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RECENT DEPARTMENT OF LABOR STUDIES OF MINIMUM WAGE EFFECTS*

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I. INTRODUCTION

Public policy decisions pertaining to the Fair Labor Standards Act (FLSA) are influenced by the U. S. Department of Labor cross-section studies on economic effects of increasing the federal minimum wage. In Congressional testimony on raising the current federal minimum wage from $1.00 to $1.25, the Department's studies are cited as evidence that employment increased or decreased only slightly as a result of past increases in the minimum wage.[1]

The influence of the studies has not been limited to matters of public policy. Indeed, some economists have stated that evidence presented in the past cross-section studies demonstrates the futility of marginal analysis and calls for new approaches to the theory of the firm.[2]

The purpose of this paper is to examine the consistency between the BLS data on minimum wage effects and economic theory. We do not propose to re-examine in detail the Department's past cross-section studies. This has been done elsewhere by Peterson.[3] The discussion is limited to an examination of the usefulness of the 1955–57 studies in gauging employment effects of the $1.00 minimum wage.[4] Section II summarizes the findings of the BLS studies. Section III examines a number of limitations of the BLS studies. Section IV discusses the implications of these studies for economic theory. Section V presents the conclusions.

II. SUMMARY OF 1955–57 BLS STUDIES

After the Fair Labor Standards Act was amended in August 1955 to provide a $1.00 minimum wage effective March 1, 1956, the Department of Labor's Bureau of Labor Statistics and Wage and Hour Division engaged in several studies to evaluate the wage and related economic effects of the higher minimum.

The full detail of the BLS studies cannot be reproduced here; a brief summary of the purpose and findings of the main reports may indicate the general pattern.[5]

Included in the studies were wage surveys in selected low-wage industries and in low-wage geographic areas. Field representatives of the BLS examined payroll and personnel records for periods before, immediately after, and about a year after the effective date of the minimum wage. The purpose was to ascertain the short-run and the longer term effects of the new minimum on average hourly earnings, wage structures, employment and work schedules.

* We are indebted for useful comments and suggestions to Y. Attiyeh, W. D. Fackler, E. H. Johnson and E. P. Schmidt.

[1] See for example Statements of George Meany, President, AFL-CIO; Stanley Ruttenberg, Director of Research, AFL-CIO; Eugene B. Sydnor, Jr. and H. B. DeVinny for Chamber of Commerce of the United States before the Subcommittee on Labor of the Senate Committee on Labor and Public Welfare on S. 1046 for Extension of Coverage and Increase in the Minimum Wage of the Fair Labor Standards Act, May 1959.

[2] Richard A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," *American Economic Review*, March 1946, p. 76. For this and other citations see John M. Peterson, "Employment Effects of Minimum Wages, 1938–50," *Journal of Political Economy*, October 1957, p. 412 ff.

[3] John M. Peterson, *op. cit.*, p. 415 ff.

[4] U. S. Department of Labor, Wage and Hour and Public Contracts Division, *Studies of the Economic Effects of the $1.00 Minimum Wage*—"Effects in Selected Low Wage Industries and Localities" (Washington: Government Printing Office, January 1959). For purposes of brevity these studies hereafter will be referred to as the "BLS Studies."

[5] *Ibid.*, and U. S. Department of Labor, Bureau of Labor Statistics, "Studies of the Effects of the $1 Minimum Wage," BLS reports Nos. 111, 112, 113, 114-3, 114-4, 114-5, 114-6, 114-7, 114-9, 115, 116, *Monthly Labor Review*, May 1958, Vol. 81, No. 5, pp. 492–501 ("Effects of the $1 Minimum Wage in Five Industries"), July 1958, Vol. 81, No. 7, pp. 737–743 ("Effects of the $1 Minimum Wage in Seven Areas"), October 1958, Vol. 81, No. 10, p. 1137 ("Plant Adjustments to the $1 Minimum Wage").

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The findings were that immediately following the introduction of the higher minimum, average hourly earnings rose, geographic and occupational wage differentials were narrowed. An increased proportion of workers was concentrated near the minimum wage, and relatively minor increases were found in the proportion of workers in the higher earning levels. In the longer term, wage rate adjustments tended to reverse some of the early effects, but in most instances the restoration of prior differentials fell far short in both absolute and relative terms.

In a majority of instances, the $1.00 minimum wage appeared to have little significant influence on unemployment, either in the short run or in the longer run. A small number of employers attributed a few of their discharges at the time of, and subsequent to the effective date of the new minimum, to the rate itself. In this connection, those discharged usually were adjudged to be either incompetent or unable to meet new production standards. This was true particularly with regard to piece rate workers.

A majority of plant and office workers in industries surveyed were on a 40-hour work week schedule. Where employees were on a longer work-week, however, employers indicated that more attention was being given to work flow to minimize overtime premium pay.

An integral part of the survey plan was an attempt by BLS to determine what non-wage actions were made or planned by employers in a number of low-wage industries to adjust to the higher wage costs. Management representatives interviewed in the majority of all plants, as well as in the majority of plants in each industry, reported some action taken in one or more of the selected areas of adjustments: they increased expenditures for machinery and equipment; changed plant layout or work procedures; discharged some employees; increased production standards; raised prices; or changed product lines.

III. LIMITATIONS OF THE DEPARTMENT OF LABOR CROSS-SECTION STUDIES OF SELECTED LOW-WAGE INDUSTRIES

It is fitting and proper that the Department of Labor should attempt to assess the impact of the federal minimum wage. The BLS studies constitute a move in the right direction. They obviously represent a considerable expenditure of time and effort. They provide some data which help to identify the areas of impact and permit a few guarded statements about the direction of resulting changes.

Unfortunately, most of the limitations of earlier studies on the effects of previous wage minima apply to the 1955–57 studies. While some improvements in presentation have been made, the same errors in conception and method have been repeated. As a result, the data are not as useful as they should be; and it is impossible to use them to gauge the net unemployment effects of raising the legal wage minimum. The data are better than no data at all, but not much.

A. Minimum Wage and Other Influences on Employment

The studies do not give adequate attention to isolating the minimum wage effects from other important influences. Nor do they attempt to measure all the influences of the minimum on employment.[6] No serious attempt is made to separate the effects of the minimum wage from influences of trend or of exogenous changes in the industry. We are told, for example, that between 1956 and 1957 employment in Southern sawmills with 8 or more employees declined.[7] But we are also told that "the extent to which the employment decline was due to the impact of $1.00 minimum or to the long-run economic factors operating within the industry, or an interaction between the two is not known."[8] How then is the reader to judge the effects of the $1.00 minimum? One useful piece of information is the trend toward and employment in plants not covered by the FLSA. Unfortunately, the studies have nothing directly to say on either the trend toward uncovered plants or employment in these plants.

The choice of the initial survey periods does not allow complete segregation of employment due to the new minimum. The BLS studies obtained data for the first pay period after the $1.00 minimum wage became effective and again a year later. These two dates, April 1956 and

[6] Employment effects are defined here, and implicitly defined in the BLS studies, as direct effects of higher minima in low-wage industries. The indirect effects through payroll changes, or changes in spending on non-labor inputs, on employment elsewhere, are excluded from consideration.

[7] U. S. Department of Labor, *Studies of the Economic Effects of the $1 Minimum Wage—"Effects in Selected Low-Wage Industries and Localities,"* *op. cit.*, pp. 26–27.

[8] *Ibid.*, p. 27.

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April 1957, are unobjectionable. Influences other than the new minimum affected the data to be sure, but such complications are unavoidable in comparisons over time. The base period, which served as a necessary frame of reference for measuring subsequent changes whether or not attributable to the new minimum, is more debatable. It was not the same period for all industries surveyed; for some it was February 1956; for others, April 1955, August 1955, and the last quarter of 1955. All of these base period dates except April 1955 introduce seasonal factors into the comparisons. In most cases, but not in all, the base period came after enactment of the new minimum in August 1955, and before the date at which it became effective: March 1956.

It is possible that employment and other operational characteristics of low-wage firms and industries in the base period reflected anticipatory reactions to the new minimum. Indeed, the BLS study reports such a reaction in the wooden container industry. The long-term decline in employment in this industry was interrupted between the date of enactment of the new minimum wage and February 1956. Employment rose 5% as mills produced for stocks in anticipation of the higher minimum. Employment then declined 3% between February and April 1956, and another 8% by April 1957.[9] Such a reaction is not suggested for the sawmill industry, nor mentioned in any of the other industries surveyed except seamless hosiery. In many of them, however, increased employment and output in the months between enactment and enforcement of the $1.00 minimum would have been equally reasonable.

Just as the base period may reflect above-normal employment levels, it may also reflect above-normal working weeks and overtime hours. The decline in April 1956 and after in employment, in average working week, in amount of overtime, may all exaggerate the effects of the new minimum because they may be measured from a somewhat inflated base. Information on plant inventories of final product as well as on trends in employment and hours in 1955, before the new minimum was passed, and before its passage was a foreseen conclusion, might shed light on the existence and magnitude of anticipatory reactions.

[9] *Ibid.*, p. 46.

B. Limitations of Classifications

The 1955–57 study is a distinct improvement over previous studies in one respect: it breaks down plants in the low-wage industries surveyed into three groups of approximately equal number—high-, medium- and low-impact groups respectively. The criterion used is the percentage increase in wage costs required to conform to the new minimum. In the southern sawmill industry, for instance, the high-impact group would have to increase average hourly earnings 22% or more to comply with the minimum; the medium-impact group would have to increase average hourly earnings 13 to 22%; and the low-impact group would have to raise average hourly earnings less than 13% to comply with the $1.00 minimum.[10] In some industries surveyed, the differences between impact groups are minor. The high-impact group in the cigar industry would have to raise wages 6% or more; the medium-impact group would have to raise wages 1 to 6%, whereas the low-impact group would have to raise wages less than 1%.

In judging the employment effects of the new minimum, it would be helpful to have a similar impact classification for changes in total manhours, and for firms leaving, or newly entering, the industry during the survey period. It certainly seems plausible that the minimum wage would have a differential effect by impact group on total manhours and exit and entry rates, as well as on the number of employees in firms operating in all three survey periods. We have no basis for judging this point, since neither the classification nor the relevant data are available in the study.

Another classification of relevance to the employment effects of the minimum wage is the size of plant as measured by number of employees.[11] The BLS studies do give such a breakdown for plants with eight or more employees. They fail to indicate, however, the number of plants with less than eight, the trend in the number of such plants, and in their employment.

[10] *Ibid.*, pp. 8–9.

[11] It would be desirable to classify plants with similar products and markets. It would also be desirable to sub-classify the published data on wage and employment changes by product and market. Employment effects of the minimum wage are not isolated by a comparison of plants with dissimilar products and markets. These two limitations, as noted by Peterson, restricted the usefulness of past studies. They restrict the usefulness of the current study as well.

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One method of adjustment to the minimum wage is avoidance, by reducing employment to less than eight, the minimum covered by the Fair Labor Standards Act. The very small size of most plants in several low wage industries indicates the feasibility of avoidance by reducing the number of employees or by split-ups. The available data will not permit us to judge the importance of this or other forms of avoidance as a method of adjustment.

C. Method of Survey

To observe the direct effects of the $1.00 minimum wage, wages and related data were obtained by BLS surveys of selected low-wage industries. As noted elsewhere, two surveys were made. The first covered payroll periods just before and just after the $1.00 minimum went into effect (generally, February and April 1956). Most of the plants were re-surveyed a year later, in April 1957, in order to observe longer-term effects of the minimum wage. The statistical procedure used was a "matched sample" of plants that remained in operation in all three periods—although we are not told how successfully the "matches" were made.

Since the estimates of employment changes and related data are based on a sample, they are subject to sampling variability. But the standard error, which is a measure of sampling variability, is not mentioned in the BLS study. Thus we cannot judge the significance of the results. In addition to sampling variability, the data are subject to errors of response. A discussion of this point is not contained in the study.

In discussing the effects of the minimum wage on employment, it is important to distinguish between changes in the level of employment and changes in the composition of employment. Thus, owing to the minimum wage, we may find a decrease in the level of employment or a decrease in employment in the covered plants but a compensatory increase in employment in the uncovered plants so that the level of employment is not affected. The minimum wage has an effect but not of attaining its purpose of raising wages without affecting employment. Since *the surveys include neither plants that began or discontinued operations during the periods surveyed nor uncovered plants*, the data on employment changes in the studies contain a bias in an unknown direction.

On the one hand, the studies may overestimate the net effects on the level of employment, since they do not include plants that began operations nor plants not covered by FLSA. Take the case of the southern sawmills as an example of a change in composition of employment. If the effect of the $1.00 minimum wage is to increase the number of sawmills employing fewer than eight people, either by the splitting of sawmills of formerly more than eight, or by the entrance of new sawmills with less than eight, and thus not covered by the minimum wage, the net unemployment effects may be overestimated.

On the other hand, the studies may underestimate the net effects on the level of employment since they do not include plants going out of business. The Southern Pine Industry committee, for example, has attempted to document the number of sawmills that discontinued operations following the $1.00 minimum wage.[12] The procedure involved in developing this information consisted of a letter directed to companies which were reported to be going out of business, or had shut down. A questionnaire was forwarded to them with the request that they furnish information such as: name of operation; address; annual production; number of employees; weekly payroll and the amount of investment dollar-wise. The question was also asked regarding the reason for shut down.[13]

The committee reports that although most of the letters mailed were returned with notation they "had moved—left no address, usable returns were received from 52 companies located in 11 of the 12 producing states that they closed down." Employment at these 52 companies numbered 2,752. Thirty-five companies reported the increase in the minimum wage from $.75 to $1.00 as the major factor in their decision to liquidate; the remaining 17 companies referred to the increase in the statutory minimum as a contributing factor toward their decision to liquidate.

Granting the obvious limitation of asking people why they did what they did, when they did, the results of the committee's questionnaire, while far from reliable, still indicate a serious gap in BLS surveys.

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[12] Statement submitted by Southern Pine Industry Committee to the Senate Committee on Labor and Public Welfare, May 1959.

[13] *Ibid.*

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D. Employment Estimates

As in previous studies, the data for the 1955–57 studies are based on wage structure surveys, which measure employment of labor only in number of workers, rather than in total man-hours. They do not, therefore, necessarily provide reliable employment estimates.

In addition to the above limitations, the BLS studies, moreover, give several different estimates of the unemployment effects of the $1.00 minimum wage which rely on different approaches. One estimate is the changes in employment in the "matched sample" of covered plants in the industry in all three survey periods. In the sample of southern sawmills, for instance, an over-all employment decline of 8% is presented for the period October-December 1955–April 1957.[14]

A second estimate of employment effects of the $1.00 minimum is given for a sample of southern sawmills in a separate BLS study which reports a 15% decline in sawmill employment between the last quarter of 1955 and April 1957.[15] This decline includes the effects of sawmill attrition in this period, whereas the 8% decline reported above does not. (Of the sawmills in operation in the fall of 1955, 4% were no longer in operation in April 1956; 19% of those operating in April 1956 were not operating a year later.) Neither the 8% nor the 15% figure includes employment in plants not in operation in one of the earlier survey periods but operating in a later period.

Another unemployment estimate is based not on a sample but on investigation of plants reported adversely affected by the $1.00 minimum.[16] Since these plants are not broken down by industry, the results cannot be made comparable with the above figures for the sawmill industry.

In fact, the observed changes in employment are the result of many factors, only one of which is the $1.00 minimum. Some changes in employment, partly attributable to the new minimum (i.e., employment in uncovered firms and in firms starting operation during the survey period) have escaped observation. As a result of these deficiencies in the BLS data, quantification of employment effects of the $1.00 minimum wage is simply not possible.

IV. THE 1955–57 CROSS-SECTION STUDIES AND ECONOMIC THEORY

In spite of the limitation of the 1955–57 studies, they provide data breakdowns by region, various plant characteristics, and low-, medium-, and high-impact wage groups that permit some cautious cross-section comparison. This section will consider, first, to what extent these data are consistent with an inverse relation between changes in the minimum wage and changes in employment in the low-wage industries studied.[17] Second, this section will consider to what extent the results of these studies are consistent with the substitution implications of a competitive model. Third, we shall consider in this section another form of adjustment to the minimum wage—namely, evasion. Owing to the limitations of available data, no claim is made of a rigorous test of the above two implications of the cross-section competitive model. The most that can be done is to gauge roughly the consistency of these two implications with that of available data.

A. Employment Effects

Given a source of initial variation in equilibrium wages among firms, an implication of the cross-section competitive model is that *ceteris paribus* there will be an inverse relation between wage increases imposed by a minimum and employment changes among firms making a similar product for the same market. Thus we should expect to find low-wage firms whose wages increase more to have smaller increases or larger decreases in employment than high-wage firms whose wages increase little or not at all.

One way to test the above implications against readily available empirical evidence is to subclassify plants according to the criterion of per-

[14] U. S. Department of Labor, *Studies of the Economic Effects of the $1 Minimum Wage*—"Effects in Selected Low Wage Industries and Localities," *op. cit.*, p. 27.

[15] U. S. Department of Labor, Bureau of Labor Statistics, *Studies of the Effects of the $1 Minimum Wage*, "Wage Structure: Southern Sawmills, April 1957" (BLS Report No. 130, March 1958), p. 11.

[16] U. S. Department of Labor, *Studies of the Economic Effects of the $1 Minimum Wage*, "Interim Report" (Washington: Government Printing Office, March 1957), p. 6.

[17] The relation is an implication of the cross-section competitive model contained in Peterson's paper and discussed by him. We are thus provided an opportunity to check the consistency of the relation in the period 1955–57.

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TABLE I

EMPLOYMENT CHANGES 1955–57[1]
SURVEY SAMPLE PLANTS IN SELECTED LOW-WAGE INDUSTRIES*

Impact Groups[2]	High	Medium	Low
South			
Sawmills	−16	−6	−4
Wooden Containers	−2	0	0
Processed Waste	−17	—	0
Footwear	−3	—	+5
Southeast			
Fertilizers	−9	−3	+4
Seamless Hosiery Men's	−19	−13	−8
Children's Hosiery	−16	−10	−14
Cigar Industry	−7	−6	−4
Workshirts	−7	—	−9
Other			
Cigar Industry York County	−5	—	−1
Tobacco Stemming, Re-drying	−27	−15	−14

* Source: U. S. Department of Labor, Wage and Hour and Public Contracts Division, *Studies of the Economic Effects of the $1.00 Minimum Wage:* "Effects in Selected Low Wage Industries and Localities." (Washington: Government Printing Office, January 1959.)

[1] In most cases data are given only for one pair of dates; where more than one pair is available, the dates used are the latest before the $1 minimum went into effect, and the earliest after it went into effect. The survey dates above are as follows: sawmills, October–December 1955 and April 1956; wooden containers, processed waste, men's and children's seamless hosiery, cigar industry, February 1956 and April 1956; fertilizers, April 1955 and April 1956; footwear and workshirts, August 1955 and April 1956; tobacco stemming and re-drying, the peak employment periods of 1956 and 1957.

[2] Impact refers to the percentage increase in wage costs required to comply with the $1 minimum. The definition of high, medium, and low impact groups is different for each industry, as follows: sawmills, 22% and over, 13–22%, and less than 13%; wooden containers, 25% and over, 13–25%, and less than 13%; processed waste, 22% and over and less than 22%; fertilizers, 14% and over, 1–14%, and less than 1%; men's seamless hosiery, 12% and over, 6–12%, and less than 6%; children's seamless hosiery, 12% and over, 7–12%, and less than 7%; cigars, 6% and over, 1–6%, and less than 1%; footwear, 7% and over, and less than 7%; workshirts, 17% and over, and less than 17%; tobacco stemming and re-drying, 26% and over, 17–26%, and less than 17%.

centage increase in wage costs required to conform to the new minimum into high-, medium-, or low-impact groups. This is the approach used in the BLS studies. Table I, which summarizes the changes in employment between 1955 and 1957, shows, as expected, considerable differentiation by impact groups. The employment decline is greatest in the high-impact group, for 10 of the 11 industries, and least in the low-impact group, for 9 of the 11 industries. Changes in employment by impact groups, of course, neither exclude influences on employment other than the $1.00 minimum wage nor include all the employment effects of the $1.00 minimum. Classification by impact groups, therefore, does not quantify employment effects. It does, however, yield data that are consistent with the inverse relation between wage changes and employment changes implied in the competitive model.

B. Substitution Effects

Another implication of the competitive model is that wage increases imposed by a minimum provide incentives for factor substitution, other things remaining the same. And the longer the period allowed, the more opportunity will be provided for factor substitution to occur. The evidence presented in the BLS studies on changes in machinery, equipment and methods following the $1.00 minimum wage are consistent with the substitution implications of a competitive model.

The BLS surveys in a number of comparatively low-wage industries showed that from 41% to 96% of the non-supervisory workers in the industries earned less than $1.00 an hour prior to March 1, 1956.[18] The expected magnitude of the increases in wages—confirmed by the survey—led to expectations of non-wage actions to adjust to the higher-wage costs.

Consequently, BLS planned a survey of "Plant Adjustments to the $1 Minimum Wage" to determine what actions were taken to adjust to the new minimum wage.

Industries covered were: fertilizers, footwear, men's and boys' shirts, processed waste, sawmills, seamless hosiery (men's and children's), wooden containers, and work shirts. Some 1,105 completed questionnaires were obtained by BLS field representatives.

Before we turn to the findings of the survey,

[18] See footnotes 4 and 5.

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a brief summary of the limitations noted in the BLS studies is useful in judging the value of the findings. First, the results for each of the industries studied may not truly represent the extent to which individual plant adjustments were made in those industries—because the sample of establishments was that selected for the wage surveys, and not necessarily the best for the study of adjustments. Second, some difficulty obtains in securing precise data for some of the questions. Many such actions reflect simply the continuous performance of the managerial function, and it was not possible to disentangle those actions resulting from decisions previously arrived at from those that were, at the least, quickened by the higher minimum. Not all of the actions taken can in any case be attributed to the new minimum. Third, the areas of adjustment included in the survey do not exhaust the possibilities of adjustment.

Management representatives interviewed in the majority of plants in each industry reported some action taken in one or more of the following selected areas of adjustment.

1) *Machinery and Equipment.* The most widely used area of adjustment was increased expenditures for machinery and equipment. Nearly 45% of the 1,105 plants reported expenditures exceeding those of the previous year. More than three-fifths of the seamless hosiery mills reported increased expenditures, as did half or more of the southern sawmills and the wooden container plants. At the lower end of the scale, only one-fourth of the footwear plants reported increases.

2) *Plant Layout and Work Procedure.* About 20% of the plants reported changes in plant layout or re-organization of work procedures. Some changes in plant layout and re-organization of work procedures came as necessary adjuncts to other types of action taken. New machinery and equipment have been mentioned; adding or dropping products was also important in some cases (work shirt plants reported this factor more often than any other), and reducing or expanding the scope of operations also led to some changes (dropping or adding planing and logging operations in sawmills, for example).

Other plant layout changes were instituted directly to increase operating efficiency, rather than as a result of other actions. In some cases, machines were more conveniently placed for workers operating more than one machine; in other cases, the flow of work was improved by changing the position of the workers. A minority of the employers interviewed attributed these plant engineering changes directly to the $1.00 minimum wage. The types of action leading to these changes, however, indicate the probability of significant influence stemming indirectly from the higher minimum.

3) *Quality of Workers.* Most of the discharges directly attributed to the $1.00 minimum wage apparently resulted from the inability to attain production standards imposed after the higher minimum became effective; that is, employees were required to produce more units per hour, and some could not do so. The proportion of plants studied in which production standards were raised varied from 28% in the work shirt industry to none in the footwear industry. Increased production standards were reported most frequently by the seamless hosiery mills, with the processed waste mills and the men's and boys' shirt plants ranking second and third, respectively.

A number of the employers reporting increased production standards emphasized greater supervision. Some employers also indicated closer scrutiny of new hires and raised hiring standards in an effort to insure that new employees would meet higher productivity standards. No information is provided on possible effects of the $1.00 minimum on the rate of hiring.

4) *Change in Product Line.* The final area of adjustment explored in these studies—and the one least used—was a change in product line. Only 7% of 1,105 establishments reported product changes; but 28% of the work shirt plants, 17% of the footwear plants, 16% of the seamless hosiery mills, and 11% of the wooden container plants reported some product changes. In the other four industries, the proportion of plants ranged from 2 to 6 per cent.

Establishments in all the industries surveyed generally concentrate their resources on the manufacture of a single product. Changes in the cost structures may, however, provide incentive for employers to re-examine alternative uses of these resources.

Time, of course, is required before the full impact of the substitution effect is felt. As noted in section II, immediately following the introduction of the new minimum occupational wage differentials were narrowed, and an increased proportion of workers were concentrated about the minimum wage. Though in the longer run

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TABLE II

MINIMUM WAGE AND OVERTIME VIOLATION, FISCAL YEARS 1949–58*

Year	Covered Employees	Employees Underpaid		Underpayment Amounts		Underpaid as % of Workers	Amount Underpaid per Underpaid Worker
		Minimum	Total	Minimum	Total		
1949	1,556,117	—	186,310	$ —	$12,186,957	12.0%	$ 65.4
1950	1,515,643	—	140,872	—	9,599,628	9.3	68.1
1951	1,569,866	—	139,038	—	11,202,561	8.9	80.6
1952	2,125,103	—	208,078	—	15,663,912	9.8	75.3
1953	2,092,933	—	193,111	—	16,652,697	9.2	86.2
1954	2,019,649	—	141,368	—	13,774,248	7.0	97.4
1955	1,962,278	36,894	128,754	$2,135,731	12,151,077	6.6	94.4
1956	1,581,641	27,617	112,710	1,612,902	11,085,952	7.1	98.4
1957	2,296,913	77,463	181,910	5,289,873	18,834,134	7.9	103.5
1958	1,910,127	63,349	166,497	6,145,385	19,655,299	8.7	118.1

* Source: U. S. Department of Labor, *Forty-sixth Annual Report of the United States Department of Labor, Fiscal Year 1958*; pp. 242, 243.

Wage and Hour and Public Contracts Divisions, *1955 Annual Report of the Wage and Hour and Public Contracts Divisions*, p. 71.

Wage and Hour and Public Contracts Divisions, *1956 Annual Report*, p. 234.

Wage and Hour and Public Contracts Divisions, *1957 Annual Report*, p. 207.

wage rate adjustments tended to restore the differentials, in most instances the restoration of prior differentials fell short in both absolute and relative terms. This pattern suggests a relatively low elasticity of substitution in the short run.

C. Minimum Wage and Enforcement

Though not an implication of the cross section competitive model *per se*, evasion and avoidance are a form of adjustment to the minimum wage. In effect, an increase in the minimum wage is equivalent to a reduction in the price of evasion and avoidance. The price of evasion and avoidance is the cost of evasion and avoidance minus the benefits of evasion and avoidance. The benefit has increased with the increase in minimum wage. And other things equal, one would expect evasion and avoidance of the minimum wage to increase.

Avoidance of the minimum may take any number of forms that permit firms to operate outside the coverage of the Fair Labor Standards Act. These include split-ups and firings to reduce the number of employees to less than eight, and restriction of business to intra-state sales, whether by reduction of market areas or by vertical split-ups separating intra-state from inter-state functions. Evasion of the minimum wage or failure to pay the minimum wage is considered a violation of Fair Labor Standards Act. In this section we shall restrict ourselves to a discussion of evasion, on which some information is available, whereas no data are available on avoidance.

As noted in the BLS studies, "One important aspect of the effects of an increase in the minimum wage is not discussed in the report. This concerns the extent to which the statutory minimum wage is not paid by the employers.... It is apparent now that the extent of violation of the $1 minimum wage is greater than was the extent of violation of the $.75 minimum."[19] Minimum wage violations were found in 21% of investigations made for enforcement purposes between July and December 1956; in the corresponding period of 1950, the percentage of violations was 18%. The amount of underpayment per establishment rose from $240 in 1950 to $504 in 1956; the amount per underpaid employee rose from $41 to $63.[20] The trend in violations, shown in Table II, reveals a marked increase in amount of underpayment immediately after new minima went into effect.

Discovered underpayments of the minimum wage more than tripled between fiscal year 1956 and fiscal year 1957. The number of employees

[19] U. S. Department of Labor, *Studies of the Economic Effects of the $1 Minimum Wage*, "Interim Report," *op. cit.*, p. 3.

[20] *Ibid., loc. cit.*

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found to have received less than the minimum nearly tripled in the same period, rising from 27,617 in fiscal 1956 to 77,463 in fiscal 1957. Allowing for the fact that a larger number of firms employing a larger number of covered workers were investigated in 1956 than in 1957, the percentage of employees receiving less than the minimum increased 93% and the amount of underpayment per employee roughly doubled. If for every discovered violation of the minimum, three went undiscovered (this being the ratio of discovered to undiscovered underpayment estimated by the Department of Labor for fiscal year 1958), then about 310,000 covered employees were paid less than the minimum in fiscal year 1957. The magnitude of the violation problem is indicated by a Department of Labor estimate that about 2 million covered workers were receiving less than $1.00 in 1955 at the time the new minimum was enacted. The Department estimated that total underpayments both discovered and undiscovered totalled $80 million.[21]

The data breakdowns available in the annual reports of the Wages and Hours Division of the Department of Labor do not correspond to the industry breakdowns used to study the effects of the $1.00 minimum. Data on violations for fiscal years 1955 and 1956 in the sawmill industry in the South, for instance, are available for "sawmills, planing and plywood mills."[22] Of the plants investigated in fiscal year 1955, 18% were found violating the minimum wage; the figure for fiscal year 1956 was also 18%. (Comparable data are not given for fiscal 1957, which should include most of the impact of the $1.00 minimum on evasion rates.) A more significant comparison, however, would be by impact groups and for the months preceeding and for the months following the effective date of $1.00 minimum. It should be noted, moreover, that the industry coverage above is considerably more extensive than southern sawmills, covering other types of mills and the entire country.

Data on violations in all industries show that the rate is much higher in the South than in the rest of the country. This is what we would expect since the South is a comparatively low wage area, and thus affected by the minimum and rises in the minimum wage more than other areas of the country. In fiscal 1955, 12% of all plants investigated were found in violation of the minimum; but 22% of southern plants were guilty. The percentage was even higher for Puerto Rico and the Virgin Islands: 34%. The average amount underpaid (both minimum and overtime payments) was $467 per violating firm in the South and $440 in the U. S. as a whole; amount of underpayment per underpaid employee was $64 in the South, $58 in the country as a whole.[23] No such regional breakdown is given by industry.

The ratio of plants found violating the minimum wage to number of plants investigated cannot be generalized to industry as a whole. Some of the investigations are based on complaints or other indications of probable violation; other investigations, although not based on evidence of violation, are concentrated in industries and areas where past experience indicates violations are common. The percentage of violations found in complaint investigations is considerably higher than the percentages in routine non-complaint investigations. Even the latter percentage cannot be generalized to industry as a whole because of bias in selecting industries and areas where violation is prevalent. Only one of five investigations is based on a complaint.

The percentage of violations in non-complaint investigations might be a reasonable index of total violation in the sawmill industry in the South, and in other low-wage industries mainly in the South. Selection of plants in the southern sawmill industry for investigation could approximate a random sample except that plants subject to complaint investigation are excluded.

Violations of overtime pay provisions of the Wages and Hours Act have received far less attention than they deserve on the basis of their prominence in statistics on violations. The amount of underpayment discovered is more than twice the underpayment of the minimum wage. The number of firms found violating overtime pay provision is much larger. In fiscal year 1955, 19% of plants investigated in the "sawmill,

[21] Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, 86th Congress, First Session, Departments of Labor and Health, Education, and Welfare Appropriations for 1960, pp. 315, 319.

[22] U. S. Department of Labor, *1955 Annual Report of the Wage and Hour and Public Contracts Divisions*, pp. 68–71; U. S. Department of Labor, *1956 Annual Report of the Wage and Hour and Public Contracts Divisions*, pp. 230, 234.

[23] U. S. Department of Labor, *1955 Annual Report of the Wage and Hour and Public Contracts Divisions, op. cit.*, p. 5.

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planing and plywood mill" industry were found in violation of the minimum wage, but 48% were in violation of overtime pay provisions. A higher minimum, by increasing the overtime differential, reduces the price of evasion and thus adds incentive to violate overtime pay legislation.

V. CONCLUSION

The BLS studies suffer from a number of limitations which reduce their usefulness in trying to gauge the economic effects of the $1.00 minimum wage. The most serious limitation is the failure to include in the samples plants which began or discontinued operations during the periods studied, and plants not covered by the Fair Labor Standards Act. As a result, the data cannot be used to quantify the economic effects of increasing the minimum wage. It is impossible to establish from the data even a rough order of magnitude of the relevant quantitative changes, such as net unemployment effects. At most, the data on employment and related variables are useful for indicating the direction of certain changes.

Insofar as the studies do indicate the qualitative direction of change, they are consistent with the implications of a cross-section competitive model. The inverse relation between changes in the minimum wage and employment and the substitution effects one would expect appear to be confirmed. When scattered information on evasions of the minimum wage is taken into account, the competitive model does appear to have predictive validity. Certainly, no one can seriously claim, on the basis of such studies, that the usefulness of marginal analysis has been disproved. On the contrary, the inherent logic of economic analysis stands up very well indeed.

No claim, however, is made in this paper that the implications of competitive theory have been rigorously tested. The published data simply do not permit rigorous tests to be applied. The data, as far as they go, are at least consistent with what competitive theory would predict, though they do not exclude other models.

In setting up future studies, it would be helpful for the Bureau of Labor Statistics to adopt a sounder methodological approach at the outset, in order to insure the procurement of all the relevant data. If the relevant data are made available in useable form, independent researchers can then proceed to shake out their implications. The Bureau would then be performing a really useful service.

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