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The Labor Market in the 1890s: Evidence from Connecticut Manufacturing

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several important questions unanswered. Might other, different, structures have been in place in the nineteenth century that had implications for wage flexibility? If not, why did the "fundamentals" which supposedly give rise to such structure not apply? When did modern structures arise and why? How and why did they evolve into their modern form? This paper is an effort to begin research on some of these questions through an examination of firm-level data collected by the Connecticut Bureau of Labor Statistics in a special investigation of the 1893 depression. We view the collection and analysis of historical evidence of this sort as a necessary prelude to further theorizing.

The Connecticut Investigation

In order to ascertain the effects of the industrial depression of 1893 on the manufacturing establishments and workers of the state, the Connecticut Bureau of Labor Statistics sent questionnaires to 500 large firms, requesting detailed information on employment, wage payments, the value of production, days in operation, and hours per day for 1892; average monthly output and days in operation over the period June 1893 to August 1894, and monthly data on employment hours and wages for each of the fifteen months in the depression period. Firms were also asked to report changes in wage rates between June 1, 1893 and August 31, 1894. The survey was limited to large establishments which, "because of their size, were presumed to have accounts which would facilitate the filling out of the schedule" [Connecticut Bureau of Labor Statistics 1894, p. 168]. The 378 firms which submitted usable responses represented about three-fourths of the state's industries and collectively employed about one half of the state's industrial workers. The average firm in the sample employed 195 workers, over nine times the state-wide average.

Table 1 presents mean values of several key variables. It is evident from the table that the manufacturing firms included in the survey experienced an extremely severe depression in 1893. The 20 percent drop in the nominal value of output is larger than the 13 percent drop in industrial production at the national level. It is also larger than the 19 percent decline in the national figures between 1920 and 1921 [U. S. Census, Series A15, 1966], but smaller than the collapse of industrial production between 1929 and 1933.

Table 1

Percentage Change in the Annual Rate of Output, Labor Input, and Wages
Between Calendar Year 1892 and the Period Spanning June 1893 through August 1894
Connecticut Manufacturing

	Percent Change
Total Hours	-29.5
Output	-20.6
Total Wages	-23.1
Hours per Worker	-17.5
Employment	-14.8
Days per Worker	-13.4
Wages per Worker	-9.8
Output per Worker	-6.8
Hours per Day per Worker	-4.3
Wages per Hour	+9.0
Output per Worker Hour	+12.6
Proportion of firms instituting:	
General wage reductions	34.1
Partial wage reductions	20.4
Both general and partial	1.6
General wage increases	0.5
Partial wage increases	3.2

Notes: The percentage changes are unweighted means across firms. Partial wage reductions and wage increases mean that not all employees were affected.

Source: Connecticut Bureau of Labor Statistics [1894].

The Connecticut data allow us to address several issues raised by macroeconomic theorists: the mechanisms of input adjustment, short-run increasing returns to labor, the heterogeneity of unemployment, and wage flexibility.

Input Adjustment

The 20-percent reduction in the value of output was accompanied by substantial reductions in labor input. Employment fell by nearly 15 percent. The number of days worked by those who retained their jobs was reduced by more than 13 percent. The number of hours in the work day declined by approximately four percent. As a consequence, total hours worked fell by nearly 30 percent. One surprise here is that the Connecticut firms relied to an extraordinary extent on hours reductions as a method of reducing labor input. "[T]he large majority of the industries retained on the pay-rolls a large percentage of the ordinary number of employees," the authors of the report note [Connecticut Bureau of Labor Statistics 1894, p. 186]. Hours per worker fell a dramatic 17.5 percent. The number of workers fell only 14.8 percent. This greater reliance on hours reductions than layoffs is the opposite of today's pattern. In post-World War II recessions the reduction in average hours is considerably smaller than that in employment [Lilien and Hall 1986, p. 1006; Kniesner and Goldsmith 1987, p. 1244].

Table 1 indicates that virtually all of the reduction in working time was accomplished by suspensions of operations -- plant closings which idled the entire workforce. Indeed, the heavy reliance on suspensions of operations may be the most distinctive institutional feature of turn-of-the-century personnel practices. We have been unable to find data on suspensions of operations in the modern era but casual empiricism suggests that the routine use of complete plant shutdowns to effect reductions in labor inputs is now rare. Even when modern plants institute massive layoffs, they retain some workers. However the suspensions of operations do seem similar to modern layoffs in that the suspended workers have some assurance that the conditions which generated their lack of work are temporary, they can expect to resume their regular work schedules within some reasonable period of time.

Short-Run Increasing Returns to Labor

In modern labor markets labor productivity is procyclical, it declines when output falls. This phenomenon is often attributed to "labor hoarding" during contractions [Hultgren 1960; Fair 1969]. In the 1890s we find labor productivity moving countercyclically. The nominal value of output fell by 20 percent while total worker hours fell almost 30 percent. Since prices were falling, real output per worker hour increased by even more than the 12.6 percent indicated in Table 1. Robert Layer also reports an increase in output per worker during nineteenth century depressions in the cotton textile firms he studied [Layer 1955, p. 29]. Furthermore, in both the Connecticut sample and in Layer's data the productivity increase in depressions is matched by an increase in the average hourly wage.

Layer suggests that the increases in productivity and in the average hourly wage were due to the differential retention of skilled, highly paid workers [Layer 1955, p. 29]. This explanation is also offered by a New Jersey manufacturer interviewed during an investigation of the effects of the 1893 depression in his state.

> The average amount paid per hour per man during June, 1893, shows a decided increase over June, 1892, ... an increase of about 25 per cent. This apparent inconsistency is explained in a measure by the fact that in periods of depression the higher-priced men are retained, while the helpers and other low-priced hands are laid off -- with the peculiar result that when business is at the lowest point, the average wages paid per hour is apt to be highest [New Jersey Bureau of Statistics of Labor and Industries 1895, pp. 11-12].

Thus the countercyclical behavior of productivity and of the average hourly wage in the late nineteenth century also seems to indicate "hoarding" of a sort -- the preferential treatment of skilled workers. In an unstructured labor market where wages for each type of job/worker combination adjust until demand equals supply there would be no reason to favor one type of worker over another.

Heterogeneity of Unemployment

In modern labor markets the burden of unemployment falls on a relatively small proportion of the labor force who then find themselves completely without work for a long time [Clark and Summers 1979; Murphy and Topel 1987]. The common use of suspensions in the Connecticut data, a practice that would reduce work for everyone and share the lack

in labor market structure over the last century make it difficult to say. Perhaps all we should assert at this point is that the labor market of the 1890s was non-Walrasian in different ways from the market the postwar era.

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