THE WAGES FUND CONTROVERSY REVISITED

WILLIAM BREIT *University of Virginia*

The Canadian Journal of Economics and Political Science, Vol. 33, n° 4, November 1967

"The wages fund theory is the crowning instance of an untrue abstraction . . . and it has probably done more injury to the reputation of economic theory than any other generalization ever received into economics textbooks and then expunged from them." These words, by James Bonar, fairly well express the view that has dominated economic thought on the wages fund doctrine for the past century.[1] Writing forty years after Bonar, Paul Samuelson claims he has been impressed by the "falseness and emptiness of the wage fund doctrine,"[2] stating that the controversy it inspired "constitutes one of the most sterile chapters in that dreary gap between the classical age and the revolutionary neoclassical discoveries of that last third of the nineteenth century."[3]

Such repudiations of the wages fund doctrine are quite general, although not easily explained. It seems incredible that the great thinkers of classical economics should have devoted themselves with vigour to the espousal of such a "false and empty" theory. After having been one of the main building blocks of the classical edifice of Smith, Ricardo, Malthus, Senior, Mill and others, it was vigorously attacked in succeeding decades by Longe and Thornton, the latter's onslaught finally leading to a much-discussed "recantation" by John Stuart Mill in 1869. T. W. Hutchison claims that this event "was one of the more overt signs of the crumbling of the classical system,"[4] and it is sometimes supposed that from this time onward the theory dropped out of economic literature—it "sank without a trace,"[5] one commentator put it. Nevertheless, any appearance that the theory succumbed so soon is purely illusory. At least two major attempts at reconstruction occurred in the last half of the nineteenth century. In a sense they were largely dying gasps. The arguments raised on behalf of the doctrine by Cairnes[6] and Taussig[7] remained almost unheeded by a new generation of economists.

As everybody knows, the origin of the wages fund theory rests on the classical theory of capital which in turn was based upon a conception of the production process as being discontinuous and time-consuming. If the production process is time-consuming then it follows that the real wages received for the work performed today must have been produced yesterday; what workers produce today reaches the form of finished goods at a later time.

[1]James Bonar, *Disturbing Elements in the Study and Teaching of Political Economy* (Baltimore, 1911), 75.
[2]"Economic Theory and Wages," in David McCord Wright, ed., *The Impact of the Union* (New York, 1951), 320.
[3]*Ibid.*, 316.
[4]*A Review of Economic Doctrines, 1870–1929* (Oxford, 1953), 13.
[5]A. C. Pigou, "Mill and the Wages Fund," *Economic Journal*, LIX (June 1949), 177.
[6]J. E. Cairnes, *Some Leading Principles of Political Economy Newly Expounded* (New York, 1874).
[7]F. W. Taussig, *Wages and Capital* (New York, 1896).

In its short-run version the wages fund doctrine asserts that in any period shorter than the length of the over-all productive process, the aggregate amount of wages goods is fixed. There is a fixed fund which cannot be increased during the specific period. The number of workers divided into the fund gives the average wage rate. Although hardly anyone has ever stated the doctrine in this crude form, statements capable of being so interpreted have often been made for expository simplicity.

Virtually every wages fund theorist has had a long-run version dealing with the fact that a rapid growth of capital will increase the wage rate, with the limits to aggregate wages at any point in time being determined by the amount of wages goods advanced by capitalists to labourers in the period of production. The special insight of the wages fund theory in its long-run variant is that the wage bargain affects distribution only indirectly through its ultimate effects on profits, investment, and, hence, future income. The point was that future wages depend largely on present profits, and the wages fund theory provided the matrix for this way of thinking. Thus the theory was really a long-run period analysis.

The foregoing is essentially the form of the doctrine as found in Smith, Malthus, Ricardo, Senior, and the Mills, as well as lesser members of the classical school. Perhaps it is worth noting that the theory, when properly stated, was in "real" terms, since much confusion has occurred because of the failure to recognize and remember this simple fact. In classical economics, total capital stock consists of (1) wages-goods, or circulating capital, and (2) machinery, buildings, and inventories of non-wage goods, or fixed capital. The wages fund doctrine conceives of the fund as a physical stock of goods used to support labour during the present period of production, resulting from the product of the previous period. Money wages are merely the means by which the physical stock of wage goods can be obtained, with the latter being the real equivalents of the total money wage bill. When the output of the present period is completed the capital stock is replenished (part of the stock being wages goods) and the advance is returned to the capitalist in a form that now includes profits.[8]

The major policy implication of the wages fund doctrine was that labour unions, factory legislation, and other institutional means of raising wages were futile and self-contradictory because they merely reduced aggregate profits and, therefore, investment. Given a specific population at any moment, only net additions to the capital stock could bring increased real income to the working classes. It can be argued, therefore, that the theory, because of its effect on the thinking of employers, union officials, and the public, actually retarded the growth of organized labour, especially as regards the development of collective bargaining agencies in Great Britain and the United States.

[8]Thus John Stuart Mill assiduously warned his reader against confusing money with the wages fund: "Money cannot in itself perform any part of the office of capital, since it can afford no assistance to production. . . . What capital does for production is to afford the shelter, protection, tools, and materials which the work requires, and to feed and otherwise maintain the labourers during this process. These are the services which present labour requires from past, and the produce of past, labour." See John Stuart Mill, *Principles of Political Economy* (5th ed. New York, 1858), I, 84. See also, in this connection, William Fellner, *Emergence and Content of Modern Economic Analysis* (New York, 1960), 56–9.

RECONSIDERATION DE LA CONTROVERSE DU FOND DES SALAIRES

William Breit

On classe généralement la théorie du fond des salaires parmi les théories les plus stériles et les plus pernicieuses de la littérature économique. Jamais sans adversaires, la théorie a atteint son apogée dans les Principes *de J. S. Mill. L'implication politique la plus importante de cette doctrine était que la plupart des moyens institutionnels pour élever les salaires étaient en contradiction, puisque le taux auquel le capital et par conséquent le fond des salaires pouvait croître, variait en fonction directe des profits. La tendance à l'accumulation était d'autant plus faible que le rapport des salaires aux profits était élevé. La doctrine fut attaquée par Francis D. Longe en 1866 et par William T. Thornton en 1869. La superficialité de ces critiques mise à part, J. S. Mill, dans un compte-rendu de l'ouvrage de Thornton, s'est retracté et on attribut généralement à cet événement l'abandon de la théorie du fond des salaires et le début de l'effondrement du système économique classique. Le présent article vise deux objectifs : premièrement, présenter une revue et une critique de l'attaque de la théorie du fond des salaires par Longe et Thornton ainsi que de l'étrange capitulation de Mill ; deuxièmement, construire un modèle économique du type classique de sorte que les relations entre les différentes parties du système puissent être analysées avec la théorie du fond des salaires comme partie intégrante du système. L'approche géométrique résout un problème qui n'a jamais été réellement résolu dans la controverse du fond des salaires ; il s'agit de la relation qui existe entre la théorie du fond des salaires et l'analyse de l'offre et la demande. Contrairement aux vues de Longe et Thornton, toute l'analyse peut être traitée en termes de courbes d'offre et de demande. Ce modèle permet aussi de montrer le processus de l'interaction mutuelle entre les principales variables et de répondre à quelques-unes des principales critiques portées contre la théorie du fond des salaires au temps de J. S. Mill.*

The doctrine of the wages fund was accepted as an unquestionable fact by both friend and foe of labour. One influential trade union leader of the London Consolidated Society of Bookbinders, T. J. Dunning, in a monograph published in 1860, referred to the wages fund theory and stated that no one was likely to refute it, not even trade union leaders. The theory's propositions, he said, "are in the enunciation like that of two and two making four—we will endeavour to show why the propositions fail in convincing the workmen that they are doing wrong in entering into combinations. Not that the propositions are doubted but because implicit belief in them is perfectly consistent with the propriety of Trade Combinations."[9]

[9]*Trade Unions and Strikes, Their Philosophy and Intentions* (London: published privately by the author, 1860), 5. Dunning argued that the only worthwhile object of trade unions, given the wages fund theory, would be to provide a fund for the support of the members when unemployed. What is more, "the true state of employer and employed is that of amenity, and they are the truest friends, each of the other, for each derives his revenue from the other." (p. 52).

Critics of trade unionism attempted to show that unions, by increasing wages at the expense of profits, would check capital accumulation. Since the rate at which capital and therefore the wages fund, could be increased varied directly with profits, the greater the proportion of wages to profits, the smaller the tendency to accumulation. One of the most widely read critics of labour combinations demonstrated the futility of labour organizations in increasing aggregate wages by pointing out the causal factors involved in the process of distribution:

> There is only a certain produce to be divided between capitalist and labourer. If more be given to the labourers than nature awards, a smaller amount will remain for the capitalist; the spirit of accumulation will be checked; less will be devoted to productive purposes; the wage fund will dwindle, and the wages of the labourers inevitably fall. For a time, indeed, a natural influence may be dammed back; but only to act, ultimately, with accumulated force. In the long run, God's Laws will overwhelm all human obstructions.[10]

It was claimed, therefore, that the wages fund doctrine was one of "God's Laws" and the only way in which a union could help workers was by permanently restricting the numbers entering the trade, thereby forcing employers to grant higher wages. For if capital fell behind population, wages fell. But the fall would bring about increased accumulation of capital and reduction in population. If population increased less than capital, wages rose, causing a check to accumulation and a stimulus to an increase in population. As Cairnes later admonished, "against these barriers Trade Unions must dash themselves in vain. They are not to be broken through or eluded by any combinations however universal; for they are the barriers set by Nature herself."[11] With so complete an acceptance of the doctrine on both sides of the trade union issue it is no wonder that all the methods of unions were condemned from 1825 to 1875. As the Webbs have put the case:

> To the ordinary middle-class man it seemed logically indisputable that the way of the Trade Unionists was blocked in all directions. They would not gain any immediate bettering of the conditions of the wage-earning class, because the amount of the wage fund at any given time was predetermined. They could not permanently secure better terms even for a particular section, because this would cause capital immediately to begin to desert that particular trade or town. They would not make any real progress in the near future, because they would thereby check the accumulation of capital. And finally, even if they could persuade a benevolent body of capitalists to augment wages by voluntarily sharing profits, the "principle of population" lay in wait to render nugatory any such new form of "out-of-door relief."[12]

[10]James Stirling, *Trade Unionism, with Remarks on the Report of the Commissioners on Trade Unions* (Glasgow, 1869), 26–7. In this extremely interesting book, the free market was closely identified with divine ordinance: "The humble labourer finds his best protection, and his richest reward, in that very struggle among the powerful, which shallow thinkers denounce as oppressive to the poor; while, at the same time, the competition among labourers for employment secures the capitalist against the tyranny of the many. Free competition ensures justice to all. When nature is left free to work, a divinely regulated mechanism of antagonist interest secures to each man that which is fairly due to him: to the master, faithul service at a fair price; to the labourer, the hire whereof he is worth." (pp. 6–7).

[11]*Some Leading Principles*, 338.

[12]Sidney and Beatrice Webb, *Industrial Democracy*, II (London, 1897), 615–16. It is well known that the major working-class movements up to the 1880s had as their object not raising wages but getting labourers out of the labouring class.

It is significant that the first major attacks on the wages fund theory were accompanied by the development of trade unions as bargaining agencies. Prior to that period, unions were little more than mutual-aid societies, hamstrung as they were by the power of the wages fund.[13]

The rejection of the doctrine by John Stuart Mill, after a prolonged series of attacks by a number of British writers, is an event for which it is hard to account. The cogency of the criticisms cannot explain his retraction, since most of them contained little analytical content and there was certainly no empirical refutation. Most critics of the doctrine gloriously confused the monetary and real factors. The strange point is that in his eventual repudiation of the doctrine, Mill fell into the same fallacy after having clearly understood the distinction at an earlier date.

Let us now turn to the first important attack on the wages fund doctrine made by Francis D. Longe in 1866.[14] Longe began by noting the practical objection that the wages fund theory stood in the way of all efforts to better the conditions of workers, either through trade union action, or on the part of government. In his words:

> The most important practical objection to the wage fund principle is that it excludes altogether the influence of liberal principles from the field of social action, where it is for the interest of society that they should be ever most influential. It is a principle which forbids public opinion coming to the rescue of a depressed class, by awarding its just censure against those who themselves perfectly well knew that they or their class are partly, if not entirely, responsible for the conditions of the labourers whom they are employing, and whom they could without any ultimate loss to themselves raise to a condition of greater comfort, to which they belong.[15]

However, Longe also made a theoretical attack on the theory by questioning its basic assumptions. According to Longe, there were three assumptions[16]:

[13]Thus it was that the reformers of the mid-nineteenth century placed their faith in producers' co-operatives as a means of solving the labour problem. In the United States, for example, the National Labor Union and the Knights of Labor advocated the formation of producers' and consumers' co-operatives as part of their official program. The Knights of Labor was by far the largest organization of labour the United States ever had. They looked towards land reform, producers co-operatives, and education to create a society of small property owners. Such a system was to supplant the wage system. The Knights of Labor officially had little interest in the possibility of improving the economic conditions of the worker *qua* worker. They frowned upon strikes and on efforts of the government to raise income. Their program was to help workers in establishing co-operatives. The membership would be the market for the product of the producing units. The idea was to destroy capitalism by making everyone a capitalist. See Harry A. Millis and Royal E. Montgomery, *Organized Labor* (New York, 1945), 50–5, 59–75.

[14]*A Refutation of the Wage Fund Theory of Modern Political Economy as Enunciated by Mr. Mill and Mr. Fawcett* (London, 1866), reprinted in Jacob H. Hollander, ed., *A Reprint of Economic Tracts* (Baltimore, 1903). Longe himself was not an economist but a lawyer. At Oxford he studied philosophy and a few years after his graduation, in 1854, became assistant commissioner of the Children's Employment Commission. His duties brought him in contact with employers of large numbers of workers, giving him the opportunity to become acquainted with the opinion of businessmen on the wages problem. During this time he also became familiar with John Stuart Mill's theories of the relation between capital and labour. In the process, Longe became convinced that the wages fund theory was a fallacy and he eventually presented his argument to that effect in his treatise published in 1866.

[15]*Ibid.*, 16.

[16]*Ibid.*, 27.

(1) There is a definite fund separate and distinct from society's general wealth, being a part of capital available for, and necessarily expended in, the remuneration of labour; (2) that labourers constitute a group among whom this fund can be, and is, in fact, distributed through competition; (3) and that wages fund doctrine is merely an application of supply and demand analysis to the particular commodity, labour power.

Longe denied the validity of the first assumption. He argued that if there were such a wages fund in the economy as a whole, it must be composed of many particular funds resting in the hands of individual capitalists.[17] But Longe denied that each and every employer was in possession of a fund of definite amount that could not be increased and all of which had to be spent in the hiring of labour:

> Suppose, then that such a fund would represent the utmost amount which at any given time the whole body or supply of labourers could get from their labour, such fund would represent the money-measure of the demand for labour in a country at such time. But, even so, the wage fund principle would be a false principle. For such money-measure of the demand for labour would only represent the amount of wages which at any given time the labourers in a country *could* get; it would not represent a certain amount of wealth, which would or must be distributed by the competition of sellers and buyers of labour, any more than the money-measure of the demand for oysters or beef at any given time represents a certain sum of money which the sellers of oysters or beef must get from their customers, at whatever price some of them sell their oysters or beef. The total amount of money which the labourers could possibly get would be limited by the amount of the wages fund; but whether they got all that wealth, or only half of it, would depend solely upon whether they let their labour go at its proper or half its proper price.[18]

The employer, argued Longe, has considerable discretion as to the uses to which he might put his wealth. He might use more or less of it for his personal consumption, or employ more or less for productive operations. Although employers could give the full amount of the wages fund to the workers, there was no reason to expect them to give more than the smallest quantity necessary to employ the labourers they required. The amount of the aggregate wages fund at any given period would have no bearing on the amount of wages received by the whole body of workers, except in so far as it would represent the aggregate sum that labourers could compel their employers to give them. So far as the individual capitalist was concerned, there was no definite amount of wealth that needed to be expended in the hiring of labour.

According to Longe, the factor that determined how much of his wealth the capitalist used in employing labour depended on demand. Output must be salable at profitable prices:

> The existence, or prospective existence, of a purchaser is a condition precedent to the employment of wealth as capital; and the quantity of money or wealth for which they will be exchangeable,—in other words, the demand and its money-measure, governs the quantity of wealth used from time-to-time in production,—whatever may be the quantity of wealth applicable to . . . such a purpose, the quantity of labour seeking employment, and the quantity of

[17] *Ibid.*, 37.
[18] *Ibid.*

suitable raw material, available to the producer . . . The estimate of the demand in the producer's mind . . . governs the quantity of wealth or capital (using the terms as synonymous) which is from time to time employed in productive operations.[19]

For Longe, then, the demand for output determines how much of his wealth the entrepreneur will use productively and how much any individual capitalist would use to employ labour. The total amount expended would not depend on a pre-existing wages fund, but on the extent of aggregate demand for commodities.

The position that the demand for commodities is really a demand for labour is, of course, in contradiction to Mill's famous "fourth fundamental proposition respecting capital." In his *Principles* Mill was unequivocal on this point:

The demand for commodities is not a demand for labour. The demand for commodities determines in what particular branch of production the labour and capital shall be employed; it determines the direction of labour, but not the more or less of the labour itself, or of the maintenance or payment of labour. The demand for commodities is a consideration of importance rather in the theory of exchange than in production. Looking at things in the aggregate, and permanently, the remuneration of the producer is derived from the productive power of his own capital.[20]

But, as Professor Johnson has cogently pointed out, Mill did *not* deny that the production of commodities requires the employment of labour; Mill's argument was simply that expenditures on labour services resulted in a larger total demand for labour than did direct expenditure on commodities. Nor did Mill deny that labour was required for the production of commodities. By reasserting the concept of derived demand, therefore, Longe did not demonstrate a fallacy in Mill's position, and was, in fact, wide of the mark. In modern terminology, what Mill was saying is that labour is a substitute in consumption for commodities. Since labourers directly employed in providing services probably spend their income on commodities anyway, the demand for labour derived from the production of commodities does not give rise to a direct demand for labour in addition to derived demand.

Thus Mill's proposition can be reformulated into the statement that the demand for labour is greater if the demand of consumers is directed toward more labour-intensive satisfaction. Given the technical conditions of production, the relative shares in the national income between labour and capital depend on the preferences of the community as between relatively labour-intensive and relatively capital-intensive types of goods. Factor owners thus have an interest in demand being directed to those industries that use their factors most intensively. The demand for commodities (that is, relatively capital-using types of goods) is therefore not the demand for labour (that is, relatively labour-intensive types of goods).[21]

But there is a more serious objection to Longe's "refutation" of Mill at this

[19]*Ibid.*, 44.

[20]I, 114.

[21]Still another way of interpreting Mill's theorem is to say that the employment multiplier is greater if the expenditure is for relatively labour-using items. Furthermore, if it is the case that the marginal propensity to consume from labour income is greater than from capital income, the conclusion is even stronger. See Harry G. Johnson, "Demand for Commodities Is Not Demand for Labour," *Economic Journal*, LIX (Dec. 1949), 531–6.

point. For his argument seems completely irrelevant to the central question of the wages fund since it did not come to grips with the problem of whether wages were advanced out of capital. Longe treated the wages fund as though it were a fund of money used in the employment of labour. If this is a correct interpretation of Longe, it means that he took Mill in his simplest meaning. If Mill's wages fund theory referred to money in the hands of employers available for paying money wages, the logical corollary, of course (and the one that Longe naturally drew), was that there was no predetermined fund. Since Mill took great pains to talk in real terms, Longe's objection cannot be taken seriously.

Longe rejected the second assumption of the wages fund theory (labourers constitute a body among whom the whole is distributed by competition) by pointing out that labourers as a class consist of a number of different groups of workers having different skills and abilities. Workers do not compete across such group lines. If an employer is able to hire labour of a given kind and of a certain skill at a lower wage than he would otherwise pay, there is no way for this saving to get into the hands of other employers for distribution to the rest of the work force. Thus, there is no definite wages fund:

> How could the shoemakers compete with the tailors, or the blacksmiths with the glass-blowers? Or how should the capital which a master-shoemaker saved by reducing the wages of his journeymen get into the hands of the master-tailor? Or why should the money, which a reduction in the price of clothes enables the private consumer to spend in other things, go to pay or refund the wages of any other class of labourers belonging to his own country? It would clearly be just as likely to be spent in the purchase of foreign wine or in a trip to Switzerland.[22]

This objection is a specious one, of course, since the wages fund theory did not purport to be a theory of the wages of different labourers, but to explain the average wage rate. Longe's objection to the second assumption of the theory is not a very powerful one.

Longe's rejection of the third assumption (the wages fund is only a particular application of supply and demand theory to the determination of wages) is more interesting. He questions whether the general law of supply and demand has anything to do with the wages fund. Mill, of course, had conceived of the determination of wages as simply an application of the supply and demand apparatus to the labour market. He argued that the quantity demanded varied with price and equilibrium price must be such that the quantity demanded just equals the qantity supplied.[23]

But to Longe, the wages fund theory postulated a relation between supply and demand quite different from Mill's interpretation of that relationship. He argued that, in the wages fund theory, demand in relation to labour means the quantity of capital offered, not the quantity of labour demanded. The ratio is the simple one of comparing a given quantity of offered capital with a given quantity of labour in the market; it is not the Millian ratio of ascertaining at what price the quantity of labour demanded will be equal to the quantity

[22]Longe, *Refutation*, 53.
[23]*Principles*, I, 549.

of labour supplied. Longe pointed out that in the wages fund theory supply and demand were fixed. Supply was the number of labourers; demand was the quantity of circulating capital. When the two were brought together the average or general rate of wages was determined. Hence there is no play for a varying demand and no possibility of more than one point of equilibrium. Longe's argument is that demand is being used in two different senses: in the conventional sense of a varying quantity demanded at different prices, as opposed to the wages fund sense of a fixed and given amount. Longe took Mill severely to task for this confusion: "Mr. Mill leaves it to his readers to reconcile, if possible, the two uses of the term 'demand' and to extricate him from a difficulty, the solution of which would have discovered the error of his theory of wages, and the unreality of the entire system on which the theory was based."[24]

But this objection is in error, although it is the one to which more space has been given in the wages fund debates than any other. For the truth is that the wages fund doctrine, when taken with the other postulates of classical economics, is indeed analysable in terms of demand and supply in which schedules can be derived and a determinate equilibrium established with chances for variation in that equilibrium.[25]

It might be said of Francis Longe's *Refutation* what David Hume said of his *Treatise of Human Nature*: it "fell dead-born from the press without reaching such distinction as even to excite a murmur among the zealots." But in 1869, only three years after Longe's attack, appeared William Thomas Thornton's volume, *On Labour: Its Wrongful Claim and Rightful Dues, Its Actual Present and Possible Future.* The book had a curious effect on John Stuart Mill, and is generally credited with the destruction of the wages fund theory. Thornton, unlike Longe, was a professional economist. Being a close friend of Mill and well known by his earlier publications, he was able to attract a respectfully attentive audience. Nevertheless, Longe's criticism was in some respects more substantial than Thornton's.

Thornton admitted that his motive in attempting to destroy the wages fund theory was a practical one. He wanted to make way for reform in the conditions of the poor of England.[26] Unlike Longe, Thornton accepted all of the assumptions on which the wages fund theory was based, except for one: he accepted the notion that wages were paid out of capital, and did not question the underlying assumption of the time-consuming nature of the capitalist productive process. The only point he denied was that the wages fund was at

[24]*Refutation*, 34–5.

[25]This point has been made by Schumpeter: ". . . the long-run analysis . . . might be couched in terms of [supply and demand] schedules. I shall only indicate how this could be done: labor supply, by virtue of the Malthusian law, could be represented as a function of real (in our sense) wage rates; the problem is to represent the quantities that 'capitalists' demand, also as a function of real wage rates. Since, at any moment, these wage rates depend on the size of the wage fund, since this wage fund's variations are governed by the rate of saving, since, given everybody's propensity to save . . . savings depend (mainly) on 'capitalists' incomes, hence on 'profits'; and since according to Ricardo profits depend upon wages . . . and so on." *History of Economic Analysis* (New York, 1954), 667n. See Appendix *infra*.

[26]W. T. Thornton, *On Labour: Its Wrongful Claim and Rightful Dues, Its Actual Present and Possible Future* (London, 1869), ii.

any given time a definite and determined amount. He argued that there was no definite wages fund clearly identifiable in the general wealth of the economy, all of which was destined to be paid out in wages. He made the same point as Longe: any given capitalist at his discretion may spend more on himself, and invest less, or *vice versa.* If one prospective employer can do this, they all can; if the fund is so indefinite, it cannot form the numerator for which labourers are the denominator. The wages fund can be greater or less within wide limits and hence, being indeterminate, cannot yield the average rate of wages.

Thornton first marshalled his forces to destroy the entire theory of supply and demand. He was well aware of his temerity in attacking a principle so firmly founded in economic theory. But he rashly went ahead "in opposition to preeminent authority and universal credence."[27]

His own reluctant feelings were well expressed: "I find myself in collision with Mr. Mill, and feeling in consequence a little as Saul of Tarsus might have felt, if, while sitting at the feet of Gamaliel, he had suddenly found himself compelled by a sense of duty to contradict his master."[28] Thornton believed that he could justify his audacity only if he could make good his case and prove his assertions. This could be done, he believed, by showing examples where supply and demand did not determine price; in which, though demand exceeded supply, price did not rise, or an equilibrium where the quantity offered and quantity demanded were not equal. In order to make a cogent argument he thought he had only to show a single exception, for: "a scientific law admits of no exception whatever; one single exception suffices to deprive it of all legal character. If one single instance could be found or conceived in which water failed to seek its own level, that water seeks its own level would cease to be a law."[29] Thornton, therefore, adduces case after case in which he believes the determination of price by supply and demand does not hold. In his opinion he covered the field of possible cases. The first instance in which he thinks he found a contradiction of the principle of supply and demand was the Dutch auction:

> When a herring or mackerel boat has discharged on the beach, at Hastings or Dover, last night's take of fish, the boatmen, in order to dispose of their cargo, commonly resort to a process called a Dutch auction. The fish are divided into lots, each of which is set up at higher price than the salesman expects to get for it, and he then gradually lowers his terms, until he comes to a price which some bystander is willing to pay rather than not have the lot, and to which he accordingly agrees. Suppose on one occasion the lot to have been a hundredweight, and the price agreed to twenty shillings. If, on the same occasion, instead of the Dutch form of auction the ordinary English mode had been adopted, the result might have been different. The operation would then have commenced by some bystander making a bid, which others might have successively exceeded, until a price was arrived at beyond which no one but the actual bidder could afford or was disposed to go. The sum would not necessarily be twenty shillings; very possibly it might be only eighteen shillings. The person who was prepared to pay the former price might very possibly be the only person present to pay even so much as the latter price; and, if so, he might get by English auction for eighteen shillings the fish for which at Dutch

[27] *Ibid.*, 45. [28] *Ibid.*, 52. [29] *Ibid.*, 50.

auction he would have paid twenty shillings. In the same market, with the same quantity of fish for sale and with customers in number and every other respect the same, the same lot of fish would fetch two very different prices.[30]

Thornton considered this example the exception that destroyed the rule. However, clearly the law of supply and demand is made of sterner stuff. Far from showing that supply and demand do not determine price, he had shown only that the law could be consistent with two different prices in two different markets. In his example, supply and demand are equal at equilibrium whether the market be Dutch or English. And in order to show that the prices would be different even in different markets, Thornton has had to make some rather unlikely assumptions. He had to assume that the customer who was prepared to pay twenty shillings for the fish was the only person who was willing to pay even so much as eighteen shillings. If we could combine the two different markets into one diagram, we would have a case where the demand curve for fish is infinitely inelastic between twenty and eighteen shillings. But the point is that even if there is a section on the curve in which price may vary without a corresponding change in the quantity demanded, the condition of equality between supply and demand at the equilibrium price still holds. Thus Thornton has in no way disposed of the principle.[31]

Thornton made another argument to obliterate the principle of supply and demand, an example no less fatuous than the first:

> Suppose two persons at different times, or in different places, to have each a horse to sell, valued by the owner at £50; and that in the one case there are two, and in the other three persons, of whom every one is ready to pay £50 for the horse, though no one of them can afford to pay more. In both cases supply is the same, viz. one horse at £50; but demand is different being in one case two, and in the other three, horses at £50. Yet the price at which the horses will be sold will be the same in both cases, viz. £50.[32]

It should be noted that in his first example Thornton thought he had demolished the law of supply and demand because several prices fulfilled the condition of equality between supply and demand. In this case he believes the law is undermined because no price fulfills the condition. At £50 there is a demand for as much as three times the quantity supplied. But at any amount over £50 there is no quantity demanded at all. What Thornton has constructed is a demand schedule consisting of a single point. In his example he does not make it possible for supply and demand to equalize at equilibrium. Clearly if the particular case chosen does not permit supply to equal demand, it will be greater or less. He has not allowed price to fulfil the condition by enforcing a kind of price control in which no one bids the price up even though demand exceeds supply.

But Thornton (understandably) was not satisfied with the two previous demonstrations and chose one more example to clinch his case:

> When a tradesman has placed upon his goods the highest price which anyone will pay for them, the price, of course, cannot rise higher, yet the supply may

[30] *Ibid.*, 47–8.

[31] Ironically, this criticism of Thornton, and the ones following, are substantially the same as those made by John Stuart Mill in his "recantation" in 1869.

[32] *On Labour*, 49.

be below the demand. A glover in a country town, on the eve of an assize ball, having only a dozen pairs of white gloves in store, might possibly be able to get ten shillings a pair for them. He would be able to get this if twelve persons were willing to pay that price rather than go ungloved. But he could not get more than this, even though, while he was still higgling with his first batch of customers, a second batch, equally numerous and neither more or less eager, should enter his shop, and offer to pay the same but not a higher price. The demand for gloves, which at first had been just equal to supply, would now be exactly doubled, yet the price would not rise above ten shillings a pair. Such abundance of proof is surely decisive against the supposition that price must rise when demand exceeds supply.[33]

This example is similar to the illustration of the horse which is demanded at £50 and not a farthing more by anyone who is willing to buy him. Thornton here assumes that the twenty-four customers for the gloves place the extreme limit of what they are willing to pay. He allows no bidding among the customers and all are willing to pay the exact same amount, no more, no less. Since Thornton has chosen such a peculiar case and made all of the necessary assumptions to keep price from rising, it is not too surprising that the increased demand—which is only a point, and not a schedule—does not cause an increase in price.

Apparently not convinced by his own arguments, Thornton adds *obiter dicta* that even if the law of supply and demand were literally true it would be of small significance: "Even if it were true that the price ultimately resulting from competition is always one at which supply and demand are equalized, still only a small proportion of the goods offered for sale would actually be sold at any such price, since a dealer will dispose of as much of his stock as he can at a higher price, before he will lower the price in order to get rid of the remainder."[34] What Thornton seems to be saying is what no economist had ever denied: equilibrium takes time to work itself out since it is a process that works through the higgling of the market. Thornton's disappointing conclusion is that "it is competition, and not supply and demand, that regulates price."[35] When competition does not exist, and when monopoly power is exercised by a single seller or combination of sellers, the selling price is not determined by competition. Does this mean price is not determined by suppy and demand? What Thornton should have said is that although equilibrium for the monopolist may be represented by the same graphic device of intersecting lines which is employed for the case of competition, there is no equating of supply and demand at the monopoly price.[36]

In destroying the foundation of supply and demand theory, Thornton believed that the theory of wage determination also had been undermined, since the wages fund theory was simply the application of supply and demand analysis to the labour market. Yet, Thornton complained, the price of labour is scarcely

[33] *Ibid.*, 52. [34] *Ibid.*, 53. [35] *Ibid.*, 61.

[36] This point was made by Professor Chamberlin: "The instance of monopoly has been chosen as a simple and familiar case in order to free the notion of equilibrium from its associations with the intersection of the demand and supply curves. It will be the purpose of this book to show that most prices involve elements . . . mingled in various ways with competition, and the result is very generally equilibrium prices which do not equilibrate supply and demand." See Edward H. Chamberlin, *The Theory of Monopolistic Competition* (7th ed., Cambridge, Mass., 1956), 15.

ever mentioned without provoking a reference to the "inexorable," the "immutable," or the "eternal" laws of supply and demand. Thornton says, however, that no such laws can or do exist, a fact he believed he had proved. Therefore, "the progress of enquiry need no longer be barred by this legal bugbear."[37]

The rest of Thornton's argument is simply that employers combine while workers compete, thereby permitting the employer to keep a part of the wages fund for himself. His argument is that the wages fund is indeterminate depending on degrees of monopoly in the market for labour. As he put it:

> Determinateness or indeterminateness is the one point of difference between those who affirm and those who deny the wages fund . . . If there really were a national fund the whole of which must necessarily be applied to the payment of wages, that fund could be no other than an aggregate of similar funds possessed by the several individuals who compose the employing class of the nation. Does, then, any individual possess such a fund?[38]

As we have already noted, Thornton's answer was that the wages fund is indefinite. The employer may spend more or less for different purposes. This objection contains the same fallacy as Longe's, although it is really even less sophisticated. Thornton takes the wages fund theory as running to the effect that the money-funds of the employers constitute the real capital used for paying wages. Believing that he had successfully slain the dragon of the wages fund, Thornton went on to a discussion of trade unions as a countervailing power to the monopoly of entrepreneurs.

Thornton's book had an extraordinary effect on John Stuart Mill; extraordinary in the sense that Mill gave it great weight in a review and admitted that "it destroys a prevailing and somewhat mischievous error."[39] This ponderous review is generally considered to be a complete rejection of the wages fund theory on Mill's part, although Thornton's criticism was not thunderously superior to Longe's.[40] Certainly it is a curious incident in the history of economic thought that on such flimsy criticism Mill should have given up one of the main pillars on which the classical economic structure rested.

For one thing, by accepting Thornton's strictures, Mill has taken the wages fund theory as meaning money fund, and this is how he was brought to admit its indeterminateness. In his *Principles* he specifically stated that such a view

[37] *On Labour*, 65.
[38] *Ibid.*, 85.
[39] John Stuart Mill, "Thornton on Labour and Its Claims," *Fortnightly Review*, nos. XXIX and XXX (May and June 1869), 505–18, and 680–700. Reprinted in John Stuart Mill, *Dissertations and Discussions* (2nd ed. London, 1873), 25–85. The above quotation is on page 48.
[40] It should be pointed out that Mill earlier had an opportunity to recant when Longe sent him a copy of his essay in 1866, an opportunity that Mill neglected to use. In a letter to Professor Hollander, Longe commented on this slight with a thinly veiled insinuation of plagiarism: "I had never heard of Mr. Thornton until I saw Mill's review of his book *On Labour and its Claims* in the *Fortnightly* for May, 1869. I had sent a copy of my pamphlet to Mill and Fawcett (among many others) in 1866, and it was certainly known to political economists in 1867 and 1868. I never received any acknowledgement of its receipt from either Mill or Fawcett. I had been told that Thornton was an intimate friend of Mill, and that they were in the same office in London—the India House—and that both were writers on economic subjects. I never doubted that Thornton as well as Mill was aware of my pamphlet, and was pleased to find these known writers adopting my views." Cited by Hollander in *A Reprint of Economic Tracts*, 4–5.

is fallacious, remarking that the "error is produced by not looking directly at the realities of the phenomena and attending only to the outward mechanism of paying and spending."[41]

Longe and Thornton had both committed the error which Mill had warned against in the *Principles*. Now Mill himself appears to have fallen into the hopeless confusion between real wages on one hand and money wages on the other. Secondly, in his retraction Mill conceives of the wages fund theory as postulating a demand curve for labour with an elasticity of unity: "In this doctrine it is by implication affirmed that the demand for labour must not only increase with the cheapness, but increase in exact proportion to it, the same aggregate sum being paid for labour whatever the price may be."[42] As we shall show in the Appendix to this essay, such a view of the doctrine is misleading.

There are a number of possible explanations for Mill's unnecessary retraction. He was a personal friend of Thornton, and perhaps he was anxious to do Thornton a good turn. A favourable review from the great John Stuart Mill in which the master admitted his errors and claimed to have been set straight by a younger and far less eminent man would doubtless catapult that relatively obscure author into prominence.[43] But that could not be the sole explanation.

The major reason is probably that Mill himself never quite understood the wages fund theory to begin with. There are many murky passages in the *Principles* in which Mill seems to conceive of the theory in money terms even though at other places he assiduously warns the reader against such confusion. There is some indication that he had simply accepted the Ricardian system of economics without thinking it through. When taken with the fact that Mill had become increasingly desirous of reform in his later years[44] and sought an excuse to repudiate the wages fund doctrine, we have a plausible explanation for his recantation.

Two years after his review of Thornton's book, Mill published the seventh and last edition of his *Principles*. It is not without significance that nowhere in this revision does he change his previous views on the doctrine. Indeed the whole controversy is dismissed in a footnote in the preface, remarking that any revisions in the wages fund theory were "not yet ripe for incorporation in a general treatise on Political Economy."[45] His refusal to insert his reversal

[41]124.

[42]"Thornton on Labour and Its Claims," 43.

[43]Taussig, *Wages and Capital*, 248.

[44]Mill's recantation enabled him to discuss the issue of trade unionism. To Mill, the question of the justification of trade unions cannot be decided by economic law, but must fall under the jurisdiction of the moral law. The question is an ethical one: are there any rights of labour or capital that are violated if one party pushed its demands to the extreme limit of economic possibility? Mill handles the question in terms of utilitarian philosophy: the terms of the contract are the only rules of justice between employer and employee. No one is under any obligation to employ labour at all; nor is anyone bound to pay any given wage. If wages are so high as to leave no profit to capital then the workers would simply "be killing the goose to get at the eggs." "Thornton on Labour and Its Claims," 66.

[45]*Principles of Political Economy*, (7th ed., London, 1871), xxxi. This aspect of Mill's recantation apparently escaped the notice of two recent writers on the subject. Their statement that the wages fund theory "was repudiated by J. S. Mill in a revised edition of his *Principles*" is simply incorrect. A. F. Young and E. T. Ashton, ***British Social Work in the Nineteenth Century*** (London, 1956), 19. But see J. Don Miller, "The Wages Theory and

into his *magnum opus* suggests that Mill was uncertain that his recantation was justified or that all possible qualifications had been made. For as one economic historian has recently pointed out, "the *Principles* is from many points of view a conservative work, including as it did nothing which Mill believed in any way dubious."[46]

Appendix

The purpose of this appendix is to present a diagrammatic formulation of the classical system in order to solve a problem that was never settled in the wages fund theory debate, namely, what relation exists between the wages fund theory and supply and demand theory? It will be demonstrated that, contrary to Longe and Thornton, the analysis can be stated in terms of suppy and demand, although through a rather circuitous route.

A functional representation of the theoretical system of the classical economics would be as follows:

(1) $R = R(W)$
(2) $I = I(R)$
(3) $Ld = Ld(I)$
(4) $L_s = L_s(W)$
(5) $L_d = L_s$

where

R = rate of profit
W = wage rate
I = investment (net additions to capital stock)
L_d = demand for labour
L_s = supply of labour

Equation (1) is the Ricardian residual theory of profits, which says that there is an inverse relation between wages and profits. To Ricardo the rate of profit is the ratio of surplus produce to invested capital. An increase in wages meant a decline in profits since profit was conceived of as a residual. According to Ricardo, wages represent the product of so much labour: when high, they are equivalent to the output of much labour; when low, the equivalent of little labour. With a given output and capital stock, an increase in the wage rate reduces the rate of profit, since surplus produce available to the capitalist must be less.

Equation (2) expresses the theory of capital accumulation, wherein profits determine the amount of net investment. Virtually all classicists took it for granted that capitalists make investments because they expect to earn profits;

the Popular Influence of Economists," *American Economic Review* (March 1940), 108–12. And especially the "Reply" by E. M. Winton in *ibid.* (June 1941), 343–4.

[46]Lawrence C. Hunter, "Mill and Cairnes on the Rate of Interest," *Oxford Economic Papers*, II (Feb. 1959) p. 85.

what they expect in the future is a function of present profits. By investment is meant net investment; that is, net additions to the stock of capital. Thus $I = I(R)$ where R is the return on fixed factors of production, or profit. By definition, net investment is represented by the increase in capital stock. Part of the net addition to capital stock hires workers, and is called "circulating capital." The other part, called "technological" or "fixed capital" consists of machines, buildings, and inventories of non-wage goods. The classical economists generally assumed that both wage capital (circulating) and technological capital (fixed) increase together.

Equation (3) is the wages fund theory. It says that wages are a part of capital stock used in support of labour during the current period of production; part of this period's output will be used to hire workers in the next productive period. Workers producing goods today are replenishing those goods consumed in the current period. The new wage goods will then be used to tide workers over the next period of production. Hence, they determine the quantity of labour demanded in the next period.

Equation (4) represents the Mathusian theory of population, and says that the labour force is a function of real wages. As real wages rise, population and therefore the supply of labour increases. A discussion of the shape of this function will be reserved for later.

Equation (5) is the equilibrium condition.

The model is represented graphically in Figure 1. All directions in Figure 1 should be taken as positive. Quadrant A shows the wage-profit relation assumed by classical theory. Since for each wage rate there is a corresponding profit rate, the curve shows all possible combinations of wage rates and profit rates consistent with a particular state of the arts and a given output. From this curve is found the rate of profit consistent with any given rate of wages. The rate of profit in Quadrant A is projected to Quadrant B, which shows the amount of investment stimulated by present profit. As has been pointed out, investment means net additions to capital stock. This variable is a function of present profit, and it is necessary to specify as to shape of the curve only that it is a straight line showing that greater profits will stimulate greater investment. The slope of the line showing net investment is positive.

Since investment adds to capital stock, its increase means a rise in the stock of all kinds of capital, circulating as well as fixed. But the demand for labour is a function of the growth of circulating capital and can be read off the horizontal axis common to both Quadrants C and D. If we assume that the proportion of circulating capital is relatively large, an increase in capital would support a larger quantity of labour.

The aggregate demand curve for labour may now be derived. The process is shown in Figure 1. The purpose of the four quadrants is to show how the aggregate demand function for labour may be distilled from the postulates of the classical model. The point is to relate the demand for labour to the wage rate. Starting with Quadrant A, assume the wage rate is W_0. The corresponding rate of profit is R_0. It can be seen from Quadrant B that a profit rate of R_0 results in an amount of investment equal to I_0. Part of this net addition to capital stock will be in the form of wage goods, and, as seen from Quadrant

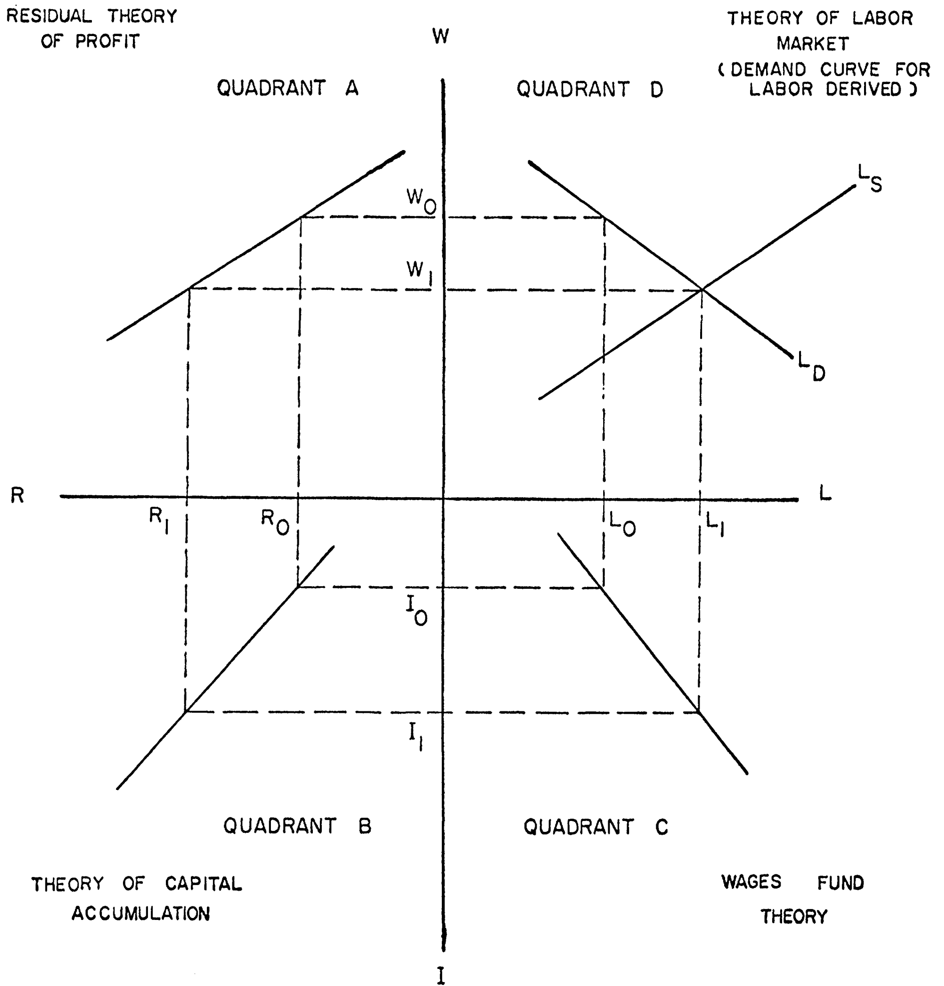

FIGURE 1

C, will hire the quantity of workers, L_0. The co-ordinates of L_0 and W_0 yield a point on the demand curve for labour, in Quadrant D, showing that the demand for labour is a function of the wage rate.

Another point on the demand curve can be generated by repeating the process starting with arbitrary wage rate, W_1. Following the same procedure as before, another point on our demand curve is derived. Connecting the points, there is a demand curve for labour consistent with our given wage-profit function, profit-investment function, capital stock-labour demand function. It is seen that the demand curve for labour slopes downward and to the right, consistent with the usual conception of a demand curve.

It is now a simple matter to add a labour supply curve (L_s) showing the functional relationship of labour and the average wage rate. In quadrant D of Figure 1, the curve for labour supply slopes upward and to the right, meaning that higher rate is associated with a larger labour force. Since this is

a long-run analysis it might be assumed that the supply function should be represented by a horizontal line at a subsistence wage rate. But the truth is that it is difficult to find such an interpretation in classical economics itself. The classicals were well aware that higher wages could lead to a different standard of living and new fertility rates arising from changes in values and mores. So the classical long-run supply curve of labour need not be perfectly elastic at subsistence. Of course, if drawn perfectly elastic then the dismal science would be dismal indeed, and any policy recommendations which merely acted upon the rate of profit would be futile. This would mean that the belief of the wages fund adherent that higher profits stimulate capital accumulation and greater wages could only be a very short-run expectation. But, since the classical school had strong views on economic policy regarding the accumulation of capital as a means of salvation of the labouring classes, it is clear that they implicitly assumed an elasticity in the labour supply curve of less than infinity.

A better understanding of the model and of the diagrams will come from analysing the effects on the equilibrium values of the several variables of some changes in parameters. For example, consider the effects of an increase in the productivity of labour.

An increase in the productivity of labour involves an upward and outward shift of the wage-profit function, as shown in Quadrant A of Figure 2. The previous full employment equilibrium wage rate, W_1, would now leave more profits (profits being a residual) to capitalists. The rate of profit increases from R_0 to R_1. This would induce employers to add to their capital stock through investment in technological and wage capital. With a greater stock of wage goods, a new point would be generated in Quadrant D, Figure 2. Using the new wage-profit function in Quadrant A for all possible wage rates, there is a new demand curve for labour, which is to the right of the old one. In Quadrant D this has led to an increase in the rate of wages to W_2, and the volume of employment to L_2, a conclusion consistent with the classical hypothesis that technological improvements accrue to the benefit of labour, assuming always, of course, that workers limit their numbers. From the model, therefore, it can be concluded that an increase in productivity raises profits, increases capital accumulation, the wage rate, and employment.

Now consider the effect of imperfect competition in the labour market. As already indicated, many economists and public officials were in agreement that labour unions could not in the long run help the working class. The reasoning behind this proposition can be clarified by the model.

Consider the situation as shown in Figure 3. In Quadrant D, there is an equilibrium real wage rate of W_0 consistent with full employment at L_0. But suppose that the wage rate is artificially fixed by a trade union at W_1, above the current equilibrium rate. In the long run, what will be the new level of R, I, and L? It can be seen that the rate of profit would fall, investment would be reduced to I_1, and hence less capital produced. The quantity of labour demanded would then fall to L_1, while the quantity of labour supplied would increase. Unemployment would result. Moreover, this conclusion would be magnified if the artificial increase in wages resulted in a "Ricardo effect,"

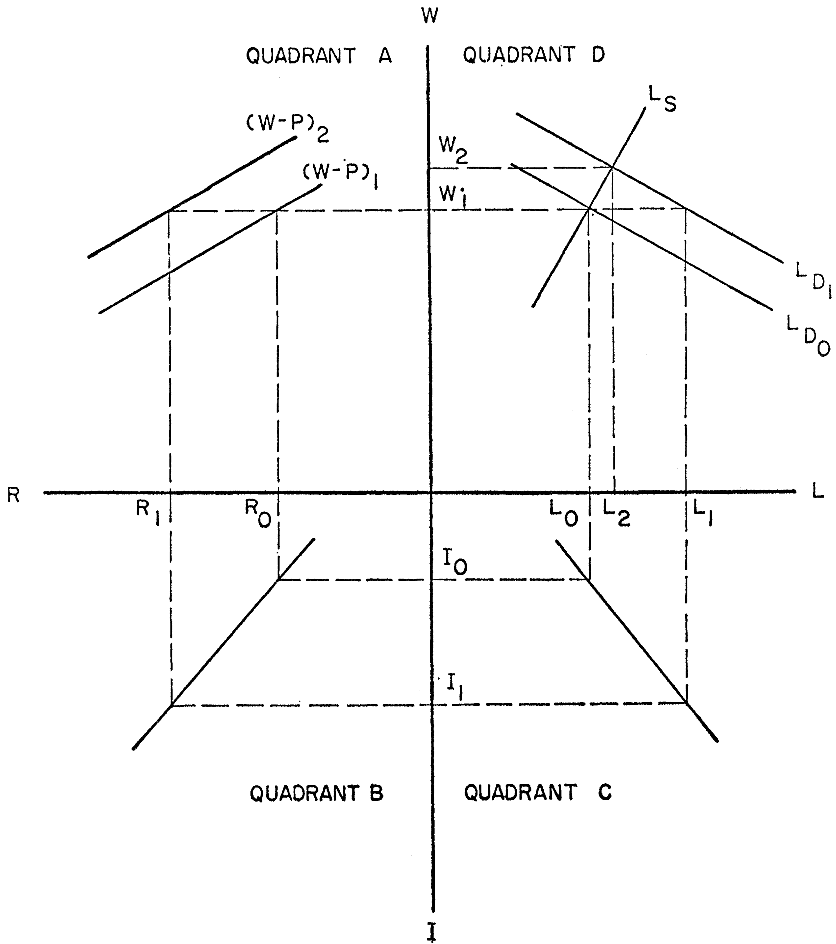

FIGURE 2

that is, a substitution of capital for labour. Such an effect would involve a shift to the left of the wages fund function in Quadrant C. The effect of this substitution would be to shift the aggregate demand curve for labour to the left. Thus we may sum up by saying that labour unions would reduce the quantity of labour demanded at the higher artificial wage, and perhaps shift the labour demand curve to the left, thereby aggravating the problem of unemployment.

This model demonstrates that there is a consistent version of the classical theory of employment, based on the residual theory of profits, the theory of capital accumulation, and the wages fund theory.

What is more, the diagrammatic formulation of the theory helps solve a problem never settled in the wages fund debates; namely, what relation, if any, exists between the wages fund theory and supply and demand theory? We now see that, contrary to Longe and Thornton, the analysis can be put in terms of supply and demand schedules, although through a rather indirect route.

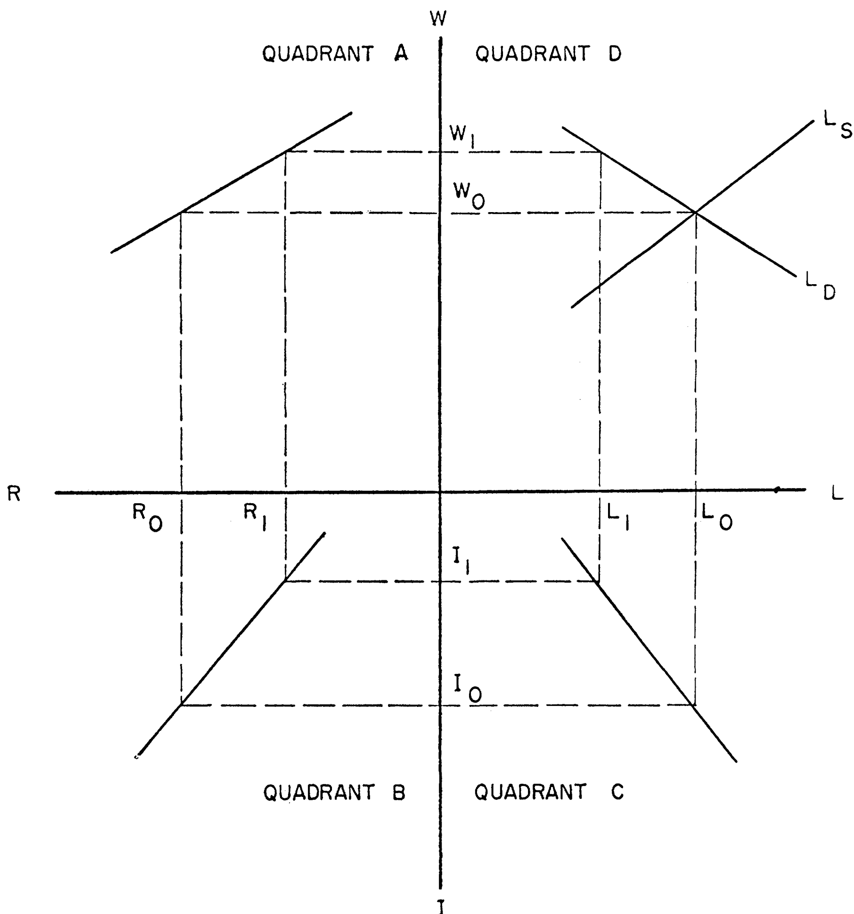

FIGURE 3

Further, the insistence on the part of some interpreters (including Mill of the "recantation") that the wages fund theory involves a unitary elastic demand curve is seen to be in error. Moreover, one of the most important special insights of the wages fund theory, the dependence of future wages on present profits, is made clear by use of the model presented here. Finally, in answering the criticisms made during Mill's lifetime, we have implied that the properly stated form of the theory, and its policy implications, remain valid today.

The obvious danger of rehearsing the history of a theoretical controversy is that of getting so engrossed in the subleties of the arguments that the essence of the theory itself is forgotten. This simplified model should help bring out the real meaning of the wages fund theory within the total schema of the classical system.