

## IV. ECONOMIC ASPECT OF SHORT HOURS

### A. *Effect on Output*

The universal testimony of manufacturing countries tends to prove that the regulation of the working day acts favorably upon output. With long hours, output declines; with short hours, it rises. The heightened efficiency of the workers, due to the shorter day, more than balances any loss of time. Production is not only increased, but improved in quality.

#### (1) SHORTER HOURS INCREASE EFFICIENCY, AND THUS PREVENT REDUCTION OF OUTPUT

*Report of the United States Industrial Commission, 1900.*

Those States which are just now advancing to the position of manufacturing communities might well learn from these examples the lesson that permanent industrial progress cannot be built upon the physical exhaustion of women and children. . . . A reduction in hours has never lessened the working-people's ability to compete in the markets of the world. States with shorter work-days actually manufacture their products at a lower cost than States with longer work-days. (Page 788.)

*History of Factory Legislation.* HUTCHINS and HARRISON.

Bleachers in a petition to their employers, 1853: We believe the result generally is such as to corroborate our statement that short hours produce more work and that of a better quality than under the old system. (Page 132.)

*Massachusetts Bureau of Statistics of Labor. 1872.*

The testimony of those who have adopted the shorter time is almost unanimous in its favor. Many reported an improved condition of the employees. No instance is given of decreased wages, though many report an increase, not only in wages, but in production. All of the arguments against reduction made by those working eleven hours and over are answered by those who have adopted the shorter time, and worked under that system for years. The advocates of eleven hours have utterly failed to sustain themselves in their continued adhesion to a system that England outgrew twenty-two years ago; a system unworthy of our State and nation, and one that would not last a month if the victims of it were men instead of women and children, as most of them are. (Page 240.)

*Massachusetts Bureau of Statistics of Labor. 1873.*

The overseer (of Pemberton Mills, Lawrence) informed us that they took the result of every half-hour's work, and upon inquiring the relative product of the different hours, he assured us that invariably the last hour was the least productive. (Page 246.)

Hon. William Gray, Treasurer of the Atlantic Mills, Lawrence, began the ten-hour experiment with the operatives in his employ, June, 1867, and his testimony concerning its practical and financial success may be regarded as nearly, if not quite, authoritative and decisive. Ten and three-fourths hours had been the running time of this mill previous to this date. The result of this reduction is substantially as follows:

In three and a half years from the time of the change, the product of the hours was fully equal to the product of ten and three-fourths hours, and this was accomplished with old machinery that had been running for twenty years with very little change.

With no material change in machinery, these results appear.

First. An improvement in the operatives directly after adopting ten hours, — which improvement has been going on; and they now have the best set of workers that have been in the mills for fifteen years, this being the opinion of the agent and overseers, as well as the treasurer. (Page 495.)

*Factory and Workshops Act Commission, 1875. British Sessional Papers, 1876. Vol. XXX.*

Testimony of Phillip Grant, representing operatives:

During the agitation for the ten-hours bill in the year 1844 or 1845, he (a cotton-spinner at Preston) reduced his time voluntarily to eleven hours instead of twelve, and at the end of twelve months he reported, as Mr. Hugh Mason did, that he had got a better quality of work and more of it in the eleven hours than he had in the twelve, and that is obvious to anybody who understands the process of following a machine. (Paragraph 8582.)

*Report of the British Factory Inspector, 1877.*

The women at the close of the twelve hours, which period constitutes the usual day's work, were tired and exhausted, and hardly did enough after that to pay for the gas consumed. Book sewers and folders are all paid by piecework, and if overtime were continued for a few weeks together their earnings would soon fall to about the same amount as when they worked the regular hours.

*Report of Massachusetts Bureau of Statistics of Labor, 1881.*

It is apparent that Massachusetts with ten hours produces as much per man or per loom or per spindle, equal grades being considered, as other States with eleven and more hours; and also that wages here rule as high, if not higher, than in the States where the mills run longer time. (Page 457.)

But perhaps the most emphatic testimony is that of another carpet mill employing about twelve hundred persons. This mill, which has been running but ten hours for several years, and has during this period tried the experiment of running overtime, gives the following results. The manager said, "I believe, with proper management and supervision, the same help will produce as many goods, and of superior quality, in ten hours as they will in eleven. I judge so from the fact that during certain seasons, being pushed for goods, we have run up to nine o'clock, and for the first month the production was increased materially. After this, however, the help would grow listless, and the production would fall off and the quality of the goods deteriorate." (Page 460.)

The reason is, the flesh and blood of the operatives have only

so much work in them, and it was all got out in ten hours, and no more could be got out in twelve; and what was got extra in the first month was taken right out of the life of the operatives. (Page 461.)

*Report of the Connecticut Bureau of Labor Statistics, 1886.*

Down to a certain point, the nations who work shorter hours not merely do better work, but more work than their competitors. In Russia the hands work twelve hours a day; in Germany and France, eleven; in England, nine. Yet nine hours a day of English work mean more than twelve hours of Russian work.

The laborer receives better wages, and at the same time the manufacturer gets a larger product — so much larger that it is the Russian, the German, or the Frenchman who requires protection against his English competitor in spite of the longer hours and lower day's wages. (Page 16.)

*Report of the German Imperial Factory Inspectors, 1886-1887.*

Report for Mittel and Unter Franken:

It has been repeatedly shown that a shortening of the working day does not lessen the value of the work done, because owing to the effort to prevent a decrease in the income, the shorter time is more profitably used. (Page 86.)

*Belgium. Commission du Travail, 1886. Report of the Sessions of Inquiry into Industrial Labor. Brussels, 1887.*

But it is shown that everything which makes the worker more strong, more healthy, more energetic, more intelligent, etc. (and these will be the results of greater leisure, and the observance of rules prescribed for hygiene, upon the subject of the hours of labor and rest), make him also more productive. Therefore the introduction of reforms indicates strongly that the final result will be a very great increase of production with a shorter time period for work. (Page 65.)

*International Conference in Relation to Labor Legislation. Berlin, 1890.*

Alone, the nations hesitate to reduce the hours of work for fear of competition, although, with modern machinery, experience has abundantly proved that the countries with the shortest working day

attain the maximum of production. These are the countries that produce under good conditions most cheaply; that are most prosperous, and most feared as competitors in the world's markets. (Page 88.)

*Report of the Maine Bureau of Labor Statistics, 1890.*

In my State, since the adoption of the ten hours in lieu of the eleven hours in mills and factories where machinery is employed, it is the universal verdict of manufacturers that their product is as great under the ten-hour system as it was under the eleven-hour system, and I think that the same answer comes from every State that has adopted the ten-hour system.

*Conditions of Female Labor in Toronto, by JEAN THOMSON SCOTT. Toronto, 1891.*

Experts say that the cost of production in the cotton trade is actually the lowest where the wages are the highest and the hours shortest. Dr. Schulze Gaevernitz shows this specifically, because the standard of living of the workers has been raised and with it their general intelligence, enabling them to do more in a shorter time — what I have called "intensive work."

. . . That is the opinion of experts on the trade throughout the world. They say that all over the world the cost of production is lowest where wages are highest and hours shortest. (Page 44.)

*Report of the German Imperial Factory Inspectors, 1893.*

In most establishments the working day was eleven hours, not seldom the ten-hour day was introduced. The shorter day turned out well in all cases. (Liegnitz.)

In a cigar-box and wrapper-mold factory all adult workers were given uniform working hours in summer and winter, — a nine-hour day, from seven to six, with two hours free time at noon. The owner asserts that in this shorter time no less work is done than formerly in the longer time, the eleven-hours day. (Kassel.) (Page 155.)

*Report of the Imperial German Factory Inspectors, 1893.*

The week workers expressed anxiety in many cases lest their wage be cut after the new regulations took effect, but our observation is that, in most cases, the pay of the women wage-earners remained unchanged. (Page 155.)

*Report of the Connecticut Bureau of Labor Statistics, 1893.*

As to the effect of reducing the working time to nine hours daily, no inquiry was made, but several employers stated voluntarily to agents of the bureau that their experience proved to them that production was as large in nine hours as it had been in ten. (Page 28.)

*Report of the German Imperial Factory Inspectors, 1895.*

The report of amount and value of the work done in the reduced working day are also of interest. The fact that the value of the work is not in proportion to the hours of work is but slowly understood. A wool factory reduced their working day by one hour, in accordance with the law of June 1, 1891; subtracting the rest periods, it now amounts to ten and one-half hours. The owners assert that the amount and value of work done by both males and females remains the same, while calls upon sick fund have greatly diminished. (Page 370.)

*Report of the German Imperial Factory Inspectors, 1898.*

In one laundry in Plauen, where the hours of the workers have been reduced from eleven to ten hours, it has been proved that the women accomplish fully as much as before this reduction. In a jute spinning and weaving factory in Cassel the ten-hour day was provisionally introduced at the request of the hands in September. Thus far it has worked so well that the shorter day will probably be retained. (Page 106.)

*Report of New York Bureau of Labor Statistics, 1900.*

Fortunately, statistics are at hand which afford simple but fairly effective tests of the assertion that Massachusetts industries are threatened with ruin by restrictive labor legislation. In the first place, Massachusetts' cotton industry, the business chiefly affected by short-hour laws, has fully kept pace with that of rival States in the North.

Certain facts appear with distinctness, one of which is that the cotton industry of Massachusetts has not only grown steadily throughout the period of short-hour legislation, but — what is far more impressive — has made larger gains than are shown by the adjacent States with less radical short-hour laws. In 1870, four years before the enactment of the ten-hour law, Massachusetts had 39.5 per cent of all the cotton spindles in the North Atlantic States; six years after the passage of that law Massachusetts' proportion was 45 per cent;

in 1890 it was 47.5 per cent, and in 1900 53.5 per cent. It is difficult to see what clearer proof could be demanded of the beneficial results of the Massachusetts short-hour laws of 1874 (sixty hours a week) and 1892 (fifty-eight hours). (Page 55.)

In all those departments of the factory in which wages are paid by piece-work — and these constitute probably not less than four-fifths of the whole, the proportion to fixed daily wages being daily on the increase — it has been found that the quantity produced in ten and one-half hours falls little short of that formerly obtained from twelve hours. In some cases it is said to be equal. This is accounted for partly by the increased stimulus given to ingenuity to make the machines more perfect and capable of increased speed, but it arises far more from the workpeople by improved health, by absence of that weariness and exhaustion which the long hours occasioned, and by their increased cheerfulness and activity, being enabled to work more steadily and diligently and to economize time, intervals of rest while at their work being now less necessary. (Page 50.)

*Report of the United States Industrial Commission, 1900. Vol. VII.*

It is also claimed that a shorter day would not lessen production even in hand work. Perhaps you would be interested in the experiment of a gentleman who had an establishment in Fitchburg where were made the balls used in bicycle bearings. When he first took charge of the establishment they were running ten hours a day, with the exception of Saturday, when they ran eight, making fifty-eight hours a week. Women were employed in inspecting the balls. They do this by touch, which becomes very perfect in time and sensitive to the least imperfection; the balls are dropped into boxes, the perfect balls into one box and the imperfect ones into others, graded according to the imperfection. In the afternoon the work done by one woman in the morning is inspected by another, and thus there is a double inspection. He became persuaded that there was a certain strain in this work on the eyes, the fingers, and the attention, and finally he made up his mind that shorter hours would be better for the women and would not lessen the amount of work done — it would be better for their health and quite as well for the business. Accordingly he directed the women's department to be run but nine hours a day. At first the women were very much distressed. As they were paid by the number of thousands of balls inspected, they thought it would permit them to earn less money; but they soon found that they did just as many balls in the nine hours as they had heretofore done

in the ten; and they had besides ten minutes' vacation in the middle of the morning session and in the afternoon. Later, the time was shortened to eight hours and a half. There was not so much objection as at first, because they began to see what the object was, and they soon found they did just as much in eight and a half as in nine. At last accounts the time had been shortened to eight hours, and it was believed it could be cut down to seven and one-half. (Page 63.)

*Report of the United States Industrial Commission, 1900.*

What I wanted to show was that the trend of intelligent business management is to the conclusion that when a person who is doing the work has less strain upon him, he will get out more work up to a certain limit, in less time; and where the work is done by the piece it is done with less dawdling and more diligence, nor is it so hard to work with that severe attention for less time as it is to work longer hours with less attention. (Page 64.)

*Report of the New York Department of Factory Inspection, 1901.*

It was feared by employers that to reduce the hours of labor was to reduce the quantity of products, and that in the competition for markets the longer hours would have a decided advantage over the shorter hours; but it has been demonstrated that the lessening of the hours of labor does not, within certain limits, result in a decrease, but rather in an increase of products instead.

Another phase of the subject has also come to the front gradually in the course of this agitation for a shorter work-day. It is that quality of product may be improved by a shorter day, and by this improvement in quality of the product has come to be considered the improvement of the quality of the laborer himself. (Page 562.)

*Factory People and their Employers. By E. L. SHUEY. New York, 1900.*

Among the most desirable things is the matter of shorter hours for women. The experience of a number of leading manufacturers has indicated that equal results may be obtained in many forms of manufacture in the shorter hours. Fels & Co. of Philadelphia gradually reduced the time of their women from ten to eight hours, girls working five days in the week. At the same time wages have been practically increased. The Levy Bros. Co. (England) has

had a similar experience. The National Cash Register Co. in the same manner reduced its hours for women from ten to eight. (Page 113.)

*Report of the New York Bureau of Labor, 1901.*

Prof. F. A. Walker thus sums up this general conclusion: "It is the general belief of intelligent and disinterested men that every successive reduction of the hours of labor from fifteen hours to the limit, say ten or eleven hours in ordinary mercantile pursuits, affected not a proportional loss of product, not a loss at all, but a positive gain, especially if not only the present productive power of the body of laborers is considered, but also the keeping up of the full supply of labor in full numbers and unimpaired strength from generation to generation." (Page 562.)

*The Case for the Factory Acts. Edited by Mrs. SIDNEY WEBB. London, 1901.*

The direct and constant result of enforcing standard conditions of employment is, . . . to raise the capacity of the workers. The prevention of excessive or irregular hours of work, the requirement of healthy conditions, and the insistence on decency in the factory or workshop — the direct results of factory legislation — represent exactly what is required to extricate the mass of working women from the slough of inefficiency in which they are unfortunately sunk. Hence, so far from regulation being any detriment to the persons regulated, it is, as all experience proves, a positive good. (Page 209.)

*Report of the British Association for the Advancement of Science, 1902.*

There was a general consensus of opinion that shorter hours and better sanitation enforced by legislation had been amongst the causes tending to increase the efficiency of women workers. (Page 287.)

*Travail de Nuit des Femmes dans l'Industrie. PROF. ETIENNE BAUER. Jena, 1903.*

Before the enactment of the German Imperial Law of 1891 restricting the hours of labor of women there, overtime work was

already, in the industries concerned, occasional and irregular. The very great majority of the establishments affected were working regularly eleven hours a day or less as early as 1892.

Not one fact indicates that industry suffered under the restriction. The output, which, in a few establishments, diminished at first, soon regained its normal dimensions, thanks to the greater energy evinced by the employees. (Page 12.)

*Bulletin of the French Labor Office, 1903.*

There are establishments in which it may be affirmed, according to the statement of a district inspector of Nantes, that the production per hour increases as the number of hours per day decreases. These are the industries in which the personal qualities of the worker are an important factor in production. (Page 807.)

*Report of the Wisconsin Bureau of Labor Statistics, 1903-1904.*

Manufacturers maintain that by enforcing shorter hours they are unable to compete with those factories which are not hampered in this way. In order to test the truth or falsity of this claim, the Salford Iron Works of Manchester, England, voluntarily reduced the number of hours required for a day's work to eight. After giving the system a fair trial, the management declared that the character of work performed and wages paid remained about the same; that although a depression in trade took place about the same time this experiment was being made, and competition was exceedingly fierce, the output was greater and the receipts larger than under the old system. The Salford Iron Works continue the eight-hour system to the present day, and other allied industries and the arsenal works and dock-yards are following example. (Page 140.)

*The Relation of Labor to the Law of To-day.* By LUJO BREN-TANO. New York.

Why then does an increase in wages and a decrease in the time of work in general lead to a greater capability for work? Because higher wages and a shorter day's work make it possible for laborers to increase and satisfy their physical and spiritual needs; because better food, more careful fostering, greater and more moral recreation increase the power to work, and because they

increase the pleasure in labor. . . . In other words, an increase in wages and a decrease in the time of work lead to a greater performance, because they elevate the standard of living of the laborer, a higher standard of living necessarily spurs to greater intensity of labor, and at the same time makes the same possible. (Pages 233, 234.)

*Getting a Living.* By G. L. BOLEN.

Repeated shortening of the factory day has come because it was found that strength was saved, intelligence promoted, and that product and wages were both increased. (Pages 423, 424.)

(2) LONG HOURS RESULT IN INFERIOR QUALITY OF PRODUCT

*Report of the Massachusetts Bureau of Labor Statistics, 1871.*

The operatives vary in perfectness and productiveness as the day progresses; and if there should be a reduction to ten hours there would not be a loss of one-eleventh of the product. . . . I think it will be found that much of the cloth made during the eleventh hour is of poorer quality than the rest, and that the necessity of looking it over the next day and fixing it all right lessens the product of that next day. . . . I certainly believe that the productive capacity of a set of work-people may be lessened by increasing the hours of their daily work. The question is not legitimately one of arithmetic, nor can it be settled by argument about one-eleventh less or one-tenth more. It is a question to be settled by actual results on long-continued trial. (Page 498 ff.)

*Report of the British Chief Inspector of Factories and Workshops, 1893.*

Arguments against overtime (*i. e.*, two hours more than the daily ten and one-half):

1. That the work done during overtime is not equal, in amount or quality, to that done during the regular time.

*Dangerous Trades.* THOMAS OLIVER, M. D. London, 1902.

It is admitted that in iron-works and factories, where the hours of labor have been unusually long, say ten and eleven hours, the

work done in the latter part of the day is not so good as that done in the forenoon.

*Women in the Printing Trades.* Edited by J. R. MacDONALD. London, 1904.

From this it is evident that protection is viewed favorably by many employers, on the specific ground that it prevents systematic overtime. On the whole they are of the opinion that after overtime the next day's work suffers. (Page 82.)

B. used to work from 8 A. M. to 8 P. M. regularly, including Saturdays. . . . She disliked overtime, was tired out at the end of a day's work, and thought the other women were too, and she had often noticed how badly the work was done after eight or nine hours at it. Later on, as a forewoman, she noticed that the girls after overtime always loafed about the next day and did not work well. (Page 84.)

Another forewoman gave it as her deliberate opinion that when overtime is worked the piece workers do not make more, as a rule, for they get so tired that if they stay late one night, they work less the next day.

This is the unanimous view held by the forewomen, and it comes with considerable force from them, as it is they who have to arrange to get work done somehow within a certain time. They are the people who have to put on the pressure, and are in such a position as to see how any particular system of getting work done. (Page 87.)

*Hours and Wages in Relation to Production.* LUIGI BRENTANO.

By degrees the employers themselves admitted that the last two hours, formerly considered indispensable, used generally to produce work far inferior to that of the preceding hours, and that owing to the greater industry of the employees, who no longer idled through the first hours of the day, the regular unbroken labor of the new working day was much more advantageous to the employees than the longer working day, with its alternations of overwork and indolence. So it came about, as a result of the curtailment of the working day, production did not diminish, but actually increased. (Page 29.)

In the report of the Stuttgart Chamber of Commerce of 1890 we find, on page 47, a corset factory reports: "Five years ago

we returned to a ten-hour working day (with a half-hour pause in the morning and another in the afternoon) we find that our work-women can get through very much more with regular work for ten or even nine hours, than when the working day is longer." (Page 36.)

### B. Effect on Regularity of Employment

Wherever the employment of women has been prohibited for more than ten hours in one day, a more equal distribution of work throughout the year has followed. The supposed need of dangerously long and irregular hours in the season-trades are shown to be unnecessary. In place of alternating periods of intense overwork with periods of idleness, employers have found it possible to avoid such irregularities by foresight and management.

*Report of Conference of Members of Women's Trade Unions on the Factory and Workshops Act, 1875.* Vol. XXIX.

The permission granted to season trades for the extension of the hours to fourteen per day, during certain periods of the year, should be withdrawn, with the view of equalizing the work throughout the year. . . .

Bookbinders complained that the trade was most unnecessarily considered by the law a season-trade. . . . The existence of the modification made employers careless of due economy in time. (Page 193.)

*Report of the British Chief Inspector of Factories and Workshops, 1892.*

I am convinced that there is no necessity for this overtime; the season-trade work or the press orders would be executed just the same if overtime were illegal, as it is in the textile and many of the non-textile trades; the work would only be spread over a longer period or mean the employment of more hands. Much of the good done by the Factory Act is undone by allowing delicate women and girls to work from 8 A. M. to 10 P. M. for two months of the year. (Page 89.)