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# Short-Time Work in the United States: Implications for Evaluation of Short-Time Compensation Schemes

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# 10

## **Short-Time Work in the United States**

### **Implications for Evaluation of Short-Time Compensation Schemes**

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Abraham and Houseman's (1993, 1994) calls for a systematic reorganization of U.S. job security policies have again drawn attention to reduced-hours employment—financed through short-time compensation (STC)—as an alternative to layoffs. Under STC,<sup>1</sup> workers receive partial unemployment insurance (UI) benefits as compensation for reduced working hours. While STC programs are widely used in countries such as Belgium, Canada, France, and Germany, in the United States they have been available in only 18 states, and the usage rates are very low (Vroman 1990, 1992).<sup>2</sup>

The literature typically assumes that workers receiving STC are not drawn from the pool of those who would have had their hours reduced anyway, even without an STC program. Such reduced-hours employment with no offsetting compensation is called short-time work (STW). There has been virtually no discussion of the role of STW in evaluating STC programs in the existing literature. This chapter analyzes the incidence of STW in the United States for 1968–1993 and the potential implications for evaluating the impact of STC programs.

Conventional wisdom holds that STW is not widely used in the United States. Yet the answer depends on the measure of STW used. In terms of incidence per worker, STW use is fairly widespread: the STW rate ranges from about 50 to 70 percent of the layoff rate.<sup>3</sup> However, in terms of total hours adjustment, the STW rate is dwarfed by the layoff rate.

The main implication for STC program evaluation is that widespread expansion of STC programs is most likely to benefit workers already on or subject to STW, not necessarily workers on or subject to layoffs. There is not necessarily anything wrong with this conclusion. Just as the UI system was established to provide consumption insurance to workers subject to employment shocks, STC programs could be expanded to insure STW workers against partial employment shocks. However, this aspect of STC has not been a focus of previous authors, who instead have concentrated on the spillover effects of STC on layoffs.

The chapter is organized as follows: the next section discusses the existing literature on STC and related evidence on employment adjustment using layoffs versus hours; the following section presents the empirical evidence that STW is already widely used in the United States with particular attention paid to the prevalence of STW in STC and non-STC states; and the last section concludes the chapter.

## **SHORT-TIME COMPENSATION AND SHORT-TIME WORK**

Unemployment insurance was conceived as a program to insure workers' consumption against unexpected employment shocks. It was presumed that the beneficiaries would be people who would suffer an unemployment spell regardless of whether there was a UI payment system. However, an extensive literature has highlighted an unintended side effect of the UI system in the absence of perfect experience rating: workers get laid off who would otherwise have remained employed because UI payments offer an implicit subsidy to layoffs (Hamermesh 1993, pp. 307–315). Many authors have attempted to measure the number of "excess" layoffs created by imperfect experience rating. Approximately 20–40 percent of temporary layoffs are in this category (Topel 1983; Card and Levine 1994; Anderson and Meyer 1994). This figure is substantial and has implications for potential overuse of STC, as discussed below. However, the pertinent observation for this section is that a majority of UI claimants would have been laid off even in the absence of a UI program. This suggests that the primary beneficiaries

of STC programs are likely to be people who would be put on STW even in the absence of an STC program.

There are three pools of workers from which STC-compensated employees can be drawn. Each group is denoted by the state in which they would have been in the absence of an STC program: workers who are laid off in response to a demand shock, workers whose hours are not adjusted at all, and workers whose hours are cut back. The prevalent view in the literature is that only the first and second groups of workers are tapped for inclusion in STC programs:

[S]hort time compensation (STC) represents an alternative to layoffs as a way for firms to reduce labor inputs in periods of slack demand. Currently the standard procedure for reducing work hours is to lay off the least senior employees. This action concentrates the reduction in hours narrowly among a small number while leaving other workers unaffected. An alternative procedure for reducing labor input is to retain all employees by reducing weekly hours for a much larger fraction of the firm's work force. (Vroman 1990, p. 71)

Little mention is made of the existence of STW in the absence of STC, particularly by those advocating STC programs. One exception is Hamermesh (1978, pp. 249–250), who noted that

While the subsidy [STC] will to some extent encourage the expansion of the activity that is subsidized [STW], it will also reward those economic agents—in this case firms and workers—that would engage in the subsidized activity even in the absence of the subsidy. Because of this windfall much of the payment for short-time work under any STC scheme cannot result in increased employment, but is instead a transfer from those whose taxes exceed their receipts from STC to those for whom the opposite is true.

The vast majority of authors since Hamermesh have simply ignored this issue. One of the lone exceptions is Best (1981, p. 96), who dismisses Hamermesh's critique, stating that

[T]he incidence of such workweek reduction [STW] appears to be low in the United States and commonly smaller than the 10 percent threshold reduction of worktime required before employees are eligible to receive benefits.

In support of this conclusion, Best cites only one source, Henle (1978, p. 267), who stated that “the evidence seems to indicate that the prevalence of such work sharing arrangements is quite limited.” This conclusion was based on union contract data showing that about 20 percent of contracts provided for hours reductions in the face of slack work, and that such provisions were generally not utilized. However, this was the full extent of statistics provided to support these conclusions.<sup>4</sup> Moreover, because unionized workers account for only a minority of the workforce, Best’s dismissal of the importance of STW is clearly premature without additional evidence for nonunionized workers.

Bednarzik (1980), the only other author to analyze the incidence of STW, tracked the aggregate STW rate for 1956–1979. However, the only comparison made with other aspects of the labor market was the aggregate unemployment rate. This created the impression that STW is relatively underutilized because the unemployment rate is many times larger than the STW rate. The proper comparison for an STC evaluation is STW versus layoffs, because both represent employer-initiated changes in hours in response to demand shocks. Moreover, layoffs typically account for only about 15 percent of unemployment in any given year (Economic Report of the President 1996). As shown below, the incidence of STW in fact is often comparable to the incidence of layoffs.

## **EMPLOYMENT VERSUS HOURS ADJUSTMENT**

It has long been recognized that fixed costs of hiring and firing workers inhibit a firm from using employment adjustment as the only way to adjust total labor input (Oi 1962). Consequently, in the short run firms adjust hours per worker as a substitute for adjusting the number of workers (Rosen 1968; Fair 1969; see Caballero et al. 1995 for a recent example using data from individual manufacturing plants).

Previous research has directly compared employment and hours adjustment for the United States versus other countries that have much more liberal STC provisions (Abraham and Houseman 1993; Van Audenrode 1994). Both Abraham and Houseman and Van Audenrode

found that the adjustment of total hours in the United States is done more through employment than through average hours per worker. Both studies concluded that the relative lack of a generous STC subsidy plays a role in this: U.S. firms use employment adjustment relatively more than hours adjustment presumably because the former are more heavily subsidized. However, Van Audenrode suggested that a reduced reliance on layoffs would occur only if the proportionate subsidy to STC exceeded that for layoffs. Abraham and Houseman advocated an expansion of STC at the same time that experience rating for layoff UI benefits is tightened. Thus, both studies did not presume that simple changes to STC alone would necessarily reduce firms' reliance on layoffs.

These authors' hesitance to advocate expansion of STC as the only way to shift labor adjustment away from layoffs is well-founded. In particular there are both institutional and mechanical differences between labor markets across different countries. Though STW may be used relatively more in countries with more liberal STC, such a correlation is not proof that changes in STC provisions would produce a similar reliance on STW in the United States. In particular, tighter experience rating of UI alone might eliminate the excess reliance on layoffs without the need for a generous STC subsidy. This is precisely the point made by Burdett and Wright (1989), who show that an STC subsidy leads to an inefficient number of hours per worker.

The reliability of cross-country comparisons such as those above are also limited by the nature of shocks that hit particular industries. Aggregate net employment changes mask much larger offsetting flows through gross job creation and destruction. In particular, there are large differences in job reallocation rates between countries (Davis, Haltiwanger, and Schuh 1996, p. 21). It is naive to presume that such cross-country differences can be fully explained by parameters of UI and STC alone. They undoubtedly arise due to differences in a host of factors such as country size, population and industrial concentration, internal migration patterns, barriers to entry for new businesses, merger and takeover rules, bankruptcy laws, union organizing laws, the demographic makeup of the labor force, societal differences in between-job mobility, welfare system influences on work behavior, overtime pay rules, etc.<sup>5</sup>

Limiting the analysis to nominally comparable, narrowly defined industries (as do Abraham and Houseman 1993) does not negate the role of these other factors that affect the ability and preferences of individual firms to adjust labor input. Abraham and Houseman (1994) partially address this issue by analyzing the effect of weakening employment security laws in Germany, France, and Belgium. They find that such changes—which presumably decreased the costs of layoffs—did not measurably increase reliance on employment (over hours) adjustment in those countries. While informative, such evidence is not proof that expanding STC coverage in the United States would increase reliance on hours adjustment. If anything, their results suggest that such an expansion could easily have no measurable impact on the use of layoffs.

Thus, there is a clear need to analyze the use of STW in the United States as a way of predicting the impact of STC programs. Such an analysis is better than cross-country comparisons of employment versus hours adjustment because a vast majority of between-country differences in other factors are held constant for a within-country analysis. Moreover, the data used here allow the identification of hours reductions below usual hours worked.<sup>6</sup> They also allow the identification of employment adjustment through layoffs. Both of these are more accurate measures of the relevant margins on which firms actively decrease labor input than measures such as the relative usage of total hours adjustment versus total employment adjustment (which include both increases and decreases in labor input). In particular, the latter measures include labor turnover that occurs through hiring and voluntary separations, which are important components of labor adjustment but are not of primary importance for predicting firms' responses to changes in layoff versus STW subsidies.

## **THE USE OF STW IN THE UNITED STATES**

The data used for this study are drawn from two different sets of Current Population Survey (CPS) data: the 1968–1993 March Annual Demographic Files, and the 1979–1993 Outgoing Rotation Group Files (for all 12 months in the year). The sample was limited to wage and

salary workers age 16 and older. A worker is defined to be on STW if 1) the total number of hours worked during the survey week (at all jobs) are less than 35, 2) usual hours are greater than 35, and 3) the reason given for working less than 35 hours during the survey week is slack demand, material shortage, or plant/machine repair. Bednarzik (1980) included only those who indicate slack work in his measure of STW. I include the other two because they also represent employer-initiated hours reductions, which could be induced by demand shocks. Regardless, these two categories consistently account for less than 10 percent of STW, so excluding them would not substantively alter any of the conclusions.

The analysis covers data through 1993 because data for 1994 and after are not directly comparable. The U.S. Bureau of Labor Statistics (1994) introduced a major redesign of and improvement to the CPS in 1994, making comparisons with earlier years problematic. A full reconciliation of the STW rates for 1993 and earlier compared with 1994 and later is beyond the scope of this study. However, one important difference should be noted. During 1993, the U.S. Bureau of Labor Statistics administered both the old and new versions of the CPS. This allowed for a single year comparison of differences in the measured levels of layoffs and STW.

People on STW are a subset of those who usually work full time yet are part time during the survey week. According to the new, more accurate survey, the actual level of this larger category of “temporary” part-time workers—of which STW is a subset—is 25 percent lower than recorded in the old survey. In contrast, the actual level of layoff unemployment is 10 percent higher (U.S. Bureau of Labor Statistics 1994). Unfortunately, there is no way to determine definitively whether these biases in the old measures (the ones used in the present study) were consistent over time. However, there is no particular reason to believe they were not consistent. Regardless, the reader should keep in mind the biases while reviewing the empirical evidence below.



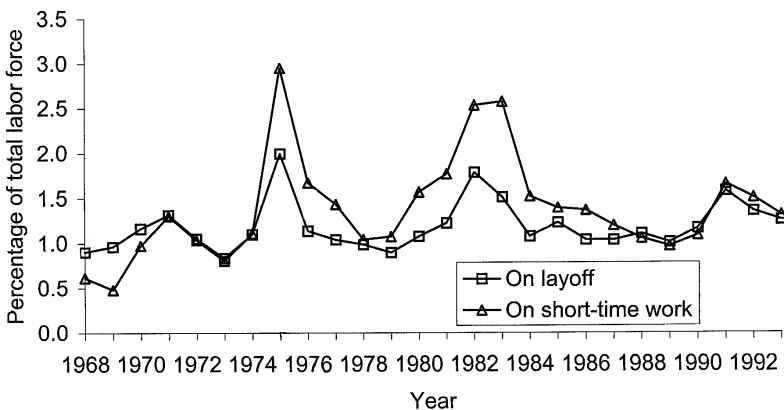
## CYCLICAL PATTERNS

Figure 1 graphs the rates of STW and layoffs for 1968–1993 using the March data. Throughout the chapter, the STW and layoff rates are calculated using the same base for the labor force: all those employed or on layoff. People unemployed for reasons other than layoff are excluded from the analysis.<sup>7</sup>

The incidence of STW in Figure 1 is comparable to layoffs; the layoff rate is appreciably higher only during the 1970s and early 1980s recession years. Throughout the most recent recession, the STW and layoff rates were virtually identical. Adjusting for the biases mentioned above would raise the layoff rate by 10 percent and lower the STW rate by 25 percent. Accounting for this, the true STW rate is approximately 50 to 70 percent of the layoff rate. The use of STW is concentrated in industries such as construction that heavily use layoffs, as shown in Table 1.

While the incidence of STW is comparable to layoffs, total hours adjustment is comparable only to short-term layoffs. This can be seen in Figure 2, which graphs the incidence of STW and layoffs in the top panel (as a fraction of employment), and the percentage of total hours

**Figure 1 The Incidence of Layoffs and Short-Time Work for Entire Labor Force**



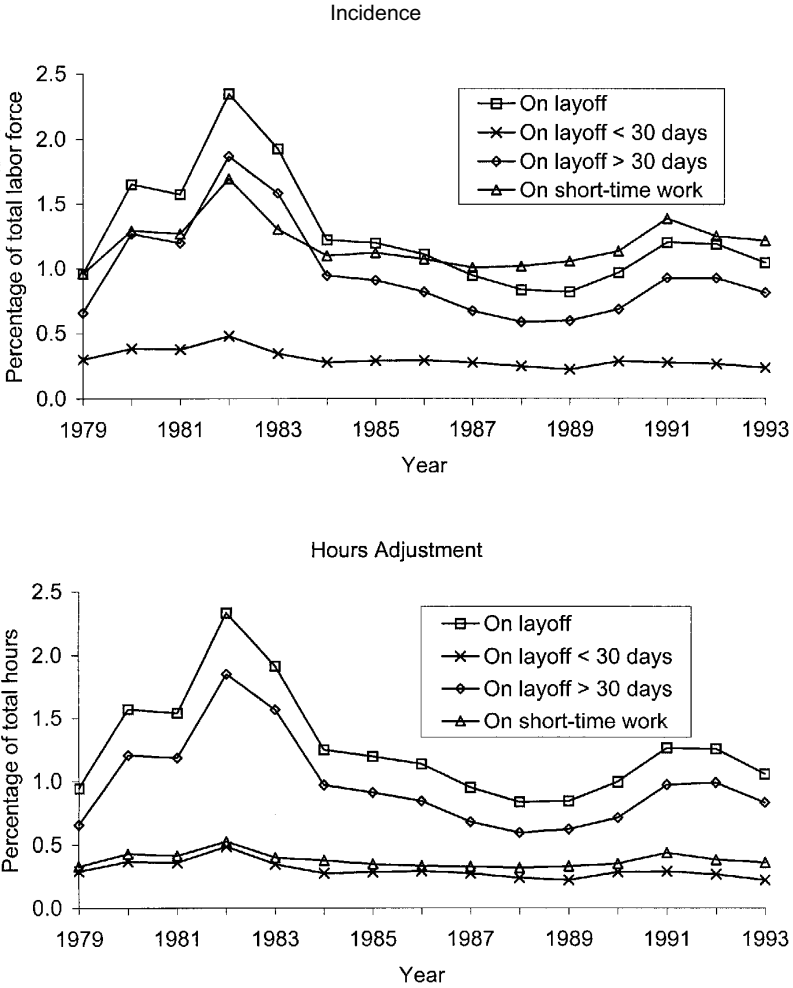
SOURCE: Calculations based on March Current Population Surveys, 1968–1993.

**Table 1 Short-Time Work Rates as a Share of Employment and of Total Hours<sup>a</sup> (%)**

Year	Selected industries								Selected occupations			
	Total labor force		Construction		Durable manufacturing		Public administration		Clerical/administration support		Skilled laborers	
	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.
1979	0.96	0.33	2.65	1.08	0.84	0.31	0.15	0.05	0.38	0.12	1.78	0.64
1980	1.29	0.43	3.37	1.43	1.53	0.47	0.28	0.09	0.45	0.13	2.50	0.86
1981	1.27	0.41	3.48	1.50	1.35	0.46	0.15	0.07	0.39	0.13	2.44	0.81
1982	1.69	0.52	4.37	1.68	2.58	0.73	0.16	0.06	0.74	0.21	3.52	1.15
1983	1.30	0.40	3.37	1.27	1.50	0.42	0.11	0.04	0.52	0.15	2.71	0.88
1984	1.10	0.38	2.84	1.18	1.01	0.32	0.15	0.07	0.42	0.15	2.11	0.76
1985	1.12	0.35	2.69	1.09	1.21	0.36	0.13	0.03	0.42	0.12	2.28	0.75
1986	1.07	0.33	2.75	1.11	0.94	0.29	0.16	0.05	0.44	0.12	1.96	0.69
1987	1.01	0.33	3.17	1.25	0.79	0.25	0.15	0.05	0.41	0.11	1.79	0.66
1988	1.02	0.32	2.94	1.03	0.91	0.29	0.19	0.05	0.40	0.11	1.93	0.67
1989	1.05	0.33	3.21	1.09	0.92	0.32	0.22	0.08	0.54	0.14	1.87	0.66
1990	1.13	0.35	3.47	1.33	0.95	0.31	0.15	0.05	0.46	0.14	2.02	0.68
1991	1.38	0.43	4.81	1.86	1.48	0.43	0.12	0.06	0.65	0.19	2.61	0.91
1992	1.25	0.38	4.24	1.63	1.05	0.32	0.21	0.07	0.51	0.15	2.29	0.77
1993	1.21	0.36	3.56	1.26	0.83	0.28	0.14	0.06	0.53	0.16	1.97	0.68

<sup>a</sup> The STW rates were calculated over all workers plus unemployed in each category using CPS Outgoing Rotation Group data for all months in the year.

Figure 2 Layoffs and Short-Time Work: Incidence versus Hours



SOURCE: Calculations based on Current Population Surveys, Outgoing Rotation Groups (all months), 1979-1993.

adjusted through both channels in the bottom panel. For the bottom panel, usual hours for persons on layoff had to be imputed because the CPS does not record that measure for people not with a job.<sup>8</sup> In both panels, total layoffs are broken down into two separate groups: those of duration less than 30 days and those of greater duration. Note that this refers to ongoing duration as of the survey date, so a significant portion of the short-term layoffs *ex post* will be longer than 30 days. But such a division is useful because the short-duration category undoubtedly includes a disproportionate number of layoffs that *ex post* will be less than 30 days.

The data in Figure 2 and throughout the rest of the chapter, use the Outgoing Rotation Group files so that the numbers are indicative of employment behavior for the entire year, not just March. This limits the time series to 1979–1993. However, Figure 1 shows that the degree of cyclical correlation between STW and layoffs barely differs for 1968–1978 versus 1979–1993. So the analysis for the most recent years should provide results comparable to the earlier period. Moreover, the overall pattern in the incidence of STW and layoffs in Figure 1 and the top panel of Figure 2 are virtually identical, showing that the year-to-year movements in the two rates in Figure 1 are not contaminated by cyclical factors that are unique to March.

The graphs in Figure 2 show that 1) the incidence of STW is comparable to all layoffs, particularly since 1987, yet 2) total hours adjustment through STW is only a fraction of total hours adjustment through layoffs. This is not surprising when one considers the likely source of demand shocks inducing the different types of adjustment. Firms that put workers on STW or on layoff for a short period of time probably have been hit by what are perceived to be temporary demand shocks. In contrast, firms with workers who have been on layoff for more than a month probably have been hit by what are perceived to be more permanent demand shocks.

This suggests that STW is more likely a substitute for short-duration layoffs than for long-duration layoffs. If a firm needs to downsize permanently, providing a short-term subsidy to STW through STC should not induce the firm to retain more workers in the long run. An STC subsidy might temporarily postpone such layoffs, if at all, but Figure 2 suggests that such a postponement may be quite short.

## STW BY INDUSTRY AND BY OCCUPATION

Tables 1–3 report the pattern of STW usage by industry and by occupation. Tables 1 and 2 report incidence and hours measures for select industries and occupations by year and by month, respectively. Regardless of which measure is used, the more highly cyclical industries, such as construction and manufacturing, and the more highly cyclical occupations, such as skilled laborers, have the highest rates of STW. However, as seen in Table 2, there is a distinct seasonal pattern in STW for construction, with the highest rates in the winter and early spring.<sup>9</sup> The seasonal pattern for durable manufacturing is much less pronounced. This provides further evidence that usage of STW mirrors that of layoffs.

Consolidating all the data for 1979–1993, Table 3 examines which industries and occupations use STW the most. As foreshadowed by the patterns in Tables 1 and 2, the highest rates are for those that are the most cyclical and/or seasonal: the manufacturing, construction, mining and agriculture industries, and the skilled laborer, semiskilled laborer, and farming occupations.

Best's comment about the rate of reduction of hours under STC (“... such workweek reduction appears to be ... commonly smaller than the 10 percent threshold reduction of worktime required before employees are eligible to receive benefits”) can be assessed by analyzing the STW incidence versus hours rates in Table 3. An estimate of the average hours reduction under STW is available by taking the ratio of the hours adjustment figure in column 5 over the employment adjustment figure in column 2.<sup>10</sup> Doing so yields an average reduction in hours of about 30 percent for each industry and occupation. As shown in Table 4, this figure falls well within the range necessary to trigger eligibility for STC for all states with such a program.<sup>11</sup> So Best's statement appears to be inaccurate by this measure, at least for current STC programs.

**Table 2 Short-Time Work Rates as a Percentage of Employment and as a Percentage of Total Hours, Disaggregated by Month<sup>a</sup>**

Month	Total labor force		Selected Industries						Selected Occupations			
			Construction		Durable manufacturing		Public administration		Clerical/administrative support		Skilled laborers	
	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.	Emp.	Hrs.
Jan	1.39	0.46	3.74	1.60	1.29	0.42	0.12	0.05	0.53	0.17	2.51	0.90
Feb	1.32	0.42	3.62	1.56	1.42	0.43	0.17	0.05	0.50	0.14	2.53	0.89
Mar	1.22	0.39	3.52	1.46	1.37	0.42	0.12	0.08	0.51	0.14	2.51	0.85
Apr	1.13	0.37	3.74	1.44	1.20	0.42	0.20	0.06	0.47	0.16	2.28	0.80
May	1.16	0.37	3.26	1.31	1.36	0.41	0.11	0.05	0.46	0.14	2.31	0.79
June	1.18	0.36	3.24	1.22	1.11	0.31	0.26	0.07	0.53	0.15	2.24	0.73
July	1.20	0.37	3.12	1.21	1.07	0.32	0.17	0.06	0.56	0.16	2.10	0.70
Aug	1.11	0.34	2.66	1.00	1.12	0.34	0.16	0.05	0.47	0.14	2.08	0.66
Sept	1.04	0.32	2.84	1.04	0.98	0.33	0.28	0.08	0.42	0.12	1.87	0.66
Oct	1.10	0.34	3.25	1.20	1.13	0.35	0.21	0.07	0.40	0.11	2.05	0.69
Nov	1.18	0.36	3.52	1.23	1.27	0.39	0.07	0.02	0.44	0.14	2.30	0.78
Dec	1.28	0.42	3.96	1.54	1.19	0.36	0.13	0.06	0.50	0.14	2.39	0.85

<sup>a</sup> The STW rates were calculated over all workers plus unemployed in each category using CPS Outgoing Rotation Group data for 1979–1993.

**Table 3 Short-Time Work and Layoff Rates by Industry and Occupation, 1979–1993<sup>a</sup>**

	As a % of employment			As a % of total hours		
	Layoffs ≥30 days	STW	Layoffs <30 days	Layoffs ≥30 days	STW	Layoffs <30 days
<b>Industry</b>						
Agriculture	1.95	3.09	0.52	1.77	1.22	0.44
Mining	2.69	1.42	0.62	2.63	0.62	0.65
Construction	3.45	3.36	1.10	3.54	1.31	1.11
Durable manufacturing	2.15	1.21	0.57	2.12	0.37	0.57
Nondurable manufacturing	1.34	2.37	0.60	1.29	0.71	0.58
Transportation	0.80	0.88	0.22	0.80	0.36	0.22
Wholesale trade	0.72	0.74	0.18	0.68	0.26	0.16
Retail trade	0.53	1.18	0.18	0.51	0.24	0.16
Services	0.36	0.75	0.13	0.35	0.21	0.12
Public administration	0.26	0.17	0.05	0.25	0.06	0.06
<b>Occupation</b>						
Clerical/ administration	0.46	0.48	0.12	0.46	0.14	0.12
Skilled laborers	2.22	2.26	0.72	2.19	0.77	0.72
Educators	0.16	0.32	0.05	0.17	0.12	0.05
Farming, forestry	1.84	2.75	0.52	1.85	1.15	0.48
Medical/health	0.21	0.68	0.09	0.19	0.18	0.09
Management- related	0.27	0.29	0.04	0.27	0.11	0.04
Semiskilled laborer	2.53	2.65	0.76	2.66	0.89	0.79
Profess. specialty, not elsewhere classified	0.33	0.37	0.09	0.34	0.13	0.08
Personal service	0.69	1.71	0.27	0.69	0.34	0.25
Private household service	0.12	1.27	0.24	0.15	0.19	0.26
Protective service	0.38	0.40	0.11	0.37	0.12	0.09
Sales-related	0.43	0.89	0.14	0.43	0.19	0.12

<sup>a</sup> The STW and layoff rates were calculated over all workers plus unemployed in each category using CPS Outgoing Rotation Group data for all months during 1979–1993.

**Table 4 Summary of Short-Term Compensation Programs<sup>a</sup>**

Participating states	Duration of plan before new approval required	Limits on number of weeks	Required reduction of work (%)
Arizona	1 year	26	10 to 40
Arkansas	1 year	26	10 to 40
California	6 month	<sup>b</sup>	at least 10
Connecticut	6 month	26 <sup>c</sup>	20 to 40
Florida	1 year	26	10 to 40
Iowa	2 year	26	20 to 50
Kansas	1 year	26	20 to 40
Louisiana	1 year	26	20 to 40
Maryland	6 month	26	10 to 50 <sup>d</sup>
Massachusetts	6 month	26	10 to 60
Minnesota	1 year	52	20 to 40
Missouri	1 year	26	20 to 40
New York	—	20	20 to 60
Oregon	1 year	26	20 to 40
Rhode Island	1 year	26	10 to 50
Texas	1 year	52	10 to 40
Vermont	6 month <sup>e</sup>	26	20 to 50
Washington	1 year <sup>e</sup>	26	10 to 50

SOURCE: National Foundation for Unemployment Compensation & Workers' Compensation (1996).

<sup>a</sup> As of January 1996.

<sup>b</sup> No limit on number of weeks, but total paid can not exceed 26 × weekly benefit amount.

<sup>c</sup> 26-week extension possible.

<sup>d</sup> 50 percent maximum may be waived by Secretary.

<sup>e</sup> Or date of plan, if earlier.



## STC VERSUS NON-STC STATES AND PARTIAL UI

Are STC programs the reason for the existence of STW in the United States? In order to provide a crude answer to this question, Table 5 reports STW rates for states that have never had an STC program (“non-STC states”) and states that have ever had an STC program (“STC states,” including Illinois). The answer is no, because the STW rate has been greater for non-STC states in all years except for 1992–1993. It is true that many STC programs have only been introduced recently (Table 4), so the higher rates of STW in the most recent years for the STC states may be due to the recently adopted STC programs.<sup>12</sup> However, Figure 3 shows that that would be a premature conclusion: both STW and layoffs have been relatively higher in STC states in recent years, suggesting that both are correlated with other factors, such as different industrial compositions in the two groups of states. So it is doubtful that usage of STC explains much of the difference in STW between STC and non-STC states. This is consistent with the commonly held view that STC programs have been vastly underutilized in the states that have them.

One component of the UI system in each state that may explain at least part of the cross-state variation in STW is partial UI benefits. Partial UI benefits are available in all states when earnings fall below a particular threshold. However, the threshold is so low that the workweek has to be reduced by at least 60 percent in most states. This fact alone indicates that the provisions for partial UI probably are not a major factor in determining STW because the average hours reduction is only half that needed to qualify for partial UI. Moreover, in most states the partial UI benefit is taxed at a 100 percent rate for any earnings above a very small amount (the “disregard” amount).

Despite the fact that partial UI probably is not generous enough to explain patterns of STW, a crude test is provided in Table 6, which breaks the non-STC states into three groups: least generous, more generous, and most generous partial UI benefits. States in the first group tax partial UI benefits at a 100 percent tax rate for any earnings above either 10 percent of wages or \$40 per week. States in the second group also tax benefits at a 100 percent tax rate for earnings over the disregard, but the disregard is higher than for the first group. The third

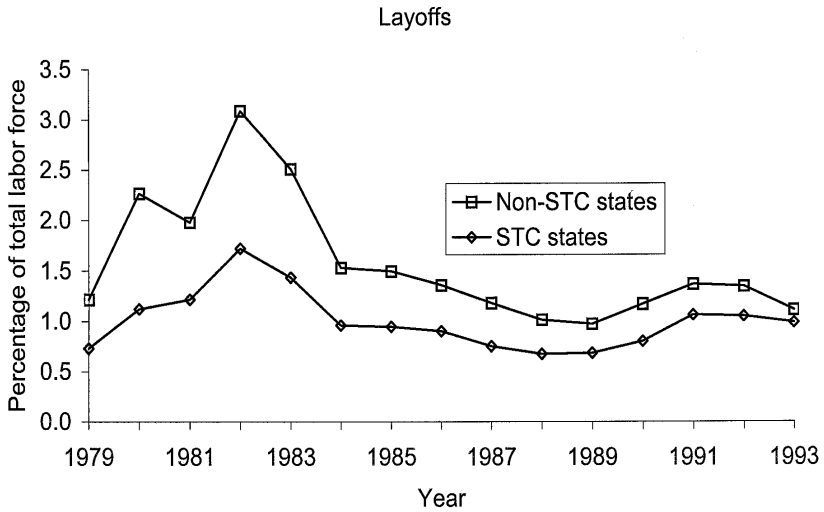
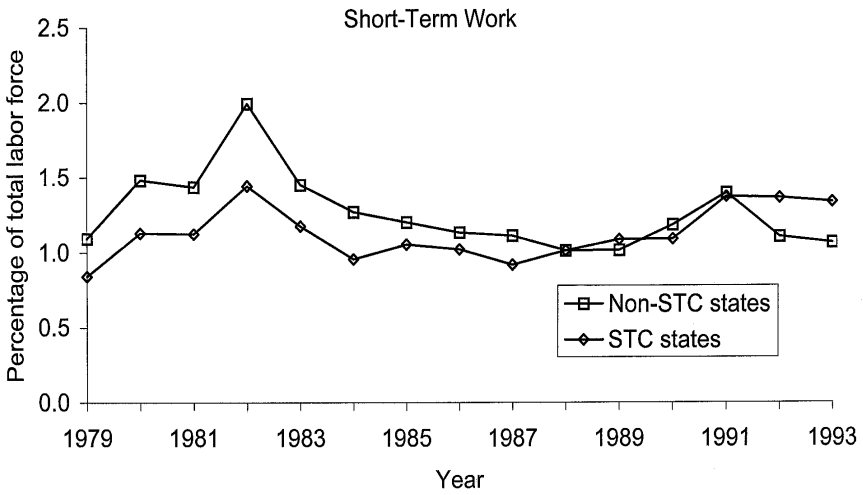
**Table 5 Short-Time Work Rates as a Share of Employment for States with and without STC Programs<sup>a</sup> (%)**

Year	All states	All non-STC states	All	STC states <sup>b</sup>			
				California	New York	Kansas	Missouri
1979	0.96	1.09	0.84	0.97	0.57	0.54	1.12
1980	1.29	1.48	1.13	1.34	0.73	0.86	1.24
1981	1.27	1.44	1.12	1.39	0.61	0.64	1.47
1982	1.69	1.99	1.44	1.78	0.78	0.99	1.55
1983	1.30	1.45	1.17	1.38	0.87	0.94	1.69
1984	1.10	1.27	0.96	1.03	0.67	0.70	1.16
1985	1.12	1.20	1.05	1.17	0.53	0.74	0.72
1986	1.07	1.13	1.02	1.13	0.66	1.19	1.07
1987	1.01	1.11	0.92	1.03	0.50	0.55	1.07
1988	1.02	1.01	1.01	1.21	0.55	1.10	1.58
1989	1.05	1.01	1.09	1.33	0.63	1.04	0.98
1990	1.13	1.18	1.09	1.57	0.69	0.56	1.13
1991	1.3	1.39	1.37	2.01	1.00	0.78	1.27
1992	1.25	1.10	1.36	2.17	0.96	0.45	1.52
1993	1.21	1.06	1.33	2.04	1.10	0.87	0.76

<sup>a</sup> The STW rates were calculated over all workers plus unemployed in each category using CPS Outgoing Rotation Group data for all months in the year.

<sup>b</sup> The STC states category includes all states that have ever had an STC program, even if the program was not in existence for one or more years during 1979–1993: Arizona, Arkansas, California, Connecticut, Florida, Illinois, Iowa, Kansas, Louisiana, Massachusetts, Maryland, Minnesota, Missouri, New York, Oregon, Rhode Island, Texas, Vermont, and Washington.

**Figure 3 Short-Term Work and Layoffs for STC and Non-STC States**



SOURCE: Calculations based on Current Population Surveys, Outgoing Rotation Groups (all months) 1979–1993.

**Table 6 Short-Time Work Rates for All Non-STC States and for Non-STC States with a Partial Unemployment Insurance Program by Level of Benefit Generosity<sup>a</sup> (%)**

Year	As a share of employment				As a share of total hours			
	Level of benefit generosity for partial UI program				Level of benefit generosity for partial UI program			
	All non-STC states <sup>b</sup>	Least generous <sup>c</sup>	More generous <sup>d</sup>	Most generous <sup>e</sup>	All non-STC states <sup>b</sup>	Least generous <sup>c</sup>	More generous <sup>d</sup>	Most generous <sup>e</sup>
1979	1.09	1.18	1.09	0.85	0.35	0.38	0.35	0.30
1980	1.48	1.53	1.33	1.56	0.45	0.45	0.43	0.49
1981	1.44	1.50	1.35	1.37	0.44	0.44	0.43	0.46
1982	1.99	2.18	1.82	1.72	0.56	0.60	0.55	0.51
1983	1.45	1.54	1.37	1.31	0.43	0.46	0.41	0.45
1984	1.27	1.30	1.32	1.10	0.39	0.39	0.41	0.39
1985	1.20	1.26	1.23	0.99	0.37	0.36	0.39	0.37
1986	1.13	1.08	1.33	0.97	0.36	0.33	0.42	0.32
1987	1.11	1.10	1.11	1.15	0.35	0.35	0.34	0.36
1988	1.01	1.05	0.95	0.98	0.31	0.31	0.32	0.32
1989	1.01	1.08	0.92	0.96	0.32	0.30	0.33	0.35
1990	1.18	1.28	1.05	1.11	0.34	0.37	0.33	0.29
1991	1.39	1.50	1.30	1.22	0.44	0.48	0.40	0.41

(continued)

**Table 6 (continued)**

Year	As a share of employment				As a share of total hours			
	Level of benefit generosity for partial UI program				Level of benefit generosity for partial UI program			
	All non-STC states <sup>b</sup>	Least generous <sup>c</sup>	More generous <sup>d</sup>	Most generous <sup>e</sup>	All non-STC states <sup>b</sup>	Least generous <sup>c</sup>	More generous <sup>d</sup>	Most generous <sup>e</sup>
1992	1.10	1.11	1.21	0.93	0.33	0.33	0.35	0.31
1993	1.06	1.15	1.00	0.89	0.33	0.34	0.34	0.27

<sup>a</sup> The STW rates were calculated over all workers plus unemployed in each category using CPS Outgoing Rotation Group data for all months in the year.

<sup>b</sup> The “all non-STC states” category includes all states that have never had an STC program.

<sup>c</sup> The “least generous” category includes Alabama, D.C., Georgia, Indiana, Maine, Mississippi, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, Tennessee, and Virginia.

<sup>d</sup> The “more generous” category includes Colorado, Delaware, Hawaii, Idaho, Nebraska, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Utah, West Virginia, and Wyoming.

<sup>e</sup> The “most generous” category includes Alaska, Kentucky, Michigan, Montana, Nevada, and Wisconsin.

group taxes partial UI benefits at a rate of less than 100 percent for earnings over the disregard amount, providing the most generous potential benefits through partial UI. If the partial UI programs influence the use of STW, then STW should be most prevalent among those (non-STC) states that offer the most generous partial UI benefits.

An inspection of the numbers in Table 6 reveals that this is not the case: the employment incidence of STW is virtually the same for non-STC states that have the least generous partial UI programs compared to those that have the most generous partial UI programs. Even though the number of workers on STW appears unaffected by partial UI benefit generosity, there might still be greater hours adjustment due to incentives provided by partial UI schemes to dramatically reduce the length of the workweek. Yet total hours adjustment through STW is the same across the different levels of partial UI benefit generosity.

## **USING STW TO EVALUATE THE POTENTIAL IMPACT OF STC**

The evidence presented here suggests that current patterns of STW in the United States appear to be primarily dictated by patterns of demand shocks and production technology, not by incentives provided through STC or partial UI. Thus the current patterns of STW and layoffs for each state should serve as a useful benchmark for researchers who wish to gauge the relative effect of proposed expansions in STC on STW and layoffs. However, doing this properly requires careful consideration of all possible factors that may affect STW, layoffs, or both, including parameters of state STC, regular UI, and partial UI programs. For example, it is possible that current STC programs have marginally increased the use of STW in the states that have introduced them. But a complete answer to this requires a determination of whether other incentives (and disincentives) to use UI and partial UI changed at the same time. Such an undertaking is beyond the scope of this study, but should be addressed in future research.

One question that can be answered is, where should we expect to see the highest rates of STC usage? The limited data on STC usage shows an uneven distribution across industries (Kerachsky et al. 1985;

Best and Mattesich 1980). This is not surprising given the patterns in Table 3, which show the highest rates of STW among the most cyclically and seasonally sensitive occupations. However, there is another potential explanation for the patterns in Table 3. Workers in whom the firm has invested the most training and/or who have the highest level of skills should be less likely to be put on STW, otherwise the worker on STW might take that as a negative signal about future employment at the firm and decide to look for a new job. To answer this it is necessary to disentangle industry shocks from occupational differences in the response to those shocks.

In order to sort out these effects, STW rates were calculated for six major occupation groups within the seven major industries (results not reported). Within each industry group, the more highly skilled management and professional occupations have the lowest rates of STW, which is consistent with firms wanting to protect investment in specific human capital. The clerical/administrative support occupation also has very low rates of STW, though always higher than managers. This probably reflects the fact that they embody less firm-specific human capital, yet work side-by-side with management, and so are slightly shielded from STW because of the direct support role they play to those workers least likely to be subject to STW.

The highest rates of STW within each industry are among the skilled and semiskilled laborers. The higher overall rate for laborers as a group, relative to white-collar workers, probably reflects both differences in production technology and levels of specific human capital. In particular, the higher rate of STW for semiskilled laborers compared to skilled laborers is probably due to their lower levels of skill.

STW rates tend to be comparable for the same occupation in different industries (for example, the STW rate for managers is similar across industries). However, the most cyclical industries exhibit the highest rates of STW for almost all occupations. For example, clerical/administrative support workers in construction have higher rates of STW than their counterparts in services, and the same holds for each of the other occupations within these two industries. The same is true for nondurable manufacturing compared to services. However, the pattern is less evident for durable manufacturing versus services.

These patterns suggest any expansion of existing STC programs should produce the greatest STC incidence in cyclical industries such

as construction and nondurable manufacturing. Moreover, semiskilled laborers, skilled laborers, and, to a lesser extent, sales-related occupations should also have relatively high rates of STC usage, regardless of the industry of employment. Obviously, analyses such as these are only a crude first step at predicting STC take-up rates. A definitive answer to the effects of STC at the firm level requires firm-level data such as that used in the Mathematica evaluations (Kerachsky et al. 1985; Needels and Nicholson 1996). Yet STC predictions using CPS data and techniques such as those in this study should serve as a useful guide for researchers wishing to do more accurate analyses of the impact of STC than have been done to date.

## CONCLUSION AND POLICY IMPLICATIONS

This study has documented short-time work patterns in the United States for 1968–1993. Despite very low STC take-up rates, STW is a prevalent phenomenon. The STW rate ranges from approximately 50 to 70 percent of the layoff rate.

The primary impact of STC program expansion most likely would be to subsidize those workers and firms that already use STW. The important implication of this is that vast numbers of workers could be put on the STC roles, thereby providing “evidence” that the programs were successful at averting layoffs, without impacting the incidence of layoffs at all. The key to determining the impact of STC program expansion on layoffs is not to count the number of people on STC alone, nor even to compare the number on STC relative to the number on layoff. Rather, layoff and STW rates—in terms of both workers and total hours—under STC must be compared to what they would have been in the absence of STC.

If the subsidy to STC is relatively large, additional workers will be put on STW relative to what would have happened otherwise, with a less than equal decrease in adjustment through layoffs. For example, if STC leads to 100 “additional” hours of STW, layoffs may be reduced by only 50 hours, with the additional 50 hours accounted for by an overadjustment through STW. The latter means a much greater distri-



bution of the brunt of hours reduction across the workforce than is necessary.

In an era of tight budgets and reduced social welfare spending, this is a significant issue. The degree of imperfect experience rating of STC benefits is comparable to that for UI benefits. The extensive literature on excessive use of UI due to this subsidy suggests that widespread introduction and expansion of STC programs will lead to similar overuse of STC. Whether imperfect experience rating of both UI and STC benefits leads to a relatively greater overuse of layoffs, of STW, or of both is an empirical question. However, the overall net public subsidy to these two channels—layoffs and STW—would ensure an excessive impact of demand shocks on the existing pool of workers.

Unfortunately, the existing STC programs probably are too limited in scope to satisfactorily quantify the impact of the current STC system on employment versus hours adjustment in the United States. However, existing patterns of STW can be used to provide baseline estimates in future STC evaluations to determine that tradeoff. Similarly, differences in the relative subsidy to layoffs between states could be used to analyze how imperfect experience rating affects firms' choice of layoffs versus short-time work. Increased experience rating for regular unemployment insurance alone (as advocated by Hamermesh 1978, and Burdett and Wright 1989) may be sufficient to significantly tip the scales in favor of STW over layoffs, negating one of the primary arguments currently used by advocates for STC expansion.

## Notes

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1. STC is frequently called "shared work" or "worksharing" by both researchers (Bednarzik 1980; Meltz and Reid 1983; Vasche 1982) and state UI agencies in the United States (National Foundation for Unemployment Compensation & Workers' Compensation 1996, p. 58). However, shared work is more commonly used to refer to permanent reductions in average hours per worker (Calmfors 1985;

Fitzroy 1981; Calmfors and Hoel 1989; Hart 1984; Riechel 1986), which is distinct from temporary reductions that are funded by partial UI benefits. The STC name is used exclusively in this chapter because it has no alternative interpretations.

2. Illinois discontinued its program in 1988 (Vroman 1990).
3. These figures have been adjusted for the bias in the pre-1994 Current Population Survey measures of STW and layoffs, detailed in the text.
4. In particular, no indication was given that the contracts were drawn from a representative sample.
5. Differences in overtime pay rules and related societal conventions may be particularly important unexplained factors not accounted for by Abraham and Houseman and by Van Audenrode. Their analyses treat increases and decreases in labor usage symmetrically, with no metric for measuring the difference between usual hours and actual hours worked. Thus much of cross-country differences and similarities that they measure may be identified by deviations above, not below, usual hours worked.
6. See note 5.
7. Bednarzik does not include workers on layoff when calculating the STW rate. Consequently, the rates reported here are not directly comparable to those in his study.
8. This was done by regressing usual hours on a host of demographic variables (race, marital status, age, education) and industry and occupation dummies separately for men and women for each year.
9. The seasonal pattern of STW in construction underscores the concern of STC program administrators that STC not be used to subsidize seasonal employment. However, despite this concern it is not clear whether existing STC guidelines are sufficient to prevent abuse by firms that experience predictable seasonal employment changes.
10. This estimate is perfectly accurate only if STW workers' mean usual hours are the same as non-STW workers' mean usual hours. This is probably a good approximation.
11. Illinois is not included in the Table 4 text because its program has been discontinued. However, Illinois is included as one of the STC states in all calculations because it did have an STC program during 1979–1993.
12. Note that the group of STC states includes observations for years in which some of the included states did not have an STC program (such as Kansas for 1979–1988 and Washington for 1979–1982).

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# **Working Time in Comparative Perspective**

## **Volume I**

### **Patterns, Trends, and the Policy Implications for Earnings Inequality and Unemployment**

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and  
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