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The Overtime Pay Provisions of the Fair Labor Standards Act

Abstract

[Excerpt] Our paper is a contribution to the debate over the efficacy of such proposals. We begin by providing a brief history of hours-of-work legislation in the United States and discussing a conceptual framework within which the evolution of the legislation can be explained and/or understood. We then trace the growth of the share of nonwage items in total labor cost and of employers' use of overtime hours, and discuss the possible connection between these two trends. We then critically evaluate the available empirical evidence on the relationship between the overtime premium, hours of work, and employment. This section results in an agenda for future research needs, rather than a set of definitive conclusions. Finally, our concluding section discusses the policy implications of our study. Although we believe additional research, some of which we are currently starting to undertake for the Minimum Wage Study Commission, is required before one can fully evaluate the wisdom of amending the overtime provisions of the FLSA, a number of general conclusions are presented in this section.

Keywords

Fair Labor Standards Act, overtime, legislation, employment, hours of work

Disciplines

Labor and Employment Law | Labor Economics | Labor Relations

Comments

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The Overtime Pay Provisions of the Fair Labor Standards Act

Ronald G. Ehrenberg and Paul L. Schumann

It has long been recognized in the United States that excessive use of overtime hours may be partially responsible for continued high rates of unemployment. For although a large proportion of overtime hours is due to disequilibrium phenomena, such as rush orders, seasonal demand, mechanical failures, and absenteeism, a substantial amount of overtime appears to be regularly scheduled. If even a fraction of this overtime were converted to new full-time jobs, the effect on the unemployment rate might be substantial. In 1977, for example, average weekly overtime in manufacturing was 3.4 hours/employee. If one-fifth of this had been eliminated *and* converted into new full-time jobs, employment levels for production workers would have risen by 1.7 percentage points. As a consequence, proposals for amending the overtime provisions of the Fair Labor Standards Act (FLSA) to restrict the use of overtime, including those that would increase the overtime premium to double time, have been periodically introduced in Congress.

Our paper is a contribution to the debate over the efficacy of such proposals. We begin by providing a brief history of hours-of-work legislation in the United States and discussing a conceptual framework within which the evolution of the legislation can be explained and/or understood. We then trace the growth of the share of nonwage items in total labor cost and of employers' use of overtime hours, and discuss the possible connection between these two trends. We then critically evaluate the available empirical evidence on the relationship between the overtime premium, hours of work, and employment. This section results in an agenda for future research needs, rather than a set of definitive conclusions. Finally, our concluding section discusses the policy implications of our study. Although we believe additional research, some of which we are currently starting to undertake for the Minimum Wage Study Commission, is required before one can fully

NOTE: We are grateful to numerous colleagues at Cornell, and to Solomon Polachek, Gregg Lewis, Finis Welch, and Steven Welch for their comments on an earlier version.

evaluate the wisdom of amending the overtime provisions of the FLSA, a number of general conclusions are presented in this section.

History of Hours-of-Work Legislation in the United States

The earliest forms of hours-of-work legislation in the United States were initiated at the state level, applied to women and children, and had the aim of reducing fatigue and exhaustion.¹ For example, maximum-hours-of-work legislation was introduced in Massachusetts in 1879, where its supporters claimed that long workweeks were exhausting and caused women to grow prematurely old.² The first hours laws covering men in the private sector were also at the state level and covered occupations in which long workweeks adversely affected third parties or employees themselves. An 1890 Ohio law limited hours of workers who operated trains in the hope that this would reduce railroad accident rates and protect the traveling public. This law was quickly followed by state laws limiting workweeks in mining to protect miners who were subject to unhealthy and unsafe working conditions.³

One may argue that in each of these cases the rationale for the protective labor legislation is that the marginal social cost of longer workweeks exceeded the marginal private cost to employers. In the absence of government intervention these divergencies persisted because low family incomes did not permit many women and children the luxury of turning down jobs with low wages and long hours, because no good alternatives to the railroads existed for long-range travel and railroad passengers were not always accurately informed about railroad employees' workweeks, and because the limited alternative employment opportunities in mining communities (the "company town") often restricted the occupational choice of individuals in those areas. In each case, then, markets failed, in the sense that compensating wage (or price) differentials did not arise to compensate employees (or railroad passengers) for the full risks they incurred because of long hours of work. The case for government intervention was strong; the only real issue was why the legislation took the form of outright restrictions on hours rather than the use of tax or penalty schemes to increase em-

¹John R. Commons and John B. Andrews, *Principles of Labor Legislation* (New York: Harper and Bros., 1920), pp. 242-63; George E. Paulsen, "The Legislative History of the Fair Labor Standards Act" (Ph.D. dissertation, Ohio State University, 1959), pp. 1-10; Orme Phelps, *The Legislative Background of the Fair Labor Standards Act* (Chicago: Chicago University Studies in Business Administration, 1939), p. 4; and U.S. Department of Labor, *Premium Payments for Overtime under the Fair Labor Standards Act* (Washington, D.C., 1967).

²Marion Cahill, *Shorter Hours* (New York: Columbia University Press, 1932), pp. 106-7.

³Paulsen, "History of FLSA," pp. 14-15.

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ployers' marginal private cost of longer hours. The well-known preference of Congress and state legislatures for standards rather than tax-subsidy schemes may reflect only the fact that the majority of their members are lawyers who are comfortable with the standards approach.⁴

Although the average workweek in manufacturing had fallen from 51.0 hours in 1909 to 44.2 in 1929, throughout the early 1930s bills were repeatedly introduced into Congress to limit the length of the workweek. While the goal of protecting existing employees from the ills associated with excessive fatigue remained, a second explicit purpose of such legislation was to increase employment by distributing the available work. Ultimately, on June 25, 1938, the Fair Labor Standards Act (FLSA) was enacted. Its overtime provisions established a minimum rate of time-and-a-half of the regular hourly rate for hours worked in excess of 44 per week by covered employees, with the penalty rate beginning after 42 hours in the next year, and 40 hours per week thereafter. (Initial drafts of the legislation established outright prohibitions of long hours. The idea of instituting a penalty for overtime instead apparently was instituted only as a compromise during the late stages of the debate.)⁵ In its final form, the act covered less than one-fifth of all employees. Since then, coverage under the overtime provisions of the act has been expanded until now approximately 58 percent of all employees are covered (table 1). The major noncovered categories are supervisory employees, outside salespersons, employees in seasonal industries (including agriculture), state and local government employees, employees in small retail trade establishments, and some household workers.

Once again, the provisions of the act can be rationalized in terms of the divergence between private and social costs. Even if employers and their employees in the 1930s were satisfied with long workweeks, their private calculations ignored the social costs borne by the unemployed. The time-and-a-half rate for overtime can be thought of as a tax to make employers bear the full marginal social cost of their hours decisions; it should serve to reduce the use of overtime hours and, to the extent that the increased costs do not *substantially* reduce total man-hours demanded, stimulate employment.⁶ Furthermore, if employees

⁴ Allen Kneese and Charles Schultze, *Pollution, Prices, and Public Policy* (Washington, D. C.: Brookings Institution, 1975). A discussion of the standards-versus-tax-subsidy issue is included in Russell F. Settle and Burton Weisbrod, "Governmentally Imposed Standards: Some Normative Aspects," in Ronald G. Ehrenberg, editor, *Research in Labor Economics*, vol. 2 (Greenwich, Conn.: JAI Press, 1978), pp. 159-91.

⁵ Paulsen, "History of FLSA," pp. 240-44; Phelps, *Legislative Background*, pp. 4-6; and Jonathan Grossman, "Fair Labor Standards Act of 1938: Maximum Struggle for a Minimum Wage," *Monthly Labor Review* 101 (June 1979): 22-30.

⁶ As with any other tax designed to correct an externality, such as an effluent tax designed to reduce the emission of pollutants, the time-and-a-half rate for overtime should lead to

were not satisfied with long workweeks during the 1930s but, because of market imperfections, did *not* have the freedom to choose employment with employers who offered shorter workweeks, the direct payment of the tax to employees who worked longer workweeks can be understood as an attempt to remedy this imperfection. We shall discuss this point in more detail when we evaluate proposals to modify the overtime provisions of the FLSA.⁷

The Employment-Hours Trade-off: The Growth of Fringe Benefits and Overtime Hours

Although coverage under the overtime pay provisions of the FLSA has increased substantially over the last forty years, the premium itself has remained constant at time and a half. Periodically proposals have been introduced in Congress to raise the premium to double time.⁸ Supporters of the increase argue that even though unemployment remains a pressing national problem, the use of overtime hours has increased in recent years. Moreover, the deterrent effect of the overtime premium has been weakened since enactment of the FLSA because of the growing share of hiring and training costs, fringe benefits, and government-mandated insurance premiums in total compensation. Many of these costs (such as vacation pay, holiday pay, sick leave, hiring costs) are "quasi-fixed" or employee-related, rather than hours-related; that is, they do not vary with overtime hours of work. An increase in these costs reduces employers' marginal costs of working their existing work forces overtime relative to their costs of hiring new employees.⁹ It is claimed that the

a reduction in output and *some* decline in total man-hours demanded. One cannot, however, evaluate the tax as being "bad" simply because output is lower, as Sol Polachek suggested in his conference comments; that is a necessary consequence of the attempt to correct the externality.

⁷Literally hundreds of court decisions handed down since the FLSA was enacted confirm that Congress had the dual intent of (a) inducing employers to reduce hours of work and increase employment, and (b) compensating employees for the "burden" of long workweeks. See, for example, *Walling v. Youngerman-Reynolds Hardwood Co.*, Ala. 1945, 65 S.Ct. 1242, 1250, 325 U.S. 419, 89 L. Ed. 1705, rehearing denied 66 S.Ct. 12, 326 U.S. 804, 90 L. Ed. 489.

⁸The most recent attempt was made by Congressman John Conyers in H.R. 1784, introduced into Congress on February 1, 1979.

⁹The formal theory of how these quasi-fixed costs influence employers' employment and hours decisions is detailed in a number of studies. See, for example, Ronald G. Ehrenberg, *Fringe Benefits and Overtime Behavior* (Lexington, Mass.: D.C. Heath, 1971), pp. 5-47; *idem*, "Heterogeneous Labor, the Internal Labor Market, and the Employment-Hours Decision," *Journal of Economic Theory* 3 (March 1971): 85-104; Walter Oi, "Labor as a Quasi-Fixed Factor of Production," *Journal of Political Economy* 70 (October 1962): 535-55; Sherwin Rosen, "Short-Run Employment Variations in Class I Railroads," *Econometrica* 36 (July/October 1968): 511-29; and *idem*, "The Supply of Work Schedules and Employment," in National Commission for Employment Policy, *Work Time and Employment*, Special Report no. 28 (Washington, D.C., 1978), pp. 145-74.

TABLE 1
WAGE AND SALARY WORKERS AND THEIR OVERTIME COVERAGE, SEPTEMBER 1977
(in thousands of workers)

<i>Industry</i>	<i>Total</i>	<i>Executive, Administrative, and Professional^a</i>	<i>Outside Sales^a</i>	<i>Non- supervisory^b</i>	<i>Non- supervisory Subject to Overtime</i>	<i>Percentage of Non- supervisory Subject to Overtime^c</i>	<i>Percentage of Total Subject to Overtime^d</i>
All	87,164	16,363	2,111	68,690	50,586	74	58
Private sector	71,647	10,137	2,111	59,399	48,085	81	67
Agriculture	1,505	74	0	1,431	0	0	0
Mining	862	99	0	763	751	98	87
Contract construction	4,157	417	3	3,737	3,682	99	89
Manufacturing	19,941	2,323	403	17,215	16,913	98	85
Transportation and public utilities	4,653	529	6	4,118	2,454	60	53
Wholesale trade	4,428	629	750	3,049	2,930	96	66
Retail trade	14,035	1,390	127	12,518	8,885	71	63
Finance, insurance, and real estate	4,554	658	791	3,105	2,968	96	65
Service industries	15,618	4,018	31	11,569	8,412	73	54
Private household	1,894	0	0	1,894	1,090	58	58

Public sector	15,517	6,226	0	9,291	2,501	27	16
Federal	2,717	509	0	2,208	2,156	98	79
State and local government	12,800	5,717	0	7,083	345	5	3

^a Section 13(a)(1) of the FLSA includes among exempt covered employees "any employee employed in a bona fide executive, administrative, or professional capacity (including any employee employed in the capacity of academic administrative personnel or teacher in elementary or secondary schools) or in the capacity of outside salesmen."

^b Excluding outside sales workers.

^c Provisions of FLSA (5)/(4)·100.

^d Provisions of FLSA (5)/(1)·100.

SOURCE: U.S. Department of Labor, Employment Standards Administration, *Minimum Wage and Maximum Hours Standards under the Fair Labor Standards Act* (Washington, D.C., October 1978), table 11.

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growth of these items has been at least partially responsible for the increase in overtime and that an increase in the overtime premium is required to offset this adverse effect.

Data on average weekly overtime hours for manufacturing industries have been collected and published by the Bureau of Labor Statistics (BLS) since 1956. Using annual data for all manufacturing, durable manufacturing, and nondurable manufacturing industries, we have estimated equations in which weekly overtime hours were specified to be a function of a time trend and the growth in real gross national product (GNP), the latter to control for cyclical factors (table 2). These equations indicate that after controlling for cyclical factors and autocorrelation in the residuals, average weekly overtime hours have increased by 0.028 to 0.029 hours each year.¹⁰ This implies that average weekly overtime hours have increased by 0.616 hours over the twenty-two-year period covered by our sample. *If all of this increase in overtime had been converted to full-time (forty hours/week) jobs, employment in manufacturing would have been 1.5 percent higher in 1977.*¹¹

Could this increase in the use of overtime have been due to the increase in quasi-fixed nonwage costs, which increased the marginal cost of new employees relative to that of overtime hours? The answer depends upon both the magnitude of the increase in quasi-fixed costs and the empirical relationship existing among these costs, employment, and overtime hours. Empirical evidence on the increase in fringe benefits is quite abundant. For example, Department of Commerce data for the nation as a whole (table 3) show that forms of compensation other than wages and salaries (supplements) rose from 6.2 percent of total compensation in 1956 to 14.7 percent in 1977. These data understate the importance of nonwage items in total compensation because they include holiday, vacation, and sick pay as wages. A more comprehensive measure, although for a more limited sample, comes from the biennial U.S. Chamber of Commerce Survey of Manufacturing Establishments. These data show that total fringe benefits as a percentage of payroll rose from 20.3 percent to 37.3 percent during the 1957-1977 period (table 4). Both

¹⁰ Only for the nondurable manufacturing equation, however, is the estimated annual increase statistically significantly different from zero. Moreover, as Sol Polachek noted in his conference comments, when a quadratic trend term is added to the equation, one observes that the upward drift in overtime hours appeared to cease sometime between 1971 and 1973. This evidence should therefore be considered only suggestive. We should stress, however, that in any case evidence on the trend in overtime hours is *not* central to our concern in the next section: whether an increase in the overtime premium would lead to a reduction in overtime hours *and* an increase in employment.

¹¹ The percentage change in employment is $(0.616/40)(100)$. We should caution, of course, that while our evidence does provide some tentative support for the view that the use of overtime has been increasing, the potential employment increase if overtime had not increased is a hypothetical maximum figure.

TABLE 2

DETERMINANTS OF AVERAGE WEEKLY OVERTIME HOURS, ANNUAL DATA, 1956-1977

Statistical Determinant	All		Durable		Nondurable	
	Manufacturing		Manufacturing		Manufacturing	
Ordinary least squares						
Time trend	.045*	.036*	.048*	.037*	.040*	.034*
	(.014)	(.012)	(.019)	(.017)	(.009)	(.008)
Change in real GNP		.010*		.012*		.006*
		(.003)		(.004)		(.002)
R ²	.317	.532	.236	.456	.472	.626
Durbin-Watson	.940	.721	.985	.830	.803	.520
Corrected for auto-correlation						
Time trend	.041**	.028	.044	.028	.038*	.029*
	(.023)	(.020)	(.029)	(.026)	(.015)	(.014)
Change in real GNP		.009*		.011*		.005*
		(.002)		(.003)		(.001)
Average weekly overtime hours						
1956	2.8		3.0		2.4	
1957	2.3		2.4		2.2	
1958	2.0		1.9		2.2	
1959	2.7		2.7		2.7	
1960	2.4		2.4		2.5	
1961	2.4		2.3		2.5	
1962	2.8		2.8		2.7	
1963	2.8		2.9		2.7	
1964	3.1		3.3		2.9	
1965	3.6		3.9		3.2	
1966	3.9		4.3		3.4	
1967	3.4		3.5		3.1	
1968	3.6		3.8		3.3	
1969	3.6		3.8		3.4	
1970	3.0		3.0		3.0	
1971	2.9		2.8		3.0	
1972	3.5		3.6		3.3	
1973	3.8		4.1		3.4	
1974	3.2		3.4		3.0	
1975	2.6		2.5		2.7	
1976	3.1		3.1		3.0	
1977	3.4		3.6		3.1	

NOTES: Asterisk (double asterisk) indicates coefficient statistically different from zero at the .05 (.10) level of significance, two-tail test. Time trend equals 1 in 1956. Standard errors are in parentheses.

SOURCE: U.S. Department of Labor, 1979 *Employment and Training Report of the President* (Washington, D.C., 1979).

TABLE 3
COMPENSATION OF EMPLOYEES, 1956-1977
(in millions of constant 1972 dollars)

<i>Year</i>	<i>Total</i>	<i>Wages and Salaries</i>	<i>Supplements</i>	<i>Ratio of Supplements to Total (percent)</i>
1956	243.5	228.3	15.2	6.2
1957	256.5	239.3	17.2	6.7
1958	258.2	240.5	17.7	6.9
1959	279.6	258.9	20.6	7.4
1960	294.9	271.9	23.0	7.8
1961	303.6	279.5	24.1	7.9
1962	325.1	298.0	27.1	8.3
1963	342.9	313.4	29.5	8.6
1964	368.0	336.1	31.8	8.6
1965	396.5	362.0	34.5	8.7
1966	439.3	398.4	40.9	9.3
1967	471.9	427.5	44.4	9.4
1968	519.8	469.5	50.3	9.7
1969	571.4	514.6	56.8	9.9
1970	609.2	546.5	62.7	10.3
1971	650.3	580.0	70.3	10.8
1972	715.1	633.8	81.4	11.4
1973	797.7	700.9	96.8	12.1
1974	873.0	763.1	110.0	12.6
1975	931.1	805.9	125.2	13.4
1976	1,036.8	890.1	146.7	14.1
1977	1,153.4	983.6	169.8	14.7

NOTE: "Compensation of employees" is the income accruing to employees as remuneration for their work. "Wages and salaries" consist of the monetary remuneration of employees, including the compensation of corporate officers, commissions, tips, and bonuses, and of payments in kind, which represent income to the recipients. "Supplements" to wages and salaries are employer contributions for social insurance and other labor income. Employer contributions for social insurance comprise employer payments under old-age, survivors, disability, and hospital insurance, state unemployment insurance, railroad retirement and unemployment insurance, government retirement, and a few other minor social insurance programs. Other labor income includes employer contributions to private pension, health, unemployment, and welfare and privately administered workers' compensation funds; compensation for injuries; and directors' fees.

SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis, *Business Statistics*, 1975, p. 6; and U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, January 1979, p. S-2.

TABLE 4
FRINGE BENEFITS AS A PERCENTAGE OF PAYROLL IN
MANUFACTURING, 1957-1977

Year	Legally Required Payments (employer's share)	Pensions, Insurance	Paid Rest	Pay for Time Not Worked	Other Items	Total Fringe Benefits
1957	4.1	5.8	2.4	6.5	1.5	20.3
1959	4.5	6.1	2.7	6.7	1.6	21.6
1961	5.5	6.8	2.8	7.2	1.3	23.6
1963	5.9	6.7	2.9	7.3	1.4	24.2
1965	5.3	6.7	2.7	7.2	1.7	23.6
1967	6.4	7.0	3.0	7.3	1.9	25.6
1969	6.8	7.6	3.1	7.8	1.7	27.0
1971	6.9	9.9	3.5	8.6	1.7	30.6
1973	8.3	10.2	3.5	8.5	1.5	32.0
1975	8.8	11.6	3.7	10.1	1.9	36.1
1977	9.3	12.9	3.6	9.2	2.3	37.3

SOURCE: U.S. Chamber of Commerce, *Fringe Benefits and Employee Benefits* (various issues).

data sets indicate, then, an approximate doubling of the share of fringe benefits in total compensation. The increase is due both to an increase in employers' legally required insurance payments (social security, unemployment insurance, workers' compensation, etc.) and to the favorable tax treatment of many fringe benefits under the personal income and payroll tax provisions, which encourage employers to provide benefits rather than higher wages.

(The BLS also collects data on employers' expenditure for employee compensation, but their data span a shorter number of years. They tell a similar story, however. For example, between 1959 and 1974, straight-time and premium pay in manufacturing fell from 85.4 to 76.9 percent of total compensation.)¹²

We should caution, however, that not all nonwage forms of compensation are independent of employees' hours of work; those that vary with hours do *not* encourage the substitution of hours for employment. Over time, some forms have become "more" related to hours. For example, between 1960 and 1978 the Old-Age, Survivors, Disability,

¹²U.S. Department of Labor, Bureau of Labor Statistics, *1977 Handbook of Labor Statistics* (Washington, D.C., 1977), table 108.; and idem, *1973 Handbook of Labor Statistics* (Washington, D.C., 1973), table 118.

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and Health Insurance (OASDHI) maximum taxable earnings rose from \$4,800 to \$17,700. This increase caused the fraction of total covered employees with earnings at or above the maximum taxable earnings level to fall from 0.28 at the start of the period to 0.10 in 1977. The fraction of employees for whom the OASDHI tax could be considered not to be related to hours declined by over 50 percent. Focusing on the growth of nonwage compensation costs may well overstate the increasing incentives employers have to substitute overtime hours for additional employment.

The Overtime Pay Premium, Hours of Work, and Employment: Empirical Evidence

Attempts to estimate the effects of raising the overtime premium from time and a half to double time have exploited the fact that although the overtime premium is fixed (legislatively) at a point in time, its value relative to weekly "quasi-fixed" costs per employee varies substantially among establishments because the level of nonwage benefits varies among establishments. One of us published the first major published study on the subject; this was followed by replications and extensions by Nussbaum and Wise, and Solnick and Swimmer.¹³ These studies used individual establishment data from the 1966, 1968, 1970, 1972, and 1974 BLS "Employer Expenditure for Employee Compensation" surveys and estimated variants of equations of the form

$$OT = a_0 + a_1R + a_2X \quad (1)$$

where OT is annual overtime hours per employee, R is the ratio of measured weekly quasi-fixed nonwage labor costs per employee to the overtime wage rate, and X is a vector of other variables expected to influence establishments' use of overtime.

All of these studies confirm that, across establishments, a strong positive relationship exists between the use of overtime hours and the ratio of weekly nonwage labor costs per employee to the overtime wage rate (table 5). From these studies one can simulate what the effect of

¹³ Ehrenberg, *Fringe Benefits*; idem, "The Impact of the Overtime Premium on Employment and Hours in U.S. Industry," *Western Economic Journal* 9 (June 1971); Joyce Nussbaum and Donald Wise, "The Employment Impact of the Overtime Provisions of the F.L.S.A." (Final Report, U.S. Department of Labor, Contract J-9-E-6-0105, 1977); idem, "The Overtime Pay Premium and Unemployment," in *Work Time and Employment*; Loren Solnick and Gene Swimmer, "Overtime and Fringe Benefits—a Simultaneous Equations Approach" (mimeographed, 1978); and Susan Van Atta, "An Analysis of Overtime Hours for Production Workers in Manufacturing Industries, 1957-1965" (Ph.D. diss., University of California, Berkeley, 1967).

TABLE 5

ESTIMATED COEFFICIENTS OF THE WEEKLY NONWAGE LABOR COST
DIVIDED BY THE OVERTIME WAGE RATE VARIABLE, VARIOUS
STUDIES

Industry	Ehrenberg (1971)	Solnick & Swimmer I (1978)	Solnick & Swimmer II (1978)	Nussbaum & Wise (1977)
Manufacturing		6.73*	17.33*	
Ordnance				
Food	26.398*			15.68*
Tobacco				
Textile	29.898*			14.03*
Apparel	5.137*			19.63*
Lumber	9.836			35.53*
Furniture	21.390			13.98
Paper	85.758*			42.62*
Printing	25.793*			7.59
Chemicals	25.805*			16.43*
Petroleum				
Rubber	40.429*			9.84
Leather				
Stone-clay-glass	11.029			30.08*
Primary metals	19.727*			29.53*
Fabricated metals	26.392*	23.53*		
Machinery	33.695*		19.71*	
Electric equipment	32.481*		13.16*	
Transportation equipment	4.121			19.00*
Instruments				-2.69
Miscellaneous manu- facturing	63.146*			
Mining	0.343	0.00	47.62*	
Construction	30.959*	4.23	5.08*	
Transportation	42.888*			
Utilities	7.899	-2.50	8.59	
Wholesale trade	39.093*			
Retail trade	35.101*	11.05*	59.41*	
Finance, insurance and real estate	14.673	3.41	-10.05	
Services	40.370*	5.91*	41.18*	

NOTE: Asterisk indicates coefficient statistically different from zero at the .05 level of significance.

SOURCES: Ehrenberg, *Fringe Benefits*, table 3; Solnick and Swimmer, "Overtime and Fringe Benefits," table 2 (for estimate I) and table 3 (for estimate II); Nussbaum and Wise, "Employment Impact," table 4.3.

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increasing the overtime premium would be on overtime hours if one assumes that employers fully comply with the legislation and that the change in the premium affects neither straight-time wage rates nor the levels of weekly quasi-fixed nonwage labor costs. Moreover, if one also assumes that all of the reduction in overtime would be converted to new full-time positions, one can simulate what the effect on the employment level would be. We have tabulated the implied results from such simulations in table 6; they suggest maximum employment increases in the range of 0.3 to 4.0 percent.¹⁴

These estimates clearly *overstate* the increase in the number of full-time employment positions that would go initially to *nonemployed* individuals. They assume wage elasticities of demand to be zero; they ignore the possibility of increased moonlighting by existing employees; they ignore problems relating to skill mismatches and indivisibilities; they assume full compliance with the legislation; and they ignore the possibility that the levels or rates of growth of straight-time wages and fringe benefits might be adjusted downward. Each of these factors will reduce the employment creation effects of an increase in the overtime premium; let us examine current knowledge of each factor.

¹⁴ These estimates are derived as follows: The decrease in annual overtime hours per employee is given from (1) by $\Delta OT = a_1 \Delta R$ where ΔR is the change in R caused by the increase in the premium. If total man-hours demanded remained constant and new full-time positions averaging 2,000 hours a year were created, the total number of new jobs created in an industry would be $\Delta E = (-\Delta OT/2,000)E$, where E is the initial industry employment level. In percentage terms, $\% \Delta E = (\Delta E/E)100 = (-\Delta OT)/20$. So, for example, since $\Delta OT = -32$ in Ehrenberg (*Fringe Benefits*), the resulting simulated $\% \Delta E$ was 1.6 percent.

We must caution, however, that a number of statistical problems associated with the studies cause us to conclude that their results should be considered extremely tentative. First, none took account of the fact that reported overtime hours could not be negative and that some establishments use zero overtime. Use of ordinary least squares leads to biased estimates under these circumstances; an estimation method such as Tobit analysis is required.

Second, it may be argued that to the extent that overtime hours are perceived as being unavoidable by employers, they can try to reduce their overtime costs, and total labor costs, by offering their employees compensation packages which substitute fringes for higher straight-time wages. If this occurs, a positive correlation would be induced between R and OT ; however, the direction of causation would run from OT to R . To estimate the effect of R on OT accurately requires a simultaneous equations approach. Only Solnick and Swimmer have attempted to do this; however, their specification of the nonwage labor cost/overtime wage rate (R) equation was seriously incomplete.

As a final note, Nussbaum and Wise did estimate employment effects directly using mean values of industry variables as the units of observation. (Nussbaum and Wise, "Employment Impact.") We have serious doubts both about the validity of such inter-industry equations and their particular specification. Furthermore, the underlying regression coefficients upon which their estimates were based were all statistically insignificant. Thus, very little confidence should be placed in the precision of their 2.0 percent estimate (table 6).

TABLE 6

UPPER-BOUND ESTIMATES OF THE CHANGES IN FULL-TIME EMPLOYMENT FROM INCREASING THE OVERTIME PREMIUM FROM TIME AND A HALF TO DOUBLE TIME, VARIOUS STUDIES

<i>Study</i>	<i>Group</i>	<i>Maximum Absolute Change</i>	<i>Maximum Percentage Change</i>
Ehrenberg (1971)	1966 manufacturing production workers	218,500	1.6
Nussbaum and Wise (1977)	1968 manufacturing production workers	491,400	3.7
	1970 manufacturing production workers	487,700	3.7
	1972 manufacturing production workers	361,900	2.8
	1974 manufacturing production workers	549,700	4.0
	1968-1974 pooled manufacturing inter-industry data employment equation estimated directly	320,000	2.0
Solnick and Swimmer (1978)	1972 private nonfarm nonsupervisory workers (OLS ^a analysis)	159,264	0.3
	1972 private nonfarm nonsupervisory workers (3SLS ^b analysis)	1,521,664	3.1

^a Ordinary least squares.

^b Three-stage least squares.

SOURCES: Ehrenberg, "Impact of Overtime Premium," table 3; Nussbaum and Wise, "Employment Impact," tables 4.11A, 4.11B, 4.11C, and 4.11; and Solnick and Swimmer, "Overtime and Fringe Benefits," table 5.

Nonzero Wage Elasticities. The estimates in table 6 assume that the demand for *man-hours* is completely inelastic. That is, they ignore the fact that an increase in the overtime premium raises the average cost per man-hour of labor; this may induce a shift to more capital-intensive methods of production and, to the extent that the cost increase is passed on to consumers in the form of higher prices, a reduction in the quantity of output demanded. Both the substitution and the scale effect should

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lead to a decline in the number of man-hours employed by employers.

We can roughly estimate the magnitude of these effects. Daniel Hamermesh has surveyed time-series estimates of the wage elasticity of demand for labor and has concluded that a reasonable estimate for the long-run (four-quarters) elasticity is -0.3 .¹⁵ Suppose that before an increase in overtime premium the standard workweek was forty hours and employees averaged three hours of overtime per week. Suppose also that the increase in the overtime premium induced a reduction of 1.2 hours of overtime per week; the latter figure would lead to a 3 percent increase in full-time employment if total man-hours remained constant. The reduction in overtime, coupled with the increase in the premium to double time, would cause the average hourly (including overtime) wage rate to rise by about 0.8 percent.¹⁶ This would imply a 0.24 percent decline in total man-hours and, since hours had declined by 2.8 percent, an increase in employment of roughly 2.56 percent. Thus, the estimated maximum number of new jobs created falls by about 0.5 percentage points if one accounts for nonzero wage elasticities of demand.¹⁷ Of course, if a larger wage elasticity is more appropriate, the estimate of employment gain would be reduced accordingly.

Moonlighting. The employment gain estimates cited in table 6 also neglect supply-side responses of currently employed workers, who would simultaneously face an increase in the overtime premium and a reduction in their hours of work. One possible response is increased moonlighting at part-time jobs; this would further reduce the creation of new jobs for the unemployed.

Previous investigators have discounted the possibility that increased moonlighting would be a serious problem.¹⁸ Among the evidence relevant to this point is that there is currently very little moonlighting in the economy (less than 5 percent of all employed workers had second jobs in 1978), many moonlighters are individuals whose primary jobs

¹⁵ Daniel Hamermesh, "Econometric Studies of Labor Demand and Their Implications for Policy," *Journal of Human Resources* (Fall 1976): 507-25. It should be noted that virtually all of the studies he cites use man-hours as the measure of labor and fail to include nonwage labor costs in their analyses.

¹⁶ The percentage wage gain is given by $\{[40W + (2.0)(1.8)W]/41.8\} / \{[40W + (1.5)(3.0)W]/43\}$.

¹⁷ As Solomon Polachek notes in his conference comments, there is a certain inconsistency in the procedure we have used here. It clearly would be preferable to estimate hours/man and employment level equations together as part of a simultaneous system and then to derive the estimated employment effects directly from this system. Unfortunately, there exists no individual establishment data set which permits this, and as we noted in footnote 14, we are highly suspicious of the validity of the one interindustry study that attempted to do so.

¹⁸ See Department of Labor, *Premium Payments for Overtime*.

are in agriculture, and moonlighters tend to be employed in lower skill-level positions than their primary jobs; the latter reduces the attractiveness of moonlighting as a substitute for overtime.¹⁹

We would caution, however, that the small number of individuals currently holding second jobs is not indicative of the potential expansion in moonlighting that might occur if overtime hours were severely restricted. Between 1973 and 1978, roughly 27 percent of all wage and salary workers with only one job regularly worked more than forty hours a week.²⁰ If overtime were restricted, many of them might seek second jobs. Clearly, evidence on the overtime-moonlighting relationship is required.

Two recent studies have dealt with the effect of weekly hours of work on the moonlighting decision.²¹ Using their data, we can simulate the effects of a simultaneous reduction in overtime hours and increase in the overtime premium on both the probability of an individual's moonlighting and his or her average hours on the second job if moonlighting does occur. We have conducted such a simulation using Shishko and Rostker's estimates, and our analyses suggest that a simultaneous reduction in overtime hours of two hours per week and increase in the overtime premium to double time would lead to an increase of approximately 6 percent in moonlighting hours.²² Given that moonlighting is

¹⁹ See Carl Rosenfeld, "Multiple Jobholding Holds Steady in 1978," *Monthly Labor Review* 102 (February 1979): 59-61; and Scott Brown, "Moonlighting Increases Sharply in 1977," *Monthly Labor Review* 101 (January 1978): 27-30, for data on multiple job holding. See Jeffrey Perloff and Michael Wachter, "Work Sharing, Unemployment, and the Rate of Economic Growth," in *Work Time and Employment*, for analyses of the likely effects of moonlighting on work-sharing arrangements.

²⁰ George D. Stamas, "Long Hours and Premium Pay, May 1978," *Monthly Labor Review* 102 (May 1979): 41-45.

²¹ Robert Shishko and Bernard Rostker, "The Economics of Multiple Job Holding," *American Economic Review* 66 (June 1976): 298-308; and John F. Connell, "Multiple Job Holding and Marginal Tax Rates," *National Tax Journal* 32 (March 1979).

²² Details of our calculations are found in the appendix. We should note that neither of the published studies cited above is completely satisfactory in our view. They both assume that overtime hours of work on individuals' primary jobs are solely employer determined and that individuals do not have the right to refuse overtime. In fact, data from the 1977 *Quality of Employment Survey*, conducted by the Michigan Survey Research Center for the U.S. Department of Labor, indicate that for 44 percent of the workers in the sample who regularly worked overtime, it was "mostly up to the worker whether he or she works overtime" and for another 29 percent it was "mostly up to the employer, but the worker can refuse without penalty." Indeed, only for 16 percent was the decision solely up to the employer and could the worker not refuse overtime without a penalty (Robert Quinn and Graham Staines, *The 1977 Quality of Employment Survey: Descriptive Statistics* [Ann Arbor, Mich., 1977], pp. 90-91).

While these data may overstate the freedom that individual workers actually have in choosing overtime hours, they do suggest that the relationship between overtime hours and moonlighting is much more complicated than the models used in previous research suggest. Therefore, our estimate of the likely increase in moonlighting that would result from an increase in the overtime premium should be considered extremely tentative.

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in any case infrequent, our crude calculation suggests that increased moonlighting is unlikely to be a substantial deterrent to the employment creation effects of an increase in the overtime premium.

The Skill Distributions of the Unemployed and Those Who Work Overtime. The estimates of maximum employment gain cited in table 6 assume that the skill distributions of the unemployed and those who work overtime are sufficiently similar to permit all of the reduction in overtime to be converted into new full-time employment. That is, they assume that the skill mix of the unemployed does *not* constrain employers' employment-hours decisions.

Data are available on the occupational distributions of both the experienced unemployed and those working overtime for premium pay. We have tabulated these data for 1978 in table 7. At first glance, these data do not suggest that at the aggregate *one-digit* occupational level skill mismatches are likely to limit employment/hours substitution. Only for craftsmen and kindred workers and transportation operatives are the number of experienced unemployed in an occupation as low as 30 percent of the number working overtime (column 5). Since even the most optimistic estimates in table 6 suggests a maximum employment effect of 4 percent, one is tempted to conclude that the "skill-mix" problem is not a serious constraint.

Although these data are suggestive, one should not place too much faith in this conclusion. The use of aggregate one-digit occupational data may obscure more than it reveals. The range of narrow occupational categories within each broad category is enormous; for example, the craftsmen category includes bakers, carpenters, tailors, and stationary engineers. To draw any meaningful conclusions about potential "skill-mix" bottlenecks requires that analyses be performed at a more detailed occupational level. Moreover, the relevant question is how these narrowly defined skill distributions contrast at the local labor market level. Until such analyses are undertaken, one must remain agnostic about the likely biases due to the "mismatch" problem.

Indivisibilities. The maximum employment gain estimates ignore two types of indivisibilities. On the one hand, there are indivisibilities associated with an integrated team production process. Specialization and division of labor within an enterprise may give rise to time complementarities among workers and between workers and capital that prevent the substitution of additional employment for hours.²³ For example, a firm in a continuous process industry may regularly work its existing work force an average of two hours a week overtime by scheduling three

²³ Rosen, "Supply of Work Schedules," pp. 145-75.

TABLE 7
OVERTIME HOURS AND UNEMPLOYMENT, BY OCCUPATION, 1978

	Total Overtime Workers ^a (in thousands)	Total Unem- ployed	Share of Overtime Workers	Share of Unem- ployed	Ratio of Unem- ployed to Overtime Workers ^b
All occupations	8,141	6,047	—	—	0.74
White collar	2,412	1,717	0.30	0.28	0.72
Professional and techni- cal	676	381	0.08	0.06	0.56
Managers and administra- tors	449	214	0.06	0.04	0.48
Sales	201	256	0.03	0.04	1.27
Clerical	1,087	866	0.13	0.14	0.80
Blue collar	5,152	2,323	0.63	0.38	0.45
Craft and kindred	2,099	603	0.26	0.10	0.29
Operatives	1,908	960	0.23	0.16	0.50
Transporta- tion oper- atives	617	195	0.08	0.03	0.32
Nonfarm la- borers	527	566	0.06	0.09	1.07
Service workers	540	1,029	0.07	0.17	1.91
Farm workers	33	110	0.00	0.02	3.33
No previous expe- rience (new en- trants)	—	868	—	0.14	—

^a Number of full-time wage and salary workers who worked forty-one hours or more and received premium pay in May 1978.

^b Total unemployed divided by number working overtime in the occupation (column 2/ column 1).

SOURCES: Stamas, "Long Hours and Premium Pay," table 3, p. 43; and U.S. Bureau of Labor Statistics, *Employment and Earnings*, January 1979, table 11.

shifts of forty hours and one of forty-eight ($24 \times 7 = 168$ hours). If men/machine ratios are relatively fixed, at least in the short run, it would be difficult to substitute new *full-time* employment for hours in such an industry.

On the other hand, the employment estimates also ignore indivisibilities associated with establishment size. While a large establishment

may have the option of substituting one new full-time employee for twenty employees who each work two hours/week overtime, small establishments with only a few employees working overtime may not face such options. Following this line of reasoning, an increase in the overtime premium might induce a substitution of additional employment for overtime hours in large establishments; however, indivisibilities might prevent such substitutions in smaller establishments and result in those establishments' being placed at a relative cost disadvantage. If this were the likely outcome, one might consider making any increase in the overtime premium applicable only to establishments above a minimum size; historically there have been size class exemptions under various provisions of the FLSA for similar reasons.²⁴

One of us has, in fact, attempted to ascertain if the relationship between the use of overtime hours and the ratio of quasi-fixed nonwage costs to the overtime wage rate does vary across size classes of establishments.²⁵ For the *nonmanufacturing* industries, the relationship was fairly stable across all size classes of establishments within each major nonmanufacturing industry; small establishments appeared to face the same employment-hours trade-off as did large establishments.²⁶ The results for the manufacturing sector were quite different, however. For these industries, the marginal effect of an increase in the overtime premium on hours *did* vary across size classes of establishments within each two-digit industry. Moreover, there was no consistent pattern across industries in the way the magnitude and the statistical significance of the effect varied with establishment size. Indeed, in several cases, it was the *smallest* size classes of establishments for which the largest marginal effects were observed. Since the magnitude and statistical significance of the relationship between the use of overtime hours and the ratio of quasi-fixed nonwage costs to the overtime wage rate does not appear to vary across size classes of establishments in any systematic way across manufacturing industries, it would *not* appear reasonable to institute a set of size class exemptions for any increase in the overtime premium.²⁷

Compliance with the Overtime Pay Provisions. An additional reason why

²⁴ Exemptions for reason of size have declined over time.

²⁵ See Ehrenberg, *Fringe Benefits*, chaps. 5 and 6.

²⁶ In that study, establishments were grouped into eight size classes: fewer than 20 employees; 20-49; 50-99; 100-249; 250-499; 500-999; 1,000-2,499; and 2,500 or more employees.

²⁷ It is possible that the sample sizes used in the manufacturing industry analyses reported in Ehrenberg, *Fringe Benefits*, were too small (an average of 60 establishments per two-digit industry as compared to an average of 150 in each nonmanufacturing industry) to estimate precisely how the effects varied with establishment size. This is another area in which more research is needed.

the estimates presented in table 6 may *overstate* the magnitude of the increase in employment that would result from an increase in the overtime premium to double time relates to the issue of compliance with the overtime provisions of the FLSA. Although analyses of the effects of labor market legislation typically assume that legislation is fully complied with, noncompliance is always a potential problem.²⁸ Since an increase in the overtime premium would increase the amount employers save by *not* complying with the legislation, such an increase may well lead to a reduced compliance rate. This would moderate the actual decline in overtime hours and further reduce the positive employment effects of the legislation.

A number of data sources provide some information on compliance with overtime legislation. A U.S. Department of Labor compliance survey conducted in 1965 indicated that 30 percent of establishments in which overtime was worked were in violation of the overtime provisions of the FLSA and 5.9 percent of the employees working overtime were not paid in accordance with the overtime provisions (see table 8). More recently, Labor Department investigations in FY 1977 of complaints of violations under the FLSA found a greater dollar volume of violations of the overtime pay provisions than they did of the minimum wage provisions.²⁹ Finally, data from the annual May supplements to the *Current Population Surveys* indicate that between 1973 and 1978 less than 43 percent of full-time wage and salary workers who worked forty-one or more hours a week at one job reported receiving premium pay.³⁰ While many of these individuals may work in noncovered employment, these data do suggest that noncompliance with the overtime premium provisions may be a serious problem.³¹

Knowledge of the correlates of noncompliance is important for policy makers. Such information can serve as a guide to the allocation of the limited resources the government has to ensure compliance. Moreover, if noncompliance is found to be widespread, policy makers may decide to push for an increase in the resources devoted to compliance investigations and also for an increase in the penalties for noncompliance. Finally, information on the relationship between compliance and individuals' wage rates may shed some light on the question whether

²⁸ Orley Ashenfelter and Robert S. Smith, "Compliance with the Minimum Wage Law," *Journal of Political Economy* 87 (April 1979): 333-50.

²⁹ Department of Labor, *Premium Payments for Overtime*. These data refer to fiscal year 1967.

³⁰ Stamas, "Long Hours and Premium Pay," p. 41.

³¹ Of course, as table 1 indicates, only 58 percent of all wage and salary workers are covered by the overtime provisions of the FLSA. Since one may reasonably conjecture that noncovered workers are more likely to work overtime, these data should be considered only suggestive.

TABLE 8
VIOLATION OF OVERTIME PROVISIONS OF THE FLSA, 1965
 (percent)

<i>Category</i>	<i>Establishments in Violation^a</i>	<i>Workers Not Paid in Accordance with Provisions for Overtime Hours^b</i>
All industries	30	5.9
Manufacturing	26	3.6
Food and tobacco	37	8.1
Textiles, apparel, and leather	24	3.3
Lumber and furniture	30	3.6
Paper, printing, and publishing	25	3.6
Chemicals, petroleum, rubber	27	9.6
Stone, clay, and glass	27	4.4
Metals and metal products	22	1.7
Miscellaneous manufacturing	19	3.1
Nonmanufacturing	32	9.8
Mining	26	7.0
Construction	29	8.2
Transportation, communications, and utilities	17	4.5
Wholesale trade, food and farm products	37	11.7
Wholesale trade, all other	40	15.2
Retail trade	47	10.8
Finance and insurance	27	11.7
Real estate	37	39.2
Business service	29	8.9
Other industries	46	10.7
All regions	30	5.9
Northeast	22	3.3
South	37	9.5
Middle West	29	4.3
West	30	7.6
All sizes of establishments	30	5.9
Fewer than 10 employees	31	24.9
10-19 employees	38	10.9
20-49 employees	33	11.1
50-99 employees	28	4.7
100 or more employees	25	2.6

^a As a percentage of all establishments in which overtime was worked.

^b As a percentage of all employees working overtime.

SOURCE: Author's calculations, based on data from U.S. Department of Labor, Wage and Hour and Public Contracts Division, *1965 Compliance Survey* (Washington, D.C., 1966), tables 9, 10, 11, 17, and 18.

increasing the overtime premium will lead to a reduction in the compliance rate.

Orley Ashenfelter and Robert S. Smith have recently presented and estimated a model of compliance with the minimum wage.³² We are now building and estimating a similar model for the overtime pay provisions of the FLSA. Although we have not yet developed a complete formal model, several of the factors likely to influence compliance seem obvious. For example, compliance is probably greater in unionized establishments, in situations where workers have permanent attachment to a firm, in noncompetitive industries where employers can pass cost increases on to consumers in the form of higher prices, in situations where workers have better knowledge of their rights (perhaps higher education levels), and in areas where labor markets are tight (low unemployment) and employers are trying to retain employees. The estimates we ultimately obtain should provide some information on whether noncompliance would seriously reduce the employment-creation effects of an increase in the overtime premium.

Compensating Wage and Fringe Benefit Adjustments. The final problem with the employment gain simulations reported in table 6 is that they ignore the possibility that an increase in the overtime premium may lead to compensating adjustments in straight-time wages or fringe benefits.³³ For example, suppose that firms and their employees are initially in an equilibrium situation in which overtime hours are regularly scheduled. Now from employers' perspectives, one plausible response to a legislated increase in the overtime premium is for them to attempt to reduce the level (or rate of growth) of straight-time wages and fringe benefits. If they are successful and the total compensation of workers for the initial equilibrium level of hours (including overtime) remains the same as it would have been in the absence of the legislated change, one may argue that employers would have no incentive to reduce their use of overtime hours.

This argument is simplistic. From the employer's perspective what is relevant in the determination of overtime hours is not the overall level of labor costs but rather the ratio (R) of quasi-fixed weekly labor costs per employee (F) to the overtime wage rate (WP), the product of the straight-time wage (W) and the overtime premium (P):

$$R = F/WP \quad (2)$$

³² Ashenfelter and Smith, "Compliance with the Minimum Wage Law."

³³ This section was "provoked" by stimulating comments from Gregg Lewis and Finis Welch. Our conclusions here are strictly our own, however, and do not reflect their views.

The simulations reported in table 6 assume that an increase in P induces no change in either W or F . What is certainly true is that if a compensating decline in straight-time wages occurs, the decline in R will be smaller and the resulting decrease in hours and increase in employment smaller in absolute value than the simulations reported in table 6. However, as equation (2) indicates, a compensating decline in the quasi-fixed costs, F , would cause the actual decline in R to be larger, and the resulting decrease in hours and increase in employment would be larger in absolute value than the simulations indicate, *ceteris paribus*. Thus, one cannot predict a priori what the direction of the bias is here; it depends upon the extent, if any, to which compensating adjustments occur in both straight-time wages and fringe benefits.

Evidence on the magnitudes, if any, of these compensating adjustments is required before one can conclude that their omission substantially biases the estimated employment gains that would result from increasing the overtime premium. As part of our research, we will attempt to use the *Employer Expenditure for Employee Compensation* data to test whether an inverse relationship exists across establishments between straight-time wage and fringe benefit and the magnitude of the overtime premium, *ceteris paribus*. Unfortunately, cross-section variations in the overtime premium are due both to collective bargaining agreements and to differences in coverage under the FLSA; this may make it difficult to distinguish the effects of legislated and collectively bargained differences in the premium.³⁴

Should the Overtime Provisions of the FLSA Be Amended?

Previous studies have demonstrated that, across establishments, a strong positive relationship exists between the use of overtime hours and the ratio of weekly nonwage labor costs per employee to the overtime wage rate. They suggest that an increase in the overtime premium to double time would substantially reduce the use of overtime hours if compliance with the legislation did not change and if straight-time wage rates were not affected. Moreover, to the extent that the reduction in hours could be converted into new full-time employment, such a change in the leg-

³⁴ It seems somewhat ironic that for years researchers have analyzed the employment effects of minimum wage changes without considering the possibility that there might be none because firms may respond to an increase in the minimum wage by reducing nonwage forms of compensation for low-wage workers. Of course, one might argue that there is no room for an increase in the minimum wage to reduce other forms of compensation that low-skill workers receive, because such compensation is already close to zero. Nevertheless, we believe that this too remains an empirical issue. For a more detailed discussion of this point, see Walter Wessels, "The Effects of Minimum Wages in the Presence of Fringe Benefits: An Expanded Model," *Economic Inquiry* (forthcoming).

islation has the potential to increase employment by several percentage points. However, whether this increase in employment would actually occur and whether the new jobs would go to currently nonemployed individuals are another matter. We have discussed a number of factors that might reduce the job creation aspects of the proposal; they include nonzero wage elasticities of demand for labor, the possibility of increased moonlighting, the similarity or lack of similarity between the skill distributions of the unemployed and of those who work overtime, indivisibilities associated with integrated team production processes and with establishment size, the possibility of increased noncompliance with the legislation, and the possibility that compensating variations in straight-time wages might occur. We have documented the available evidence on these points wherever possible. In a number of cases the evidence is simply nonexistent or too incomplete to make reasoned judgments, however. We plan to undertake empirical research on several of the areas during the next year and will reserve our final judgments about the wisdom of increasing the overtime premium until our research is completed. Nevertheless, we can offer a number of general conclusions at this time.

First, we would emphasize that even if one ultimately can show that increasing the overtime premium would lead to a substantial increase in employment of individuals who were initially not employed, it does *not* necessarily follow that the policy should be implemented. Presumably other policies, such as the use of marginal employee tax credits, could accomplish the same goal.³⁵ However, the distribution of costs associated with the two types of legislation would be different. In the former case, the costs would be borne by consumers of products produced in industries where overtime was worked (higher prices), owners of these industries (lower profits), and employees (less overtime, but at higher pay). In the latter case, the costs would be borne primarily by taxpayers and consumers in general, in the form of higher taxes to fund the deficit induced by the tax credit and/or higher rates of inflation. In general, we need benefit/cost analyses of the alternative policies designed to accomplish a given objective (such as these two), not merely evidence that a single policy option will have a postulated impact.

Second, as discussed earlier, an overtime pay premium may be thought of as a tax to make employers bear the full marginal social cost of their hours decisions. In the premium's absence their calculations ignore the costs borne by society because of unemployment. It does *not* necessarily follow, however, that the revenue that would accrue from

³⁵ See Robert Eisner, "Employment Taxes and Subsidies," in *Work Time and Employment*.

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any increase in the "tax" should be distributed to employees in the form of higher premium pay for overtime. Indeed, over the years several proposals have suggested that the revenue from any increase in the "tax" on overtime go directly to the unemployed, in the form of contributions either to the unemployment insurance fund and/or to employment and training program budgets.³⁶ Such proposals make a good deal of sense to us. Unless it can be demonstrated both that market imperfections prevent existing employed workers from freely choosing the length of their workweeks *and* that the existing overtime premium does not fully compensate these workers for the disutility associated with long workweeks, then no increase in the premium paid to employees is justified. One can thus logically be in favor of raising the "tax" paid by employers when they use overtime hours but *not* in favor of raising the overtime premium paid to employees.

Finally, one may more generally ask why the FLSA regulates only two dimensions of the hours relationship, the number of hours after which the premium goes into effect and its level, and whether the legislation should be extended to other dimensions? In their legislation, several European countries require either prior governmental approval for overtime and/or that employees give their consent to working overtime.³⁷ The bill to amend the FLSA (H.R. 1784), introduced into Congress on February 1, 1979, by Congressman Conyers, contained a similar provision that would prohibit mandatory assignment of overtime.

As noted earlier, a common rationale for many forms of protective labor legislation is that they are attempts to correct for failures of private markets. These failures may occur for a variety of reasons, including market imperfections that limit workers' choices and cause a divergence between private and social costs. Legislation regulating overtime hours can easily be analyzed in this framework, for even if both employers *and* their employees were satisfied with long workweeks and no premium pay for overtime, their private calculations ignore the social costs of unemployment. An overtime premium can be thought of as a tax that attempts to make employers bear the full marginal social cost of their decisions about work hours. Its intent (as with all marginal taxes) is to reduce the use of overtime hours and stimulate employment growth.

³⁶ See Department of Labor, *Premium Payments for Overtime*, Washington, D.C., 1967. More recently Kenneth Morris, representing the United Auto Workers, argued in favor of paying part or all of the additional premium into the unemployment insurance fund. See U.S. Congress, House of Representatives, Subcommittee on Labor Standards of the Committee on Education and Labor, *Hearings on H.R. 1784*, 96th Congress, 2d sess., 1980, pp. 41-49.

³⁷ See National Board for Prices and Incomes, *Hours of Work, Overtime and Shiftwork*, report no. 161 (London, 1970), pp. 42-49 and supplements, pp. 92-116. Employee consent to overtime is required in both Belgium and the Netherlands.

The payment of the premium directly to *employed* workers is justified in this framework if market imperfections prevent workers from freely choosing their desired workweeks and force them to work "excessively" long hours. The payment is then seen as an attempt to reduce their disutility from long workweeks.

Proposals to legislate prohibitions against mandatory overtime, such as Congressman Conyers's, can be viewed in this context as being based upon the belief that market imperfections persist in the labor market and that the overtime premium does *not* fully compensate employees for mandatory overtime. One may, however, question if markets have failed here. As noted earlier, for only 16 percent of the individuals who worked overtime in the 1977 *Quality of Employment Survey* was the overtime hours decision made unilaterally by their employer and was overtime mandatory (in the sense that employees who refused it suffered a penalty).³⁸ Moreover, roughly 20 percent of employees covered by major collective bargaining agreements in 1976 had explicit provisions in their contracts that gave them the right to refuse overtime (table 9). (Over 50 percent of the workers covered by this provision were in the transportation equipment industry, however.)

To the extent that labor markets are competitive and establishments offer a variety of overtime hours provisions (that is, employer determines, employee determines, penalty for refusal, etc.), an unabashed neoclassical economist would argue that compensating wage differentials should arise. That is, establishments which offered "distasteful" mandatory overtime provisions would have to pay higher *straight-time* wages to attract labor than establishments in which such provisions did not occur. If fully compensating wage differentials exist, no case for legislated prohibitions against mandatory overtime is present.

As with most problems in economics, the case for or against such prohibitions can *not* be decided at the theoretical level. Rather, empirical evidence is needed on the extent to which employees are or are not compensated, in the form of higher straight-time wage rates, for being required to work overtime. Once this evidence is available, policy makers can debate whether the estimated wage premiums are sufficient or a legislated prohibition on mandatory overtime is required. In future research we plan to use data from the 1977 *Quality of Employment Survey* to estimate the extent to which the various overtime assignment provisions (employee choice, employer assignment, penalty for refusal, etc.) are currently associated with market wage differentials. We intend to estimate wage equations from these survey data, including the various assignment provisions as explanatory variables. Our analyses will at-

³⁸See footnote 22 above.

TABLE 9
OVERTIME PROVISIONS IN MAJOR COLLECTIVE BARGAINING
AGREEMENTS, JULY 1, 1976

	<i>Number of Agreements</i>	<i>Workers Covered</i>
Total number of agreements	1,570	6,741,750
Daily overtime provisions	1,393	6,069,750
Time and one-half	1,243	5,552,000
Double time	105	350,800
After 8 hours/day	1,268	5,266,650
Weekly overtime provisions	997	4,393,750
Time and one-half	942	4,222,300
Double time	33	106,450
After less than 40 hours/week	54	209,350
Overtime outside regularly scheduled hours	570	2,153,300
Graduated overtime rates	370	1,518,350
Equal distribution of overtime	661	2,832,700
Right to refuse overtime*	280	1,346,650
Premium pay for weekends	1,430	6,070,400
Saturday not part of regular workweek	880	3,741,400
At more than time and one-half	171	533,400
Sunday not part of regular workweek	1,211	5,136,200
At more than time and one-half	871	3,461,550
Saturday part of regular workweek	39	104,400
Sunday part of regular workweek	193	1,545,850

* Over 50 percent of the workers covered by this provision are in the transportation equipment industry.

SOURCE: U.S. Bureau of Labor Statistics, Bulletin 201, *Characteristics of Major Collective Bargaining Agreements, July 1, 1976* (Washington, D.C., February 1979).

tempt to "correct" for the possibility that individuals with preferences for long hours of work are attracted to firms which offer "mandatory overtime provisions" by using techniques described by Heckman.³⁹ The problem here is to correct for sample selection bias; wage premiums may not be reflected in the "uncorrected" data if workers with preferences for longer hours of work systematically seek out firms which expect their employees to work overtime and thus have "mandatory" overtime provisions.

We hope such analyses will provide policy makers with useful information on this issue. Our discussion has neglected the whole issue of what should determine whether a particular condition of employment

³⁹ James Heckman, "Sample Bias as a Specification Error," *Econometrica* 47 (January 1979): 153-61.

is determined through collective bargaining and/or through government intervention. Given the incomplete collective bargaining coverage in the United States, if market imperfections do occur, a case for potential government intervention is usually present. In the absence of such information, we would be extremely reluctant to support legislated prohibitions against mandatory overtime.

Appendix: Simulations on the Effect of a Simultaneous Increase in the Overtime Premium and Reduction in Overtime Hours

Robert Shishko and Bernard Rostker specify a model of the form:

$$h_m = a_0 + a_1 W_m + a_2 W_p + a_3 h_p + a_4 I + \bar{a}_2 \bar{X} + \varepsilon \quad (A1)$$

where:

h_m = weekly hours on second job

W_m = hourly wage rate on the second job

W_p = hourly wage rate on the primary job

h_p = weekly hours on the primary job

$I = (W_m - W_p)h_p$ for Specification A

$I = W_p h_p + Z$ for Specification B

Z = labor income earned by members of the family other than the head of the household

\bar{X} = a vector of descriptive variables including age and family size

ε = an error term

Since the distribution of moonlighting hours is truncated at zero hours, Shishko and Rostker utilize Tobit analyses. If, for expositional convenience, we place all of the explanatory variables in a vector X , the mode may be written:

$$h_m = \bar{a}' \bar{X} + \varepsilon$$

Now in the Tobit model, a change in any of the predetermined variables, say X_k , is given by:

$$\frac{\delta h_m}{\delta X_k} = a_k \Phi\left(\frac{\bar{a}' \bar{X}}{\sigma}\right) \quad (A2)$$

where a_k is the coefficient of X_k and $\Phi(\cdot)$ is the cumulative normal density function.⁴⁰ Similarly, the elasticity is given by:

$$\frac{\delta h_m}{\delta X_k} \cdot \frac{X_k}{h_m} = \frac{a_k X_k \Phi(\bar{a}' \bar{X} / \sigma)}{h_m} \quad (A3)$$

⁴⁰ More precisely, $[\delta E(h_m | X)] / \delta X_k = a_k \Phi(a' X) / \sigma$. This is *not* conditional on h_m . It represents the behavioral response of the "average individuals" being greater than zero.

OVERTIME PAY PROVISIONS

Shishko and Rostker report in their table 3 elasticity estimates for all of their variables. For our purposes, the important elasticities $[(\delta h_m / \delta X_k)(X_k/h_m)]$ are:

Predetermined Variable	Specification A	Specification B
W_p	-0.126	-0.862
h_p	-1.406	-1.255
I	0.074	-0.175

Clearly, the percentage change in moonlighting hours for any specified percentage change in each of these predetermined variables can be approximated by:

$$\begin{aligned} \% \Delta h_m = \frac{\Delta h_m}{h_m} = & \left(\frac{\delta h_m}{\delta W_p} \cdot \frac{W_p}{h_m} \right) \cdot \frac{\Delta W_p}{W_p} \\ & + \left(\frac{\delta h_m}{\delta h_p} \cdot \frac{h_p}{h_m} \right) \cdot \frac{\Delta h_p}{h_p} + \left(\frac{\delta h_m}{\delta I} \cdot \frac{I}{h_m} \right) \cdot \frac{\Delta I}{I} \quad (\text{A4}) \end{aligned}$$

Since the terms in parentheses are the elasticities tabulated above, all that remains to be indicated is the percentage changes in W_p , h_p , and I induced by a change in the overtime premium.

Now suppose that weekly hours on an individual's primary job fall from forty-four hours per week to forty-two when the overtime premium increases from time and one-half to double time. Define the mean wage on the primary job as:

$$\begin{aligned} \bar{W}_p = & [(\text{regular hours}) (\text{regular wages}) \\ & + (\text{overtime hours}) (\text{overtime premium}) (\text{regular wage})] \\ & \div [(\text{regular hours}) + (\text{overtime hours})] \quad (\text{A5}) \end{aligned}$$

If the overtime premium goes into effect after forty hours per week, then since the mean value of the straight-time primary wage in Shishko and Rostker's sample is \$3.77, we have:

$$\bar{W}_p^0 = \frac{(40)(3.77) + (4)(1.5)(3.77)}{44} = \frac{173.42}{44} = \$3.9414$$

$$\bar{W}_p^1 = \frac{(40)(3.77) + (2)(2)(3.77)}{42} = \frac{165.88}{42} = \$3.9495$$

Next consider the interaction terms. Under specification A, we have (making use of the fact that the mean value of the moonlighting wage is \$3.40):

$$\begin{aligned}
 I_A^0 &= (W_m^0 - W_p^0)h_p^0 \\
 &= (3.40 - 3.9495)(44) = -24.18 \\
 I_A &= (3.40 - 3.9495)(42) = -23.08
 \end{aligned}
 \tag{A6}$$

Under the assumption that labor income earned by others in the household does not change, the analogous values of the interaction term under specification B are:

$$\begin{aligned}
 I_B^0 &= W_p h_p + Z \\
 &= (3.9414)(44) + Z = 173.42 + Z \\
 I_B &= (3.9495)(42) + Z = 165.88 + Z
 \end{aligned}
 \tag{A7}$$

Thus, the relevant percentage changes⁴¹ to be used are:

$$\begin{aligned}
 \frac{\Delta h_p}{h_p} &= \frac{42 - 44}{44} = -4.545\% \\
 \frac{\Delta W_p}{W_p} &= \frac{3.9495 - 3.9414}{3.9414} = 0.206\%
 \end{aligned}
 \tag{A8}$$

$$\frac{\Delta I_A}{I_A} = \frac{(-23.08) - (-24.18)}{-24.18} = -4.549\%$$

$$\frac{\Delta I_B}{I_B} = \frac{165.88 - 173.42}{173.42} = -4.348\%$$

Substituting (A8) and the parameters for specification A and B into (A4), the percentage change in moonlighting hours under specification A is given by:

$$\begin{aligned}
 \% \Delta h_m &= (-0.126)(0.206) + (-1.406)(-4.545) \\
 &\quad + (0.074)(-4.549) = 6.03\%
 \end{aligned}
 \tag{A9}$$

and that under specification B:

$$\begin{aligned}
 \% \Delta h_m &= (-0.862)(0.206) + (-1.255)(-4.545) \\
 &\quad + (-0.175)(-4.549) = 6.32\%
 \end{aligned}
 \tag{A10}$$

⁴¹Note that this is an approximation since the exact term for $\Delta I_B/I_B$ is given by:

$$\frac{\Delta I_B}{I_B} = \frac{(165.88 + Z) - (173.42 + Z)}{173.42 + Z} = \frac{165.88 - 173.42}{173.42 + Z}$$

Unfortunately, the mean value of Z in the sample was not reported. The approximation used above assumed that $Z = 0$. Thus, $\Delta I_B/I_B = -4.348$ percent represents an upper bound. To obtain a lower bound, let Z approach infinity. This implies that $\Delta I_B/I_B$ is close to zero, and that a lower bound for the percentage change in moonlighting hours under specification B is:

$$\% \Delta h_m = (-0.862)(0.206) + (-1.255)(-4.545) = 5.53\%$$

Taken together, they suggest that our best estimate is that the simultaneous increase in the overtime premium and the reduction in overtime hours would increase moonlighting hours by approximately 6 percent.

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