participated in the signing of financial participation agreements. Many trade unions today consider schemes could lead to a number of beneficial social effects, such as increasing employee involvement and commitment, improving or enhancing entrepreneurial spirit, and as an extra source of asset formation. However, most trade unions consider that financial participation should not endanger the outcome of wage negotiations, but should be treated and negotiated separately.

Legislation

The legislation on financial participation in EC countries is very heterogeneous. The French experience, based on original legislation which since 1967 has made employee participation in company growth compulsory, clearly contrasts with the voluntary nature of financial participation in all other EC countries. But there is also substantial variety among countries in which schemes are voluntary. With the exception of France and the UK, in the other EC countries the legislation offers, in general, modest tax incentives, and usually within more general legislation (e.g., in Germany and the Netherlands on savings schemes, and in Belgium on company laws). In Italy, Luxembourg and Spain, there are no specific legal provisions on financial participation, nor particular fiscal concessions.

Government measures encouraging various types of *employee share-ownership* have been the most frequent. In Belgium, tax incentives have been for the moment granted exclusively to various forms of employee share-ownership: the 1982 measures promoting individual purchase of shares; the 1984 and 1988 laws promoting share-ownership in innovative companies; and the 1984 law on employee stock options. In Germany, employee participation in capital has been encouraged since the early 1960s through specific state-subsidized savings schemes, while more recently, in 1984, new fiscal provisions were introduced aimed primarily at encouraging individual workers' contributions to enterprise capital. In Ireland, particular fiscal concessions have been given to stock options. In Denmark, offers of enterprise shares to employees at preferential terms have been encouraged since 1958. In France, favourable tax provisions have been granted to a variety of employee share-ownership schemes, including stock options (since 1970), offers of shares at preferential terms (since 1973), free distribution of shares to employees (since 1980), enterprise-level employee investment funds (since 1983, but

abandoned in 1986), and employee buy-outs (since 1984). In Greece, legal obstacles for the free distribution of shares to employees were removed in 1987, and thereafter employee share-ownership (including share options) has been encouraged through favourable legal provisions. In Portugal, employee share-ownership has been promoted within the 1990 privatization measures. In the UK, fiscal measures have encouraged a number of specific employee share-ownership schemes, including 'BOGOFs' ('buy one, get one free', introduced in 1978), all-employee stock options (the so-called SAYE scheme, promoted since 1980), discretionary share options (since 1984), and ESOPs (since 1989).

Deferred profit-sharing, consisting of the allocation of enterprise shares to employees which are frozen for a certain period of time, or directing profits to an enterprise fund invested for the benefit of employees, has been encouraged in a smaller number of countries. In Denmark, employee share and bond schemes offered within a profit-sharing arrangement have been given preferential tax treatment since 1958, but for a number of years—until 1987—the legislation has not been updated in order to adjust the tax provisions to inflation.[15] In France, as already mentioned, a 1967 law introduced employee participation in company growth, obligatory for all enterprises with over 100 employees, which in 1990 was extended to all enterprises with more than 50 workers; the scheme consists of the allocation of a part of profits to a special enterprise fund which is then invested for the benefit of all employees, and providing exemption from tax and social security charges for both enterprises and employees. In Germany, specific investment funds, sometimes combining enterprise resources with employees' savings which, up to a certain amount, are tax free, have been encouraged since the early 1960s, and since 1984, workers' investment in specifically-productive capital has been actively promoted through further fiscal advantages. Share-based profit-sharing has been encouraged through tax exemption or deduction both in the UK (since 1978) and in Ireland (since 1982), conditional on shares being held in a trust for a determined period of time. In the Netherlands, minor fiscal advantages have been granted to profit-sharing since the early 1960s, conditional on the freezing of bonuses on special accounts.

Finally, *cash-based profit-sharing* has been actively encouraged through specific laws in only two EC countries: in France since 1959, and in the UK since 1987. In Greece and Portugal, although no specific laws have promoted this type of financial participation, provisions contained in more general laws provide fiscal benefits for both firms and employees. In other countries, there is lack of supportive legislation on this type of profit-sharing, particularly in Germany, the Netherlands, and Belgium (despite pressures in both the Netherlands and Belgium to introduce specific legislation on profit-sharing).

Therefore, the large majority of schemes presently encouraged through government policies are those which allow workers to acquire their enterprise's shares, whether automatically (as in the case of share-based profit-sharing or distribution of company shares), or by stimulating voluntary employee share-ownership (through workers' acquisition of enterprise shares). This seems to be a

reflection of common and interrelated objectives pursued by individual governments and/or enterprises: because of obligatory retention and other resale restrictions on shares, the majority of schemes presently encouraged are of a savings-oriented nature, which may not fully conform with employees' preferences (as will be seen below).

FINANCIAL PARTICIPATION IN THE EC: MAIN CHARACTERISTICS

Diffusion of financial participation

Financial participation has a very different relative weight in single EC countries, and there is also a great country-to-country variety in the types of schemes encountered in practice. In general, in those countries where financial participation has been encouraged by the government through preferential tax treatment, the prevalent types applied by enterprises are indeed the ones actively promoted. In countries without specific legislation, cash-based profit-sharing still today seems to be the prevalent form.

Employee financial participation today is most widespread in France. Until recently, the main form applied by enterprises was employee participation in company growth, which is understandable given the obligatory nature of the scheme.[16] Although cash-based profit-sharing was institutionalized more than three decades ago, in 1986 the number of agreements on cash-based profit-sharing was only 20 per cent of those concluded on participation. After the adoption of the new 1986 legislation, however, the balance has shifted strongly in favour of cash-based profit-sharing, and by 1990, the number of cash-based profit-sharing agreements had already surpassed those on participation. At the end of 1990, there were 10,700 agreements on cash-based profit-sharing, 10,355 agreements on employee participation in company growth applied by 12,500 enterprises, around 600 share option schemes, 350 cases of free distribution of enterprise shares to employees, and 500 employee buy-outs (since 1984). The 1986 legislation also explicitly encourages workers to invest their cash bonuses in the savings fund of the enterprise which is then reinvested in enterprise shares, stock options, or other. In the UK at the beginning of 1990, there were more than 7,000 different financial participation schemes approved by the Inland Revenue, of which 72 per cent were various forms of employee share-ownership, 12 per cent were share-based profit-sharing schemes, while only 16 per cent were profit-related pay. The large majority of these schemes—over 4,300—were discretionary share option schemes, as compared with 1,200 cash-based profit-sharing,[17] 891 all-employee share option, and 890 share-based profit-sharing schemes, and only around 20 ESOPs (which by 1992 increased to 50).[18] In the 1985 Department of Employment survey, covering 1,125 enterprises, it was found that 30 per cent of firms had a scheme of financial participation (20 per cent had at least one all-employee scheme, and an additional 9 per cent had schemes only for executives) (Smith, 1986). Today, the percentage

of British firms practising financial participation is probably higher, considering that, in the meantime, incentives have been introduced for new types of schemes (profit-related pay and ESOPs).

In other EC countries, available evidence suggests that financial participation is not very diffused. Whereas for a few countries official figures do exist, for most countries only estimates are presently available, which in some cases are highly divergent depending mainly on the definition of financial participation. In Ireland there were 273 registered schemes in January 1991, of which 62 per cent were stock options and 38 per cent share-based profit-sharing. In Denmark, the overall number of schemes in the mid-1980s was estimated to be around 200, the most diffused being cash-based profit-sharing. In Germany some 1,600 firms have recently introduced employee financial participation (which is only around 0.1 per cent of all German firms); but if informal and less regular arrangements are also included, according to some estimates there may be as many as 5,000 firms practising financial participation. In Belgium, financial participation is generally considered to be far less developed than in most other Western European countries, although a recent study suggests that the phenomenon may have gained importance. To a questionnaire sent to 520 Belgian companies, 140 firms had responded, of which 38.6 per cent indicated that they had at least one type of financial participation, the majority being employee share-ownership (31 per cent), and a much smaller percentage profit-sharing (15 per cent) (Van Den Bulcke and Merckx, 1991).[19] For Italy it has been estimated that 25 per cent of large firms give their employees variable remuneration, although only in some cases directly linked to an indicator of enterprise performance; the latest available figure suggests that at the end of 1989, there were 128 financial participation schemes in operation (Biagioli, 1992). In the second half of the 1980s, around 30 Italian quoted companies have also offered shares at preferential terms to their employees. In the Netherlands, estimates indicate that about 30 per cent of enterprises in 1988 applied some form of financial participation (the majority being cash-based profit-sharing), but only 6 per cent can be said to have had a 'real' profit-sharing scheme (strictly linked to profits). In Luxembourg a recent survey found that 22 per cent of firms had introduced 'profit-sharing', but without specifying of which type. In Spain as many as 44 per cent of medium and large firms give employees a variable component of pay related to enterprise performance, but only in 6 per cent of firms are these payments directly linked to profits. In fact, not all schemes providing employee financial participation effectively link employee earnings directly to an indicator of enterprise performance (the link is very loose particularly in Spain, Italy and the Netherlands).

Coverage

Financial participation schemes involve an important percentage of employees primarily in France, where at the end of 1990, only the two main types of schemes—cash-based profit-sharing and participation in company growth—covered around

6.7 million employees. Nevertheless, not all workers covered by these schemes actually benefit from them, depending on the firm's financial situation: in the case of participation, usually around 60–70 per cent do, while in the case of profit-sharing, the percentage in recent years, although declining, has been over 90 per cent.[20] Thus today, probably around 20 per cent of the French labour force directly benefits from financial participation.

In most other EC countries the percentage of employees participating in financial participation schemes is substantially lower. In the UK in the mid-1980s, employees eligible to participate in financial participation schemes were more than 3.5 million, but the actual number benefiting has been estimated to be 2 million (around 8 per cent of all employees). In the Netherlands some 350,000 employees participated in profit-sharing schemes in the mid-1970s (around 7.4 per cent of all, or 12 per cent of market sector employees), while in Germany 1.3 million employees were in 1990 involved in financial participation (around 5 per cent of all employees). For Ireland no official figures are available, but an estimate suggests that some 40,000 employees participate in share-based profit-sharing schemes (more than 3 per cent of total employees). In Italy the number of workers receiving variable remuneration linked to enterprise performance has been increasing in the last few years, from 400,000 (or less than 2 per cent of the total) in 1988 to almost 700,000 in 1989 (see Biagioli, 1992). In Spain, variable remuneration is given to some 2 per cent of salaried employees.[21] For the remaining EC countries no estimates are available for the moment.

Employee benefits

The effective benefits accruing to workers from financial participation are rather small for the moment, for a variety of reasons. In the first place, the amount designated to profit-sharing hardly ever exceeds 10 per cent of average employee earnings and 5 per cent of enterprise profits, and a firm's financial position may prevent the distribution of profit-sharing bonuses. In France the profit share per employee in both cash-based and deferred profit-sharing schemes amounts to around 3–4 per cent of the wage bill, while in the Netherlands, to 4.5–6.5 per cent of average employee earnings. In the UK profit-related pay accounts for around 7 per cent of average earnings, but in share-based schemes it usually does not exceed 2–4 per cent of total wages. In Belgium the amount dedicated to profit-sharing usually does not exceed 5 per cent of distributable profits. Danish workers receive, on the basis of share-based profit-sharing, only around 2 per cent of total share capital issued, while the average share per employee in bond-based profit-sharing is around D.Kr. 3,400. According to estimates for Germany, profit-sharing represents 6.8 per cent of average employee pay. Some Italian enterprises give their employees substantial variable pay, but the sectoral averages of variable pay range from 3–8 per cent of the minimum national wage. In Spain, variable payments to employees have sometimes amounted to 10–25 per cent of total pay, but average payments linked to profits usually represent no more than 5 per cent of labour costs. Similarly,

in employee share-ownership schemes, if we exclude share offers within general privatization measures, the percentage of shares reserved for employees in most cases has not exceeded 5 per cent of the total value of shares issued,[22] and the discount on shares (if available) has usually been rather low.

Furthermore, not all financial participation schemes are collective, available for all employees and, even when schemes are offered to the majority of the labour force, not all employees do necessarily participate. This is by definition the case with discretionary schemes for certain groups of employees, which are by far the most popular type of scheme in some countries (UK, Ireland), and from which only a very small percentage of employees usually benefit (in the UK usually no more than 10 per cent of employees). At the same time, in share options or other types of schemes available to all employees, the degree of participation is not always high: in contrast with Germany, where the employee participation rate has been around 80 per cent, in the UK, the participation rate in SAYE-type share option schemes has frequently not been higher than 15 per cent.

Enterprise size and sectoral distribution

No clear common pattern seems to emerge on the diffusion of financial participation by firm size. In Germany mainly small firms adopt employee financial participation, although quite a few very large enterprises (with over 10,000 workers) have also been involved. In the UK there is a clear prevalence of large companies in adopting one of the registered schemes qualifying for tax benefits, but of small firms introducing non-approved cash-based schemes. In France there is a mixture of both, since participation schemes used to be obligatory primarily in larger firms, while small firms mainly introduce cash-based profit-sharing. In Belgium, Italy, Spain and Portugal large firms seem to be the prevalent category.

It is also not possible to make generalizations concerning the distribution of financial participation schemes by industry type, as in most countries schemes are being introduced in a large variety of sectors. Exceptions are Luxembourg, Portugal and the UK, where financial participation is most widespread in the financial sector.

* * *

A summary of the issues discussed so far is presented in Table 12.1 in the Appendix. The table gives an overview, for each EC country, of the political and legislative framework, diffusion of particular schemes, coverage, and other relevant information.

EMPIRICAL EVIDENCE ON THE EFFECTS OF FINANCIAL PARTICIPATION

Theoretical arguments advanced in favour of financial participation—whether profit-sharing, employee share-ownership, or both—have proposed a number of

beneficial effects. First, financial participation is considered a potential mechanism for increasing *workers' incentives*. The change from a rigid system of guaranteed wages in which rewards are independent of effort, to a system of profit-sharing which provides workers with an income directly linked to enterprise performance, is expected to result in higher motivation and hence increased labour productivity, through increased labour effort, reduced labour turnover, and greater identification of workers with the interests of their firm (which in turn is expected to provide greater commitment, insurance against managerial opportunism, and incentives for joint wealth-maximizing behaviour). Employee share-ownership is expected to lead to similar incentive effects.[23]

The second argument regards *wage flexibility*. Performance-related pay is expected to make employee remuneration more flexible, thus enabling wages to respond more quickly to external shocks. More frequent adjustments in wages may result in less variable employment policies, thus lowering the risk of unemployment (Mitchell, 1982). Employee share-ownership can also induce wage moderation, as the wage that management must offer workers to persuade them to accept it, is lower if workers lose capital gains and dividends by rejecting the wage offer (Grout, 1985).

The third argument concerns the *macroeconomic effects:* profit-sharing has been proposed as a feasible solution to stagflation (Weitzman, 1984). In a share economy in which most or all firms introduce remuneration schemes consisting of a base wage and a profit-sharing bonus, the firm will consider the base wage as the relevant marginal cost of labour, and will therefore continue hiring workers up to the point of equating the value of the marginal product of labour to the base wage (and not total remuneration). Profit-sharing would, therefore, boost employment, and would create persistent excess demand for labour, leading the economy to full employment. Monetary policies can then be used to combat inflation, without the fear of creating unemployment (see Vanek, 1965; Weitzman, 1984).

The literature has also suggested that the described effects may depend on whether or not workers' *participation in decision-making* is present. Weitzman (1984) has argued that in order to realize the employment effects of profit-sharing, workers must be excluded from decision-making; otherwise, since increased employment dilutes the existing workers' profit share, workers would be tempted to apply restrictive employment policies. For the incentive effects, on the contrary, many scholars have argued that these are likely to be greater if, parallel to financial participation, workers are also assured participation in decision-making.

In evaluating the various effects of financial participation, two main sources of information are available—econometric estimates and surveys on the attitude of employees and firms towards financial participation—both of which ought to be interpreted cautiously. On the one hand, attitude surveys are based on the perception of effects of financial participation, and not the effects themselves. On the other hand, although econometric models are a more objective source of information, there are a number of specific problems involved, such as the high sensitivity of results to model specification, indicators actually used and estimating

techniques; difficulties in isolating the effects of profit-sharing from other organizational factors; the fact that the effects of different types of schemes have not yet been properly disentangled; ambiguity concerning the direction of causality; and so forth.[24]

Incentive effects

Econometric studies on the effects of financial participation on employee motivation in conventional firms have so far been few in number, and in Europe have exclusively concentrated on three countries: the UK, Germany, and France. Evidence from all three countries, although preliminary, points to the prevalence of positive net effects of financial participation on employee motivation and productivity.[25] The positive link between profit-sharing and productivity is also supported by a number of similar studies on the US (see Weitzman and Kruse, 1990). However, these effects might for the moment be relatively small because of the low incidence of employee benefits on total earnings.

There is no specific type of financial participation which a priori has significant advantages over the others, as the incentive effects will largely depend on the detailed design of the scheme and specific circumstances in which it is implemented. The experience to date nevertheless suggests that cash-based schemes may have had more significant incentive effects than share-based schemes. This is supported by both econometric estimates[26] and by attitude surveys. In some of these surveys, cash-based profit-sharing was by far the most popular scheme, while the objective expected from deferred profit-sharing and employee share-ownership, of increasing workers' commitment and their greater identification with the interests of their enterprise, has in many cases not been attained.[27] The negative attitude of workers towards share-based schemes also seems confirmed by the low participation rate in some employee share-ownership schemes in several countries, and the frequent practice in both France and Britain of workers selling their shares as soon as they are allowed to. From the point of view of the individual employee, the crucial difference between the two types of schemes seems to lie in resale restrictions, since workers usually prefer to be able to cash in their profit share at any moment (in spite of the fact that cash-based schemes in general attract lower, if any, tax incentives).

Therefore, in order to attain the same beneficial effects as from cash-based schemes, firms setting up share-based schemes would have to offer more generous conditions than has been the case to date, as suggested by Estrin, Grout and Wadhwani (1987). This could be done, for example, in France (but also in other countries) by providing more information on participation schemes, which often seems to have been insufficient; or in Italy, by giving workers more say in decision-making, since the practice so far has frequently been to give employees non-voting shares.[28] Some scholars have, nevertheless, pointed to cases in which share-based schemes may provide not only the right incentives, but would even be preferred.[29]

Wage flexibility

The effects of profit-sharing on employment through greater wage flexibility are much more debatable, as the econometric evidence is mixed and rather inconsistent. On the one hand, some earlier evidence for the UK suggested that profit-sharing has a positive and significant effect on employment, but more recent estimates show that the size of the effect is not necessarily very large, and that part of the effect is indirect, due to increased productivity.[30] On the other hand, evidence from France (Vaughan-Whitehead, 1992) suggests that profit-sharing has resulted in greater wage flexibility, less frequent adjustments in employment, and in higher and more stable employment growth.

Macroeconomic effects

Given that profit-sharing is not, for the moment, sufficiently widespread in any single EC country to have a significant macroeconomic effect, the Vanek—Weitzman hypothesis cannot really be empirically tested. Nevertheless, several econometric studies suggest that enterprises in all three countries for which estimates are available—France, Germany and the UK—regard total remuneration, and not the base wage, as the marginal cost of labour,[31] thus contradicting the fundamental assumption in Weitzman's model on which direct effects on employment are based.

Link with decisional participation

The link between workers' financial participation and their participation in decision-making essentially depends on the specific effects being tested. With regard to employment effects, existing econometric evidence is mixed, in some cases offering support to the hypothesis that the effects may be higher if decisional participation is absent. On the contrary, prevailing evidence on incentive effects from both econometric and more informal studies does suggest that the combination of financial participation with decisional participation can have significant beneficial effects.

More employee participation in decision-making may indeed, in many instances, substantially facilitate the achievement of some of the objectives of financial participation. The cautious (if not negative) attitude of workers towards share-based schemes, observed in several surveys on financial participation, seems to be related to the practice in several EC countries whereby employees are not always guaranteed the same rights as other shareholders (primarily voting rights). Of course, this is not the general case. In Denmark, one of the conditions for share-based profit-sharing schemes to be eligible for tax exemptions is that shares given to employees have maximum voting rights (see Bregn and Jeppesen, 1991) and in most countries, trade unions have regularly asked for the appointment of workers as trustees in existing schemes. The UK experience is mixed, but in some cases the

ESOP has not been in any way a vehicle for expanding employee participation in decision-making (Pendleton *et al.,* 1992).

It has also been suggested that policy-makers may have to choose between profit-sharing alone with increased employment, and profit-sharing with participation in decision-making and higher productivity, but without employment effects (Cable, 1988). Indeed, the different theoretical arguments on financial participation are based on mutually conflictual assumptions. The Vanek—Weitzman employment effects are expected in the absence of decisional participation and without direct productivity effects (since profit-sharing is regarded as a substitute, and not an addition, to wages, and hence has a neutral effect on motivation), while the productivity effects are expected primarily if profit-sharing is an addition to the normal wage, having major effects if employees are also given some say in decision-making. Nevertheless, if financial participation provides sufficient incentives to result in large productivity effects, it may also lead to long-term employment growth, and therefore both effects may be attainable simultaneously.

CONCLUDING REMARKS

Existing arrangements on workers' financial participation in most EC countries are characterized by a number of limitations: small profit-shares and limited benefits accruing to workers; the small percentage of workers, in most countries, involved in such schemes; legal limits on the total value of shares/options reserved for employees; modest tax benefits, in most countries, presently offered to participating workers (and firms); and the non-collective nature of some schemes, reserved only for certain groups of employees (usually executives). A more general limitation of existing arrangements on financial participation is that they do not necessarily allow for expansion of employee participation in decision-making. Since through financial participation workers have to bear some proportion of business risks, they deserve some say in decision-making (Nuti, 1988). The introduction of financial participation schemes ought to be tied closely with forms of workers' participation in decision-making, since the two forms of participation are clearly complementary.

Despite these limitations, financial participation in recent years has been both 'widening' and 'deepening': the interest in such schemes has spread to most EC countries, while in some of them, financial participation has already become an important phenomenon. And considering the active promotion of financial participation by the Commission of the EC within its Social Charter, it is plausible that financial participation may become increasingly important in the future. These trends could be facilitated through more favourable legislation.

Fiscal incentives carry the risk of 'cosmetic' profit-sharing, i.e. schemes being introduced only for the sake of paying lower taxes (see Estrin and Wadhwani, 1990). Moreover, those arguing against supportive legislation consider that if financial participation is indeed beneficial, there is no need to encourage it through preferential tax treatment: schemes will develop spontaneously, as employers will introduce them on their own initiative and for their own benefit. According to this

view, profit-sharing cannot be considered a public good and there are no externalities involved meriting public subsidy by the government.

However, there may be an important externality, of a different nature than the one proposed by Weitzman (raising employment), which this view ignores. Even a symbolic value of profit-sharing can reduce social conflict and lead to less conflictual industrial relations, and therefore may have important social benefits which are not necessarily perceived by the individual firm.

What the up-to-date experience in EC countries demonstrates is that the most widespread forms of financial participation are the ones which have officially been encouraged through government policies. This suggests that in countries still lacking legislation on employee financial participation, the adoption of specific laws encouraging its introduction would indeed be useful, as it would help overcome the reserved attitude on the part of firms which still today seems to prevail in some countries (e.g. due to fears that profit-sharing may be inflationary, or may require a greater disclosure of profits). One of the main recommendations of the Commission and of the Council of the EC to its member states is, in fact, to seriously consider the introduction of certain facilities in this regard. Member states are invited to acknowledge the potential benefits of a wider use of financial participation, to ensure adequate legal structures, and to consider the possibility of granting fiscal and other incentives to encourage the spreading of financial participation.

APPENDIX

Table 12.1 Financial participation in the European Community in the late 1980s/early 1990s—summary of the principal findings

		Legislation		*Diffusion of financial participation*			
Country	*General attitude*	*Specific laws and year of introd.*	*Tax benefits*	*Prevalent types*	*No. of schemes/ firms involved*	*Employees involved*	*Employee benefits or profit share/employee*
Belgium	Mainly unfavourable, but widely discussed	Various, but only on ESO (since 1982), including SO (1984)	Rather limited, especially for SO	ESO	31% in a sample of 140 firms	Partic. rate 5% (varying from 1–28%)	Shares reserved for employees: 4% on average of total shares issued
				CPS and SPS	15% in a sample of 140 firms, mainly large enterprises	In 65% of firms, all employees	Around 5% of distributable profits; 8–15% of performance-related pay
Denmark	Mainly favourable and discussed	On SPS and ESO (since 1958) Legislation updated in 1987	Some for SPS, BPS and ESO, but very modest until 1987	CPS	Min. 50 schemes		
				SPS BPS	20 schemes 27 schemes		2% of share capital D. Kr. 3,400 per employee
				ESO	32 schemes		Less than 2% of total share capital
				Total	200 or more		
Germany	Mainly favourable except for CPS; intensively discussed	Some on DPS (since 1961) and ESO (primarly since 1984)	Minor until 1984, only for DPS and ESO	ESO and DPS	1,600 firms (0.1% of total)	1.3 m Partic. rate often 80%	Employee capital: D.M. 15 bln (only 5 per cent of firms' annual balance)
				PS in general	Max. 5,000 firms, mainly small-scale	5.4% of individuals	6.8% of wages

					(end 1990)		(end 1989)
France	Very favourable and intensively discussed	Various: CPS (1959) DPS (1967) SO (1970) ESO (since 1973) Enterp. invest. funds (1983–86) EBO (since 1984) In 1986: unique legislation on all forms, amended in 1990.	Substantial for both firms and employees	DPS	12,500 firms and 10,511 agreements	4.7 m	Shares per employee 4.1% of the wage bill; 60% benefit
				CPS	10 700 agreements	2 m	Profit shares 3.2% of the wage bill
				ESO*	350 firms (2/3 quoted)	600,000*	Free distrib. of shares: 3% of the wage bill
				SO	600 quoted companies		
				EBO	500 since 1984		
Greece	Growing acceptance	Provisions in several laws: on CPS (since 1984) and ESO (primarily since 1987)	Significant for CPS	CPS	Limited; in banking, insurance, clothing, food		Lump sum of Dr. 30,000–50,000
Ireland	Favourable and discussed	SPS (1982) SO (1986)	Modest		(Jan. 1990)		
				SO	169 schemes	Executives	Probably high
				SPS	104 schemes	40,000	
					All in the private sector		
Italy	Not clearly defined, but some forms discussed	Non-existent, except general provisions (1942 Civil Code)	No	CPS	25% of all large firms; 128 schemes in 1989	700,000; applied to 80% of employees	3% of average earnings (but can be as high as 10% or more)
				ESO	30 quoted companies		Less than 5% of total share capital
Luxembourg	Not clearly defined	Non-existent	No	CPS ESO	22% of firms Mainly in banking		Usually not more than 0.5–2 months' salary a year

continued

Table 12.1 (Continued)

Country	General attitude	Legislation: Specific laws and year of introd.	Legislation: Tax benefits	Diffusion of finan. participation: Prevalent types	No. of schemes/ firms involved	Employees involved	Employee benefits or profit share/employee
Netherlands	Favourable and intensively discussed	Some incentives offered only to CPS (since 1962)	Minor, conditional on freezing of CPS	CPS SPS, BPS and SO	6–30% of firms Very limited (3% of all schemes)	350,000 in 1975	4.5–6.5% of average earnings
Portugal	Not clearly defined and mainly not discussed	Only general provisions on PS and ESO (favourable)	Primarly for PS, but minor	Mainly CPS	Limited, but most diffused form Large firms in finance	Sometimes restricted to executives	
Spain	Not clearly defined, but discussed	Only general provisions in Statute of Workers; and for EBO (1986)	Minor, except for EBO	CPS	44% of medium and large firms but only in 6% of cases linked to profits	2% of salaried employees (often restricted to executives)	Profit-linked payments: 5% of labour costs; in some cases as high as 10–25% of total pay
UK	Very favourable and discussed	SPS (1978) SO (1980) DSO (1984) CPS (1987) ESOPs (1989) ESO (1978–)	Substantial for both firms and employees	(March 1990) DSO CPS SPS SO ESOPs Total:	4,326 schemes 1,175 schemes 890 schemes 891 schemes 20 schemes 7,308 schemes 30% of firms	Executives 293,000 757,000 623,000 Over 2 m benefiting	Substantial 7% of employee pay 2–4% of total wages Experience mixed

Source: Table 16.1 of the PEPPER Report (Uvalic 1991), updated on the basis of new information (Van Den Bulcke and Merckx, 1991; Biagioli, 1992; French Ministry of Labour official statistics).

*Refers only to free distribution of enterprise shares to employees

Abbreviations

PS: profit-sharing; SPS; share-based profit-sharing; BPS: bond-based profit-sharing; CPS: cash-based profit-sharing; DPS: deferred profit-sharing/investment funds; ESO: employee share-ownership; SO: stock options; DSO: discretionary share options; ESOP: employee share-ownership plans; EBO: employee buy-outs.

NOTES

1 I would like to thank all the participants of the Workshop on Participation and Cooperation in Economic Enterprises held at the University of Cambridge in January 1993, for useful comments and suggestions. All remaining errors or omissions are my own.
2 Except for the limitations on distribution to members of net income and net capital increments; see Nuti (1988).
3 For a recent overview and arguments in favour of co-determination, see Smith (1991).
4 See points 17–18 of the Community Charter referring to information, consultation and participation of workers in EC countries, in Commission of the EC (1990).
5 Thus co-operatives are explicitly excluded; for a review of the theoretical and empirical literature on co-operatives, see Bartlett and Uvalic (1986).
6 See Commission of the European Communities (1989).
7 The acronym was proposed by Mario Nuti at a 1990 Workshop on Employee Participation in Company Profits held at the European University Institute in Florence.
8 The divergence in estimates mainly derives from different definitions of terms.
9 For a further account of the US experience, see Blinder (ed.), (1990) which contains several very valuable contributions.
10 However, their evidence has been questioned by a number of scholars, since the Japanese system is much more complex than simple profit-sharing.
11 However, deferred profit-sharing does not necessarily have to coincide with share-based profit-sharing. There are deferred profit-sharing schemes which do not provide employees with their company's shares, as in the case of cash bonuses which are frozen for a certain amount of time, or profit-sharing bonuses which are invested in different types of securities in the name of employees.
12 Sometimes enterprise-level schemes are also referred to as individual profit-sharing, and higher level schemes as collective profit-sharing.
13 In practice, however, there are mixed cases: schemes envisaging the allocation of company shares to employees, which are financed through the combination of resources of both the enterprise and the employee.
14 Unless indicated differently, information presented in the third to fifth sections mainly draws on the PEPPER Report (Uvalic, 1991), written on the basis of contributions of experts from individual EC countries to the 1990 Workshop on Employee Participation in Company Profits (European University Institute, Florence).
15 This is one of the main reasons why the legislation has had a very limited impact on the diffusion of schemes in Denmark.
16 However, it is worth noting that around 30 per cent of all participation agreements are introduced on a voluntary basis, i.e. in small enterprises not obliged to introduce them.
17 The figure does not, however, include non-approved cash-based schemes not qualifying for tax benefits, for which no accurate statistics are available.
18 See Pendleton *et al.* (1992). On the ESOP experience in the UK, see more in Wilson (ed.) (1992).
19 The sample, however, was rather small, and it may not have been fully representative. It is plausible that among the firms that had responded were most of those effectively having a scheme; if this were the case, less than 11 per cent of the 520 companies actually practised financial participation. This figure would be more in line with the opinion of experts and with other recent surveys which suggested that financial participation has had limited success in Belgium (see Uvalic, 1991).
20 According to figures for recent years, only 3 per cent of workers in 1986, 4 per cent in 1988, and 9 per cent in 1989, did not receive their profit-sharing bonus.
21 It should be noted, however, that the figures on the percentage of the labour force involved may be overestimates considering that in some countries the same individuals may participate simultaneously in different types of schemes.

22 In Belgium it has on average been 4 per cent of total shares issues; in Denmark around 2 per cent; while in Italy around 7 per cent of total share capital. In France shares freely distributed to employees have accounted for around 3 per cent of the wage bill. In Germany employee capital represents 5 per cent of the firm's annual balance.

23 For some of these arguments, see Cable and Fitzroy (1980), Estrin, Grout and Wadhwani (1987), Blinder (ed.), (1990), Estrin and Wadhwani (1990).

24 For a detailed critique of existing econometric evidence, see Jones and Pliskin (1991). A recent research project co-ordinated by V.Perotin from the ILO (Geneva), consisting of a comparative empirical investigation based on a common methodological framework for a group of European countries, should offer further insights, particularly concerning the causality problem: besides testing for the effects, the project is also trying to establish the main determinants of profit-sharing (see ISPE Project Meeting, 1992).

25 Support is found for Germany in Cable and Fitzroy (1980), Cable and Wilson (1988), Fitzroy and Kraft (1986, 1987); for the UK in Estrin and Wilson (1986), Bradley and Estrin (1987), Cable and Wilson (1988, 1989); for France in Vaughan-Whitehead (1992).

26 See, e.g., Estrin and Wilson (1986), Bradley and Estrin (1987), or Vaughan-Whitehead (1992). This view is also shared by several scholars, including Weitzman and Kruse (1990) and Bell and Hanson (1987, revd 1989).

27 See, e.g., Bell and Hanson (1987), Baddon *et al.* (1989), Poole (1989), Vaughan-Whitehead (1992).

28 In fact, according to existing legislation in Italy, in offers of shares reserved for employees, the shareholders' assembly can decide not to give such shares voting rights.

29 For example, when a firm needs to invest heavily in new technology, which is likely to lead to low employee profit shares in early years, but later, the consequent increase in stock prices would provide the right incentives (Conte and Svejnar, 1990).

30 For earlier evidence see Estrin and Wilson (1986) and Bradley and Estrin (1987); for estimates providing more modest results see Jones and Pliskin (1988, 1989), Estrin and Wilson (1989), and Wadhwani and Wall (1990); and for results which suggest no effects on employment and performance, see Blanchflower and Oswald (1987, 1988).

31 This specific hypothesis has been tested for Germany by Hart and Hubler (1991); for the UK, by Estrin and Wilson (1989); and for France, by Vaughan-Whitehead (1992).

REFERENCES

Abell, P. (1985), 'Industrial democracy, has it a future? The West European experience', *Journal of General Management,* 10 (4).

Baddon, L. *et al.* (1989), *People's Capitalism: A Critical Analysis of Profit-sharing and Employee Share-Ownership,* London, Routledge.

Bartlett, W. and Uvalic, M. (1986), 'Labour-managed firms, employee participation and profit-sharing—Theoretical perspectives and European experience', EUI Working Paper no. 86/236, Florence; and *Management Bibliographies & Reviews,* 12 (4), Special Issue.

Bell, D.W. and Hanson, C.G. (1987, revd 1989), *Profit-sharing and Profitability—How Profit-sharing Promotes Business Success,* London, Page.

Biagioli, M. (1992), 'Employee financial participation in enterprise results in Italy', Paper prepared for the ILO project on financial participation co-ordinated by D.Vaughan-Whitehead, mimeo.

Blanchflower, D. and Oswald, A. (1987), 'Profit-sharing: can it work?', *Oxford Economic Papers,* 39: 1–19.

Blanchflower, D. and Oswald, A. (1988), 'Profit-related pay: prose discovered', *Economic Journal,* 98: 720–730.

Blinder, A.S. (ed.) (1990), *Paying for Productivity,* Washington, DC, The Brookings Institution.

Bradley, K. and Estrin, S. (1987), 'Profit sharing in the retail trade sector: the relative performance of the John Lewis Partnership', Discussion Paper no. 279, London School of Economics, Centre for Labour Economics.

Bregn, K. and Jeppesen, H.J. (1991), 'Profit-sharing schemes in a Scandinavian model: the cases of Denmark', Paper prepared for the ILO project on financial participation coordinated by D.Vaughan-Whitehead, mimeo.

Cable, J.R. (1988), 'Is profit-sharing participation? Evidence on alternative firm types from West Germany', *International Journal of Industrial Organization,* 6: 121–137.

Cable, J.R. and Fitzroy, F.R. (1980), 'Productive efficiency, incentives and employee participation. Some preliminary results for West Germany', *Kyklos,* 33 (1).

Cable, J.R. and Wilson, N. (1988), 'Profit-sharing and productivity: an international comparison', *Economic Research Papers,* no. 301, University of Warwick.

Cable, J.R. and Wilson, N. (1989), 'Profit-sharing and productivity: an analysis of UK engineering firms', *Economic Journal,* 99: 366–375.

Coldrick, A. (1990), 'Profit-sharing in the Republic of Ireland', Contribution to the Workshop on Employee Participation in Company Profits, European University Institute, Florence.

Commission of the European Communities (CEC) (1989), 'Communication from the Commission concerning its Action Programme relating to the implementation of the Community Charter of Basic Social Rights for Workers', COM (89) 568 final, Brussels, 29 November.

Commission of the European Communities (CEC) (1990), Community Charter of Basic Social Rights for Workers, in *Social Europe,* no. 1, Luxembourg, Office for Official Publications of the European Communities.

Commission of the European Communities (CEC) (1991), 'Proposal for a Council Recommendation concerning the promotion of employee participation in profits and enterprise results (including equity participation)', COM (91) 259 final, Brussels, 3 September.

Conte, M. and Svejnar, J. (1990), 'The performance effects of employee ownership plans', in A.S.Blinder (1990).

Council of the European Communities, General Secretariat (1992), 'Press Release 8134/92 (Presse 147) of the 1601st meeting of the Council—Economic and Financial Questions', Brussels, 27 July 1992.

Estrin, S. and Shlomowitz, R. (1988), 'Income sharing, employee ownership and worker democracy', *Annals of Public and Co-operative Economy,* 59 (1).

Estrin, S. and Wadhwani, S. (1990), 'Profit-sharing', in D.Sapsford and Z.Tzannatos (eds), *Current Issues in Labour Economics,* Basingstoke, Macmillan.

Estrin, S. and Wilson, N. (1986), 'The micro-economic effects of profit-sharing: the British experience', Discussion Paper no. 247, London School of Economics, Centre for Labour Economics.

Estrin, S. and Wilson, N. (1989), 'Profit-sharing, the marginal cost of labour and employment variability', mimeo.

Estrin, S., Grout, P. and Wadhwani, S. (1987), 'Profit-sharing and employee share ownership', *Economic Policy, A European Forum,* no. 4.

Fitzroy, F. and Kraft, K. (1986), 'Profitability and profit-sharing', *Journal of Industrial Economics,* 35: 113–130.

Fitzroy, F. and Kraft, K. (1987), 'Co-operation, productivity and profit-sharing', *Quarterly Journal of Economics,* 102: 23–35.

Freeman, R. and Weitzman, M. (1987), 'Bonuses and employment in Japan', *Journal of the Japanese and International Economies,* 1: 168–194.

Grout, P. (1985), 'Employee share-ownership', University of Bristol, mimeo.

Hart, R. and Hubler, O. (1991), 'Are profit-shares and wages substitute or complementary forms of compensation?', *Kyklos,* 44: 221–231.

IPSE Project Meeting, (1992) CERC, Paris, 28–30 September.

Jones, D.C. and Kato, T. (1991), 'The incidence and effects on company performance of financial participation schemes: an overview of the Japanese experience', Paper prepared for the ILO project on financial participation co-ordinated by D.Vaughan-Whitehead, mimeo.

Jones, D.C. and Pliskin, J. (1988), 'The effects of alternative sharing arrangements on employment: preliminary evidence from Britain', Working Paper Series no. 88/2, Department of Economics, Hamilton College, Clinton, New York.

Jones, D.C. and Pliskin, J. (1989), 'British evidence on the employment effects of profit-sharing', *Industrial Relations,* 28 (2).

Jones, D.C. and Pliskin, J. (1991), 'The effects of worker participation, employee ownership and profit sharing on economic performance: a partial review', in V.Rus and R.Russell (eds), *International Handbook of Participation in Organizations,* vol. 2, Oxford, Oxford University Press.

Mitchell, D. (1982), 'Gain-sharing. An anti-inflation reform', *Challenge,* 25 (3).

Nuti, D.M. (1988), 'Co-determination, profit-sharing and full employment', *Advances in the Economic Analysis of Participatory and Labour Managed Firms,* 3.

Pendleton, A., Robinson, A., Walley, K. and Wilson, N. (1992), 'Employee share ownership plans: features, processes and outcomes', Paper presented at the IPSE Project meeting, Paris, September.

Poole, M. (1989), *The Origins of Economic Democracy—Profit-sharing and Employee Share-ownership Schemes,* London, Routledge.

Smith, G.R. (1986), 'Profit-sharing and employee share-ownership in Britain', *Employment Gazette,* September.

Smith, S. (1988), 'On the incidence of profit and equity sharing', *Journal of Economic Behavior and Organization,* 13: 45–58.

Smith, S. (1991), 'On the economic rationale for co-determination law', *Journal of Economic Behaviour and Organization,* 16: 261–281.

Uvalic, M. (1990, revd 1991), *The PEPPER Report: Promotion of Employee Participation in Profits and Enterprise Results in the Member States of the European Community,* CEC, Brussels, and European University Institute, Florence. Revised (1991) edition in English, French and German, in *Social Europe,* Supplement no. 3, Luxembourg, Office for Official Publications of the European Communities.

Van den Bulcke, F. and Merckx, G. (1991), 'Financial participation in Belgium', Paper prepared for the ILO project on financial participation co-ordinated by D.Vaughan-Whitehead, mimeo.

Vanek, J. (1965) 'Workers' profit participation, unemployment and the Keynesian equilibrium', *Weltwirtschaftliches Archiv,* 94 (2): 206–214.

Vaughan-Whitehead, D. (1992), *Interessement, Participation, Actionnariat,* Paris, Economica.

Wadhwani, S. and Wall, M. (1990), 'The effects of profit-sharing on employment, wages, stock returns and productivity: evidence from micro-data', *Economic Journal,* 100: 1–17.

Weitzman, M. (1984), *The Share Economy,* Cambridge, Mass. Harvard University Press.

Weitzman, M. and Kruse, D. (1990), 'Profit-sharing and productivity', in A.S.Blinder (ed.) (1990).

Wilson, N. (ed.) (1992), *ESOPs: Their Role in Corporate Finance and Performance,* Basingstoke, Macmillan.

13

PARTICIPATION AND SELF-MANAGEMENT IN DEVELOPING COUNTRIES[1]

Janez Prasnikar

INTRODUCTION

In this paper I will discuss the basic findings of 'Workers' Self-Management and Participation in Decision Making as a Factor of Socioeconomic Changes and Economic Development in Developing Countries,' an international research project which focused on issues of participation and self-management in several developing countries.[2] First, I will show the evolution of workers' participation and self-management in these countries. This will be followed by the analysis of the practice of participation and self-management, both in the domain of the real workers' participation in the decision-making and regarding the economic efficiency of enterprises under workers' participation and self-management.

The format of the paper is as follows: the next section provides the information on the evolution of workers' participation and self-management in the countries under study. The third section interprets data on the real participation of workers in the enterprises which were taken as case studies, and reveals the main hypothesis on the efficiency of these enterprises. The last section draws conclusions about the relevance of these findings for the literature on participatory firms and participatory economies and for the development processes as well.

THE EVOLUTION OF WORKERS' PARTICIPATION AND SELF-MANAGEMENT IN DEVELOPING COUNTRIES

Motives for the introduction of participation and self-management in 13 countries

The first column of Table 13.1, shows that some forms of participation already existed in these countries before the formal laws supporting them were enacted. The data indicates that there were two situations under which participation and self-management were introduced; in countries with a long tradition of union movements such as those governed by England: Bangladesh, India, Malta, Sri Lanka, Tanzania and Zambia; and, the countries with already-existing cooperative

Table 13.1 Foundations of participation, legislation, proponents and their motives

Country	*Roots of participation*	*Legislation*	*Proponents*	*Motives*
Algeria	1961: establishment of first participatory bodies by workers	1971: Le Gestion Socialiste des Enterprises (GSE), the introduction of participation and self-management in industry	government and FLN	1. social (to increase political awareness of workers) 2. ideological (to eliminate exploitation, to redistribute power in economic and political sphere) 3. economic (to actualize planning goals and increase production) 4. political (to liberate)
		1971*	1962**	
Bangladesh	1947: Industrial Disputes Act: Workers' committees in all firms with over 50 workers	After 1972, more intensive discussion, but incomplete strategy of development	government and Awami league	1. to improve working conditions 2. to reduce the communication gap between labour and capital 3. to reduce conflicts between labour and capital
			1947, 1971**	
Bolivia	1952: nationalization of mines and increased interest in participation	1983: Decree No. 19803, formal establishment of self-management and participatory bodies in COMIBOL	Bolivian Federation of Unionized Mine Workers (FSTMB) and government	1. to incorporate government plans in COMIBOL 2. to involve workers in the development of COMIBOL (central facet of Bolivian economy) 3. to incorporate and consolidate national interests into COMIBOL
		1952*	1825**	

Costa Rica	1961: Land Settlement Law (parcelling of land and its transfer to peasants, making the distribution of property more egalitarian)	1968: Law on Cooperative Association (establishment of self-managed cooperatives) 1961* Agrarian Reform	government 1821**	1. economic (to increase productivity in agriculture, to increase general level of knowledge, to raise employment) 2. social (to form communal life, to establish egalitarian distribution of income) 3. political (to make productive resources available to workers)
Guyana	no data	1970: Guidelines of Workers' Participation in Management (introduction of participation in public firms) 1961*	government and political party in power (Peoples' Progressive Party) 1966**	Very few clear goals; remaining goals are more economic than political: 1. to increase productivity, efficiency and satisfaction of workers 2. to facilitate better relations between workers and management 3. to foster better human rights and Industrial Democracy 4. to foster democracy and improve working conditions
India	first beginnings in textile industry (to improve labour/capital relations): Tata Iron Steel Co. (first workers' council)	1947: Industrial Disputes Act (Introduction of Workers' Committees in factories with over 1,000 employees)	government, with the support of Congress Party and other parties 1947*	Non-specified goals: 1. to increase productivity, efficiency and satisfaction of workers 2. to facilitate better relations between workers and capitalists 3. to foster industrial democracy

continued

Table 13.1 (Continued)

Country	*Roots of participation*	*Legislation*	*Proponents*	*Motives*
Malta	first form of participation in 1940s among port workers	beginning of the 1950s: government made a proposal legal basis for participation 1962: legalization with the support of Workers' Ordinance	Government, Labour Party of GWU (General Workers' Union) 1964**	1. to facilitate better relations between workers and capitalists 2. to increase satisfaction of workers and foster greater responsibility 3. to reduce alientation of workers in the workplace
Mexico	first co-operatives seen in 1870	1939: Law on Cooperatives	depends upon the view of the government power (especially in periods of social crisis) 1829**	1. to provide alternatives to other production forms during times of crisis 2. to increase productivity 3. to establish broader participatory rights of workers
Peru	mid-nineteenth century: first law on co-operative movement 1891: parliament does not accept this proposal 1964: law accepted	1969: Juan Valasco Alvarado's programme of self-management and participation as a model of Peruvian development	military government with the support of progressive parties and unions 1824**	1. to reform social structures and promote social justice 2. to eliminate exploitation 3. to reform socioeconomic structure (education of workers) 4. to facilitate better relations between workers and capitalists
Sri Lanka	first form of participation in 1950s	1970: The United Front Election Manifesto where the UF decided to	government with support of United Front	1. to increase co-operation between workers and capitalists

		implement self-management and participation	1948**	2. to improve communication between workers and capitalists
Tanzania	1962: Nyerere introduced Ujamaa villages, the basis of African Socialism; establishment of co-operatives on a regional basis	1964: Security of Employment Act – CAP574 (establishment of workers' committees) 1967: nationalization of land after 1967*: nationalization of all productive resources	government with the support of party in power (TANU – Tanganyika African National Union, 1967) 1969**	1. political: to abolish exploitation through increased socialistic leanings (popular socialism in villages) – popular participation, which should include 90 per cent of population in villages; workers should manage productive resources 2. to improve education 3. to increase self-motivation and creativity 4. to increase economies of scale and marketing 5. to facilitate better relations between labour and capitalists and promote industrial peace
Yugoslavia	co-operative movement before WWII	1950: official law transferring state enterprises to workers	government with unions and with the Communist Party	1. political: to abolish exploitation-factories to workers 2. to establish developed socialistic society on a self-managed basis in all areas 3. to establish democratic governing of the economy 4. to incorporate workers' interests – higher economic efficiency

continued

Table 13.1 (Continued)

Country	*Roots of participation*	*Legislation*	*Proponents*	*Motives*
				5. to increase education of workers – improvement of working conditions 6. to change the social structure 7. to increase democracy in political life
		1946–48*	1945**	
Zambia	the beginning of participation in 1930s, when workers' committees were established in particular enterprises	1974: The industrial Relations Act (establishment of workers' councils in plants with over 100 employees)	United National Independence Party (president Kaunda – in the framework of the Philosophy of Humanism)	1. to increase (encourage) participation and self-management as a means to achieve liberation and independence from foreign capital. Philosophy of Humanism: (a) public ownership – transfer of economic power (b) egalitarian distribution of wealth (c) economy is based on public sector while others are operated under it (mixed economy) (d) participatory democracy and industry 2. to foster social justice 3. to facilitate better relations between people and the party
			1964**	

movements, mainly in agriculture, such as Algeria, Costa Rica, Mexico, Peru, Tanzania and (the former) Yugoslavia.

The formal introduction of participation and self-management in countries with developed union movements was greatly facilitated by the enactment of laws which defined the relationship between the owners of capital and workers within a framework of industrial peace as in Bangladesh, India, Malta, Sri Lanka and Zambia. Usually enacted before liberation took place, these laws typically retained the same form that they had before the liberation of the country as important changes in the strategy of the implementation of participation and self-management had not yet been effected.

The cases in which the development of participation and self-management was introduced spontaneously and later became a wide social movement are much more worthy of investigation. Usually this occurred concurrently with national liberation, or years later when developing countries such as Algeria, Peru, Tanzania and Yugoslavia announced self-management and participation as their particular way of building society. Either immediately or within a few years after the national struggle for liberation, all four countries legally introduced some form of participation or self-management and tried to rebuild the entire economic structure on this basis. Because agricultural production dominated, the first self-managed and participatory organizations were introduced there.[3]

In Costa Rica and Mexico, participation was strongly supported by the agricultural sector and co-operatives as well. In Mexico, agricultural co-operatives have a longstanding tradition; in Costa Rica, the legalization of agricultural co-operatives was established in 1968, after the agricultural reform of 1961 proved unsuccessful. The intent of the 1968 reform was to increase the efficiency of farming. In Guyana, participation and self-management in state firms was introduced in 1970, following independence in 1966 and nationalization in 1969.

The third column of Table 13.1, shows the main proponents of participation and self-management in each of the countries. Because the state and its executive bodies control legislation, the government actually plays the most vital role in the majority of cases. Much more important, however, is the question of who initiated the legislation. In the countries under study; such as Algeria, Bangladesh, Guyana, India, Tanzania, Yugoslavia and Zambia, in most cases self-management and participation were established by the parties which struggled for independence and seized political power. In Sri Lanka, participation was introduced on a large scale when the progressive parties joined the United Front in 1970. In Malta, much more attention was focused on participation when the Labour party was in power. In Costa Rica, participation was connected to the introduction of social programmes such as the redistribution of property to the poor, and attempted at starting agricultural co-operatives. In Mexico, the co-operative movements depended upon the particular government in power, especially in times of crisis when it attempted to alleviate current social problems. In Peru, the military government, along with the progressive parties and unions supported self-management and participation. In Bolivia, the main contributing factor to participation was the union of mining

workers (FSTMB). Union organization also played a major role in the introduction of self-management in Yugoslavia. In general, the data shows that the introduction of participation and self-management is connected to progressive political parties and unions.

The motives for the introduction of participation and self-management in the countries under study were mainly political. Political factors, such as independent socio-economic development, elimination of exploitative means of production, education of people, are the main motivation of proponents of participation and self-management. When the political motives for establishing participation and self-management were defined as in Algeria, Peru, Tanzania and Yugoslavia, the actualization of these goals took place on a larger scale.

Very often the motivation for participation and self-management rests on the Human Relations Theory, uniting labour and the owners of capital or management which is the basis of the philosophy of industrial peace. Moreover, it emphasizes the improvement of working conditions, involving workers in management, and promoting the development of each individual as a human being. These are the main points which were found in studies on Bangladesh, Costa Rica, Guyana, India, Malta, Peru and Sri Lanka. In addition to these findings, it was also discovered that in Mexico participation and self-management are considered to be alternatives to existing forms of production, especially in times of crisis. Participation and self-management in Costa Rica are of vital importance because of their ability to increase employment. The Bolivian government considered participation and self-management in COMIBOL as a means to implement its own plans and national interests as well as a way to involve workers in this enterprise which represents the most important sector in the country. The workers value self-management for its ideological and political significance.

Degrees of development, forms of ownership and workers' participation

Varying degrees of involvement and differences in participation existed in the countries under study as a result of the different motives behind introducing participation and self-management. The following is a summary of the data presented in Table 13.2.

Four groups of countries in the phases of development of participation and self-management can be distinguished. The first group of countries represents those which based their vision of development upon the model of self-management. In the cases of Algeria, Peru, Tanzania and Yugoslavia, consolidated efforts were made to install such an economic and political system. The most advanced example of this is, of course, Yugoslavia. The first experiments in self-management (1950–1960), were followed by the introduction of the market variant of self-managed socialism in the 1960s, which stressed the independence of self-managed firms and their responsibility for achieving good economic results. In the early 1970s a variant of guild socialism with integrated planning, which emphasized

Table 13.2 Stages of development, character of ownership, extent and degree of participation

Country	*Stages of development*	*Character of ownership*	*Extent*	*Degree of participation*
Algeria	1963: two government laws on establishing participatory bodies in agriculture 1971: nationalization of land 1971: beginning of introduction of self-management in industry 1975: independent managing of agricultural co-operatives	collective in agriculture state in industry	entire agricultural sector is organized in 1,000 cooperatives	co-determination of workers and government representatives; tendency for wide-spread participation or self-management
Bangladesh	1947: Industrial Disputes Act (1960, 69, 73, 80) 1972: Labour Policy Statement 1980–85: Plan-emphasis on agricultural communes	private co-operative	workers' committees do not have a more important role, only some successful cooperatives	workers' committees have only advisory role
Bolivia	1952: Nationalizations of mines 1964: Introduction of limited participation 1970–71: workers' plan for full participation 1983: formal introduction of workers' participation boards	COMIBOL – public	limited to the COMIBOL	co-determination with the tendency toward self-management
Costa Rica	1961: Land Settlement Law 1968: Law on Co-operative Associations	co-operative; tendency toward social ownership	no data; only in agriculture with 24 per cent population (190,000 inhabitants)	tendency for introduction of self-management in co-operative sector

continued

Table 13.2 (Continued)

Country	*Stages of development*	*Character of ownership*	*Extent*	*Degree of participation*
	1982: Law on Co-operative Associations (establishment of Institute for Co-operative Development)			
Guyana	1969: Public Corporations Act (30 public firms)	state	public sector (80 per cent of economy)	only limited forms of participation; participation only as a consultative device (employee consultation)
India	1947: Industrial Dispute Act 1953: Joint Management Council (53 enterprises in industry) 1970: workers' representatives on the executive board in public sector (in 1972 in 14 banks) 1975: enterprises with over 500 employees implemented joint plant council, shop council 1977: workers' representatives in plant and on board of directors (3-tier scheme)	public private	no data about the extent; introduction of participation in private and even more so, in public firms	joint consultation in order to achieve high productivity
Malta	1950: legal basis for participation 1965–67: Malta Drydocks – limited participation (joing consultative committee)	Malta Drydocks – state ownership; managed by workers. Some forms of participation in other state, private and union-owned enterprises. Participation in government organization	Malta Drydocks is the main sector of Malta's economy (14,819 employees); after 1971: GWU participate in management of textile mills and private ship building (1977: 18 plants with 1,750 employees)	mostly joint consultation with the tendency toward self-management at Malta Drydocks

	1971: strike at Malta Drydock; agreement with government on joint management 1975: Drydocks Act – council elected by workers as the self-management body			
Mexico	1939: General Law of Cooperative Societies; development of co-operative sector in agriculture – this depends on the party in power	co-operative	1940: 1,527 co-operatives 1952: 400 co-operatives 1976: 1,802 co-operatives 1982: 3,278 co-operatives	self-management in productive co-operatives
Peru	1964: law in co-operatives 1968: programme of Juan Valasco Alvarado: self-management and participation as a mode of development 1969: agricultural reform; foundation of co-operatives in agriculture 1970s: General Law of Industries; public enterprises and introduction of Swedish method of socialization of capital 1974: Social Property Law; foundation of enterprises in social ownership	– co-operative co-ownership – workers' owning some shares. Transition of private ownership into social ownership (15 per cent of net profit is given to workers for buying shares from private investors, with the limitation that only 50 per cent of total capital can be owned by workers)	1981: 2,881 co-operatives 39 labour communities 63 enterprises with social ownership	self-management in co-operatives co-determination in labour communities

continued

Table 13.2 (Continued)

Country	*Stages of development*	*Character of ownership*	*Extent*	*Degree of participation*
	1975: new government favours private sector	– social ownership	63 enterprises with social ownership	self-management in socially-owned enterprises
Sri Lanka	1970: foundation of workers' councils in public enterprises, government institutions and national committees on the regional basis 1977: workers' committees from 1970s cancelled (Employee Council Act 32); only consultative role of workers' council remains	public ownership	1975: 212 workers councils in enterprises, governed by Ministry of Transportation, Industry and Science 1979: 280 workers' councils in 45 enterprises in public sector	only advisory role
Tanzania	1964: establishment of workers' committees (advisory role) 1967: Arusha Declaration (TANU), development strategy of 'own' model of socialism 1970: self-management formally introduced in public enterprises and village communities; the role of workers' councils is not clear 1977: process of participation is spread to government ministries and departments	public	most of agriculture sector (Ujamaa villages) 1967: 64 public enterprises 1975: 142 public enterprises	Workers' council in advisory role; workers in executive board and management structure (wages, distribution of income) = employee coinfluence; direct decision-making in village co-operatives

Yugoslavia	1950: Basic Law on Governance of State Enterprises and Higher Economic Associations 1957: Transfer of responsibilities to communities and development of their communal system 1961: beginning of the so-called phase of market socialism 1971: phase of the so-called integral self-management system	social ownership (social sector produces 85 per cent GNP)	1949: experimental workers' councils in more than 200 enterprises 1979: 20,064 BOALS	direct and indirect management of enterprises by workers
Zambia	1974: The Industrial Relations Act (introduction of workers' councils became operation for all public enterprises, 1976) 1975: establishment of Department of Industrial Participatory Democracy (programme for motivating workers, participation, pilot studies) 1983: introduction of unions' representatives on boards of directors (introduced in various state enterprises)	public	60 per cent of economy is state enterprises (agriculture, transportation) or supervised by government (parastate). Participation introduced into state and some private firms.	workers' councils have only advisory role (employee consultation)

bottom-up planning, was introduced. Algeria's efforts in the area of self-management were modelled after the Yugoslav style of self-management. First, they planned self-management in agricultural cooperatives. Later, they attempted the total reconstruction of management in industrial firms. The Peruvian solution was based on the introduction of agricultural cooperatives, the incremental changes of private firms into worker-managed firms,[4] and the establishment of the social sector of the economy. In Tanzania, the main emphasis was placed on self-management forms in communes such as Ujamaa villages. Some form of participation was also introduced in public and state firms and in government ministries, but the role of workers' councils was not clearly defined.

The second classification of countries are those which developed workers' participation and self-management in selected areas. These countries are: Bolivia, Costa Rica, Malta and Mexico. In Bolivia, this activity was limited to the mining corporation COMIBOL, which represents 70 per cent of mining production in this country. From the beginning phase in which the mines were nationalized in 1952, to the formal introduction of workers' councils in 1983, COMIBOL went through several phases, foreshadowing the establishment of the role of workers in decision-making. In a similar way, the entire transformation of shipbuilding was initiated at Malta Drydocks after 1975 when workers took control of the factory. In Costa Rica and Mexico,[5] the emphasis was on the development of participation in agricultural cooperatives.

The third classification of countries are those in which participation is built based on the philosophy of industrial peace. These countries are India, Sri Lanka and Zambia. India never broke the tradition of making collective agreements between the owners of capital and unions despite its long-standing tradition in participation. Therefore, participation in this case has never led to anything beyond employee co-influence. Similar experiences were found in Sri Lanka. The role of workers' councils was reduced after 1977. The government precisely defined the fields in which the managers of state firms could consult with workers. The plans for participation and self-management in Zambia were much more profound. After the establishment of the Centre for Industrial Democracy in 1975, which designed programmes for the active participation of workers and directed the development of participation, the members of the executive board in various public firms became the union's representatives by 1983. But the workers' councils, which became law in 1971, retained a consulting role.[6]

Bangladesh and Guyana were selected as the countries to comprise the fourth group. The development of participation in private and public firms existed in Bangladesh since 1947. Although this requirement was continually re-established, approval of workers' councils in public firms was evident in 1972 as reflected in the Labour Policy Statement. However, unions did not accept this. In Guyana, instructions for the introduction of self-management and participation in public firms were provided in 1970. But neither these instructions nor the practice clearly defined the form of participation that was actually being employed.

Firms which have shown some degree of participation are usually the public

firms in Algeria, Bolivia, Guyana, India, Malta, Peru, Sri Lanka, Tanzania and Zambia. In particular cases, the study dealt with private firms in Bangladesh, India, Malta and Zambia while in other cases, with co-operative ownerships in Algeria, Bangladesh, Costa Rica, Mexico and Peru. In Tanzania and Zambia, participation was introduced in some parastatal firms, which are firms in which the state holds more than 51 per cent of the shares. A special role related to the ownership of the firm was found in Yugoslavia and Peru. Yugoslavia adopted the concept of social ownership under the control of the working collectives. After 1974, Peru followed the Yugoslav concept, and legislated the same ownership structure called the social property sector.

In the context of the economic activity during the time of this research, participation and self-management were most developed in Yugoslavia. In 1980, the self-managed sector produced more than 85 per cent of gross national product and employed almost six million people, who were organized in 20,064 BOALs,[7] 14,039 working organizations with BOALs and 4,157 working organizations without BOALs. After Yugoslavia, Algeria had the next most developed system of self-management. In 1979, the entire agricultural sector was organized into over 1,000 co-operatives and the co-determination of workers was introduced in 57 industrial enterprises with over 300,000 workers. Self-managed production units also exist in Peru, where in 1981 there were 2,881 agricultural co-operatives and 39 firms with a so-called labour community in which the process of transforming private capital into workers' shares was started. In 63 firms, the system of social ownership was introduced. In Tanzania, the process of establishing village co-operatives involved the entire agricultural population in the 1970s.[8] The introduction of participation and self-management in public firms and institutions involved 142 organizations. Self-management in Bolivia and Malta represents only mining and shipping sectors.[9] In Costa Rica and Mexico, the emphasis was on agricultural co-operatives. In Mexico, for example, 3,278 agricultural co-operatives were in operation. In India, Sri Lanka and Zambia, the role of participation that was introduced into the public sector and private sector was very limited. In Bangladesh and Guyana, no solid programme for the development of participation was ever really made.

In general, the data shows that formal participation and self-management, legalization of statutes, government orders for stimulating participation and self-management, and the establishment of support organizations, have spread rapidly throughout these countries during the 1960s and 1970s. In the 1980s, however, there has been a substantial slowdown in the growth of these areas.

PRACTICE OF PARTICIPATION AND SELF-MANAGEMENT IN THE DEVELOPING COUNTRIES UNDER STUDY

Institutional structure of participation and self-management in developing countries

The forms and institutions of decision-making in these countries are now presented. Yugoslav practice aims to promote workers' decision-making on all issues. Legal statutes define the procedures and institutions of the direct and indirect decision-making of workers. Co-determination, in which workers participate on the executive board of the firm while the manager is chosen by the government and supervises the Assembly of Workers, is exercised in Algeria. Three forms of workers' decision-making can be found in Peru: self-management in agricultural co-operatives; co-determination in labour communities in industry; and, self-management in the social sector. Organizational forms were adjusted to facilitate such decision-making. Decision-making in Tanzania is concentrated in the village communes, governed by the village community. The executive board of the village community is actually a workers' council. COMIBOL, in Bolivia, introduced a form of co-determination which includes workers' decision-making. Malta Drydocks implemented various self-managed bodies on the level of the entire enterprise and its subsidiary departments. Employee Co-influence is an integral part of India's decision-making platform in which there is joint consultation of workers and management. The workers' council in Sri Lanka and Zambia performs the consulting role which is defined as employee consultation. Traditional producer co-operatives prevail in Costa Rica and Mexico while, in Bangladesh and Guyana, it is unclear what role workers should have in decision-making. Organizational schemes reflect the perceived role of workers' decision-making in these countries. The differences therefore reveal various beliefs about the degree of workers' participation and self-management that should be permitted.

Real participation and self-management of workers in decision-making in selected enterprises

It is important to observe the realized degree of participation and self-management in decision-making, instead of just the legal outline of the scope of such programmes. The emphasis of the study was therefore the comparison of case studies of individual firms. In each country a few firms have been chosen which gives the opportunity to discuss three groups of enterprises: state or public enterprises, Yugoslav enterprises, and, production co-operatives.[10] The research focused on two questions: How and to what degree do workers actually participate in decision-making in these firms? How efficient are these participatory firms?

Are workers really participating in adopting key decisions in the selected enterprises?

In public enterprises such as COMIBOL (Bolivia), BHEL (India), Malta Drydocks, Sri Lanka Ports Authority, National Bank of Commerce (Tanzania), Urafiki Textile Mill Ltd (Tanzania) and ROP Limited (Zambia), workers participate in decision-making only through their delegates in the representative bodies of workers' management. The workers' representative bodies usually have the consulting role, especially in the field of workers' welfare. They have almost no impact on key decisions of the enterprises. The exceptions are in COMIBOL where workers participate on the board of directors and in the Malta Drydocks through workers' council where the workers are involved in the bodies which make the basic strategic business decisions. However, in the COMIBOL case, the bodies of the workers' participation were working poorly.

The assembly of all members of the cooperative and its elected executive body make key decisions in the enterprise. Cruz Azul (Mexico) and Deeder Cooperative Society (Bangladesh) are good examples of this. Coope-Silencio (Costa Rica) is still too dependent on the help of the state institutions. By the nature of its activity, Grameen Bank (Bangladesh) is almost a state institution, but stimulates participation of workers in project groups. The Peruvian metal processing co-operative, Contex, is fighting with the growing pains of workers' participation and self-management and despite its formal introduction, self-management does not function.

It is important to note that Yugoslav enterprises such as Alumina and the Brewery Union have the most developed forms of direct and indirect decision-making by workers. The study of Industry of Motors Rakovica which described workers' participation in the period of state socialism (1945–1950) reveals its similarity with other enterprises, especially public enterprises. The period is characterized by a management structure in which workers' management had only a consultative job in the Yugoslav enterprises. The studies which were conducted in Alumina and the Brewery Union emphasize the difference between the present and the past. Although the workers of the Brewery Union and Alumina were not content with the nature of their participation in decision-making at the time, in comparison to the majority of other enterprises in the sample, especially to the public enterprises, they enjoyed a higher degree of freedom and participation in decision-making.

Furthermore, one can conclude from the majority of studies that the major problem of workers' participation or self-management in the public enterprises was due to the existence of dysfunctional delegates either on the bodies of workers' representatives or of joint management bodies. BHEL (India) reported that the relations between workers and their representatives were not satisfactory. The workers complained that their representatives in the Joint Committee did not protect their interests. This could be attributed to the internal and external competition between the members of the union's groups. The report from the National Bank of Commerce (Tanzania) stated that workers were not sufficiently well educated and that there was a lack of information from the workers' representatives to their

constituents. In ROP Limited (Zambia) there was poor communication between workers and their representatives.

Similar problems were also present in the co-operatives and in the Yugoslav enterprises. Cruz Azul (Mexico) reported that the efficient execution of the projected system of self-management of workers was hindered by acts which did not allow the re-election of workers to the representative bodies. The workers of Alumina (Yugoslavia) criticized their delegates in the workers' council and its committees for not representing their interests and not informing them about their work. Furthermore, workers did not want to be elected to indirect management bodies because they believed that these bodies did not represent their interests. The workers in the Brewery Union (Yugoslavia) had similar opinions and demanded that the right of key decision-making be transferred to the workers' assembly in order to provide the most direct impact on their decision-making.

The opinion of workers concerning the level of participation and self-management achieved ranges from very favourable, as in the Malta Drydocks, Urafiki Textile Mill Ltd, Cruz Azul and Brewery Union, to very negative, as in COMIBOL, Sri Lanka Ports Authority, ROP Limited and Contex. The workers' remarks regarding the increase of the degree of real participation and self-management in their enterprises are also similar. Some of the enterprises reported considerable progress, as did Urafiki Textile Mill Ltd, Cruz Azul, Grameen Bank, while some enterprises did not identify any major changes, as did COMIBOL, ROP Limited and Contex. In Yugoslav enterprises, Alumina and Brewery Union reported that the level of workers' self-management was decreasing.

The production co-operatives, such as Deeder Co-operative Society, Grameen Bank and to some degree, Cruz Azul, also show that insistence on this model of decision-making depends too much on one or a few persons, usually the manager who personally supports the introduction of this principle.

The role of management and unions in decision-making

How to ensure the active role of workers in the process of decision-making is an important question to all enterprises. The model 'one man—one vote' which is developed in co-operatives and in Yugoslav enterprises is questionable because it assumes a homogeneous group of workers. In this context, we will show the position of two important organized groups, management and unions, against the participation and self-management in the enterprises under the review.

Management is the key decision-making body in the majority of public enterprises and its role is defined by the internal laws of the enterprises. Public enterprises are dependent on the execution of a given policy which is executed by the government through appointed managerial workers and the influence of the board of directors. Because of this, it is evident from the given structure of management that the majority of decisions within public enterprises are taken with this framework.

In production co-operatives, management is carried out on a different basis as managerial workers are given the task of executing the requirements decided by the workers' assembly and its executive body. Apart from this, it often occurs that people who are willing to participate on a co-operative basis become members of the co-operative. The examples of co-operative behaviour of managerial workers are more frequent in the co-operatives such as Cruz Azul, Deeder Co-operative Society and Grameen Bank. However, in cooperatives the lack of professional skills of managerial workers is often evident, as seen in Contex. The experiences reveal that the problem is easier to overcome in cases of isolated co-operative movements as in Cruz Azul,[11] where successful managerial workers who will work according to co-operative principles are found within the environment, than cases where co-operatives operate in a competitive environment.

The tasks of managerial workers in the Yugoslav enterprises are defined precisely by the laws and appropriate internal by-laws. Formally, managerial workers lead the enterprises, propose business policy, coordinate the activities of the workers' council and execute their decisions. From this perspective, the managerial workers cannot make decisions which directly concern the status of any individual or individual groups in the enterprise. In spite of this, managerial workers have a major influence on decision-making as the study of the Yugoslav enterprises shows.[12] It particularly emanates from their position in decision-making, and is objectively determined by the nature of the decision-making processes. This influence cannot be taken away from the managerial workers, and in Yugoslavia, this results in the following absurd situation: since the influence of managerial workers in the decision-making process is not legally supported, they do not bear the responsibility for their decisions. Both Yugoslav studies regarding Alumina and the Brewery Union warn about such non-coordination, and support the demand for a thorough reformulation of the philosophical suppositions of the Yugoslav self-managed model, which assumes total homogeneity of workers' interests in a particular enterprise.

As far as unions and their views toward participation and self-management are concerned, from the data the following observations can be derived.

First, unions generally support the involvement of workers in the enterprise management. There are important differences between public enterprises, cooperatives and Yugoslav enterprises. The unions' support of participation and self-management in the public enterprises depends on the direction of the most important union organizations within them as in COMIBOL, Malta Drydocks, the National Bank of Commerce and Urafiki Textile Mill Ltd. The unions do not have an important role in co-operative units.[13] Because of a unified trade union organization in Yugoslavia, whose programme declared the building of a pure and developed self-managed society, it is clear that the union organizations in the enterprises also supported the self-management decisions of workers.

Second, in some public enterprises, the militant stance on participation and self-management of several unions is evident. The views of various union

organizations about the participation and self-management differ greatly and thus hinder the working of participatory and self-managed bodies. Opposing views therefore, become evident as seen in BHEL and the Sri Lanka Ports Authority.

Third, a unified union organization in a given country is frequently part of a leading party apparatus, and as such, loses its role in organizing the workers' interests within the enterprise.

Fourth, in the majority of public enterprises it is unclear as to what the role of the unions should be to the newly established bodies of workers' participation and self-management as in ROP Limited, COMIBOL and BHEL. Workers do not view unions as the protectors of their interests as they do in the Malta Drydocks.

Fundamental findings about economic behaviour of the selected enterprises

An analysis of the collected data will attempt to address the four important questions of the economics of a self-managed enterprise. First, the findings of the case studies on productivity will be summarized. This will be followed by a summary of the research findings on employment, distribution of income and financing.

Productivity and technology

It is interesting to note that labour productivity appears to be the most important economic variable in almost all of the enterprises under study. It seems that there are two kinds of phenomena. There are enterprises which target physical productivity as their highest goal, even over profit-making. Some of these enterprises attribute this to a directive assigned by the state and thus define themselves as mere executors of the public will. There are also co-operatives which attribute higher labour productivity to the fulfilment of members needs' which are related to various activities and achieved by the members of the co-operative. In both cases, efficiency, which is quantified by rigorous economic measures, is displaced by the goal of physical productivity. On the other side some of the enterprises estimate that there exists a narrow link between productive efficiency of the enterprises and other measures of economic efficiency. Therefore, in their opinion, productive efficiency of the enterprises should be given all attention.

However, the real influence of the introduction of participation and self-management on labour productivity varies with each enterprise under the study. The study of BHEL, for example, demonstrates that an increase in labour productivity and production quality resulted from discussions between management and workers in joint commissions regarding this issue. After 1971, when co-determination was introduced and after 1975, when self-management was introduced, productivity in Malta Drydocks increased by 2–3 per cent in the period 1972–1981. Also a report on the productivity of the cooperative Cruz Azul discusses a longer period of growth of labour productivity. In any case, Cruz Azul is an

example of a successful enterprise with a higher labour productivity than the average concrete industry in Mexico.

A good example of a successful enterprise is described in the Brewery Union case study. In the period 1952–82 beer production increased by 12 times, total assets by four times, and the number of employees by three times. In comparison to similar breweries in Europe, the Brewery Union performed with above-average production. However, there are other studies which fail to confirm these results. The study of the Sri Lanka Ports Authority, National Bank of Commerce, Urafiki Textile Mill, ROP Limited, for example, fails to mention the major changes in labour productivity after the introduction of workers' participation in these enterprises. The reports from COMIBOL show that productivity fell by 2.4 per cent in 1983 and further by 30 per cent in 1984[14] following the introduction of the participation of management in 1983. This also occurred in the Peruvian co-operative Contex. Thus, one cannot draw a final conclusion from the contradictory evidence.

Employment policy in selected participatory and self-managed firms

The first characteristic of public enterprises in the sample is the employment of a large number of workers. BHEL, for example, employs 69,800 workers, COMIBOL 27,711 workers, and Sri Lanka Port Authority 21,648 workers. High employment figures can be attributed to technological factors of production or to economies of scale. In this context, two additional factors of over-employment in public enterprises should be mentioned: a tendency for market concentration and thus collection of economic rents; and, soft financing for the majority of public enterprises which link employment policy to a relative availability of cheap financial resources. Not surprisingly it is mentioned that employment is not strictly an economic variable. Enterprises believe that their most important function is to employ workers even in the case of decreased productivity.

These enterprises therefore do not lay off workers in times of crisis. In Malta Drydocks, due to a long period of difficulties in the shipbuilding industry they introduced various precautions: they decreased the overtime work, they did not lay off workers and did not reduce their basic wages; they did not hire new workers; and, they decreased the number of employees by natural causes such as retirement and free decisions to leave the enterprise. In Sri Lanka Port Authority, when certain jobs were no longer needed due to improved technology, they reacted similarly.

The production co-operatives which are represented in the sample of enterprises usually do not lay off their members as well, even during considerable delays in the product sales. The number of employees is adjusted by employing non-members of the co-operative or by varying the number of working hours of the members. Like public enterprises, the production co-operatives reduce workers' wages during a crisis, and they decrease employment in the natural way, such as through retirement and free decisions of workers' to leave the enterprise. However, one must bear in mind that the majority of co-operatives were established in order

to retain employment and/or preserve land through workers' take-overs.[15] As job security is one of the most important values, members of production co-operatives oppose the firing of members. Job security is also the reason why the possibility of employment of non-members is a very important factor in the efficiency of production co-operatives. Given the economic circumstances, the production co-operatives are flexible in adjusting employment and production through the employment of workers on a contract basis. Furthermore, production co-operatives develop the basis for further recruitment of members. They allow for the employment of workers with special education and qualification when the existing workers are not appropriately qualified. Employment of non-members is a widespread strategy among production co-operatives in the sample of enterprises. For example, in Cruz Azul 885 members and 511 non-members were employed by the end of 1983. A similar strategy was employed in Coope-Silencio and the Deeder Cooperative Society.

Employment of new workers in Yugoslav enterprises is a policy which is included in the planning system of the society.[16] This results in a higher employment rate in Yugoslav enterprises than if those enterprises had full autonomy in employment policy. Due to over-employment, existing enterprises frequently apply monopolistic or oligopolistic pressure to ensure more favourable business conditions, and especially to obtain 'cheap' financial sources. Econometric research shows,[17] however, that employment in Yugoslav enterprises lies somewhere in the range between employment typical in a self-managed enterprise and employment of a capitalist enterprise. It also shows that the driving force behind new employment is investment, which, together with technological progress increases the growth of labour productivity of existing workers. Income per worker is also growing as the rate of underpriced financial sources for investments increase.

Yugoslav enterprises do not fire workers. Except in the case of serious discipline problems Yugoslav workers rarely lose their jobs. In the case of market expansion, enterprises decide between hiring temporary workers, such as seasonal workers, or increasing working hours. In the case of decreasing demand, workers collectively decrease working hours by taking collective holidays, and decrease employment by taking their retirement or by voluntarily leaving the enterprise. In general, however, fluctuation of workers is not an important category and is usually attributed to workers who are retiring. Fluctuation of workers is higher in more developed regions than in less developed regions due to greater employment possibilities.

Internal rewards of workers in the selected participatory and self-managed enterprises

Economic literature developed three hypotheses about the basic differences between a capitalist and participatory or self-managed enterprise regarding workers' rewards: participatory or self-managed enterprises develop a wider distribution scheme than a capitalist enterprise;[18] the differences in incomes and internal

distribution are smaller in participatory and self-managed enterprises than in capitalist ones;[19] and, because of the lack of a labour market, differences between the personal income of workers in different enterprises might be larger in self-managed enterprises than those in capitalist firms.[20] The discussion of these hypotheses will be based on research findings.

Schemes of internal distribution of income in the examined enterprises

The distribution schemes which include the system of personal income, different compensations and various forms of collective consumption are present in public enterprises which belong to this sample of enterprises, especially in countries with some form of industrial tradition. For example in India the data from the study of BHEL shows that workers in this enterprise received bonuses which were not related to payment from their personal income.[21] It is important to distinguish between the standard programme of collective consumption, such as health and education, from other expenses for collective consumption which are given to workers. In COMIBOL, for example, the four staple products: sugar, rice, meat and bread were available to workers at 1956 prices. In this way, workers real wages did not diminish in the period of crisis although real money wages fell. Similar distributions were also developed in other public enterprises, as in the National Bank of Commerce, in Urafiki Textile Mill and ROP Limited.

Production cooperatives such as Cruz Azul, Deeder Co-operative Society and Coope-Silencio formed a similar system of distribution. Cruz Azul is a special case. Not only is it a concrete industry, but it has developed various other activities as well, such as construction, a housing co-operative, transportation, exploration of raw materials, two agriculture co-operatives, a sports club, a shopping centre, a medical centre and other services for the community where the factory is located. Some co-operatives were established for the regulation of employment and economic activity such as exploration of raw materials, transport co-operative, agriculture units, and services. Meanwhile others were established for activities such as medical services, schools, recreational and cultural services to provide for the well-being of co-operative members and to give stimulus to the whole co-operative movement.

Yugoslav enterprises have a system of benefits and allowances for the collective consumption of their workers which was developed in great detail and regulated by law. It is important to note that the system has been evolving throughout the post-war period with a constant tendency to evaluate both the collective as well as the individual contribution of each member. Therefore, in time the share of basic personal income decreased while the importance of individual contribution increased. Contributions differed among various groups of workers. Numerous allowances for working conditions such as night work, shift work, length of service in one enterprise and stimulation for business success have gained importance. In 1982 for example, the structure of average personal incomes in the Brewery Union was as follows: 66.3 per cent was the normative personal income for actual effective

work; 2.2 per cent was the allowance for night and shift work; 6.1 per cent was the reward for effective management of past labour and length of service in the Brewery Union; 5.7 per cent was rewarded for business success which greatly varied during the year; 11 per cent were subsidies for annual leave, holidays and other allowed absences from work; 4.7 per cent were sick leave payments borne by the Brewery Union such as a maximum of one-month sick leave and a portion of maternity leave payments; 2.7 per cent were child allowances and transportation subsidies; 1.3 per cent was overtime payment. In addition, Brewery Union has four vacation homes, a building for kindergarten, and a kitchen where workers are given warm meals. It organizes various education courses for its workers and 48.2 per cent of workers live in apartments owned by the Brewery. In one form or another, the Brewery has helped solve the housing problem of three-fifths of its workers.

Internal distribution of income and its inequalities

Some public enterprises have devoted considerable time to the problem of internal distribution. The management structure of BHEL totally re-evaluated the criteria for rewarding workers while inviting various workers' bodies to participate in this re-evaluation. They developed a system which incorporates various subsidies and compensations, such as the bonus system.[22] SONACOB (Algeria) has evolved a profit-sharing system which determines the incomes of workers according to their results in production. Personal incomes of workers consist of basic wages, additional payment for individual physical productivity (0–10 per cent of basic wage) and additional payment for collective productivity (0–30 per cent of basic wage).

A special distribution scheme has also been evolved in some production co-operatives in which capital accounts are introduced in addition to wages for work done. Cruz Azul has the most elabourate system which is very similar to the system of income distribution in the known case of the Mondragon production co-operatives. Based on the starting share of a member of the production co-operative, a capital account is opened for each member at a 6 per cent annual rate of interest. From time to time the account is revalued because of inflation and increased annually by allocating a portion of the income of the co-operative into the members' accounts.[23] The members who leave the co-operative have the right to withdraw their savings from the capital account. The workers in Cruz Azul therefore receive three kinds of current income: basic wage; interest on individual capital accounts; bonuses, and, allowances and funds for collective consumption. The system of determining basic wages is fairly complicated and is being reformulated. The ratio between the lowest and the highest basic wages of workers is 1:24 which is very high for production co-operatives. Nevertheless, it is considerably less than in other Mexican enterprises.

Coope-Silencio does not have a system of capital accounts for its members. However, the profit is distributed among the workers at the end of the year in accordance with the amount of labour. In Deeder Co-operative only a minor share of profit is given to shareholders as dividends, the majority is re-invested or put

into various funds of collective consumption and used by all workers. Because the workers joined the co-operative at different times, their shares vary as well. For example, 6 per cent of the richest members of the co-operative receive more than 20 per cent of all dividends.

Yugoslav enterprises have developed different profit-sharing formulas. As was seen in the case of Brewery Union, in 1982 about 5.7 per cent of the average personal income of the worker was calculated on the basis of business result. Meanwhile, the share of individual contributions was calculated on the basis of physical productivity which can be measured for groups of workers or even individuals, and which forms part of his basic personal income.

As the inequality in distribution among workers of one enterprise is analysed, it should be stressed that it was impossible to make a comparative analysis in the sample enterprises because of the scarcity of data for the majority of the enterprises. However, there is certain qualitative data on inequality, e.g., in Coope-Silencio the management board members receive no additional pay for performing that function. The pay for regular and overtime work is the same. In Cruz Azul, there is no difference between both factories in salaries for equal work. There are also few differences in the payment for equal work between members and non-members of the co-operative. BHEL has a unified structure for the entire corporation. In Malta Drydocks, differences in personal incomes of the workers are relatively small and workers consider them just.

An exact analysis of inequalities in income distribution was made in the Brewery Union where different criteria for inequality reveal that there was relative egalitarian distribution during the whole period (the ratio between the highest and the lowest personal incomes of the workers was the largest in 1961 (2.96) and the smallest in 1965 (1.91)). In 1982 the value of Gini's inequality index was 0.165. The comparison with the rest of the food industry, where the value of Gini's inequality index was 0.168, shows that there was relatively even distribution in the Yugoslav economy as a whole. A comparison with Western European firms, however, shows that in Yugoslav enterprises skilled workers and managers earn less than their colleagues in other types of enterprises.

Differences in personal incomes for equal work among workers in different work organizations

On the basis of the analysis of the data, it is impossible to assess the deficiency of a self-managed economy.[24] Data shows that the analysed enterprises have higher personal incomes than do the national economies as a whole.[25] It was, however, impossible to make comparative studies of personal incomes of workers employed in self-managing enterprises with those employed in individual countries.

The only example in this area, albeit incomplete, is given by data on inter-enterprise differences in personal incomes for equal work in Yugoslavia. But there are a number of studies which explain that there are a number of institutional peculiarities and administrative limitations in Yugoslavia which enable the

enterprises to take advantage of economic and monopolistic situations. Thus, the difference in incomes for equal work among different enterprises can hardly be attributed solely to imperfections arising out of the non-existence of a labour market, although this is definitely a very important reason for it.

Financing of enterprises under review

Economic literature focuses primarily on two problems related to the financing of self-managed enterprises and their financial decisions. What will be the financial investments of a self-managed enterprise in comparison to a capitalist (neo-classical) enterprise (compared to a capitalist enterprise, how will the self-managed enterprise grow?)? And, how will the self-managed enterprise finance its investments?

As far as the optimal size of a self-managed enterprise is concerned, the data shows in general that public enterprises in the sample are not problematic from the lack of size, but from excessive size, both of employees and of the capital they are managing. The questions of how much they exceed optimal size, why they exceed it and how this arises, are much more important in this regard.[26] The same questions can also be posed when considering production co-operatives in the sample. For example, Cruz Azul is larger than the average Mexican concrete factory, and is a specimen of stable growth over a longer period.[27] Similar conclusions are also valid for Coope-Silencio and Deeder Co-operative Society but not for the Contex production co-operative. Finally, the same is true for Yugoslav enterprises as well. For example, the study of the Brewery Union shows that it is near in size to larger breweries in Western Europe.

As a rule, the larger than optimal size of the enterprise is related to the manner of financing of public enterprises. Data on the amount of subsidies received by the enterprises through direct subsidies, loans with lower interest rates, tax reductions or pricing policy is not available. However, a detailed analysis would certainly reveal this. Thus this study cannot show systematic characteristics of financing of public enterprises which would help the analysis.

A more precise picture is given by the data on financing of production co-operatives which is included in the sample. It should first be noted that the financial analysis of Cruz Azul does not conform to the general consensus that workers would prefer to invest their savings in a broad portfolio of shares, and thus lessen the risk of their investment[28] than to invest in the production co-operative. The system of capital accounts described in the previous chapter ensures the distribution of risk among the members of the co-operative on the basis of their private ownership of part of the means of production. Since it operates in accordance with the Mexican law on production co-operatives, it must distribute 7 per cent of total income into the so-called social fund which also represents the co-operative's own resources or equity, thus giving the opportunity to counterbalance business risk. Aside from this, the members also contribute other additional resources necessary for financing the growth of the co-operative and for satisfying the various needs of the broader community. The following are the reasons for doing so, according to the study:

1 By not investing they would lose market share, production capacity would not be fully utilized and the quality of cement would be lower than that of their competitors;
2 By not investing there would be no employment of new workers and the general well-being of the commune's members would be lower;
3 The benefits from investing into production capacity, such as employment for family members, better social services, establishment of capital accounts for future needs, and better regional prosperity in an economic, social and cultural sense, are far greater than returns from alternative investments.

Since Cruz Azul operates within normal market conditions, the collective savings are the result of the survival instinct of its workers. It is important to warn that in the isolated co-operative movement such as in the Mondragon system the members of the co-operative value the stability of employment highly and view the preservation of current market conditions as necessary factors for the preservation of the movement. It would thus be incorrect to generalize the success of all production cooperatives and self-managed enterprises based on example.[29] Savings of members in Coope-Silencio, for example, are defined by legal procedures for the division of net income.[30] Overwhelming savings of workers in Deeder Co-operative Society are based on their huge sacrifice of current consumption. These two examples are isolated cases too, which do not entirely reflect[31] all the examples in the world, especially not the characteristics of the wider self-managed movement.

In this regard, the Yugoslav economy is the best case for testing the models' conclusions. However, it is true that although empirical investigations for the period before the 1970s showed a reasonable rate of savings of Yugoslav self-managed enterprises,[32] the results cannot avoid the fact that the marginal propensity of Yugoslav enterprises to save is very low. Underdeveloped financial markets force the banking system to 'produce' enough loans to cover the financing of selected investment priorities. The soft budget constraint is therefore the result of an incomplete system of financing investments in the Yugoslav context.[33] The low marginal propensity to save of enterprises, however, requires the interference of state and para-statal institutions in decision-making in enterprises. On the other hand, the financial system operates in a manner that penalizes the decisions that were approved without demonstrating their economic effects. Some enterprises borrow money which is not repaid in real value due to an inappropriate accounting system. Others do not repay its nominal value due to a failure in paying back loans and interests, to the conversion of short-term emission loans into long-term loans, or to the formation of the institution of so-called exchange rate differences. Commercial enterprises' losses are taken over by banks and the National Bank of Yugoslavia covers their losses.

Thus, from the Yugoslav case it is evident that in order to achieve economic efficiency, it is important to establish conditions for a direct transfer of savings into stocks within primary capital markets, and for their mobility within secondary capital

markets. The introduction of primary and secondary capital markets, together with the introduction of a labour market, is deemed necessary.

CONCLUSIONS

After independence the majority of developing countries considered the implementation of workers' participation and self-management to be one of their basic development goals. In some of the examined countries workers' participation and self-management was introduced as a new social order, which could do away with the deficiencies of capitalism and the soviet type of socialism alike. The system was introduced from top down by the parties in power through such laws which obliged firms to adjust their organizations to the new socio-economic guidelines.

The research, Workers' Self-Management and Participation in Decision Making as a Factor of Socio-economic Changes and Economic Development in Developing Countries, has shown that such a revolutionary approach to the introduction of workers' participation and self-management failed to ensure the economic efficiency of either the enterprises or economy as a whole. This is true of those countries in which a uniform type of self-managed enterprise was required. The main characteristic of modern economies is their heterogenous organizational structure, i.e., diversification of organization and ownership forms, which meet in a fiercely competitive markets. So, the projects were turned into the projects of political elites, which saw in the introduction of the new system a possibility for their own existence.

In contrast to the revolutionary approach the results of the research are conclusive and in favour of an evolutionary approach. Those firms which experienced an organic introduction of the process of workers' participation and self-management (e.g., Cruz Azul) also developed economic mechanisms, which made it possible for them to operate on the market. Nevertheless, certain shortcominngs of the self-managed decision-making of the employed became apparent even in those firms. The pure self-managed model of decision-making, one man—one vote, is built on the supposition that the employed are homogeneous, which very often reduces the efficiency of the decision-making process in firms. In particular, the situation brings about some characteristic differences between management and the employed in firms. Co-determination, which is known from the German practice, or the concept of a flexible firm,[34] might to a certain degree modify the aforementioned difference.

The appropriateness of the evolutionary approach is to be noticed also in process of transformation of the former socialist states. In Slovenia, being one of the former Yugoslav republics with the self-managed system, a negative stand towards the economic democracy is observed after the abolition of self-managed socialism. When attention is drawn away from the principlies of the redistributional socialist type of economy towards the increase in productivity, being the basis of economic growth, certain alternative systems of compensation such as profit-sharing have become more and more important not just at the company level but also at the government level.

APPENDIX

Table 13.3 Basic features of the enterprises under the research

Enterprise	*Country*	*Production*	*Property relations*	*Genesis of the enterprise*	*Participation in the enterprise*	*Plants*	*Employment*
COMIBOL	Bolivia	ores and metals (1)	state (nationalized in 1952) (2)	old mines from 19th century	1952: some workers' control; after 1983 participatory management	14 mines 6 industrial plants	27,111 in 1984
BHEL (3)	India	power plant equipment	public enterprise	1956 HEIL, merged with 3 units in BHEL in 1974	1969; consultative; 1975: Joint Committee	11 manufacturing plants	69,800 in 1982
Bhopal Unit (HEIL)	India	power plant equipment (4)	public enterprise				18,820 in 1984
Hardware division (HEEP)	India	thermal and hydro sets	public enterprise	1967 (USSR technology)			10,777 in 1984
Malta Drydocks	Malta	shipbuilding and repair	public enterprise	prior British defence base	1965: consultative; since 1975: workers' management		4,819 in 1983

continued

Table 13.3 (Continued)

Enterprise	*Country*	*Production*	*Property relations*	*Genesis of the enterprise*	*Participation in the enterprise*	*Plants*	*Employment*
Sri Lanka Ports Authority	Sri Lanka	port facilities (5)	public enterprise	before 1958 private, in 1979 merged with 3 public organizations	1980: consultative participation	3 ports	21,648 in 1983
National Bank of Commerce	Tanzania	banking	public enterprise	established in 1967	since 1973 in advisory function	259 agencies, 111 branches in 1982	no data
Urafiki Textile Mill Ltd.	Tanzania	textiles	public enterprise	built in 1968 with Chinese assistance	since 1972 in advisory function	5 units	5,111 in 1983
ROP Limited	Zambia	food and chemicals (6)	public enterprise	merged in 1975 with 2 public enterprises	1976: as consultative body		1,362 in 1984
SONACOB	Algeria	trade and services (7)	state enterprise	1970 from professional group BOIMEX	co-determination since 1978	headquarters and units (8)	2,027 workers

Table 13.3 (Continued)

Enterprise	*Country*	*Production*	*Property relations*	*Genesis of the enterprise*	*Participation in the enterprise*	*Plants*	*Employment*
Alumina	Yugoslavia	metal-manufacturing industry (11)	social	1954, later changed production	self-management	8 BOALS, 2 work communities (12)	2,128 in 1983
Brewery Union	Yugoslavia	beer, baker, yeast	social	founded 1864; 1947–1950 state; since 1950 self-managed (13)	self-management	5 BOALS, 1 work community	630 in 1983
Industry of motors Rakovica	Yugoslavia	diesel engines, tractors	social	founded in 1927; 1944–1950 state; since 1950 self-managed	self-management	9 BOALS, 1 work community	

Cruz Azul	Mexico	cement industry	co-operative	founded in 1881; 1931–1934 struggle for the co-operative	self-management	2 plants, general office	1,396 in 1983, 885 members
Coope-Silencio	Costa Rica	agriculture (9)	co-operative (10)	established in 1973	self-management	2 plants, general office	328 members from 68 families in 1983
Deeder Cooperative Society	Bangladesh	banking, business, insurance	co-operative	1960, a meeting of 9 founders	self-management		1,110 members in 1983
Grameen Bank	Bangladesh	banking	co-operative	no data	no data	no data	no data
Contex	Peru	metal-manufacturing industry	co-operative	no data	workers buy-out	no data	no data
Kolkeparke	Peru	agriculture	social	no data	no data	no data	no data

continued

Notes

(1) mining and production of metals (tin, copper, silver, zinc, tungsten, lead, etc.).
(2) the state nationalized the enterprise with payments to prior private owners under the pressure of foreign institutions.
(3) BHEL: Bharat Heavy Electricals Limited; HEIL: Heavy Electricals (India) Ltd.; HEEP: Heavy Electrical Equipment Plant of the Hardware Division.
(4) HEIL: hydro, thermal, nuclear, marine and miscellaneous equipment, large thermal sets, turbines, electrical machines, gears, large-size steam turbines and generators.
(5) including: cargo handling, navigation, tally and security devices, supply of other port facilities.
(6) product mix: edible vegetable oil, fats, soaps and non-soap detergents, toothpaste, shampoos, scouring powders and kitchen detergents, stockfeed cakes.
(7) state monopoly over the export and import of the production of wood products.
(8) headquarters and 6 divisions, port, stores and services.
(9) crops, rice, maize, papaya fruit, sorghum, fodder, extensive stock breeding for meat production, food production.
(10) ITCO bought the land from Bananera Co. and sold it to the farmers through credit.
(11) product mix: aluminium unfinished products, metal construction, interiors.
(12) BOAL: Basic Association of Associated Labour.
(13) in the period 1864–1947 the modalities of private ownership were changed from individual ownership to joint stock company.

NOTES

1 This is a shortened version of, Janez Prasnikar, *Workers' Participation and Self-Management in Developing Countries,* published by Westview Press, 1991.
2 The idea for this project came out at the fourth conference of the non-aligned countries in Algeria (1973). The countries included in this study are: Algeria, Bangladesh, Bolivia, Costa Rica, Guyana, India, Malta, Mexico, Peru, Sri Lanka, Tanzania, Yugoslavia and Zambia. The formal constitution of the project was made in May 1976. Organization of this project was undertaken by The International Centre for Public Enterprises (ICPE) in Ljubljana with the cooperation of The Institute for Social Studies in The Hague. The project was completed in 1989.
3 In 1963, Algeria enacted legislation to introduce self-management and participation on farms. Nationalization of farming was completed by 1971. Later in 1971, self-management and participation were introduced in industry. In Peru, agricultural co-operatives were established after the agricultural reforms of 1969. In 1970, participation was introduced in industrial firms, followed by social ownership in 1974 in which workers managed the firms. In Tanzania (1962), President Nyerere constructed the strategy of African Socialism, which was based on village communities (Ujamaa villages) and agricultural production. In 1964, the legislature introduced workers' committees into industry. In Yugoslavia, before self-management was introduced into all state firms (in 1950), collectivization in agriculture had taken place but had not produced any results.
4 This is based on the Swedish method of the socialization of private capital (Meidner Plan). Fifteen per cent of net profit was used for buying shares from shareholders which were then transferred to workers. The workers were, however, unable to acquire more than half of the firm.
5 In Mexico, the concrete industry (Cruz Azul), which employed 1,396 workers, played the same role, yet it represents the entire commune system, consisting of more than 6,000 people.
6 In this context, it is important to note that the requirements for the active role of workers' councils and participation were initiated by private and parastate firms more often than by public firms.
7 BOAL—Basic Organization of Associated Labour, the smallest unit where workers exercise self-management rights. BOALs are polled into Working Organization (WOAL), the closest counterpart to the capitalist firm. The legislation abolished these organizational forms in 1989.
8 It must be pointed out that the agricultural population was organized into compounds comprised of 300 to 400 families.
9 However, there are other instances of workers participation and self-management in the Maltese economy besides Maltese shipbuilding. After 1971, the General Workers Union included self-management in some textile firms and other private shipbuilding firms in 1977 (there were 18 firms organized in this way with a total of 1,750 workers). Profit-sharing was introduced into some private firms, such as in Villa Rossa Hotel and Marsa Shipyard. The government introduced partial participation in some departments, for example, the educational sector and, in some of the public firms the workers were organized into the so-called management committees.
10 A detailed list of enterprises is given in the Appendix (Table 13.3).
11 The same finding is valid for the Mondragon co-operative movement.
12 See Zupanov (1969), Obradovic (1975), Arzensek (1974).
13 The opinion of the national unions on co-operatives is very important. In Mexico for example, the unions oppose the introduction of co-operatives. They believe that it is a revisionist concept which will eventually decrease their own bargaining power.

14 The study mentioned that the decrease of the production in COMIBOL could not be attributed entirely to the introduction of self-management, rather to the decrease in the price of minerals and to general political and economic crisis in Bolivia.
15 Cruz Azul, Coope-Silencio and Contex are examples of these types of production co-operatives.
16 The employment characteristics of the Yugoslav self-managed enterprises are clearly visible in the Brewery Union case study. The results of the study indicate that the typical Yugoslav enterprise faces various influences on its employment policy: influences which are the consequence of institutional differences in Yugoslavia; influences from self-management *per se;* influences which are the result of the environment in which self-management operates, especially the differences which exist between the regions with a surplus of labour and those with a shortage of labour; and, specific characteristics of individual enterprises' employment. For more details see Prasnikar and Svejnar (1988).
17 See Prasnikar *et al*. (1991).
18 See Sen (1966).
19 See Vanek (1970).
20 See Meade (1972).
21 In the example HEIL, in the Bhopal Unit free medical care was available to workers and their families, as were five elementary schools, three middle schools, two colleges, three month-long courses for the additional education of workers, evening schools, and housing for 75 per cent of workers.
22 The system in BHEL consists of: basic wage, compensation for inflation, housing allowance (15 per cent of the basic wage), subsidies for living in town, cleaning of work clothes, transportation, education of children excluded from BHEL's own educational system, and a system of bonuses which includes rewards for successful individual and business performance.
23 A portion of income is distributed among individual members' accounts according to the following formula: 34 per cent according to the number of working hours, and 66 per cent according to the level of personal incomes of workers.
24 Ward (1958) and Meade (1972) point to significant differences which may emerge in payments for equal work among individual work organizations since a self-managing economy has no labour market which would equate the payment of a worker with the value of his marginal product. Because of this, enterprises will not employ new workers beyond the point at which the income per worker would become equal to the value of his marginal product. Thus, the economy would not reach Pareto's optimum.
25 Personal incomes of workers in BHEL are the highest in the Indian public sector. The same is true for workers in Malta Drydocks and in Cruz Azul and Coope-Silencio. Personal incomes in Brewery Union are about 20 per cent higher than average personal incomes in the Republic of Slovenia, while workers' incomes in Alumina are higher than average personal incomes of workers in the Republic of Macedonia. The case study of COMIBOL alone states that salaries of miners are lower than the average salaries of workers in other economic branches in Bolivia.
26 There is no direct data on this, only indirect information supporting the point of view mentioned above. Employment policy and the highest possible level of employment are clearly one of the most important goals of public enterprises. It is also evident that some public enterprises in the sample have special schemes for raising loans and therefore need not compete for them on the market. They obtain financial resources on the basis of different priority criteria, usually established by government institutions.
27 The Cruz Azul case study shows that it uses very modern technology. Productivity is greater than in the rest of the cement industry and costs per unit are lower. It manages to finance its development with its own financial resources.

28 See Jensen and Meckling (1979), Drèze (1976), Ross (1974).
29 It must be noted that, in the past, investments in Cruz Azul were also accomplished based on current consumption. New generations of members place higher importance on economic means for stimulating savings also based on functional participation.
30 According to the law, almost 46 per cent of net income must be saved: production investments (15 per cent), obligatory reserves (10 per cent), collective consumption fund (6 per cent), state fund for self-managed cooperatives (5 per cent), financing of unions (5 per cent), fund for education (4 per cent), state co-operative council (1 per cent).
31 The counter example of shipbuilding Malta Drydocks is a typical one related to this. Eighty-three per cent of workers interviewed expressed willingness to increase their effort for reviving the shipbuilding company and pledged not to demand the increase of personal incomes if this were to endanger the development of this enterprise. However, according to the union's tradition of 'bargaining,' workers rejected the proposal to compensate the enterprise's current losses by a reduction of their wages, even though their wages are among the best in the industry sector of Malta. Similar results are also found in Yugoslavia, where 3000 workers from 147 enterprises were interviewed and more then 50 per cent answered that they were not willing to give up their personal incomes for investments in their enterprises (Prasnikar, 1983).
32 See Miovic (1975) and Tyson (1977).
33 See, for example Ribnikar (1989), Prasnikar and Svejnar (1988).
34 See, for example, Pohjola (1993).

REFERENCES

Arzensek, V. (1974), 'Legitimnost managementa: pokusaj institucionalne in koncesualne analize', ('The validity of management: an attempt of institutional and consensual analysis'), Biblioteka, *Covjek i sistem,* Zagreb.

Drèze, J. (1976), 'Some Theory of Labor Management and Participation,' *Econometrica* 44: 1125–1139.

Jensen, M. and W.Meckling (1979), 'Rights and Production Functions: An Application to Labor-Managed Firms and Codetermination', *Journal of Business* 52: 469–506.

Meade, J. (1972), 'The Theory of Labour-Managed Firms and of Profit-Sharing', *Economic Journal* 82: 402–428.

Miovic, P. (1975), 'Determinants of Income Differentials in Yugoslav Self-Managed Enterprises', PhD Dissertation, University of Pennsylvania.

Obradovic, J. (1975), 'Participacija: rezultati istrazivanja i teoretski modeli', ('Participation: results of empirical investigation and theoretical models') Biblioteka *Covjek i sistem,* Zagreb.

Pohjola, M. (1993), 'Flexibility, Power and Wage-Bargaining', paper for the WIDER conference on 'Participation and Co-operation in Economic Enterprises', Cambridge, January 1993.

Prasnikar, J. (1983), *Teorija i praksa organizacije udruzenog rada (Theory and Praxis of the Organization of the Associated Labour),* Zagreb, CEKADE.

Prasnikar, J. (1991), *Workers' Participation and Self-management in Developing Countries,* Boulder, CO, Westview Press.

Prasnikar, J. and J.Svejnar (1988), 'Economic Behavior of Yugoslav Enterprises', in D.C. Jones and J.Svejnar (eds) *Economic Analysis of Participatory and Labor-Managed Firms,* vol. 3, Greenwich (Conn.): JAI Press, pp. 238–311.

Prasnikar, J., Svejnar, J., Mihajlek, D. and Prasnikar, V. (1991), 'A Test of Enterprise Behavior under Yugoslav Labor-Management', Working Paper No. 253, Department of Economics, University of Pittsburgh.

Prasnikar, J., Svejnar, J., Mihajlek, D. and Prasnikar, V. (1994) 'Behavior of Participatory Firms

in Yugoslavia: Lessons for Transforming Economies', *Review of Economics and Statistics,* 76: 728–742.

Ribnikar, I. (1989), *Uvod v financno ekonomijo (Introduction to Financial Economics),* Ljubljana, Pegaz.

Ross, S. (1974), 'On the Economic Theory of Agency and the Principle of Similarity', in M.S.Balch, D.L.McFadden and S.Y.Wu, eds, *Essays on Economic Behavior Under Uncertainty,* Amsterdam, North Holland.

Sen, A. (1966), 'Labour Allocation in a Cooperative Enterprise', *Review of Economic Studies* XXXIII: 351–371.

Tyson, L. (1977), 'A Permanent Income Hypothesis for the Yugoslav Firm', *Economica* 44: 393–408.

Vanek, J. (1970), *The General Theory of Labor-Managed Market Economies,* Ithaca, NY, Cornell University Press.

Ward, B. (1958), 'The Firm in Illyria: Market Syndicalism', *American Economic Review* 68: 566–589.

Zupanov, J. (1969), 'O problemima upravljanja i ruukovodenja u radnoj organizaciji' ('Problems of management and leadership in a working organization'), *Ekonomske studije,* br. 7.

14

WORKER PARTICIPATION IN SOCIALIST AND TRANSITIONAL ECONOMIES[1]

Mark E.Schaffer

INTRODUCTION

This paper discusses self-management, co-operatives, and other participatory forms in Eastern Europe, the former Soviet Union, and China, both before and after the start of 'transition' in 1989. The paper first discusses the experience with self-management and co-operatives in Central and Eastern Europe (CEE) under the traditional socialist economic system and in the market socialist experiments. Most of the attention in this section is focused on the Yugoslav version of 'self-management' as the best known and fullest, though not the only, attempt to introduce worker participation in a socialist country. I then turn to the main subject of the paper, worker participation in the CEE economies following the revolutions of 1989–91 and the start of the transition. The analysis is in three parts. First, I argue that transition now under way in the region has seen an increase in what amounts to worker participation. The retreat by the state from the detailed direction of economic activity created a power vacuum within state-owned enterprises (SOEs), and frequently this power vacuum was filled by workers. I then discuss what we know thus far about the performance of these 'worker-controlled' firms. Lastly, I discuss the implications of privatization and the growth of the emerging private sector for worker participation in the medium to long run. The paper concludes with a brief discussion of the emergence of a dynamic cooperative sector in the Chinese economy.

The paper focuses primarily on industrial enterprises, in part because this is the natural sector for analysing worker participation, and in part because of the limitations of the available data and evidence. The paper does not cover agriculture (collective farms and the like), nor the experience of these countries prior to the introduction of the communist system. The transition experience of eastern Germany is also excluded.

WORKER PARTICIPATION IN SOCIALIST ECONOMIES PRIOR TO 1989

The experience of the socialist economies with worker participation divides naturally into three topics: worker participation in the traditional form of central planning, worker participation in the market socialist experiments, and the experience with producer co-operatives. In fact, the only country in which some genuine worker participation emerged was Yugoslavia, and so most of this section is devoted to the Yugoslav experience with 'self-management'.

Worker participation in the traditional Stalinist centrally-planned economy

The experience with worker participation in the 'traditional' or 'Stalinist' centrally-planned economies (CPEs) shows a wide gap between appearance and reality. The institutional trappings of worker participation were omnipresent, but in fact levels of participation were low or non-existent. The gulf between appearance and reality can be explained as the result of the economic, political and ideological logic of the Stalinist system.

The economic logic of the traditional CPE is that information travels up the hierarchy, the Plan is formulated, and the orders necessary to implement the Plan are promulgated down the hierarchy and eventually to the enterprise level. Within the state-owned enterprise (SOE) the director is in control and gives orders to his subordinates. There is therefore little role for enterprise autonomy in decision-making, and even less for worker participation. The political logic of the Stalinist system rests on the leading role of the Communist Party. Independent sources of political and/or economic power are not tolerated. The ideological logic of the Stalinist system stresses its socialist/communist character, the leading role of the proletariat, etc.

There was consequently no role for genuine worker participation of any sort in a Stalinist CPE. It was standard in these economies to have institutions which suggested that some kind of worker participation existed: workers' councils, consultative committees, etc. These institutions typically had little or no real influence or power; the main reason for their existence was to provide ideological support for the economic and political systems.

Worker participation in the pre-transition market socialist experiments

Most of the socialist economies tried at some point to implement decentralizing economic reforms which would allow for some measure of enterprise autonomy. The most serious attempts were in Hungary, Poland, Yugoslavia and China. For want of a better term, I will refer to the reforms in the first three countries as attempts to introduce 'market socialism'; the Chinese case is different and I will discuss it at the end of the paper. In principle, the market socialist reforms allowed

the possibility of the emergence of genuine worker participation, and indeed all three reform experiments included instituting 'workers' councils' in state-owned enterprises. Workers' councils were a central feature of the Yugoslav economic system. Workers' councils were intended to play a major role in the Polish market socialist reform of 1982–89. They were instituted in Hungary as well, but only in 1985, some years after the introduction of the market socialist system in 1968.

Workers' councils were in principle supposed to have substantial authority, notably in the choice of the enterprise director and in wage determination. In fact, in Poland and Hungary, workers' councils had little authority and their activities typically amounted to little more than rubber-stamping the decisions taken by higher authorities.[2] Yugoslavia, however, proved an exception to this pattern.

The Yugoslav experiment with self-management and market socialism began following Tito's break with Stalin and was motivated in part by a desire to distinguish the Yugoslav version of socialism from that prevailing in the Soviet bloc. While the Yugoslav economic system went through many changes and reforms in subsequent years, self-management was a central feature up until the demise of the country itself.

As in the case of the traditional CPEs, we must distinguish between the formal or *de jure* characteristics of the Yugoslav system, and how the system actually worked in practice. Most of the variants of the Yugoslav economic system post-1952 had the following formal features:

(a) A substantial degree of market liberalization: little or no central planning, a measure of free (market-clearing) prices, and markets for consumer goods and producer goods.

(b) Considerable enterprise autonomy, including self-financing.

(c) Self-management in the socialized sector. Workers elected workers' councils which formally had considerable authority in all activities of the enterprise. Management was responsible to the workers' councils. After covering outside costs, enterprises, directed by their workers, had autonomy in deciding how to divide the enterprise surplus between wages, investment, etc., subject to certain constraints.

(d) 'Social ownership' of capital. Who precisely owned the physical capital of enterprises was unclear. However, enterprises were required to invest sufficiently to prevent the (book) value of capital from decreasing. Investment could be funded either from retained profit or from bank lending.

In practice the Yugoslav system worked rather differently. The features of the system as actually practised are essential for a balanced assessment of the Yugoslav version and of self-management in particular. Three characteristics are particularly important.

First, workers' councils in Yugoslavia—unlike those in the other market socialist experiments—did have substantial authority within enterprises. However, this power was mostly limited to certain areas, notably in the determination of wages and

wage scales, and in employment decisions. The managerial hierarchy was preserved, and management controlled the remaining enterprise activities (production, sales, investment, etc.).

Second, the Yugoslav economic system was highly politicized, as were the other East European market socialist economies. The Yugoslav system differed, however, in that the Yugoslav Communist Party was not the single dominant political actor. Yugoslavia was divided along regional, republican, ethnic, and income lines, and the politicization of economic activity reflected this.

Third, Yugoslav enterprises operated in an environment of 'financial indiscipline' (Sirc 1979); in Kornai's terminology, Yugoslav enterprises had 'soft budget constraints' (Knight 1984; Uvalic 1992). Although enterprises were supposed to be self-financing and there were formal provisions for bankruptcy, enterprises were not allowed to fail, and were if necessary rescued: through merger with other, financially healthier enterprises; through the extension of inter-enterprise credit; or through 'soft' credit by the banking sector (the typical end result). The relative success of enterprises in forestalling failure and in extracting external resources was determined in part by the political factors just mentioned.

Yugoslavia's economic record was mixed: good on growth and industrialization (with quite reasonable results by NIC standards), good on goods market equilibrium (certainly compared to other East European countries), but not so good on inflation, unemployment and inequality. How do we assess the contribution of self-management? This question has led to a lively debate and a voluminous literature, and no clear consensus has (yet) emerged.[3] What follows is my own interpretation of the literature and evidence.

To begin with, self-management seems to have been genuinely popular among Yugoslav workers. It contributed positively to the legitimacy of the political system and of the Yugoslav state. It replaced, to some extent at least, worker-management conflict with co-operation within enterprises.

The evidence on the contribution of self-management to enterprise productivity is less clear. The empirical problem is that the effects of self-management cannot be disentangled from the effects of other features of the Yugoslav system.

The system of self-management has been criticized as contributing to the emergence of high inflation, by allowing enterprises to grant copycat wage increases. This criticism is not well founded. It is true that the environment of financial indiscipline allowed for excessive wage increases via periodic infusions of bank credit. But self-management is neither sufficient nor even necessary for inflation to be generated in this way; it requires only soft credit and macro indiscipline. The Polish experience of the late 1980s demonstrated that East European market socialism could generate high inflation in the absence of workers' councils with genuine power. Conversely, the Polish experience of the early 1990s demonstrates that inflation can be contained in an economy composed largely of firms in which workers have substantial power, so long as these firms face 'hard budget constraints'. I will return to this point later.

Self-management has been criticized as contributing to the emergence of open unemployment. The argument is that enterprises with high incomes per worker lacked incentives to take on additional workers, since this would dilute the incomes of existing workers. This could be counteracted by the entry of new enterprises in sectors with high worker incomes, but there is little incentive to create new firms because the founders do not retain any rights to the capital. Nor did the authorities encourage the formation of new enterprises in such sectors; entry, when it did occur, was motivated more by political and regional considerations. However, this argument can be criticized on empirical grounds: Yugoslav unemployment levels, though somewhat high in comparison to the Organization for Economic Cooperation and Development (OECD) countries (14 per cent at their peak in the 1980s), were comparable to those of a typical market economy at a similar state of development.

Self-management has also been criticized as contributing to large income differentials.[4] The argument is the same as that above for unemployment. Yugoslavia experienced levels of inter-sectoral and inter-enterprise pay inequality that were high by international standards. Pay for the same job differed substantially even in the same city.

But as with Yugoslav inflation, the generation of both unemployment and inequality in Yugoslavia required more than just self-management; in this case, free entry had to be prohibited. The question the Yugoslav experience leaves unanswered is whether high levels of unemployment and inequality would have emerged had free entry been allowed.

Producer co-operatives in the socialist economies

In the socialist economies prior to 1989 there were two varieties of organizational forms that could be classed producer co-operatives: 'traditional' producer cooperatives, and 'small co-operatives'. They were in fact very different animals, but shared the characteristic that neither was in practice a true 'co-operative'.

Socialist countries frequently had a small but significant producer co-operative sector. These 'traditional' co-operatives typically accounted for about 10 per cent or so of non-agricultural economic activity; about this or less in industry, more or much more in retail trade. The producer co-operatives generally satisfied most formal definitions of a co-operative: one member, one vote; voluntary membership; remuneration from the underwritten capital; high membership rates among workers. Being co-operatives, the authorities in these countries classified them along with state-owned enterprises as part of the 'socialist sector' and they were considered legitimate economic actors in the socialist system.

In practice, producer co-operatives in socialist countries, whether traditional Stalinist CPEs or market socialist economies (with the exception of China—see below) were treated by the authorities as essentially no different from SOEs; producer co-operatives had little or no *de facto* autonomy that would not have been available to a comparable firm that happened to be state-owned. The activities

of co-operatives were integrated into the economic planning hierarchy, and the national co-operative organizations were used to direct co-operative activity. Producer co-operatives were typically used by the authorities as an alternative organization form for specific reasons: when economic activity was organized into many small units (e.g., retail trade); when the activity carried out by the enterprise was of very low priority and did not require close supervision by the authorities; when the activity was carried out by disadvantaged groups (notably invalids); etc. Nor did the status of producer co-operative much affect economic performance: the evidence on the productivity effects of co-operative ownership is mixed.[5] In sum, 'traditional' co-operatives in the pre-transition socialist economies were in practice just another form of state-owned enterprise.

The case of 'small co-operatives' is quite different. A number of East European countries (e.g., Hungary, Yugoslavia, the USSR), as part of their economic reform programmes, allowed the formation of small so-called 'co-operatives'. This was not a measure intended to introduce worker participation, but rather a way of allowing a small-scale private sector to emerge in ideologically acceptable garb.

This can be seen most clearly in the case of Hungary, where the 'small cooperative' form of ownership was introduced in the early 1980s and where this sector saw substantial growth during the decade. A comparison with Poland is useful: in Poland, private sector development during the 1980s took place in the form of explicitly private ownership. In both countries, private sector development was subject to special controls (e.g., size limitations, on enterprises). By 1989, the size of the non-agricultural private sector was roughly the same in the two countries (10–15 per cent of gross domestic product—GDP). Since then, growth in the number of Hungarian small co-operatives has ceased and it has been reported that many Hungarian small co-operatives have been changing their legal form and become limited liability companies.

THE TRANSITION IN THE SHORT RUN: THE EMERGENCE OF 'INSIDER-CONTROLLED FIRMS'

To understand the nature of the firm in transition economies, it is first necessary to look at the economic environment in which it operates. A full description of the transitional economic systems in the Central and East European countries would be out of place here. What I will do instead is summarize the typical elements of a 'transition economy'.

The general approach to transition by the CEE reformers can be summarized as the *retreat by the state from detailed direction of economic activity*. I mean here more than just the abandonment of formal central planning. The traditional Stalinist CPEs had formal detailed central planning, but the market socialist experiments (Poland, Hungary) did not. All the socialist economies, however, were characterized by informal central guidance of economic activity, and enterprise activity in particular. In the leading transition economies of CEE (Poland, Hungary, and the former Czecho-Slovak Federal Republic), nearly all the formal central planning,

and most if not all of the informal central guidance of the activity of individual enterprises, has ceased.

This approach to transition has translated into specific policies as follows. First, the reformers have introduced price liberalization and the consequent establishment of genuine markets for goods and services. Price liberalization has gone quite far in these countries. In the leading transition countries (Poland, Hungary, the Czech and Slovak Republics) it was virtually complete by the end of 1991, since when the scope of market-determined prices has been about that seen in Western Europe (covering about 90 per cent of transactions by value). In all the economies which have seen price liberalization, market-clearing prices have been established for most goods, i.e., we observe goods market equilibrium. The 'shortage economy' is, for the most part, a thing of the past in these countries.

Reformers have also tried to establish 'hard budget constraints' for enterprises. The reduction of explicit budgetary subsidies has, by and large, been carried out fairly successfully in the transition countries, in part for the simple reason that most subsidies were given to enterprises in compensation for low state-set prices for their output. When the price controls were lifted, the subsidies were removed at the same time. Some 'softness' has re-emerged, however, mostly via two channels. First, enterprises in some countries (e.g., Poland, Hungary, Russia) have been able to run up large tax arrears. Second, some countries (e.g., Russia) have rescued large numbers of ailing enterprises through infusions of cheap credit.

Wage-setting, previously highly centralized, is typically highly-decentralized in the reforming CEE countries. Wages are usually set at the level of individual enterprises. Central wage controls on enterprises are typically indirect, tax-based controls; the most common form is a tax on wage increases after some allowance for inflation. Labour markets have also emerged in these economies. The relatively modest level of direct planning of labour supply seen under the socialist system has ceased. With respect to labour demand, enterprises are free to choose their employment levels as well as their wage rates. The socialist economies saw artificially high levels of labour demand and consequent labour shortages; in the transition economies, open unemployment is observed.

Finally, the process of privatization is a feature of all the transition economies. This process takes three forms. The first is the liberalization of private sector economic activity. This measure typically takes place very quickly and very early in the transition. The second measure is small-scale privatization, meaning the lease or sale of shops, small establishments, etc. This kind of privatization has proceeded fairly quickly in a number of countries. The results (improvement in the quality of goods and services) have also been visible fairly quickly. The third measure is large-scale privatization, meaning privatization by direct sale, voucher schemes or other means of medium- and large-scale state-owned enterprises. This kind of privatization has proceeded much more slowly; at the time of writing, only a few countries have succeeding in privatizing a large portion of their industrial assets (notably the former Czecho-Slovak Federal Republic—CSFR—now the Czech Republic and Slovakia, and Russia).

The largely successful introduction of market liberalization measures, combined with the slow pace of large-scale privatization and the resulting (short-run) persistence of dominant state ownership, in effect established a new type of economic system in the early part of the transition. In this economic system there are genuine (free) markets for goods, as in Western countries, but the enterprise sector is largely state-owned. What I shall do in the remainder of this section is argue that these state-owned enterprises can be characterized as 'insider-controlled firms', and, in some cases, 'worker-controlled firms'.

In most of the CEE countries, the transition began with the collapse of the communist system and, at least initially, a decrease in the authority of central government. The reformers that came to power introduced the policies described above. These policies implied a retreat by the state—the nominal owner of state enterprises—from detailed direction of enterprise activity. The result has been that enterprises were suddenly given substantial autonomy, and at the same time subject to competing property rights of three[6] sets of actors: the nominal owner, the state, and two sets of insiders, management and workers.[7]

Although research on cross-country comparisons of corporate governance in these countries is still in its early stages, a general picture of which of these competing claims came out on top in the short run is starting to emerge.[8] In most countries the enterprise insiders became dominant. Frequently these insiders initially had substantial influence over the disposal of the actual assets of their firms. This was the phenomenon of 'spontaneous' or *'nomenklatura'* privatization, seen, for example, early in the transitions in Hungary, Poland and Russia. Existing management in some SOEs (installed in the period of communist power and thus part of the *nomenklatura*) were able to take advantage of legal loopholes, lax central control, etc., and appropriate (assume ownership of) some or all of the assets of their firms. But in most cases the central authorities have been able to rein in spontaneous privatization and reassert control over state-owned assets, either by direct assertion of their authority (Hungary, Poland) or by providing a proper legal framework for privatization which co-opts the insiders by offering them a substantial share of the assets of their firm (Russia).

We can therefore describe SOEs in most transition countries as 'insider-controlled firms'. Pending privatization, title of the enterprise assets remains with the state and the insiders have limited influence over the disposal of these assets. They have, however, very substantial influence over the flow of income (value added) generated by the assets, meaning that they can decide (within the limits of the government's incomes policy, if any) how much to pay in wages and salaries and how much to reinvest. The increase in the influence of workers, I suggest, can be interpreted as an increase in the level of 'participation', even where management have become the dominant insiders. Where the interests of workers dominate, enterprises have become 'worker-controlled firms'. It is still not very clear how frequently managers became the dominant insiders, and how frequently this role was taken by workers, but most observers would suggest that the most important case of the emergence of worker control is probably that of Poland.

There is by now a large body of enterprise-level empirical evidence documenting the substantial influence of workers within the typical Polish SOE, though there is some debate over whether (or how often) managers were also leading enterprise insiders.[9] Poland has of course a long history of labour activism; this is the country that brought down two communist governments in a decade (no mean feat). The fall from power of the Communist Party in 1989, and its replacement by a Solidarity-led reformist government, meant that workers in enterprises quite naturally filled the power vacuum in enterprises. As I have noted elsewhere (Schaffer 1992a), this is a wonderful 'Polish paradox': the first step in the transition from socialism was the establishment of an economy of worker-controlled firms, the closest thing to 'true socialism' Poland had ever seen.

Given the leading role of the Solidarity movement in the 1989 revolution, and the Polish tradition of labour activism, most Polish state-owned enterprises would most likely have become 'worker-controlled firms' in any case. But the assumption of effective power by workers was aided by the presence of the machinery of workers' councils established in enterprises as part of the market socialist reform of the 1980s. As noted above, prior to the transition, the powers of workers' councils in Polish enterprises existed *de jure* but not *de facto*. The arrival of a government committed both to economic liberalism and to the rule of law, meant the powers of workers' councils became real. The most important of these powers was the ability to appoint the enterprise director, and in fact enterprise directors began to be replaced on a large scale starting already in late 1989/early 1990.

In practice the degree of worker control in Polish SOEs varies with the activities of the enterprise. Short-run production and marketing decisions are the responsibility of management, and workers and their representatives typically do not play an active role. Workers are much more involved in wage determination and hiring/ firing decisions. They also frequently play a key role in the major strategic decisions facing the firm (e.g., privatization).

To summarize: we may reasonably describe Polish state-owned enterprises as, to at least some extent, 'worker-controlled firms', and therefore as a 'participatory' form of enterprise. The resemblance with Yugoslav 'self-managed' firms is obvious: in both cases workers exerted considerable influence over wages and employment levels, production and similar decisions remained primarily the responsibility of management, and the ownership rights of the enterprise assets were unclear or ambiguous. How do Polish worker-controlled firms differ from Yugoslav self-managed firms? One difference is that workers in Polish SOEs probably have more power than did their Yugoslav counterparts. Polish workers have the ability to block major strategic decisions of management (a privatization plan, for example); Yugoslav workers were never so influential.[10] However, the main differences between Polish and Yugoslav firms are not to be found within the enterprise, but in their external environments. Polish SOEs, unlike Yugoslav firms but in common with SOEs in the other leading transition economies, are (in the large majority of cases) genuinely independent from the political authorities, and operate in a fairly 'hard' (subsidy-free) financial environment.

This last fact means it is possible, at least in principle, to assess the influence of worker control on the performance of SOEs in transition economies by comparing the Polish experience with the experiences of other transition countries where the degree of worker control is less but the external environment facing firms is similar. This is of course a major task facing empirical researchers today, and evidence is only just starting to emerge. What I shall do in the next section is sketch out a few basic facts, and (hopefully) demolish a few common myths, about the impact of worker control on firms in transition economies.

THE PERFORMANCE OF 'WORKER-CONTROLLED FIRMS' IN TRANSITION ECONOMIES

The detailed enterprise-level data needed to evaluate properly the influence of worker control on enterprise performance is only just becoming available, and research on this topic is still in its early stages. I will instead use a much cruder method, and compare the aggregate performance of the enterprise sector in Poland with that of the enterprise sectors in the other two leading transition countries, Hungary and the (former) CSFR. Most observers would agree that the degree of worker control in Poland is substantially higher than in the other two countries, and so we might expect the influence of worker control to be observed in differences between the performance of the Polish enterprise sector compared with that of the enterprise sector in the other two countries.

Output

Summarizing the influence of worker control on output in transition economies is actually quite easy. In all transition countries, China excluded, output has collapsed. Roughly speaking, industrial output falls to 40–70 per cent, and GDP to 50–80 per cent, of their pre-transition levels, before the bottom is reached. The best comparison is between the leading transition countries (Poland, Hungary, the CSFR) (see Table 14.1). What is striking is the uniformity of the output collapse; in all

Table 14.1 Industrial output in the leading transition countries (1989=100)

	1988	*1989*	*1990*	*1991*	*1992*
Poland					
Hiring rate	16.1	15.8	10.7	12.9	17.1
Departure rate	17.2	19.3	22.9	25.2	21.6
Hungary					
Hiring rate	22.7	25.6	24.2	21.6	n.a.
Departure rate	25.4	29.0	32.4	34.4	n.a.

Coverage: All industry.
Source: National statistical offices and author's calculations.

three countries, industrial output bottomed out at about 65–70 per cent of its 1989 level (the continued drop in output in the former CSFR in 1993 reflects the disruption of trade between the two successor states following the division of the country at the end of 1992).[11] Of course, the emergence of worker control in Poland may still have had an impact on the level of output; but this effect, if it exists, is probably small compared to the total fall in output.[12]

Employment

In all the transition economies, industrial employment levels have fallen slowly, and (initially) less than the level of industrial output. Unfortunately, it is not easy to draw conclusions from cross-country comparisons because of data problems. In all three countries, total industrial employment fell by 15–25 per cent between 1989 and 1992, but the movement of labour into small (private) firms has been substantial; separate and comparable data on employment in the state sector is not available. Roughly speaking, total industrial employment has fallen fastest in Hungary and slowest in the CSFR; but comparisons of data for larger enterprises suggest labour shedding has been slowest in Poland.

A comparison of Polish and Hungarian labour turnover rates is perhaps more revealing (Table 14.2). In Poland, labour shedding in industry was driven by a sharp drop in hirings; the increase in the departure rate was less important. In Hungary, an increase in the departure rate was relatively more important. These comparisons are consistent with the micro evidence that workers in Poland are reluctant to accept lay-offs and the like, but do not object to (necessary) labour shedding via natural attrition.

This reluctance of worker-controlled enterprises to shed labour is not a bad thing, so long as it does not endanger the survival of the enterprise because of unsustainable wage bills (more on this in a moment). Alternative employment opportunities early in transition are quite limited. The private sector is not (yet) big enough to absorb even a large part of all the redundant labour were it to be shed

Table 14.2 Labour turnover in industry in Poland and Hungary

	1988	*1989*	*1990*	*1991*	*1992*
Poland					
Hiring rate	16.1	15.8	10.7	12.9	17.1
Departure rate	17.2	19.3	22.9	25.2	21.6
Hungary					
Hiring rate	22.7	25.6	24.2	21.6	n.a.
Departure rate	25.4	29.0	32.4	34.4	n.a.

Coverage: Poland—socialized industry only (state + cooperative) 1988–90; all industry 1991–92. Hungary—all industry. Definitions are not strictly comparable between countries.

Source: National statistical offices.

all at once. Even with this slow labour shedding there is still a large pool of unemployed labour, and it is unlikely that labour would be reallocated faster and thus output would be higher, if labour were shed by the state sector faster. Recent evidence[13] suggests that the growth in private sector employment is drawn directly from state sector employment and not from the 'stagnant pool' of unemployed. There is, moreover, not much of a social safety net for the unemployed in transition economies. Keeping people in jobs, even if underemployed, is preferable to having them openly unemployed, on social and political as well as economic grounds.

Wages, profits and investment

One can easily see how worker control, combined with short time horizons (caused by, among other things, the prospect of privatization), could have important consequences with respect to the division of the enterprise surplus. Profits and investment could be squeezed by wages, and firms gradually decapitalized. Some observers voiced fears that excessive wage claims in worker-controlled firms would even drive large numbers of firms into bankruptcy.

This is a very difficult area, and the available evidence is fragmentary and mixed. However, enough is known to be able to make a few basic observations. I will first summarize the evidence gathered at the enterprise level about the behaviour of Polish firms, and then make some comparisons between Poland and other transition economies using aggregate data.

Empirical work on Polish enterprises suggests that worker-controlled firms are fairly cautious in their wage-setting. Real wages are fairly flexible, both upwards and downwards. Firms typically pay only wages they can afford and do not endanger their short-run survival by paying workers wages at unsustainable levels. Firms perceive a wage—employment trade-off, and are willing to accept low wages, at least temporarily, in order to avoid forced lay-offs. Conversely, if firms are in good financial health, they are willing to distribute some of the profit in wages.

The path of real wages in Poland in 1990 illustrates this behaviour well.[14] Following the Big Bang (stabilization/liberalization) of January 1990, industrial output fell by about 30 per cent, after which it was more or less flat, and the price level jumped by about 100 per cent, after which inflation was about 5 per cent per month. Nominal wages were virtually flat between December 1989 and February 1990, after which they grew fairly steadily at a rate of something like 8 per cent per month; that is, real wages first plummeted and then steadily increased (*nb:* wages are set monthly). The dramatic collapse of real product wages in the early part of the year reflects conservative wage-setting. Enterprises were hit simultaneously by several shocks: not just the leap into the unknown entailed by the price liberalization, but also a large increase in interest rates and substantial profit tax liabilities. They reacted by cutting real wage costs so drastically that despite the huge drop in output in January 1990, unit labour costs (labour costs per unit of output) actually fell. It is important to note that the government's tax-based incomes policy (TIP) played no obvious role in this voluntary wage restraint. The TIP worked

through partial indexation of wages; wages in excess of the indexation norm were taxed at penal rates (several hundred per cent). The drop in real wages in early 1990 was so huge that very few enterprises paid wages anywhere near the norm—the TIP wasn't binding. As the year progressed, the smoke cleared, the financial pressures on firms eased, and they gradually began to increase real wages. More and more enterprises began to hit the TIP wage limit, and then to exceed it. By the end of the year, payment of the TIP taxes was the rule rather than the exception. Firms did not do this recklessly, but rather because they could afford it; they simply treated the TIP as an extremely progressive income tax. The cautiousness of Polish worker-controlled firms in 1990 is evidenced by the surprisingly (given the huge drop in output) small number of bankruptcies, plant closures, etc.

Polish unit labour costs continued to increase in 1991 and then levelled off in 1992. The explanation is rather complicated and I have discussed it at length elsewhere (Schaffer 1992c). In short, in 1991 Polish enterprises benefited from a reduced tax burden, and (in aggregate) these savings were channelled into wages.

What is most surprising about wage behaviour in Polish enterprises during transition is that in aggregate, wage increases have not been excessive, nor decapitalization more extensive, than in the other leading transition countries. Table 14.3 shows that relative to pre-transition levels, real consumption wages in Poland have decreased more than in Hungary but less than in the CSFR. Real product wages increased substantially in Poland but even more in Hungary, but fell in the CSFR.

More useful for the analysis here is evidence on unit labour costs, since this gives a good indication of how much of the surplus is going to labour. We can see from Table 14.4 that compared to pre-transition levels, unit labour costs in Polish industry had increased substantially by 1992. Unit labour costs in the CSFR were lower in 1992 than prior to the transition, suggesting substantial wage moderation by Czechoslovak workers. But in Hungary, where most observers would suggest that worker power is lower than in Poland and that managers are the dominant insiders, by 1992 unit labour costs had risen even further above their pre-transition

Table 14.3 Real wages in industry in the leading transition countries (1987=100)

	1987	*1988*	*1989*	*1990*	*1991*	*1992*
Consumption wages						
Poland	100	115	125	85	83	81
Hungary	100	96	97	93	88	90
CSFR	100	102	102	96	71	76
Product wages						
Poland	100	114	139	92	107	120
Hungary	100	106	109	112	108	123
CSFR	100	102	105	103	71	78

Source: National statistical offices and author's calculations.

Table 14.4 Unit labour costs in industry in the leading transition countries

	1988	*1989*	*1990*	*1991*	*1992*
Poland (1988 = 100)	100	125	104	121	118
Hungary (1988 = 100)	100	105	108	127	134
CSFR (1989 = 100)	n.a.	100	99	70	79

Source: National statistical offices and author's calculations.

Table 14.5 Fixed investment in industry in the leading transition countries (1989=100)

	1989	*1990*	*1991*	*1992*
Poland	100	93	86	82
Hungary	100	93	80	82
CSFR	100	113	86	n.a.

Coverage: All industry.
Source: National statistical offices and author's calculations.

levels than they did in Poland. Similarly, Table 14.5 shows that capital formation in industry was squeezed no more in Poland than in the other two countries (and indeed fell less than did output).

A note in passing: why look at unit labour costs and not directly at profits and profitability? The reason is that the data on enterprise profits in these countries suffer from serious problems. In particular, when inflation is rapid, profits suffer from a severe upward bias. These inflationary profits are an illusion and do not correspond to genuinely high levels of cash flow.[15] Polish inflation was particularly high in 1989–90, and it turns out that the sharp drop in profitability in 1991 is due largely to the decrease in inflation (Schaffer 1992c).

In summary, the aggregate evidence suggests that worker control in Poland does not seem to have led to unusually large wage increases, nor to high rates of capital decumulation, in comparison to the other leading transition countries.

THE TRANSITION IN THE MEDIUM TO LONG RUN: PRIVATIZATION AND THE EMERGING PRIVATE SECTOR

The transformation of the system of property rights in the transition countries, while slow, is already under way. First, privatization of most state-owned enterprises is on the agenda of most of the CEE transition countries; substantial progress towards this end has already been made in the former CSFR and Russia, with Poland apparently soon to follow. Second, the emerging private sector has been growing rapidly in most transition countries. In this section I will examine the consequences of these trends for worker participation.

Privatization

We should first of all distinguish between privatization of small and medium-sized SOEs and privatization of large SOEs.

With respect to smaller enterprises, worker and management buy-outs or leases have been a privatization method frequently used in transition countries.[16] In many cases this form of privatization can be interpreted as 'regulated spontaneous privatization' of small and medium-sized enterprises; enterprise insiders are able to obtain formal property rights over the assets of their enterprise at concessionary rates. To the extent that the workers have an ownership stake in these privatized firms, they are in some sense 'participatory' and should remain so for some time following privatization. The medium-term economic prospects of these new participatory firms are on average likely to be fairly good, since the workers and managers who took over the firms did so voluntarily.[17] What will happen to these firms in the longer run is less clear. Those in which employees hold a large proportion of shares are perhaps best viewed as the core of a nascent producer cooperative sector similar to that found in Western industrialized countries; and the questions raised, for example, about the ability of Western producer co-operatives to survive, would apply to these firms as well.

The privatization of large SOEs is a rather different story. The experience of the past several years suggests that privatization of these large firms is a slow and painful process. The only countries which, so far, have successfully privatized most of their large SOEs are the former CSFR and Russia, both of which distributed shares in SOEs to the population via voucher schemes. A key reason for the Czechoslovak success in implementing large-scale privatization so quickly (less than two years from initial preparation to completion of the first wave by the end of 1992)[18] was the lack of resistance by enterprise insiders. The Russian mass privatization scheme, by contrast, in effect gave away large amounts of shares to workers and managers, thereby obtaining the co-operation of powerful insiders (notably managers) in the privatization process. The Russian privatization programme was also largely completed within two years. The Polish mass privatization scheme has been much slower getting off the ground, in part because of resistance on the part of workers. The Polish scheme tried to co-opt workers by offering them tax concessions (relief from the TIP) and a small portion of shares (initially 10 per cent) in their firm, but this has not been enough to convert most workers into enthusiastic privatizers.

What will privatization mean for worker participation in the larger (formerly) state-owned enterprises? On the one hand, the formal mechanisms of worker control inherited from the communist period (workers' councils) are dissolved. They may, however, be replaced by other formal mechanisms; to take an obvious example, workers may hold a large portion of the shares of their privatized company. Informal worker control or influence may also persist under certain conditions; 'company culture' is not usually easily changed.

We can distinguish between three cases:

The first case arises when a firm is bought by outside owners, among whom there is a shareholder with a dominant or controlling interest. One example would be the direct purchase of an SOE by a foreign firm. A high degree of worker participation, if it were present prior to privatization (if the firm had been *de facto* a worker-controlled SOE), could possibly persist, but we would expect this only if the new owner saw the need for it. This seems rather unlikely. On the other hand, this kind of privatization is likely to account for a small fraction of all privatizations of larger SOEs, simply because of the lack of (domestic) buyers.

The second case arises when a firm is privatized by selling or distributing shares to the general public. Ownership would be dispersed among a large number of individuals who would not in practice exert much control over the firm. An insider-controlled firm would remain largely insider-controlled; where workers were the dominant insiders, worker-controlled. This situation would persist until trading of shares in the firm produced a dominant outside shareholder or shareholders, who could then play the role of active owners.

An important intermediate case concerns newly established financial intermediaries who hold shares on behalf of the public. Such investment funds played a large role in the first wave of coupon privatization in the CSFR; almost three-quarters of individuals opted to place their coupons in investment funds which then bid for shares in companies. Investment funds play a central role in the Polish mass privatization plans: shares in the companies to be privatized will be transferred to 10–20 investment funds, and shares in these investment funds will in turn be distributed to the population. The difference between the investment funds in the two schemes is that the Czechoslovak scheme was decentralized and bottom-up, whereas the Polish scheme is centralized and top-down. In the CSFR, entrepreneurs (private individuals, banks, etc.) entered the market for financial intermediation and set up investment funds in large numbers. In Poland, the government will employ Western consulting firms to help set up and (initially) run a smaller number of funds. (The trade-off between speed and reliability is obvious.) The question is whether, or when, these investment funds will become active owners. If they can rapidly establish controlling interests in firms and then successfully exert this control, the situation will resemble the first case, and levels of worker participation (if present to begin with) would likely decrease.

The third case arises when the firm is privatized by selling or distributing a large portion of shares to management and workers of the firm. The Russian mass privatization scheme has a large such component. This kind of privatization has the effect of regularizing insider control; insiders become insider shareholders. In this situation, levels of worker participation would be maintained or even increased. If prior to privatization managers were the dominant insiders, we might expect the fact of major share ownership by the work-force to lead to a substantial increase in worker influence. In the medium to long run, as shares are traded, employees leave the firm and sell their shares, etc., worker control would diminish.

To summarize: the prospects for worker participation in privatized enterprises in the CEE transition countries are somewhat mixed, but we would expect it to persist or possibly increase in some circumstances in the short to medium run.

The emerging private sector

At the start of the transition the private sector was either small or non-existent in all the CEE countries. But whereas output has collapsed and then stagnated in the state sector, it has grown steadily and in some cases extremely rapidly in the emerging private (as opposed to privatized) sector. In the leading transition countries the private sector already accounts for a substantial portion of economic activity: about one-third of GDP in 1992 in Hungary and Poland (excluding agriculture).

Studies of the emerging private sector[19] show that union representation is rare or non-existent. The attitude of the entrepreneurs that run these firms towards unions is that 'they are not needed here'. This suggests that in the medium run we may see the division of the transition economies along lines similar to those in developed Western countries (unionized vs non-unionized). In the emerging private sector, union membership is rare and levels of worker participation low. In the privatized (previously state-owned) sector and in enterprises which continue in state ownership, levels of union membership, share ownership by employees, and worker participation generally, may frequently be high.

In the long run, the prospects for worker participation in Central and Eastern Europe therefore depend critically on the relative performance of the emerging private sector and the privatized sector. The sooner growth in the privatized sector resumes, and the faster it grows, the larger its share of the economy. Conversely, should growth rate differentials continue at anything like their current levels, the privatized sector will be engulfed by the emerging private sector, and levels of worker participation will be low in the long run. The evidence from Poland, the leading transition country and the only one at the time of writing where recovery is clearly under way, suggests the latter outcome is more likely. Belka, Estrin, Schaffer and Singh (1994) report results from a World Bank survey of about 200 medium and large state-owned, privatized and emerging private sector manufacturing firms. The 120 state-owned firms report output growth in 1993 of 9–10 per cent, and the output of the 45 privatized firms grew 20 per cent, compared to 8.5 per cent for the aggregate Polish manufacturing sector. The average real output growth of the 40 emerging private firms in the sample was, by contrast, over 60 per cent in 1993. The emerging private firms expanded their employment in 1993 by over 20 per cent on average, whereas both the state-owned and the privatized firms shed about 7–8 per cent of their work-force.

Aggregate data on industrial output and employment growth in Poland present a similar picture. The raw figures published by the Polish Central Statistical Office are muddied somewhat by changing classifications and coverage,[20] and by the treatment of the privatization of a firm as causing an increase in private sector

output and a decrease in state sector output. Table 14.6 contains some rough estimates by the author of the growth and structure of industrial output in Poland 1989–93 by ownership classification which attempt to correct for these problems.

Even allowing for a substantial margin of error, the picture is very clear. The private sector increased its share of industrial output from 7 per cent to 32 per cent between 1989 and 1993. Most of that growth was due to the emerging private sector, which roughly doubled its output during that period, and relatively little was due to privatization. More detailed annual and quarterly data for 1992–94 show output in state industry as flat or (correcting for privatization effects) growing slowly, and employment still falling, and both output and employment in the emerging private sector growing strongly. In short, most of the economic recovery is taking place in the emerging private sector.

I close this section with a brief note on the fate of the 'traditional' producer co-operative sector in the transition economies. Co-operatives, like SOEs, were freed from central control, but unlike SOEs they were not slated for automatic privatization and instead began to be treated as part of the private sector. In Hungary and the CSFR, new laws on co-operatives were introduced that regularized ownership and also allowed for their conversion into other ownership forms or for their dissolution and the division of co-operative property among their members (see Frydman, Rapaczynski and Earle *et al.* 1993). There is growing evidence,

Table 14.6 Structure and growth of Polish industrial output 1989–93 by ownership

	1989	*1993*
Structure of output in % (current prices)		
Total		
of which:	100	100
State	84	63
Private	7	32
of which, privatized	0	6 (rough est.)
of which, emerging private	7	26 (est.)
Co-operatives etc.	9	5
Real output, 1989 = 100 (constant prices)		
Total		
of which:	100	74
State and privatized	100	60–65 (est.)
Private	100	200 (rough est.)
Co-operatives etc.	100	40–50 (est.)

Note: 'Co-operatives etc', consists primarily of co-operatives proper, plus a small number of miscellaneous 'social organizations'.

Sources: Author's estimates based on data in *Informacja o sytuacji gospodarczej kraju, Biuletyn Statystyczny, Rocznik Statystyczny,* and *Prywatyzacja przedsiebiorstw,* all Polish CSO, various issues.

however, that the economic outlook for the producer co-operatives is not good. Industrial co-operatives in Poland have done even worse during the transition than the state sector in terms of both output and employment (see Table 14.6). According to Valentinyi (1993; 6, 10), GDP in the Hungarian co-operative sector fell by 41 per cent between 1990 and 1992 (compared to 21 per cent for the entire enterprise sector), and employment in co-operatives fell by 48 per cent in the same period (compared to 29 per cent for the entire enterprise sector).

DYNAMIC CO-OPERATIVES IN CHINA

The Chinese economic reform that began in 1978 differs in a number of ways from both the pre-1989 reform experiments in Central and Eastern Europe and from the post-1989 CEE transitional economies. For our purposes, some of the more important features of the Chinese reform include:

(a) A gradual, experimental approach to reform measures.

(b) Partial price liberalization, in the form of dual- (or multi-) track pricing. A portion of output is sold at controlled prices; enterprises are free to sell further amounts at market prices.

(c) The introduction of profit-based incentives for state-owned enterprises.

(d) Substantial liberalization of forms of ownership. In additional to traditional state ownership, both private and co-operative firms are allowed and even encouraged to grow. Unlike state-owned firms, these co-operative and private firms operate in market environments with significant financial discipline.

Chinese economic performance during the reform period has been impressive, with rapid and sustained growth rates in both agriculture and industry. It is now clear that a key ingredient in industrial growth has been ownership reform.

Economic growth in the state-owned sector has been reasonable for an industrializing country but no more than that. Industrial output in the state sector grew at about the same rate in the period 1978–88 as it did in the period 1970–78 (about 8 per cent p.a.). Enterprise-centre bargaining, soft budget constraints, powerless workers' councils, and other features also seen in the pre-1989 CEE reform attempts, are present in the Chinese state-owned sector as well.[21]

The key to the strong Chinese industrial performance since 1978 has been the non-state sector (and so the key reform policy has been ownership reform). Rapid growth in the private and co-operative sectors reduced the state sector's share of industrial output from 78 per cent in 1978 to 53 per cent in 1991.[22] The private sector has grown rapidly, but from a negligible base and has contributed only modestly to the increase in industrial output. In 1991 it accounted for only 5–10 per cent of industrial output. The key role in Chinese industrial growth in the reform period has been played by Chinese co-operatives, and in particular 'township-village enterprises' (TVEs).[23] The co-operative sector has grown rapidly,

less quickly than the private sector but from a larger base. In 1978, this sector accounted for 22 per cent of industrial output. By 1991, this was up to 36 per cent; over half the increase in industrial output since 1978 is due to the expansion of this sector. The dynamics of industrial growth in China since 1978 are therefore similar to the dynamics we expect to observe in the transition countries of Central and Eastern Europe. The difference is that in the CEE countries, the most dynamic sector—the private sector—is also the least participatory and could well submerge the participatory (former state) sector, whereas in China the participatory sector is very dynamic and is submerging the non-participatory state sector.

Chinese TVEs are peculiar organizations. The property rights are not well-defined, and indeed it is not easy even to identify who the 'owners' are. This has led Weitzman and Xu (1994) to dub TVEs as 'vaguely defined co-operatives'. The inhabitants of the community that establishes the TVE collectively own the firm. The community government exercise (some) ownership rights on behalf of the community. Employees of the TVE sign a (collective) contract with the community government. The TVE manager is determined jointly by the employees and the community government. According to Weitzman and Xu, the basic paradox is that TVEs have performed so well in spite of poorly defined property rights. They suggest that this may be possible because TVEs operate in a 'cooperative culture', a society in which groups of people are unusually good at resolving free-rider-type problems internally.

However, it does not appear that TVEs have any significant inherent advantages over purely private firms in terms of economic performance. It seems that these firms have an ideological advantage over private firms, e.g., they face fewer bureaucratic obstacles in start-up and expansion. The long-term prospects for these firms therefore depend on the ideological and political environment in China, though their strong performance thus far suggests that even in the absence of the (relatively mild, by CEE standards) anti-private-property bias they could possibly remain an important feature of the Chinese economic landscape for the foreseeable future.

NOTES

1 This chapter benefited from comments from the Cambridge seminar participants, and from discussions with Saul Estrin and Chenggang Xu. The usual caveat applies.

2 See, for example, Kwasniewski (1985).

3 See, for example, Tyson (1980), Bonin and Putterman (1987), Estrin (1991), and the references therein.

4 See, e.g., Estrin (1983), Flakierski (1989).

5 See Jones (1985, 1992a, 1992b).

6 In Russia, a federal state where (currently) the centre is weak and the regions are gaining strength, local government may be considered a separate, fourth actor.

7 In Poland, enterprises are said to be lost in 'the Bermuda triangle' between management, workers and government.

8 For cross-country comparative case studies, see Estrin, Gelb and Singh (1993).

9 See, for example, Dabrowski, Federowicz and Levitas (1991a,b), Pinto, Belka and Krajewski (1994), Estrin, Gelb and Singh (1993), Belka, Estrin, Schaffer and Singh (1994).
10 I am grateful to Saul Estrin for making this point to me.
11 The figures presented are for total industry. If the data were available, they would show somewhat larger output drops for the state sector alone in each country, but the variation between countries would still be fairly small. See, however, the remarks on labour shedding below.
12 I note in passing that the output drop in these countries cannot be easily explained. It is difficult to blame all or even most of it on the collapse of the Council for Mutual Economic Assistance (CMEA) trading system, because often the drop in Eastern external demand was compensated by an export boom to the West.
13 See Boeri (1994), Jackman (1994).
14 For a fuller analysis, see Schaffer (1992b).
15 For a detailed look at this problem in the Polish context, see Schaffer (1992c). This inflation bias is a standard problem with historical-cost-based accounting. It is caused by the increase in the price level between the time raw materials are purchased and the time when the product embodying these raw materials is sold.
16 For a survey of 55 Polish privatized and privatizing enterprises, most of which had privatized via some form of worker/management lease or buy-out, see Dabrowski, Federowicz and Szomburg (1992).
17 Earle and Estrin (1994) analyse a World Bank survey of 200 Polish state-owned, privatized and emerging private manufacturing firms. They find that the 13 privatized and employee-owned firms made up the financially healthiest group.
18 I should note that the actual distribution of shares to investment funds and individuals was delayed beyond this date by a dispute between the Czech and Slovak governments.
19 Belka, Estrin, Schaffer and Singh 1994; Webster 1992a, 1992b; Webster and Swanson 1992.
20 For example, co-operatives were reclassified as part of the private sector starting in 1991.
21 For a detailed comparison of the Chinese and Polish state-owned enterprise sectors, see Fan and Schaffer (1991).
22 These and subsequent figures are taken from Qian and Xu (1992).
23 The Chinese co-operative sector is composed of TVEs and 'urban co-operatives'; the latter account for a small fraction of output and (unlike TVEs) have not been expanding particularly quickly.

REFERENCES

Belka, Marek, Estrin, Saul, Schaffer, Mark E. and Singh, I.J. (1994), 'Enterprise Adjustment in Poland: Evidence from a Survey of 200 Private, Privatized and State-Owned Firms in Poland', paper presented at the Workshop on Enterprise Adjustment in Eastern Europe, PRDTE, World Bank, Washington, DC, 22–23 September.

Boeri, Tito (1994), '"Transitional" Unemployment', *Economics of Transition,* 2 (1) March.

Bonin, John and Putterman, Louis (1987), *Economics of Cooperation and the Labour-Managed Economy,* Harwood, Chur, Switzerland, 1987.

Dabrowski, Janusz M., Federowicz, Michal and Levitas, Anthony (1991a), 'Report on Polish State Enterprises in 1990', Research Centre for Marketization and Property Reform, Gdansk.

Dabrowski, Janusz M., Federowicz, Michal and Levitas, Anthony (1991b), 'Polish State Owned Enterprises and the Properties of Performance: Stabilization, Marketization, Privatization', *Politics and Society,* 19(4).

Dabrowski, Janusz M., Federowicz, Michal and Szomburg, Jan (1992), 'Privatization of the Polish State-Owned Enterprises: The Second Report', Gdansk Institute for Market Economics.

Earle, S.John and Estrin, Saul (1994), 'Worker Ownership in Transition', mimeo, Central European University and London Business School, August.

Estrin, Saul (1983), *Self-management: Economic Theory and Yugoslav Practice,* Cambridge University Press.

Estrin, Saul (1991), 'Yugoslavia: The Case of Self-Managing Market Socialism', *Journal of Economic Perspectives,* 5 (4) Fall: 187–194.

Estrin, Saul and Bartlett, William (1982), 'The Effects of Enterprise Self-Management in Yugosloavia: An Empirical Survey', in Jones and Svejnar (1982).

Estrin, Saul, Gelb, Alan and Singh, I.J. (1993), 'Restructuring, Viability and Privatisation: A Comparative Study of Enterprise Adjustment in Transition', Discussion Paper 1, CIS-Middle Europe Centre, London Business School, August.

Fan, Qimiao and Schaffer, Mark E. (1991), 'Enterprise Reforms in Chinese and Polish State-Owned Industries', *Economic Systems,* 15 (2) October: 211–242.

Flakierski, H. (1989), 'Economic Reform and Income Distribution in Yugoslavia', *Comparative Economic Studies,* 31 (1) Spring.

Freeman, Richard B. (1992), 'What Direction for Labour Market Institutions in Eastern and Central Europe?', NBER conference paper, 25–29 February.

Frydman, Roman, Rapaczynski, Andrzej and Earle, John S. *et al.* (1992), *The Privatization Process in Central Europe,* London: Central European University Press.

Granick, David (1975), *Enterprise Guidance in Eastern Europe: A Comparison of Four Socialist Economies,* Princeton University Press, 1975.

Jackman, Richard (1994), 'Economic Policies, Employment and Labour Markets in Transition in Central and Eastern Europe', UNDP Project: Economic Policy and Employment, Regional Case Study 2: Formerly Centrally Planned Economies, July.

Jones, Derek C. (1985), 'The Economic Performance of Producer Co-operatives within Command Economies: Evidence for the Case of Poland', *Cambridge Journal of Economics,* 9 (2) June: 111–126.

Jones, Derek C. (1986), 'Participation in Worker Co-operatives in Poland', in R.N.Stern and S.McCarthy (eds), *International Yearbook of Organizational Democracy,* Vol. III: The Organizational Practice of Democracy, John Wiley & Sons, Chichester.

Jones, Derek C. (1992a), 'The Scope and Nature of the Potential Producer Cooperative Sector in Restructuring Economies in Eastern Europe', paper presented at the Bar-Ilan Conference on Theoretical and Applied Aspects of Labour-managed Firms, 25–28 May 1992.

Jones, Derek C. (1992b), 'The Productivity Effects of Employee Ownership within Command Economies: Evidence from Poland', Working Paper No. 92/7, Department of Economics, Hamilton College: New York.

Jones, Derek C. and Svejnar, Jan, eds. (1982), *Participatory and Self-Managed Firms: Evaluating Economic Performance,* Lexington Books, Lexington, MA.

Juhász, P. (1989), 'Reform of Cooperative Ownership, and Land', *Acta Oeconomica,* 41 (3–4): 421–434.

Knight, Peter T. (1984), 'Financial Discipline and Structural Adjustment in Yugoslavia: Rehabilitation and Bankruptcy of Loss-Making Enterprises', World Bank Staff Working Papers No. 705.

Kwasniewski, Jacek (1985), 'Workers' Self-Management', in Stefan Krajewski and Miroslaw Smusz (eds), 'Functioning of Industrial Enterprises in Conditions of Economic Reform', mimeo, Institute of Political Economy, University of Lódz.

Pinto, Brian, Belka, Marek and Krajewski, Stefan (1994), 'Transforming State Enterprises in Poland: Evidence on Adjustment by Manufacturing Firms', *Brookings Papers on Economic Activity,* 1.

Qian, Yingyi and Xu, Chenggang (1992), 'Why China's Economic Reforms Differ: The M-Form Hierarchy and Entry/Expansion of the Non-State Sector', mimeo, Stanford University and London School of Economics, May.

Sacks, Stephen R. (1982), 'Giant Corporations in Yugoslavia', in Jones and Svejnar (1982).
Schaffer, Mark E. (1992a), 'Poland', in David Dyker (ed.), *The National Economies of Europe,* Longman.
Schaffer, Mark E. (1992b), 'The Polish State-Owned Enterprise Sector and the Recession in 1990', *Comparative Economic Studies,* 34 (1), Spring: 58–85.
Schaffer, Mark E. (1992c), 'The Enterprise Sector and the Emergence of the Polish Fiscal Crisis 1990–91', Centre for Economic Performance Working Paper No. 280, August. Also World Bank Working Paper WPS 1195, Policy Research Department, September 1993.
Sirc, Ljubo (1979), *The Yugoslav Economy under Self-Management,* London: Macmillan.
Tellér, Gy (1991), 'From Hidden Nationalization to Covert Privatization: Lessons from the Past and Present in the Industrial Cooperatives', *Acta Oeconomica,* 43 (1–2): 19–36.
Tyson, Laura D'Andrea (1980), *The Yugoslav Economic System and Its Performance in the 1970s,* Research Series No. 44, Institute of International Studies, University of California, Berkeley, 1980.
Uvalic, Milica (1992), *Investment and Property Rights in Yugoslavia,* Cambridge: Cambridge University Press.
Valentinyi, Ákos (1993) 'The Structure of the Output Decline and Employment Trends in Hungary, 1990–1992', paper prepared for the IIASA Conference on 'Output Decline in Eastern Europe', Laxenburg, Austria, 18–20 November.
Webster, Leila (1992a), 'Private Sector Manufacturing in Poland: A Survey of Firms', Industry Series Paper No. 66, Industry and Energy Department, World Bank, December.
Webster, Leila (1992b), 'Private Sector Manufacturing in Hungary: A Survey of Firms', Industry Series Paper No. 67, Industry and Energy Department, World Bank, December.
Webster, Leila and Swanson, Dan (1992), 'Private Sector Manufacturing in the Czech and Slovak Federal Republic: A Survey of Firms', Industry Series Paper No. 68, Industry and Energy Department, World Bank, December.
Weitzman, Martin and Xu, Chenggang (1994), 'Chinese Township-Village Enterprises as Vaguely Defined Co-operatives', *Journal of Comparative Economics,* 18 (2), April.