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A Rejoinder

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in another. Moreover, the average size of American wage-earners' families in which the father's wages are the only source of income is almost certainly less than five, and in families where there are five persons the average number of wage-earners is almost certainly two at least. This matter is so fully discussed in Research Report No. 41, of the National Industrial Conference Board, as not to require presentation at this point. Another analysis of the same problem from a somewhat different point of view is contained in an article by the present writer in the *American Economic Review* for September, 1921.

The problem of the economic responsibilities of adult male American wage-earners is far from settled and, as has already been pointed out, much careful research is needed before an answer to the question can finally be made. In the meanwhile, however, scientific accuracy requires that figures showing the cost of living or changes in the cost of living be used with extreme care, especially in connection with wages.

It should again be emphasized that the wage studies of the National Industrial Conference Board reviewed by Mr. Douglas were designed primarily to show trends in wages. The uses to which he put the figures were in several instances not justified, and some of his comparisons, both with other wage studies and with studies of the cost of living, were unwarranted. To make his points he undertook a number of elaborate calculations, some of which are open to serious question. Numerous minor points on which the present writer disagrees with Mr. Douglas have not been taken up in the present paper, but enough has been said to indicate that Mr. Douglas's interest in the wage studies of the National Industrial Conference Board was apparently more in relation to his own theories than to the intrinsic value of the studies themselves.

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A REJOINDER

I take it that Mrs. Stecker objects to my review fundamentally on the ground that its criticism of the wage studies of the National Industrial Conference Board was based on insufficient evidence and was animated primarily by a desire to discredit their conclusions in favor of certain others of my own. Naturally, what first attracted my attention to these studies was their divergence from those investigations of the Bureau of Labor Statistics with which I had been dealing. The problem so aroused my interest that I tried to find the reasons for these differences. Further research convinced me that the Bureau's figures were more accurate than those of the Board, for the reasons which I tried to indicate in my review and which I shall once more try to summarize below. I shall take up Mrs. Stecker's criticisms in order.

1. I preferred the cost of living figures of the Bureau of Labor to those of the Massachusetts Commission because the Bureau's figures covered a large number of cities distributed over the country as a whole, while the Massachusetts figures referred only to that state. I agree that I was in error in my statement

that rents had risen far more slowly in Massachusetts than in the rest of the country, although interestingly enough the cost of living statistics of the Conference Board itself would lead one to the identical statement that I made.¹ However, I do not believe that Mrs. Stecker herself would seriously argue that the Massachusetts figures should be preferred as a country-wide index to those of the Bureau. Furthermore, I believe that the Bureau's cost of living figures are more reliable than those of the Conference Board for the following reason: The food index for both studies is the same, the Conference Board merely using that of the Bureau; but the difference in the methods pursued by the two bodies in collecting the other price data is the most significant. All of the original data secured by the Conference Board have always been collected by means of questionnaires sent out to dealers and local groups throughout the country. The data of the Bureau of Labor Statistics, on the other hand, are based upon an extensive collection by field agents in the specific localities covered both (a) of family budgets and (b) of the actual prices of commodities from 1914 on to the present by periods. In the light of this fact, I imagine that all statisticians will agree that my statement that "it is doubtful whether the investigations of the National Industrial Conference Board were made as carefully or as accurately as those of the Bureau," was both moderate and thoroughly justified.

I selected the 18 shipbuilding cities because they were the only localities for which a continuous record existed for the period covered by the wage studies themselves, *i. e.*, from 1914 on. The statistics for the 13 additional cities, which Mrs. Stecker mentions, began only in December, 1917. Nevertheless, I am inclined to agree that it would have been better had I used these 13 cities for the period which they cover. This would have lowered the cost of living index by approximately only 3 points in September, 1918, and by 4 points in March, 1920.

2. The relative reliability of the various cost of living indexes, however, is by no means so important as the question of the relative reliability of the wage data of the Conference Board for the period 1914-18² as compared with those of the Bureau of Labor Statistics. I was struck with the fact that the wage statistics of the Conference Board were greatly in excess of those shown by the Bureau for three of the same industries during almost identically the same period. After a close analysis of these three industries, it was found that with identical methods of computation the Board's figures showed an increase in hourly earnings of from 17 to 29 points more than those of the Bureau, and that those for full-time weekly earnings ranged from 11 points higher, as in the case of boots and shoes; to 33 points, as in the case of cotton manufacturing. De-

¹ See Research Report No. 30. National Industrial Conference Board, pp. 7-12. The average increase in rents for the country as a whole, during the period July, 1914-July, 1920, according to the Board, was 58 per cent. Of the 59 cities, however, where rents had increased over 61 per cent, only 1 was in Massachusetts; 2 of the 26 cities with increases ranging from 51 to 60, and 4 of the 29 cities with increases of from 41 to 50 per cent, were in Massachusetts. There were no less than 6 Massachusetts cities, however, in the 44 with increases of less than 40 per cent.

² Mrs. Stecker's implication that I compared the Board's figures with those of the Bureau for the period 1918-20 as well, is erroneous, as the reader of the original review will see. Nor did my independent study go beyond 1918.

spite Mrs. Stecker's contentions, such large differences, amounting in the case of cotton manufacturing to a wage difference of approximately 15 per cent, can be explained only in part by the fact that the Bureau's statistics are for the average of the years in question, while those of the Board are for the month of September. As I indicated, probably by far the largest part of the difference is caused by the different methods of sampling, and I invite a close comparison of the methods used by the two bodies. The Bureau's figures were based upon over 35 per cent more employees in the woolen industry than were those of the Conference Board, upon over 420 per cent more in the case of boots and shoes, and upon 550 per cent more in the case of cotton manufacturing. They were, moreover, collected, in the main, from a wider geographical area, and hence are more reliable as a country-wide index. Mrs. Stecker makes much of the fact that questionnaires were sent to union shops. Has she any assurance, however, that these union shops filled out and returned the questionnaires to the Board in the same proportion as those firms which were members of the Board? In view of the known membership and industrial policies of the Conference Board, are not, indeed, all the probabilities of the case exactly the opposite?

The chief source of difference, however, arises I think from the fact that the Board uses the questionnaire method of collecting wage data, while the Bureau, for the three industries which I compared, used field agents. Now questionnaires are much more likely to produce biased results than schedules administered by field agents, because firms with a low wage scale, or whose increases have been less than the average, are naturally reluctant to fill them out, even though their anonymity is preserved; plants with a high wage scale or that have increased wages above the average will, on the other hand, be much more inclined to return the questionnaires. The indicated increase therefore will tend, almost inevitably, to be greater than the real increase. This danger is avoided by the use of field agents, who can more easily secure data from the low-wage firms or those that have made smaller increases than the average.

3. Finally, I take it that no defence is needed for my attempt to make comparisons of what the average yearly earnings in the various industries would have amounted to on the basis of the given weekly rates, with Mr. W. C. Byer's meticulously careful Philadelphia standard budget. Mrs. Stecker admits that I pointed out the possible objections to such a comparison. She merely emphasizes them more strongly. Space is lacking fully to discuss this subject, and I can only refer the interested reader to my original review where he will find the various points, both pro and con, fully stressed.

Fundamentally, my objection to the studies of the National Industrial Conference Board, whether it be their hours and output series, their cost of living series, or their wage series, is that the studies are all based upon the questionnaire method of collection and a dubious method of sampling. The choice of samples is such a delicate matter, and the voluntary questionnaire method is so susceptible to biases and errors, that few would accept it in preference to data derived from actual field investigations. This basic objection Mrs. Stecker completely avoids in her reply.

In closing, may I correct two errors in the original review which Mrs. Stecker

does not mention and the corrections of which were in the editor's hands long before her manuscript was received. In Table I, the unweighted average for actual weekly earnings in March, 1920, should be 237 instead of 235 as printed, and the weighted average should be 235 instead of 234. Secondly, the last two column headings in Table II should be transposed.

PAUL H. DOUGLAS

AN ALL-INCLUSIVE EMPLOYMENT INDEX FOR WISCONSIN

The Statistical Department of the Wisconsin Industrial Commission is constructing an all-inclusive employment index, beginning with January, 1922. Since July, 1920, the department has published a monthly employment index covering mining, quarrying, and manufacturing. A quarterly index including the same groups was also instituted which ran back to the first quarter of 1915.¹

The new index covers all of the important groups of employment. The kinds of employment represented, together with the number of correspondents in each group, are given in an accompanying list. At least one third of the total number of employees in the state are represented in each of the employment groups except agriculture, building, trade, and miscellaneous professional service.

Although there are 498 correspondents in agriculture, they employ only 0.5 per cent of the farm laborers in the state. In building, about 5 per cent of the state pay-roll is represented; in retail trade, about 15 per cent; and in wholesale trade, about 10 per cent. Professional service, which is a rather heterogeneous group includes nurses, barbers, doctors, lawyers, insurance agents, and real estate agents in the employ of another. Only 1 or 2 per cent of the state pay-roll is represented in this group. In some groups, as Express, Telephone and Telegraph, much more than one third of the state pay-roll is necessarily represented, by reason of the fact that such businesses are natural monopolies.

An index number for each group of employment has been constructed, with January, 1922, as 100. An index number for all groups has not yet been prepared because it has not been determined what weights to assign to the various groups. Within the manufacturing group it is possible to estimate rather accurately the percentage of the state pay-roll represented in each industry by using the 1919 United States Census of Manufactures. But the Census of Occupations is a less satisfactory guide in determining what percentage of the state pay-roll in other major employment groups is represented. This is due to the fact that the Census of Occupations follows occupational rather than industrial lines. Moreover, the division between employees and employers is not clearly drawn.

The original data are secured directly from employers through a very simple questionnaire. The Wisconsin Crop Reporting Service is coöperating with the Industrial Commission in sending out the agricultural questionnaires. Although the form varies slightly for the various employment groups, the essential informa-

¹ See "An Employment Index for Wisconsin," p. 497, this JOURNAL for Dec., 1920.