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ABSTRACT

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American workweeks are long compared to other rich countries'. Much less well-known is that Americans are more likely to work at night and on weekends. We examine the relationship between these two phenomena using the American Time Use Survey and time-diary data from 5 other countries. Adjusting for demographic differences, Americans' incidence of night and weekend work would drop by about 10 percent if European workweeks prevailed. Even if no Americans worked long hours, the incidence of unusual work times in the U.S. would far exceed those in continental Europe.

JEL Classification: J22, J08

Keywords: night work, weekend work, shorter hours

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I. Introduction—The Question

It is well known that workers in the United States now work more hours than those in other wealthy countries. As Table 1 shows, this represents a sharp change from what was observed in the fairly recent past. A substantial and rising fraction of the labor force also works long hours (Kuhn and Lozano, 2008). The causes of these changes no doubt include rising wage inequality and many other phenomena (see Bell and Freeman, 2001), but our interest here is not in the source of this striking change. Rather, we examine its relationship to another, much less well-known phenomenon: The greater propensity of American workers to be working on weekends and at night than workers elsewhere (Burda *et al*, 2008).

Working at night or on weekends makes one's non-work time less desirable because it is asynchronous with that of others' with whom one might wish to socialize (Jenkins and Osberg, 2005). Evidence for the inferiority of night and weekend work is its disproportionate performance by people with fewer skills and by minorities, and that it offers wage premia to otherwise identical workers to elicit a sufficient labor supply to meet demand (Kostiuk, 1990; Shapiro, 1995). American workers appear to be performing more work at less desirable times as well as working longer hours than their counterparts in other wealthy countries.

If someone works 120 hours per week, some work must be performed at night, and it is nearly certain that some will be performed on weekends. Almost nobody reports that many weekly hours; but with Americans reporting longer hours than workers in other wealthy countries, a reasonable question is: To what extent is the high incidence of work on weekends and at night related to Americans' long work hours? Put in the context of policy, how much work would be performed at night or on weekends in the United States if the country enacted policies that reduced weekly and annual hours of work, such as the laws limiting overtime and mandating

vacations that exist in many continental European economies? Answering these questions is now possible because the creation of the American Time Use Survey (ATUS) has generated large amounts of information on American workers' timing of work, and because the Multinational Time Use Study (MTUS) allows for some comparability with time-use studies in other countries.[1]

II. Measuring the Amount and Timing of Work

The ATUS and the country studies included in the MTUS contain two types of information on work time: 1) Recall information on hours of work in the past week, similar or identical to information available in the American Current Population Survey (CPS); and 2) A time diary of activities undertaken by the individual in the previous twenty-four hours. In addition to the ATUS from 2003 through 2011 for the U.S., we use the MTUS information for Germany, 2001-02; the Netherlands, 2000 and 2005; Spain, 2002-03, and the United Kingdom, 2000-01.[2] We also use information from the original time-diary survey for France for 1998-99, giving us data from five industrialized nations to compare to the U.S.[3]

The upper panel of Table 2 provides information on the percent distributions and the averages of weekly work hours of employees under age 65 in the U.S. and the five European countries. (The self-employed are excluded throughout this study.) The weekly averages of hours worked corroborate the longer work years in the U.S. that are suggested by Table 1. Indeed, the

[1]See Hamermesh *et al* (2005) and Gershuny and Fisher (2014) for descriptions of the ATUS and MTUS respectively.

[2]We selected these countries to have representative coverage of different types of institutional contexts, with concerns for sample size and the years when the time diaries were collected. The U.K. labor market is not heavily regulated; France has a highly regulated labor market; Spain's labor market is less regulated than the French; Germany has very structured labor markets, in which vocational training is much more widespread than in other European countries, and the Netherlands has an intermediate level of labor-market regulation. Unfortunately, given their small sample sizes we could not include time-use surveys from any Scandinavian countries.

[3]Calculating the statistics and doing the estimation on the MTUS data for France yielded essentially identical results.

rankings by length of weekly or annual work time of the four countries on which both tables present data are identical. Not only is the average workweek longest in the U.S.: Table 2 shows that, except for the U.K., it has a much higher percentage of employees working 45+ hours—nearly double that of Germany, and more than double those of France, the Netherlands and Spain.

In describing the timing of work in the ATUS and the MTUS components we deal only with paid work time, ignoring commuting time, time spent off the job in job search, and unpaid work.[4] We consider a sample respondent as working on weekends if s/he completed a diary on a Saturday or a Sunday and reported performing any paid work. Table 2 indicates that work on weekends is more common in the U.S. than in the other countries, although the U.K. approaches the U.S. in the incidence of such work.[5]

The second category of "strange" work that we examine is work at night, defined here as any work performed between 10PM and 6AM inclusive, using the information from the diary on the time when activities are performed, which is consistent across the countries considered.[6] On a typical day of the week, one-quarter of American workers perform some work during this period (the overwhelming majority of them at its fringes). As Table 2 shows, such work is much more common in the U.S. than in continental Europe, and also more prevalent than in the U.K. (which throughout these comparisons is most similar to the U.S.).

[4]Throughout this study we use sampling weights to account for both differential participation in the survey of sampled respondents by their demographic characteristics and, more important in some of the surveys, including the ATUS, for the purposely uneven sampling of respondents across days of the week.

[5]The statistics should be interpreted as indicating whether the typical respondent works at all on either Saturday or Sunday. Because the ATUS only collects time diaries for one day per respondent, we cannot examine the incidence of working on both weekend days.

[6]We include spells of paid work that began at or after 10PM or before 6AM, and those that ended after 10PM or at or before 6AM. The MTUS data for Germany for 2001-02 do not have information on time of day, so we linked those data to the raw German data for that survey to obtain the incidence of night work.

While both types of strange work are more widely observed in the U.S. than in the other countries we have considered, conditional on performing such work its intensity differs little between the U.S. and those countries. Indeed, while American employees are more likely to work nights and weekends than their European counterparts, in neither of those categories is the amount of such work that each performs higher than in all of the other five countries. The American labor market is unique in the incidence of strange work, not in its intensity.

III. The Determinants of "Strange" Work in the U.S.

We estimate the probability that a respondent in the ATUS 2003-11 works on the weekend and/or at night on a typical day as determined partly by the CPS-based information on the length of the workweek that is included with the time diaries.[7] Thus our focus is on a vector of indicators of hours worked the previous week: 1-19 hours, 20-34, 35-44, 45-54, 55-64, and 65+.[8] We also include a number of demographic measures, since we assume in our simulations that these would not change if the distribution of hours worked changed. These include indicators of gender, marital status and an interaction of the two. Also held constant is the age of the youngest child in the household (two indicators), immigrant status, public employment and residence in an urban area. Educational attainment is divided into five categories: Less than 12 years of schooling, 12, 13-15, 16 and 16+ years. Age is indicated by three categories: 34 or less, 35-49 and 50-64. We also include a vector of indicators for the year of the survey.

We concentrate on the incidence of work at strange times, because the incidence, not the intensity dimension, is where the U.S. labor market differs from others. The results of estimating

[7]The information on the previous workweek is obtained when the diary is completed.

[8]We re-estimated the models in this section with indicators reflecting alternative disaggregations of weekly work hours, with almost no changes in the substantive results obtained here. The same absence of change results if we use a cubic in hours instead of a vector of indicators.

these probits are presented in Table 3. Here we show only the probit derivatives/marginal effects of the indicators comprising the vector of hours worked. In both equations the probability of the particular time of work rises as hours increase beyond a standard workweek: Those with the longest hours are more likely than those with shorter (but still relatively long) hours to work at night or weekends.[9] Indeed, the probability of working at night on a particular day of the week increases monotonically in the number of hours worked. That is not true for work performed on weekends: Those working a standard workweek are less likely to perform such work than those with shorter workweeks. In the U.S. the small (compared to those in the other countries shown in Table 2) part-time workforce is more likely to work on weekends than are full-time workers. The effects of differences in weekly hours on these probabilities are not small relative to the mean probability. Moving from the 50 percent of workers putting in a standard week (35-44 hours per week) to somebody among the 8 percent working 55-64 hours nearly doubles the incidence of both strange times of work.[10]

While our focus is not on the other determinants of timing of work, the directions of their impacts is informative about the desirability of these types of work. Immigrants are more likely than otherwise identical natives to work on weekends, while those who are better educated or older are less likely to work then. Both findings suggest the undesirability of work at such times. The results on the incidence of night work are more mixed, but the predominant effect is a negative one of education on the incidence of night work, suggesting that it too is inferior on average.

[9]If we restrict the estimates to timing of work performed at the workplace, thus excluding work performed at home, there is little qualitative change in the results. (See Oettinger, 2011, for an examination of worked performed at home in the U.S., where such work is more common than in these European countries.)

[10]We do not distinguish hours worked on the main job from hours on second or additional jobs, so these patterns could also capture the fact that multiple job-holding more is more common in the U.S. than in Europe. Of course, this possibility does not contradict our argument that Americans work longer hours and more often at strange times.

IV. The Impacts of Shorter Hours on Strange Work

Using the probit coefficients (not the derivatives listed in Table 3), we can calculate how the incidence of each of these types of work would change if the demographic characteristics of the U.S. work force remained the same, but the distribution of work hours became what are observed in the other five countries. The first column of the upper panel in Table 4 repeats the incidence of the two types of work in the U.S., while each succeeding column shows by how much it would change if the distribution of actual work hours in the U.S. were replaced with that in the other country. Even with the highly standardized distribution of work hours in France and the absence of long hours in Spain, the declines in the incidence of night and weekend work in the U.S. would be fairly small. Only using the French distribution of work hours would any probability, that of weekend work, fall by 50 percent of the gap between the incidence in the U.S. and in that country. Taking the averages of the effects shown in the Table, the incidence of weekend and night work in the U.S. would fall by 1.9 and 2.3 percentage points respectively.

What if American employers were induced, perhaps by a graduated scheme of overtime penalties, to cut long work hours so that all of those now working 55 or more hours per week saw their work time cut back to 45-54 hours per week? In that case the percentages of workers performing work on the weekend or at night would drop by 2.2 and 1.0 percentage points respectively. Even if the workweeks of all those working 45 or more hours were cut back to 35-44 hours per week, the percentages would decline by only 5.5 and 1.8 percentage points.

As a check on these results, for most of the other countries and in most cases for both types of strange work we can ask how much more likely such work would be if the U.S. distribution of weekly work hours prevailed. Thus for both types of work for France, Germany, the Netherlands and the U.K. we estimate probits describing the probability of work on

weekends or at night. (For Spain we cannot estimate the probit describing the incidence of night work.)

In all five European countries the indicators for educational attainment are for less than secondary education, secondary education, or more. The probits estimated for the U.K. and Spain exclude immigrant status, while the Dutch and German results exclude that and the indicator of urban residence. All four are otherwise specified identically to the probits estimated for the U.S. and presented in Table 3, while the French probits are specified identically to the U.S. equations. For each country we also include indicators for the second year in the survey(s).

Using the estimated impacts of weekly work hours on these probabilities for each of the five countries, we impute the incidence of such work in each under the alternative assumption that the (longer) U.S. weekly workweek prevailed there. The bottom panel in Table 4 shows in each case the changes in incidence (subtracting the actual from the simulated incidence in each country). The average simulated changes in the incidence of weekend work and night work using these estimates are +1.5 and +0.8 percentage points respectively. The average increase in the incidence of weekend work is similar in size, but, as expected, of opposite sign, to that simulated using the U.S. structure and the other countries' weekly work hours. That for night work, for which the data only allowed simulations for four of the five countries, is much smaller than the average simulated impact using the U.S. structure and the foreign work schedules. Both, however, reinforce the conclusion that most of the European-American differences in strange work timing are not due to the long American workweek.

V. Conclusions and Implications

Using data from time diaries for the U.S. and five European countries, we have shown how much greater the incidence of work on weekends and at nights is in the U.S. compared to

those in the other countries. Combining these data with information from the same surveys on the lengths of workweeks, we have examined the relationship between the longer American workweeks and the high incidence of what we have denoted as strange work.

Almost one in every three workers performs some weekend work in the U,S,, compared to one in every five in France, Germany or the Netherlands; and one in every four workers works at night (between 10PM and 6AM, using a standard definition) in the U.S., compared to one in every fourteen in France and the Netherlands. The U.K., while looking more like the U.S. than the rest of Europe, is still surpassed by the U.S. in terms of strange hours.

The simulation results, both those using other countries' distributions of work time and those imposing the distribution of weekly work hours in the U.S. on their work patterns, suggest that only a small part of the relatively high incidence of such work in the U.S. is due to Americans' long work weeks. The large majority of the differences between the U.S. and other countries appears to result from differences in the way that work is structured in America. Whether these fundamental differences result indirectly from some unique characteristics of American and European culture or directly from their expression or absence of expression through legislation or institutions is unclear.

Our first purpose here has been to expose a few facts that are not well known, in particular, the very high incidence of work at unusual times in the U.S. compared to other rich countries, coupled with roughly the same intensity of such types of work as elsewhere. Our second purpose was to demonstrate how these high incidences relate to the well-known long workweeks that exist in the U.S. This latter demonstration of the uniqueness of the American labor market, independent of its long work hours, calls for an explanation of this additional unusual aspect of work in the U.S. Whatever the explanations for the higher incidence of work

at night and weekends in the U.S. than in Europe, its consequences may be quite dramatic in terms of fewer interactions with others and possibly worse health outcomes for Americans than Europeans.

REFERENCES

Linda Bell and Richard Freeman, "The Incentive for Working Hard: Explaining Hours Worked Differences in the US and Germany," *Labour Economics*, 8 (May 2001): 181-202.

Michael Burda, Daniel Hamermesh and Philippe Weil, "The Distribution of Total Work in the EU and USA," in Tito Boeri, Michael Burda, and Francis Kramarz, eds., *Working Hours and Job Sharing in the EU and USA: Are Americans Crazy? Are Europeans Lazy?* New York: Oxford University Press, 2008.

Jonathan Gershuny and Kimberly Fisher, "Multinational Time Use Study," in Alex Michalos, ed., *Encyclopedia of Quality of Life and Well-Being Research*. New York: Springer Science + Business Media, 2014.

Daniel Hamermesh, Harley Frazis and Jay Stewart, "Data Watch: The American Time Use Survey," *Journal of Economic Perspectives*, 19 (Winter 2005): 221-32.

Stephen Jenkins and Lars Osberg, "Nobody to Play With? The Implications of Leisure Coordination," in D. Hamermesh and G. Pfann, eds., *The Economics of Time Use*. Amsterdam: Elsevier, 2005.

Peter Kostiuk, "Compensating Differentials for Shift Work," *Journal of Political Economy*, 98 (June 1990): 1054-75.

Peter Kuhn and Fernando Lozano, "The Expanding Workweek: Understanding Trends in Long Work Hours among U.S. Men, 1979-2006," *Journal of Labor Economics*, 26 (April 2008): 311-43.

Gerald Oettinger, "The Incidence and Wage Consequences of Home-Based Work in the United States, 1980-2000," *Journal of Human Resources*, 46 (Spring 2011): 237-60.

Matthew Shapiro, "Capital Utilization and the Premium for Work at Night," Unpublished paper, University of Michigan, 1995.

Table 1. Average Annual Hours Worked/Employed Person

	Year	
Country	**1979**	**2012**
Australia	1832	1728
Canada	1841	1710
Denmark	1636	1546
Finland	1869	1672
France	1804	1479
Japan	2126	1745
Netherlands	1556	1381
Sweden	1530	1621
U.K.	1813	1654
U.S.	1829	1790

Source: *OECD Employment Outlook*, 2013

Table 2. Characteristics of Work Hours in the U.S. and Elsewhere: Amounts and Timing

Weekly Hours	U.S. 2003-11	France 1998-99	Germany 2001-02	Netherlands 2000, 2005	Spain 2002-03	U.K. 2000-01
Hours:			**Percent**	**Distribution**		
1-19	5.2	5.8	8.4	17.0	9.4	13.3
20-34	12.5	16.6	17.5	27.1	21.5	15.8
35-44	50.5	74.0	56.5	40.9	62.7	39.7
45-54	19.6	2.6	10.6	10.1	4.8	17.8
55-64	8.3	0.6	5.0	3.7	1.0	8.4
65+	3.9	0.4	2.0	1.2	0.6	5.0
Average Weekly Hours of Work:	41.0	35.7	36.9	32.7	34.6	38.4
Weekend Work: Percent Working	29.2	21.8	22.4	18.7	9.6	25.5
Conditional Average (Hours/Day)	6.0	5.2	4.5	5.2	6.5	5.9
Night Work (10PM-6AM): Percent Working	26.6	7.2	13.0	6.9	-------	18.6
Conditional Average (Hours/Day)	1.9	2.3	1.5	1.8	------	1.9

Table 3. Determinants of Probability of Weekend Work and of Night Work, U.S., 2003-11 (Probit Derivatives)*

Ind. Var.	Weekend Work	Night Work
CPS Hours/Week:		
20-34	0.0660	0.0838
	(0.0158)	(0.0143)
35-44	-0.0476	0.1784
	(0.0133)	(0.0114)
45-54	0.0642	0.1995
	(0.0149)	(0.0142)
55-64	0.2080	0.2697
	(0.0181)	(0.0161)
65+	0.3886	0.3652
	(0.0198)	(0.0174)
Pseudo-R^2	0.049	0.036
N =	32442	64775

*The probit equations also include indicators for male, married, male and married, public-sector job, immigrant status, urban residence, vectors of indicators of the age of the youngest child in the household and of educational attainment, and indicators for the year of the survey. Standard errors are in parentheses.

Table 4. Changes in Probabilities of Weekend and Night Work

		Change in the U.S. Using the Distribution of Hours in:				
	Actual U.S.	**France**	**Germany**	**Netherlands**	**Spain**	**U.K.**
Weekend Work	0.293	-0.045	-0.018	-0.010	-0.034	0.010
Night Work	0.266	-0.015	-0.015	-0.041	-0.025	-0.017
		Changes in Other Nations Using the U.S. Distribution of Hours:				
Weekend Work		-0.001	0.025	0.013	0.039	-0.001
Night Work		0.008	0.006	0.009	-------	0.009