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COMMUNICATIONS

Employment Effects of Minimum Wages

In two recent articles,[1] Professor John M. Peterson criticizes statements and conclusions of "some labor economists"[2] regarding the employment effects of minimum-wage legislation and attacks the interpretations in three studies of the U.S. Department of Labor dealing with the economic consequences of state wage minimums. By means of his "re-examination" of the Department of Labor's three state studies and studies of experience in three industries under the Fair Labor Standards Act, Peterson attempts to prove that minimum-wage experience is consistent with the negative wage-employment relation predicted by orthodox wage theory and the orthodox theory of the firm. This would mean that, under the impact of minimum-wage determinations, low-wage firms would have smaller employment increases or larger employment decreases than high-wage firms producing practically identical products for the same market.

This comment is devoted to an analysis of Peterson's reappraisal of the studies and the conclusions he draws therefrom. As will be explained, his treatment has serious shortcomings, and many of the data in the three state studies and for the three industries do not confirm his thesis. This analysis follows the order of subject matter in each of the two articles.

In his article in the April 1959 issue of this *Review*, Peterson particularly attacked statements on minimum wages in some of my writings. Therefore, before examining Peterson's material and conclusions, perhaps it would be in order to set forth briefly my position with respect to wage-employment relationships and the lack of such relationships, especially as revealed by minimum-wage experience.[3]

The orthodox model of the labor market and the firm, which Peterson espouses, stresses a smoothly declining labor-demand curve and employment as *the* channel of adjustment to wage changes. My position is that, for a number of reasons, the orthodox model lacks good predictive value within a limited zone or range of wage change. Within such a range, the effects of a wage change imposed by a legal minimum wage can take any one of a variety of paths. Along some of those paths there may be no employment consequences or even some employment increases, provided the wage rise is moderate and within the range. A range of diverse reaction or latitude for nonemployment adjustment exists because (1) labor is not purchased and sold as the orthodox model postulates and, therefore, for the same grade of labor a significant band of wages prevails in a local market, including economically unjustified race, sex, and interfirm wage dif-

[1] "Employment Effects of State Minimum Wages for Women: Three Historical Cases Reexamined," *Industrial and Labor Relations Review*, Vol. 12, No. 3 (April 1959), pp. 406–422, and "Employment Effects of Minimum Wages, 1938–50," *Journal of Political Economy*, Vol. 65, October 1947, pp. 412–430.

[2] Including Fred H. Blum, Lloyd G. Reynolds, Joseph Shister, Harry Weiss, and the author.

[3] My views in this subject area have been explained most recently and fully in *Labor and Industrial Relations*, 1951, ch. 19, pp. 361–379, and "Economic Adjustments to Changes in Wage Differentials," ch. 8 in G. W. Taylor and F. C. Pierson, *New Concepts in Wage Determination*, 1957, pp. 206–235.

ferences; (2) management often has flexibility and alternative means of adjustment so that it is not forced to confine its reaction within the wage-employment plane; (3) the process of labor and management adjustment to a wage change is a dynamic one and the reactions to the initial changes may themselves significantly affect the type and character of the results.

Generally speaking, the low-wage industries come closest to the competitive assumptions and the higher-wage industries are furthest away from them.[4] The reader should, therefore, keep in mind that the industries discussed in this comment are among those that would be most favorable to Peterson's thesis. They are generally small-scale operations, characterized by low capital investment per employee and offering few obstacles to variation in the size of the work force. The extractive and service industries, in particular, would be quite favorable to orthodox wage-employment expectations.[5] However, the larger establishments in retailing, the first industry which Peterson re-examined in his article in this journal, would seem to require a minimum-sized work force.

OREGON RETAIL STORES, 1913–1914

This B.L.S. study, designed to discover the consequences of the weekly minimums effective at various dates in Oregon retail stores between October 1913 and February 1914, was an elaborate one. The study suffers, however, from the fact that it covers only the twelve months from March-April 1913 to March-April 1914. This period of coverage was too short and included only the downswing phase of the business cycle (the general business depression of 1914).

Although Peterson recognizes that the general national business recession in 1914 accounts for much of the drop in sales and employment in the Oregon stores covered by the B.L.S. study, he fails to bring out its full implications. The first is that there is a much greater correlation between the employment (in full-time equivalents) of female workers and total sales in each of the four store groupings than there is between female wage changes and female employment. That is more evident if one corrects the erroneous figure for equivalent full-time female workers in Salem stores in Peterson's Table 2, which should be +1.2 instead of −11.2 percent. Sales declines were the main factor in employment declines.

Generally speaking, female employment declined more than male employment as sales dropped off. Peterson alleges that the relatively greater decline in female employment was due to the minimum wage, which did not apply to men. In making this claim he overlooks a number of factors and makes misleading statements in discounting some factors that he does mention. In the Portland neighborhood stores, the decline in female employment was almost four times as great as in male employment. This was at least partly due to the fact that it also became illegal to employ women after 6 p.m., and the neighborhood store merchants in Portland maintained that they did the bulk of their business after the downtown stores were closed. The effect of this hours' prohibition on female employment in neighborhood stores was clearly explained in the study,[6] yet Peterson mistakenly says that "only a small number of women who were office workers" would be affected by this 6 p.m. closing time for women.[7] In short, the

[4] This point is more fully explained in Taylor and Pierson, *op. cit.*, ch. 8.

[5] See *ibid.*, pp. 214, 224, and *Labor and Industrial Relations*, pp. 365–366.

[6] M. L. Obenauer and B. von der Nienburg, *Effect of Minimum-Wage Determinations in Oregon*, Bulletin of Labor Statistics No. 176, U.S. Department of Labor, July, 1915, p. 61.

[7] Peterson, "Employment Effects of State Minimum Wages for Women," p. 411.

hours' prohibition seems to have had more effect on employment in these stores than the minimum wage of $9.25 a week.[8]

Much of the drop in female employment in the department and specialty stores in Portland and Salem was concentrated in the workroom, which was heavily engaged on merchandise alterations to meet customers' needs and desires. In 1914 the Portland Retail Merchants' Association inaugurated a policy of charging for alterations, which reduced the demand for this sort of work to such an extent that the alteration work force was cut down 48 percent in the six Portland department, dry-goods, and 5-and-10 cent stores.[9] Elimination of workroom employment from all calculations reduces the drop in female employment in those six stores from 17.6 to 12.2 percent (compared with a drop of 8.4 percent for male employees) between 1913 and 1914. Elimination of the workroom from the calculations for eleven Portland specialty stores raises female employment from an increase of 8.4 to an increase of 35.2 percent (compared with 16.7 percent for male employees including workroom employment, which is not given separately for men). In those 11 stores, female sales employees increased 40.7 percent while male sales employees increased only 6.6 per cent. Elimination of the workroom from all calculations in the case of the seven Salem stores shifts female employment changes between 1913 and 1914 from a drop of 1 percent to an increase of 7.5 percent (compared with no change in male employment). In those stores, female sales employees increased 10 percent while male sales employees decreased 4.5 percent.

In a depression like that of 1914, female employees were more likely than male employees to be disemployed, not only because of a strong feeling at the time concerning the need to maintain employment for family heads, but also because male employees were more likely to be among the long-time group constituting the firm's skeleton staff. Consequently, changes in the ratio of male to female employment on a downswing (in the absence of figures for the same ratio on the upswing) tend to give a distorted picture.

Despite such a pro-Peterson bias in the data, the Oregon study contains many figures contrary to the Peterson thesis. Some have been mentioned above. Others occur in the breakdown tables showing wage and employment changes between 1913 and 1914 by occupation, age and experience of employee, and type of firm.[10]

NEW YORK POWER LAUNDRIES, 1933–1935

Peterson's presentation under this heading is marked by misleading statements, errors, and a basic defect.

In the first place, a comparison of total employment in power laundries confined to the period from May 1933 to November 1935 is vitiated by the differing impact of the great depression in New York and Pennsylvania. As the Women's Bureau bulletin[11] stressed, business in general (as

[8] The average female pay for those stores was $9.54 a week in 1913. A total of 14 out of the 25 experienced adult female employees in the neighborhood stores studied were in 1913 at or above the $9.25 minimum, yet the reduction in employment was from 25 to 15 female employees between 1913 and 1914.

[9] Obenauer and von der Nienburg, *op. cit.*, p. 12. The report is silent on the alteration policy in the Salem stores.

[10] For example, in 7 of the 18 departments in the 6 Portland department, dry-goods and 5-and-10 cent stores, the average rate of pay and employment for females both rose between 1913 and 1914 (*ibid.*, Table 17, p. 51), and in the 3 of those 6 stores having complete records, employment of adult experienced women increased from 105 to 116 or by 10.5 percent between 1913 and 1914 despite a 12.4 percent drop in the other 3 stores (*ibid.*, Table 3, p. 15) and a decline of 10.1 percent for all 6 combined (*ibid.*, Table 13, p. 37).

[11] *The Effect of Minimum-Wage Determina-*

measured by total wages or value added in all manufacturing) and particularly the business of power laundries, declined relatively more in Pennsylvania from 1929 to 1933 than in New York and also rose more from 1933 to 1935. Hence, total employment and payrolls in power laundries between 1933 and 1935 were bound to show a higher percentage gain for Pennsylvania than for New York, and that would be true even if New York had not adopted a minimum wage applying to that industry in 1933 or if Pennsylvania had adopted a legal minimum.

Strangely, after mentioning this difference in cyclical developments, Peterson nevertheless attempts to justify such an interstate employment comparison on the grounds that the increase in female employment occurred in New York laundries before November 1933 and in Pennsylvania laundries after November 1933, that the New York wage order although effective October 2, 1933 only became mandatory in August 1934, and that it was after November 1933 "that most of the increase occurred in average hourly earnings."[12] None of these contentions is a valid answer to the basic fact that both the contraction and pickup in business were greater in the Pennsylvania laundries. The assertion that the increase in hourly earnings occurred after November 1933 is completely erroneous. My calculations show that in New York State such earnings increased 20 percent from May to November 1933 and only 8 percent from November 1933 to November 1935, and in Pennsylvania the corresponding figures are 22 percent and less than 1 percent, respectively.[13] Moreover, despite this basic objection to New York–Pennsylvania comparisons in the cyclical upswing, total female employment in laundries between May 1933 and November 1935 increased 3.9 percent for New York State compared with 2.9 percent for Pennsylvania, and rose 6.1 percent in New York City compared with 4.2 percent for Philadelphia laundries.[14]

Peterson also compares changes in average weekly hours in New York and Pennsylvania laundries between May 1933 and November 1935 and writes: "The implication is clear that man-hours worked by females increased less in New York under the minimums than in Pennsylvania."[15] Again his comparison is invalid and the implication unwarranted. His Table 6 gives only figures for the percentage of women working 46 hours or more a week (although in May 1933 as many as 38.6 percent of the female workers in Pennsylvania were working less than 37 hours), and 5 of the 18 figures on weekly hours in his table are off by 7 to 10 percentage points because of mistakes in transcription. Fundamentally, however, the defect lies in making a comparison on a 1933 base when weekly hours were so depressed in Pennsylvania by the greater severity of the business collapse. The result was that, despite the greater increase in weekly hours in Pennsylvania laundries, average weekly hours for women were significantly higher in New York laundries than in Pennsylvania laundries in November 1935.[16]

tion in Service Industries, Bulletin No. 166 of the Women's Bureau (Washington: 1938), p. 24. See also *ibid.,* Table X, p. 39.

[12] Peterson, "Employment Effects of State Minimum Wages for Women," n. 27. p. 416.

[13] Based on Table XII, Women's Bureau *Bulletin* No. 166, p. 41, using mid-points for the intervening wage categories and 17 and 45 cents for the lowest and highest categories.

[14] See Peterson, "Employment Effects of State Minimum Wages for Women," Table 5, p. 416.

[15] *Ibid.,* p. 416.

[16] The distribution in November 1935 was as follows:

Weekly Hours	*New York*	*Pennsylvania*
Under 37	17.1%	28.3%
37, under 41	24.6	28.2
41, under 46	47.0	30.7
46 and over	11.4	12.8

Source: Women's Bureau *Bulletin* No. 166, Table XIII, p. 42.

The same basic defect applies to Peterson's comparisons of changes in total payrolls and women's payrolls between 1933 and 1935. Indeed, because of a failure to take account of cyclical differences, one cannot accept as valid any of Peterson's conclusions under this heading.

OHIO DRY CLEANING, 1934–1935

Significant defects also characterize the conclusions Peterson draws from his "re-examination" of the Women's Bureau study of the effects of minimum wages on female pay and employment in Ohio dry-cleaning and dyeing establishments.[17] In this case, Indiana is used as the contrasting nonminimum-wage state.

Although Peterson claims that "most of the available data were consistent with [his] basic hypothesis," that seems clearly not to be the case. Between April 1934 (before the Ohio minimum was instituted) and April 1937, in identical Ohio firms the hourly earnings for women increased 14.3 percent, while for the male employees they increased only 7.6 percent, yet the ratio of females in the total work force of those establishments remained at 55 percent.[18] In identical Indiana establishments between those dates, the hourly earnings of men rose 19.1 percent and for female employees only 10 percent, yet the ratio of women in the total work force dropped from 52.3 to 51.3 percent.[19] In other words, where women's wages increased almost twice as fast as men's, men did not displace women on net balance; where men's wages increased almost twice as fast as women's, men actually displaced women on net balance—results contrary to prediction on Peterson's assumption of a consistent negative wage-employment relationship.

In support of his thesis, Peterson points out that total employment in Indiana dry-cleaning establishments increased much more than in Ohio establishments between 1934 and 1937. However, he fails to mention and take account of the fact that the larger establishments were adopting new labor-saving equipment[20] and that the Indiana establishments generally were much smaller than those in Ohio and, therefore, less suited for mechanization. Of the identical firms used for comparison, those in Ohio averaged almost twelve female employees per establishment in 1934, compared with an average of only seven for Indiana. Some 72 percent of the Indiana establishments were family shops (with one or more of the owner's family working in them) compared with only 42 percent for Ohio. As the Women's Bureau report explains, "The greater relative increase in payroll and employment in family shops undoubtedly is due to the fact that less work is done by wife or daughter when sales are better,"[21] as they were in 1937 compared with 1934. On the basis of family establishments alone, total employment in Ohio (subject to the wage-increasing minimum) expanded 22 percent compared with an expansion of only 16 percent for Indiana[22]—another result directly contrary to the Peterson thesis.

Peterson also fails to point out that, of the thirty-one women interviewed, whose dismissal was reported by the employer or a fellow employee to have have been due to the Ohio minimum-wage order, eleven went back to a dry-cleaning establishment subject to the order, and twenty-two of

[17] *Op. cit.*, pp. 418–422.

[18] The proportion of women in the work force of Ohio laundry and dry-cleaning establishments had been steadily declining during the two decades prior to 1934. See *Special Study of Wages Paid to Women and Minors in Ohio Industries Prior and Subsequent to the Ohio Minimum Wage Law for Women and Minors*, Women's Bureau *Bulletin* No. 145 (U. S. Department of Labor, 1936), pp. 58–59.

[19] Women's Bureau *Bulletin* No. 166, p. 13.

[20] *Ibid.*, p. 12.

[21] *Ibid.*, p. 21.

[22] *Ibid.*, p. 12.

the thirty-one were paid higher wages in their new job than on the dry-cleaning job from which they were let out allegedly because of the minimum-wage order.[23] Such results also are somewhat contrary to expectations based on the purely competitive hypothesis.

EXPERIENCE UNDER THE FAIR LABOR STANDARDS ACT

In the article in the October 1957 issue of the *Journal of Political Economy,* Peterson also attempts to use the statistics of three industries (southern sawmills, men's cotton garments, and seamless hosiery, 1938–1950) subject to minimum-wage pressures as proof of the predictive value of a competitive model. Such a model assumes that management and labor are operating at maximum efficiency and neglects any dynamic productivity-increasing effects of minimum-wage action. Peterson concludes: "A re-examination of F.L.S.A. minimum-wage experience during 1938–50 in the Southern sawmill, men's cotton garment, and seamless hosiery industries supports the hypothesis that employment changes will be inversely related to wage increases imposed by a minimum" and he "was unable to find significant evidence that wage changes and employment changes have a positive relation (or no relation) for a range of 'moderate' wage increases."[24]

Examination of the pertinent material shows that some of his figures contradict those two conclusions, that he overlooks important considerations and makes some mistakes, and that the experience with the $1 minimum, which he alludes to but does not discuss, clearly indicates the poor predictive value of his model.[25]

[23] *Ibid.,* p. 14.

[24] "Employment Effects of Minimum Wages, 1938–50," p. 430.

[25] The statistical data on the effects of the $1 minimum are the best available on experience under the Fair Labor Standards Act.

SOUTHERN SAWMILLS

Extractive industries are likely to be subject to increasing unit costs because of progressively less favorable physical conditions, and, therefore, there is apt to be a close relationship between cost and volume of output. Since southern timber stands are less dense, composed of smaller trees, and less adapted to mechanized logging than western stands, increases in the minimum-wage level favor western logging. If raising wage minimums operates to discourage southern logging, less logs cut in the South would mean less employment in southern sawmills. Peterson seems to overlook these relationships, which help to explain the following facts revealed by his data: (a) "Generally, employment changes were less favorable for loggers than for millworkers";[26] (b) in integrated mills, employment in logging and sawmilling tended to rise and fall together; (c) the independent mills without loggers subject to the minimum had an increase in employment while integrated mills with loggers covered by the minimum had a decrease in employment, although in both types of mills hourly earnings increased about 15 percent.[27]

The importance of this point is illustrated by the experience of the integrated southern pine mills with twelve or fewer loggers and whose loggers, therefore, were exempt from the minimum although their sawmill workers were subject to it. In the low-wage mills most affected by the 75-cent minimum because their average earnings were below 70 cents in June 1949, employment had increased 13 percent by February 1950; whereas in the high-wage mills (with prior average earnings of 70

[26] *Ibid.,* p. 419.

[27] The 75-cent minimum took effect in January 1950, and the employment comparisons were between mid- or late 1949 and February or March 1950. Before the 75-cent minimum, 70 percent of all workers in southern sawmills were receiving less than that minimum.

cents or over and, therefore, little affected by the 75-cent minimum) employment dropped 6 percent between those dates. That was, of course, a result directly opposite to prediction on the basis of Peterson's hypothesis, yet, without explaining such contrary results, he simply concludes that his material "in general supports the hypothesis of an inverse relation between wage changes and employment changes."[28]

Because the data for all logging and sawmilling were lumped together in the Department of Labor study, the economic consequences of the $1 minimum, effective March 1956,[29] are as one would expect from Peterson's hypothesis. In southern yellow pine, employment had been declining from 1947 on. Between October-December 1955 and April 1957, the employment decline was 16 percent for establishments with high minimum-wage impact compared with declines of only 6 and 4 percent, respectively, for the middle and low impact groups.[30]

Since wood furniture manufacture is not tied to logging in particular localities as sawmilling is, it is a better test of the effects of minimum wages in manufacturing industries. Minimums in 1938 and 1939 were followed by employment results in the former industry just the opposite of what one would expect from the Peterson hypothesis. Within the South between October 1937 and February 1941, employment in identical wood furniture establishments expanded more than twice as fast in the lower-wage firms, whose wages increased 10 percent, as it did in the higher-wage firms where the increase in wages was less than 2 percent.[31]

Peterson omits the wood furniture industry from detailed re-examination in his article, but mistakenly concludes that wood furniture "under the 75-cent minimum showed less favorable employment changes in the cities with large wage increases."[32] There were no large wage increases; his own figures show that in the three southern areas covered by the B.L.S. study of wood furniture the changes in average hourly earnings were slight indeed: only 1 percent up, no change, and 1 percent down, between September 1949 and March 1950 (the 75-cent minimum was effective January 1, 1950). Furthermore, it is inverted logic to assume, as Peterson does, that the 1 percent decrease in hourly earnings caused furniture employment in that area to expand relatively more than in the other two areas. As the B.L.S. study clearly explains, the decrease in average hourly earnings in that area from 90 to 89 cents was due to the employment expansion itself, under which so many new workers were hired in at the lower level starting rates for beginners.[33]

MEN'S COTTON GARMENTS

This industry also fails to conform to Peterson's hypothesis. In work clothes and cotton pants, the employment effect between March 1939 and March 1941 (a 30-cent minimum took effect in October

[28] *Ibid.*, p. 420.

[29] U.S. Department of Labor, Wage and Hour and Public Contracts Division, *Studies of the Economic Effects of the $1 Minimum Wage, Effects in Selected Low Wage Industries and Localities,* January 1959, hereafter referred to as *Studies of the Economic Effects of the $1 Minimum Wage.*

[30] *Ibid.*, p. 27. Firm grouping by impact categories was as follows: high impact where the new minimum required an increase in average hourly earnings of 22 percent or more, middle impact an increase of 13 to 22 percent, and low impact an increase under 13 percent.

[31] See *Earnings and Hours in the Furniture Industry,* February 1941, U.S. Bureau of Labor Statistics, Serial No. R. 1330, 1941, and *Minimum Wages in the Wood Furniture Manufacturing Industry,* Wage and Hour Division, U.S. Department of Labor, June 1941.

[32] Peterson, "Employment Effects of Minimum Wages 1938–50," p. 416.

[33] C. Rubenstein, "Effects of 75-Cent Minimum: Wood Furniture Industry," *Monthly Labor Review,* Vol. 72, No. 6 (June 1951), p. 674.

1939 and 32.5 cents in July 1940) is just the reverse of his hypothesis but is partly explainable apparently in terms of the distribution of government contracts. In men's dress shirts, polo shirts, and nightwear between September 1939 and September 1940, average hourly earnings increased 16 percent in the South compared with 4 percent in the North, yet the employment increase was practically the same (3.8 and 4.3 percent, respectively). With respect to the employment effects of the 75-cent minimum (beginning January 1, 1950), it is evident from Peterson's Tables 7 and 8 that no close relationship existed between percentage of wage change and percentage or direction of employment change, either for the dress shirt industry by regional groups or for the work shirt industry by wage-level categories. Indeed, for the work shirt plants in the four lowest wage categories there is a uniform inverse relationship between hourly earnings' increase and employment decrease from October-December 1949 to February-June 1950. The further below the new 75-cent minimum a firm's average was prior to the boost in the minimum from 40 to 75 cents, the less did the firm's employment decrease, which is directly contrary to Peterson's thesis.

Peterson's thesis fares no better in the experience with the $1.00 minimum in men's dress and work shirts. In February 1956 the Southeast plants made up 80 percent of the lowest wage category (impact of the $1 minimum requiring over 10 percent increase in the establishments' average hourly earnings), while the Middle Atlantic plants made up 63 percent of the highest wage category (impact of $1 minimum requiring less than 2 percent increase in average hourly earnings).[34] However, between February and April (the $1 minimum took effect March 1) employment decreased slightly less in the Southeast than in the Middle Atlantic region, and between February and October 1956, employment in the Southeast increased 2 percent whereas it decreased one-tenth of 1 percent in the Middle Atlantic region.[35] In other words, while average hourly earnings increased about twice as fast in the Southeast as in the Middle Atlantic area (17 percent compared with 9 percent), employment was expanding in the Southeast but not in the other large production area—in direct contradiction to Peterson's thesis. These results, however, must be discounted because relative expansion of the industry in the Southeast and contraction in the Middle Atlantic region had been a definite trend since World War II.

The work shirt industry provides a better test of the Peterson thesis because all the firms included in the B.L.S. survey were located in the Southeast and 80 percent of the employees were earning less than $1.00 an hour in August 1955.[36] The twenty-seven identical plants were divided almost equally into a low-wage group with high minimum-wage impact and a high-wage group with low-minimum wage impact. Between August 1955 and April 1957, average hourly wages increased by 28 percent in the low-wage group and 20 percent in the high-wage group, but, contrary to the Peterson hypothesis, employment declined more in the high-wage (low impact) plants than in the low-wage (high impact) plants, 9 percent as compared with 7 percent.[37]

SEAMLESS HOSIERY

Peterson's treatment of the effects of the

[34] *Studies of the Economic Effects of the $1 Minimum Wage,* p. 87. The Southeast and Middle Atlantic regions accounted for over five-sevenths of all employment in the industry.

[35] *Ibid.,* Appendix E, Table 1, p. A-88.

[36] *Ibid.,* p. 188 and Appendix I, Table 3, p. A-187.

[37] *Ibid.,* p. 196 and Appendix I, Table 4, p. A-188.

32½-cent minimum introduced in seamless hosiery in September 1939 is somewhat less than adequate.

In view of two facts, it is not at all surprising that there existed a fairly noticeable inverse correlation between wage and employment changes in this industry from September 1938 to September 1940 (the dates of the B.L.S. surveys). The first fact is that the 32½-cent minimum represented a drastic change, affecting directly almost half the workers in the industry and apparently requiring as much as a 50 percent increase in average hourly earnings in some plants.[38] Consequently, one would not expect to use this case to test the effects of wage and employment changes within a range of "moderate" wage increases.

The second significant fact is that for some years prior to the 32½-cent minimum, labor-saving technological changes had been spreading to almost half of the industry. They consisted of the replacement of hand-transfer machines by automatic knitting machines and by converted transfer equipment making transfer machines essentially automatic. By 1938 the introduction of such new labor-saving equipment had occurred much more fully in the plants (generally the larger ones) with average hourly earnings over 35 cents per hour than in those with average earnings under 35 cents per hour.[39] From his study of the industry at that time, Douty concludes that these technological changes, and especially the conversion of transfer equipment, would have spread further after 1938 in the absence of a 32½-cent minimum.[40] If so, employment in the low-wage and generally smaller mills would have tended to decline relative to the high-wage firms, and the minimum-wage increase to 32½ cents may only have provided some "shock" to speed up an inevitable development.

A good test of the predictive value of the Peterson hypothesis for the seamless hosiery industry is provided by experience in connection with the $1 minimum, effective March 1, 1956. A detailed study was made of the economic effects in both branches of the industry (men's and children's, including women's anklets) dealing separately with the southeastern region, which represented about 73 and 85 percent, respectively, of the nation's employment in each branch. The table shown below is based on the Department of Labor study and includes figures for three different periods, partly because there was a build-up of inventories in anticipation of the $1 minimum and because layoffs in the spring of 1956 were followed by new hirings between April 1956 and April 1957.[41] In the table, the industry's employment has been divided into three roughly equal groups in terms of the impact of the new minimum, based on the increase in average hourly earnings required to bring all lower paid workers up to the $1 minimum.[42] The figures for percentage decrease in employment are paired by figures in parenthesis giving the actual percentage increase in average hourly earnings for each category during the same period.

In analyzing the figures in the table, one should bear in mind that production of men's and children's hosiery declined during the decade prior to 1956 and that the plants in the low impact group are

[38] See H. M. Douty, "Minimum Wage Regulation in the Seamless Hosiery Industry," *Southern Economic Journal,* Vol. 8, October 1941, p. 186.

[39] Compare *ibid.,* Tables III and IV.

[40] *Ibid.,* pp. 189–190.

[41] *Studies of the Economic Effects of the $1 Minimum Wage,* pp. 128–129, 140.

[42] For the men's branch, "high impact" means an increase of 12 percent or more in average hourly earnings, "middle impact" means 6 to 11.9 percent, and "low impact" means 0 to 5.9 percent. The categories are similar for children's hose except that the middle impact is from 7 to 11.9 percent and the low impact from 0 to 6.9 percent.

Percent Change in Employment and Earnings by Impact Group for Seamless Hosiery, Southeast, for Specified Periods.*

Period	High Impact	Middle Impact	Low Impact
		Men's Hosiery	
Feb. 1956—April 1956	−18.7 (+18.3)†	−12.5 (+ 7.4)†	− 7.8 (+ 3.3)†
Feb. 1956—April 1957	− 6.1 (+19.4)	− 9.0 (+ 8.3)	−13.3 (+ 4.9)
Aug. 1955—April 1957	− 4.3 (+24.7)	− 9.6 (+13.6)	−10.8 (+ 8.5)
		Children's Hosiery	
Feb. 1956—April 1956	−16.1 (+17.0)	− 9.6 (+10.8)	−13.6 (+ 6.1)
Feb. 1956—April 1957	−19.3 (+19.1)	− 2.9 (+11.8)	−11.8 (+ 5.3)
Aug. 1955—April 1957	−21.8 (+24.4)	− 5.1 (+16.3)	−11.3 (+11.1)

* Percentage calculations based on *Studies of the Economic Effects of the $1 Minimum Wage*, Appendix F, Tables 11 and 24, pp. A-139 and A-152.

† Figures in parentheses are the corresponding percentage increases in average hourly earnings.

generally larger than those in the high impact group.[43]

It is evident from the table that, for the men's seamless hosiery industry in the Southeast, an inverse relationship existed between the percentage increase in wages and the percentage decrease in employment during two of the three time periods. Only during the two-month period of February 1956 to April 1956 did there exist the direct relationship that Peterson's hypothesis would predict. The decline in employment in March and April of 1956 was part of a normal seasonal pattern, and in addition, there was a build-up of inventories in anticipation of the new minimum followed by a subsequent reduction in production and a decline in orders in 1956, because the popularity of men's stretch hose reduced retailers' need to carry such a large inventory of different sizes.[44] Consequently, employment during those two months in the industry was unrepresentative.

If those two months are incorporated in longer periods (14 months from February 1956 to April 1957 or 20 months from August 1955 to April 1957), the result is a pattern completely opposite from what the Peterson hypothesis would predict. The highest increases in wages were accompanied by the smallest decreases in employment and the lowest increases in wages were accompanied by the largest decreases in employment, with the middle group in between. For the same two periods, figures for the whole industry and Southeast breakdowns by size of firm and community similarly show results inconsistent with the Peterson hypothesis, although not quite so consistently the reverse of it in all impact groups and in both periods.

The wage-employment pattern for children's seamless hosiery shown in the table also fails to conform to the Peterson hypothesis. Although the high impact group does seem to conform, the middle impact and low impact groups are definitely and consistently the reverse of what the hypothesis would predict, and the breakdowns also contain nonconforming results. In short, the Peterson thesis fails the test in both branches of this industry.

CONCLUSIONS

Further examination of the material for the six industries Peterson studied supports the following conclusions:

[43] For men's hosiery the average employment per plant in August 1955 was 181 for the low impact group and 63 for the high impact group. For children's hosiery, the corresponding figures were 164 and 129. See *ibid.*, pp. 116 and 131.

[44] See *ibid.*, pp. 128–129.

1. Frequently he fails to take proper account of factors significantly influencing the differing employment results, and he is prone to overlook or misinterpret evidence contradictory to his thesis.

2. The changes in employment following the imposition of minimum wages were so diverse and so often in conflict with the Peterson hypothesis that it has poor predictive ability for manufacturing industries, except possibly for operations like sawmilling that are tied to an extractive industry.

3. For Peterson's three industries under the Fair Labor Standards Act, the more adequate studies of the effects of the $1 minimum show, in all but sawmills, results that in large measure are contrary to what one would expect from Peterson's thesis. Even in these industries with circumstances most favorable to his thesis, it flunks the test of prediction.

4. The material reviewed in this comment clearly indicates that there is not one invariant employment reaction to wage change brought about by legal minimums, but varieties of employment and nonemployment adjustment, especially within a moderate range of wage change.

Our task is to penetrate beneath the old dogmas and to improve our depth of understanding of the patterns of adjustment under differing circumstances. In that direction lies the key to a fuller comprehension of the economic effects of minimum-wage determinations.

RICHARD A. LESTER
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Reply

Richard A. Lester's comment on my recent article alleges two serious deficiencies. First, he charges that I frequently failed to take proper account of factors influencing employment other than the minimum wages. Second, he claims that so much of the evidence on employment changes resulting from the minimums was contrary to my hypothesis that it demonstrated poor predictive ability. My reply will show that these charges are without foundation and leave intact my conclusions about the predictive success of the hypothesis drawn from a competitive model.

The dust kicked up by the numerous points of Lester's scattergun attack creates an impression that my articles were devastated; but on closer inspection I find few specks on the target. While proneness "to overlook or misinterpret evidence contrary to" one's thesis is a danger not always recognized in one's own investigations, I find that Lester repeatedly reveals data which I already presented, uncovers factors of which I took account, and rediscovers previous arguments which I had answered. Unfortunately, few readers will have the time to check Lester's comments by a careful comparison with my articles. My reply, therefore, must be somewhat repetitious of previously presented material, and a point-by-point rebuttal is necessary to enable the reader to judge whether Lester has invalidated my conclusions on each case.

My reply will deal with the cases in each of my articles separately before taking up the recent experience under the $1 minimum, which was introduced by Lester but not included in the scope of my articles. At the end, I shall make some general comments on Lester's conception of testing economic theory, which may explain his mode of attack.