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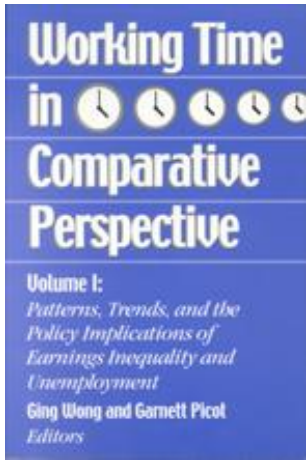

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Supply of Hours per Day and Days per Week—Evidence from the Canadian Labour Market Activity Survey

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A significant amount of research has been conducted on the determinants of the supply of labor. In these studies the quantity of labor supplied is usually counted as the number of hours supplied per year or per week, largely owing to the fact that most labor force surveys do not disaggregate work hours more finely than the weekly level.[1] The number of hours per week, of course, is simply the product of days worked per week and hours worked per day, assuming both remain constant. Still, there is reason to believe that different workers desire to work a different number of days per week and hours per day, even though the number of weekly hours that each wishes to work may remain constant. For example, many individuals in the nursing profession regularly work three 12-hour shifts per week. This is not necessarily in response to the lack of options, but rather because they select into an occupation that offers a variety of days/hours combinations. In such cases, the use of weekly, monthly, or yearly hourly aggregates may mask a number of interesting characteristics of labor supply. For one, the fixed costs of supplying labor may differ depending on the unit of analysis. It is well-known that daily costs of work in terms of child care expenses, commuting costs, etc., may affect daily labor supply decisions. There may also exist hourly costs of employment which could likewise influence this dimension of labor supply. Furthermore, employer constraints on the hours and days that one is able to work could limit the optimal days/hours combination from the employee's point of view. To the extent that these constraints exist,

optimal days/hours pairs may only become available as employees sort into new positions that offer a more desirable package.

A better understanding of the desires of individuals in choosing their hours/days combinations could ultimately lead employers to offer competitive weekly work schedules to employees, thus reducing turnover and absenteeism rates as well as related costs. For governments, such information may be useful in planning for future infrastructure projects, or how best to target day care subsidies.

This chapter will investigate in some detail the days per week and hours per day decisions of workers. The use of a unique data set allows us to decompose the usual weekly hours aggregate into daily hours and weekly days. The relevant literature will be discussed in the next section. The third section presents the data to be used in subsequent analyses. A preliminary look at the patterns of weekly working times for males and females, both paid employees and self-employed workers, is covered in the next section. A simple econometric model of supply of hours and days is the topic of the following section. This largely serves as a check on the data and will allow us to investigate further some of the pertinent determinants of the hours/days labor supply decision. The next section presents and estimates a simple model of job change behavior. Since individuals may be constrained from working their desired days and hours at any one job, they may change jobs in response to these constraints. Following that is a more detailed look at the actual hours and days changes of job-changers. The final section concludes and offers some areas for potentially fruitful future research.

Our results show that individuals tend to be clustered around a standard five-day, eight hours per day workweek, with men exhibiting much less flexibility around these norms than women. The self-employed, regardless of gender, are much less likely to work standard hours and days compared with those engaged in paid employment. It is well-known that women supply less labor when they have young children. But our evidence also shows that women with young children supply less labor, in terms of both hours and days, than those without young children, although the percentage drop in days is larger. This is not well-known and suggests that the costs of childrearing are borne on a daily rather than an hourly basis. In other words, women with young children find it more cost-effective to reduce days when reducing weekly hours.

We also discovered that job-changers desire flexibility in their weekly schedules. Not only do they display a larger variance in hours and days at their initial jobs compared with those who did not change jobs, but this variance increases further as they move into their new positions. This suggests that employees may be constrained within jobs from attaining their desired hours/days combination.

PREVIOUS RESEARCH

Previous research has addressed a variety of related time aggregation problems. Hanoch (1980a,b) distinguished between the hours per week and weeks per year decision in a reservation wage model of female labor supply. Blank (1988) built on this model to allow for simultaneity of the hours and weeks decision. She also allowed for discontinuities in the labor supply decision that can occur as a result of fixed costs of employment or if workers are constrained by firms who will only allow a minimum number of hours per week and/or weeks per year. She concluded that the evidence provides support for the theory that female heads face either significant fixed costs of employment or structural barriers to low levels of yearly weeks or weekly hours of work.[2] Also, decisions regarding hours of work per week and weeks of work per year were made independently, albeit simultaneously. The lesson is that using aggregated annual hours in many analyses may be inappropriate because the variable lacks the necessary detail.

The recent literature on Canadian labor supply has also analyzed the changes in hours worked over time, usually at the aggregate of annual or weekly hours worked, and often in the context of an explanation for earnings polarization. Morissette, Myles, and Picot (1993) have shown that the 1980s experienced a widening in the distribution of annual hours worked between workers. Morissette and Sunter (1994) and Morissette (1995) showed that the distribution of weekly hours also widened during the 1980s; fewer individuals worked 35–40 hour weeks, while the fraction working either shorter or longer hours rose. Other research has addressed the increase in multiple job holdings and part-time work (Krahn 1995; Logan 1994; Pold 1994, 1995). One of the lessons of this research is that aggregate measures of

employment, such as annual hours worked, tend to obscure the fundamental underlying changes in the labor market over time, even though aggregate means may show only modest changes.

Just as aggregated annual hours hide important details, it is plausible that weekly hours may also be an inappropriate unit of analysis because the choice of days per week and hours per day could be related and simultaneous decisions on the part of workers. In addition, there can be fixed costs per day of work and even costs per hour of work. Aggregation of work hours into hours per year and hours per week does not allow us to investigate the complexity of the workers' decisions.

The costs of child care are frequently used in estimating the probability of female labor force participation. Many of these studies are nicely summarized in Cleveland et al. (1996). Blau and Robins (1988) and Ribar (1992), for example, found that child care costs had a negative effect on female labor force participation decisions. Cleveland et al. (1996) arrived at similar results using Canadian data. Generally, such empirical work is supportive of economic theory in that higher costs of child care lead to lower female labor force participation rates. What these studies have in common is the use of female participation as the dimension of labor supply analyzed. One exception to this is the study by Michalopoulos et al. (1992), which used hours supplied as the unit of analysis. They discovered that reduced child care tax credits resulted in a reduction in hours for women currently employed. These studies, however, did not address the impact of child care costs on the supply of hours and days. In another example of the importance of fixed costs on the labor supply decision, Zax and Kain (1991) showed that increases in commuting times generally increased the probability of employee quits.

Aside from the fixed costs of employment, employer inflexibility could be the factor that limits the days and hours that people are able to work, despite their preferences. Altonji and Paxson (1992) showed that married women who changed jobs exhibited more of a change in weekly and yearly hours compared with those who did not change jobs. They attributed this to employers restricting hours choices, which necessitated job change to attain the desired number of hours. Rettenmaier (1996) discovered that individuals who prefer low or high hours of work were more likely to be self-employed because they had a lower

probability of finding these hours in paid jobs. In a related paper, Kahn and Lang (1995) found that over half of Canadians in 1985 were dissatisfied with the number of weekly hours they usually worked. Of these, about two-thirds expressed the desire for more weekly hours, not fewer. Of course, an increase in weekly hours can come from increasing days per week or hours per day or both. If fixed costs per day of work are high relative to hourly costs, we would find that these workers desired to put in more hours per day in increasing their hours per week. If the hourly costs of work are higher, we would expect the opposite, assuming that their are no employer-imposed constraints on the availability of hours and days.

There is, in fact, some evidence suggesting that the aggregation of days and hours into weekly hours results may result in poor labor supply estimates. Hamermesh (1996) provided estimates of the reduced-form correlates of days and daily hours in the absence of a formal model. He concluded that we cannot treat weekly hours as a reliable unit of analysis because daily hours and days per week both vary. He found that daily hours, in both the United States and Germany, tended to vary more than days per week in response to various exogenous shocks such as changes in the unemployment rate. This implies that the cost of changing days per week is higher than the cost of changing hours per day.

We want to dissect the weekly hours decision faced by workers. The first step will be to model this days and hours decision. If there are significant fixed costs to the number of hours per week and the number of weeks per year worked, fixed costs in daily and hourly terms may also be important in determining the combination of hours per day and days per week. The daily act of preparing for work and commuting to and from the work site results in substantial sunk costs that are borne by workers. In other words, are the hours per day and days per week decision joint? Are the determinants of the two the same? Are there significant costs per day or per hour of work which prevent people from seeking jobs? Or is it employers who constrain the available set of hours and days that employees may choose?

DATA

The 1990 Labour Market Activity Survey (LMAS) of 1990 will be utilized in the empirical part of the chapter. The LMAS is a unique data set that includes variables for days per week and hours per day usually worked—variables which are not normally found in labor force surveys.[3] Data on up to five jobs held by each individual in 1990 are also included. This will ultimately allow us to make inferences about the motives behind job change. The data set also includes other variables for the reason the respondent left the job and the number of additional monthly hours the respondent desired to work. This information will be useful in deducing whether it is fixed costs that result in various hours/days combinations, or whether it is rigidities in the labor market that do not make the desired combinations of hours/days available to employees.

The sample includes those between the ages of 17 and 64 who lived throughout the country, with the exception of the Northwest and Yukon territories. Those who did not hold any job in 1990 were eliminated from the sample, as were those who did not work at a paid job (i.e., the self-employed) or who attended school full-time at any time during the year.[4] Those who held more than two jobs in 1990 were eliminated. To avoid job overlap (due to moonlighting, for example), those who started a second job in a week preceding the completion of the first job were dropped, as were respondents who claimed to work more than 18 hours per day or to have earned less than $1.00 per hour at either job. Satisfying these criteria were 16,820 males and 14,635 females.[5] The sample is further disaggregated into job-stayers (14,577 males and 13,245 females) and job-changers who moved from one paid job to another paid job (1,563 males and 1,318 females).[6]

WEEKLY WORK PATTERNS

An initial look at the data reveals that hours of work tend to be more flexible than days of work. Table 1 gives the joint distribution of hours and days for males and females. We define the standard workday

Table 1 Joint Distribution of Hours per Day and Days per Week, All Workers, Paid and Self-Employed Workers, Males and Females (%)

Category/ hours per day \ Days per week	1–4	5	6–7	Total
Males				
All workers (n = 18,328)				
< 4.0	0.18	0.23	0.09	0.50
4.0–5.9	0.51	00.74	0.20	1.45
6.0–7.4	0.69	4.44	0.62	5.75
7.5–8.5	1.79	58.55	3.82	64.16
8.6–9.9	0.32	5.36	1.53	7.21
> 9.9	4.06	8.56	8.32	20.94
Total	7.55	77.88	14.58	100.00
Paid workers (n = 16,280)				
< 4.0	0.19	0.18	0.07	0.44
4.0–5.9	0.51	0.76	0.15	1.42
6.0–7.4	0.73	4.70	0.53	5.96
7.5–8.5	1.83	63.36	2.99	68.18
8.6–9.9	0.32	5.29	0.88	6.49
> 9.9	4.44	7.75	5.33	17.52
Total	8.02	82.04	9.95	100.00
Self-employed (n = 2,048)				
< 4.0	0.15	0.63	0.24	1.02
4.0–5.9	0.54	0.59	0.54	1.67
6.0–7.4	0.34	2.34	1.32	4.00
7.5–8.5	1.56	20.31	10.45	32.32
8.6–9.9	0.24	5.96	6.64	12.84
> 9.9	1.07	14.94	32.13	48.14
Total	3.90	44.77	51.32	100.00

(continued)

Table 1 (continued)

Category/ hours per day \ Days per week	1–4	5	6–7	Total
Females				
All workers (*n* = 15,263)				
< 4.0	1.13	1.47	0.33	2.93
4.0–5.9	3.97	4.48	0.56	9.01
6.0–7.4	5.37	15.20	0.89	21.46
7.5–8.5	8.25	46.28	2.44	56.97
8.6–9.9	0.39	2.10	0.55	3.04
> 9.9	2.37	2.14	2.06	6.57
Total	21.48	71.67	6.83	100.00
Paid workers (*n* = 14,635)				
< 4.0	1.11	1.42	0.23	2.76
4.0–5.9	4.00	4.48	0.50	8.98
6.0–7.4	5.46	15.54	0.77	21.77
7.5–8.5	8.41	47.47	2.15	58.03
8.6–9.9	0.38	2.00	0.42	2.80
> 9.9	2.44	1.98	1.23	5.65
Total	21.80	72.89	5.30	100.00
Self-employed (*n* = 628)				
< 4.0	1.75	2.55	2.71	7.01
4.0–5.9	3.34	4.46	1.91	9.71
6.0–7.4	3.35	7.32	3.66	14.33
7.5–8.5	4.29	18.63	9.39	32.31
8.6–9.9	0.64	4.46	3.50	8.60
> 9.9	0.80	5.89	21.34	28.03
Total	14.17	43.31	42.51	100.00

NOTE: Totals may not add due to rounding error.

to be in the 7.5 to 8.5 hour range and the standard workweek to be five days. For all male workers, 78 percent normally worked the standard five-day workweek. Only 64 percent of male workers worked the standard workday. As expected, female workers show greater diversity in their usual hours and days, as 72 percent worked the standard five-day week and 57 percent worked the "normal" workday.

Because we consider the self-employed as being somewhat less constrained by the days and hours restrictions of paid employees, we expect this group of workers to exhibit greater variance in their observed hours and days. Further breaking down the sample into paid workers and self-employed workers does in fact reveal this; i.e., paid workers tended to work more standard days and hours compared to the self-employed. Some 82 percent of paid males worked a five-day week in 1990, compared to only 45 percent of self-employed males. In fact, over 51 percent of self-employed males worked six- or seven-day weeks. Usual work hours were also more standardized for paid workers, with 68 percent working normal hours. By contrast, only 32 percent of self-employed males worked between 7.5 and 8.5 hours per day, with 48 percent working 10 hours per day or more. Both the hours and days distributions are more heavily weighted at the top for self-employed males. One interesting result is that over 4 percent of paid workers worked at least 10 hours per day but less than five days per week. This suggests that some workers were able to work longer hours and fewer days within a standard-length workweek.

Women generally show more flexibility in their hours and days combinations compared to men. For paid women, 73 percent worked a standard five-day week and 58 percent worked the standard workday—about 10 percentage points lower than the equivalent values for males. Paid females were also much more likely to work shorter hours and days than their male counterparts and less likely to work longer days and hours. As with the case of males, self-employed females showed much more variation in their hours and days; more were likely to work larger numbers of hours and days compared to female paid workers. They were also more concentrated in the lower tail of the hours per day distribution. Compared to self-employed males, females were more likely to work both shorter hours and days.

The patterns for both genders are generally consistent with those obtained by Hamermesh (1996) in his comparison of U.S. and German labor supply.[7]

A SIMPLE MODEL OF LABOR SUPPLY

Loosely extending a standard labor supply model such as the one found in Blank (1988), we can model the days and hours labor supply decision and then estimate the model. Each individual is assumed to maximize his or her utility, which is a function of the level of consumption and the amount of leisure consumed. Formally, the model can be written as

(1) $\max_{C,D_l,H_l} U(C,D_l,H_l)$

subject to

$$C = Y - \alpha D_w + D_w H_w \mathrm{W}(1 - \mu)$$

$$D_l = D - D_w$$

$$\mathrm{H}_l = \mathrm{D}_w (H - H_w),$$

where C is weekly consumption and is simply the amount of exogenous income available (Y) plus the amount of labor income earned per week. The latter is the usual number of days worked per week (D_w) times the usual number of hours worked per day (H_w) times the usual hourly wage (W). Finally, we subtract the costs of employment for both days of work and hours of work. The simple act of preparing for and commuting to work involves costs which are borne daily, regardless of the amount of time spent on the job. Other costs, however, are a function of the amount of time per day spent on the job. Costs such as day care and parking, for example, may be on an hourly basis. We assume that α represents the fixed costs per day of work, and μ are the costs per hour of work.

Leisure is divided into days per week of leisure (D_l), which is the number of days per week (D) less the number of days per week worked, and hours of leisure (H_l), which is the weekly amount of leisure consumed on days worked and is simply the number of days per week worked times the number of hours on these days not at work ($H - H_W$). Because hours and days of leisure may be qualitatively different for individuals, they enter the utility functions separately.

We know that solving the above problem yields Marshallian demand functions for hours of leisure and days of leisure, which can be transposed into labor supply functions for days per week of work and hours per day of work. In other words, we can solve for

(2a) $D_w = D_w(Y,W,\delta,\alpha,\mu)$

(2b) $H_w = H_w(Y,W,\delta,\alpha,\mu)$

where δ is a vector of demographic and job-related variables that we assume will affect supply for hours and days of work.

If we assume that leisure (in either days or hours) is a normal good, and that the substitution effect is greater than the income effect, then an increase in the cost of days or hours should increase the amount of leisure taken. Obversely, the number of hours and days of work supplied should decrease as the direct costs of each increase. Thus, we assume that $\partial D_w / \partial \alpha < 0$ and $\partial H_w / \partial \mu < 0$. Furthermore, if we assume that hours and days are substitutes, the cross-partial derivatives will both be positive. In other words, $\partial D_w / \partial \mu > 0$ and $\partial H_w / \partial \alpha > 0$ says that as the fixed cost per hour (day) of work increases, the individual will increase his or her supply of days (hours) because the opportunity cost of doing so is now relatively less expensive.

To operationalize the model into days and hours, we assume a linear approximation of the relationship between the supply of labor and its determinants. Thus, model (1) becomes

(3a) $D_w^* = \boldsymbol{X}_1\beta_1 + \varepsilon_1$

(3b) $H_w^* = \boldsymbol{X}_2\beta_2 + \varepsilon_2$

where $\boldsymbol{X}_1$ and $\boldsymbol{X}_2$ are vectors of individual and job characteristics that determine the number of days and hours supplied, β_1 and β_2 are the vector of coefficients, and ε_1 and ε_2 are the usual white noise error terms. Of course, D_w^* and H_w^* are only observed if the respondent is actually a labor force participant; they are written in natural logarithms.

Eqs. 3a and 3b, however, are limited because they implicitly assume that the hours and days decisions are separable. They also implicitly assume that there are no discontinuities in labor supply choices. It is well-established that discontinuities do in fact arise from the fixed costs of work (hourly, daily, weekly, etc.) as well as employer-imposed constraints which may limit the maximum or minimum hours that a person is able to work, thus narrowing the choice set of the worker. Still, it provides a starting point to analyze the determinants of hours and days of work. From estimation of Eqs. 3a and 3b, certain implications about daily and hourly costs of employment can be ascertained.

The reduced-from estimates of Eqs. 3a and 3b, with and without job controls, are presented in Table 2.[8] For economy of space, only the coefficients discussed are included (summary statistics and full results appear in Tables A1 and A2 in the appendix). At the bottom of the table, the results from Breusch-Pagan tests allow us to reject in all four cases the hypothesis that the days and hours regressions are independent. The correlation coefficients of the residuals are positive, underlining something we discovered in Table 1: workers who work, for unexplained reasons, more (fewer) hours also tend to work more (fewer) days. Still, the magnitudes of these correlation coefficients are small. Since the dependent variables are natural logarithms, we can compare the effect of the independent variables on hours and days. Significance levels of pairwise *t*-statistics, which test the hypothesis that the effect of the independent variable is the same on both hours and days, are also included. The coefficients on the number of children in the days and hours regressions, for example, are significantly different in the case of females but not in the case of males.

The results show that both men and women above 19 years of age work more hours and days compared to the control group of individuals between 17 and 19 years of age. For males, hours and days peak at 25–34 years of age, while hours and days for females reach a maximum at 20–24 years of age. Throughout the remainder of the life-

Table 2 OLS Estimates of ln (Hours) and ln (Days), With and Without Job Controls, Males and Females[a,b]

	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
Independent variable	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Age												
20–24 years	0.0493	0.0385		0.0501	0.0413		0.0327	0.0853	***	0.0248	0.0787	***
	(4.067)	(3.667)		(4.239)	(3.970)		(1.441)	(3.373)		(1.115)	(3.160)	
25–34 years	0.0549	0.0412		0.0537	0.0460		0.0225	0.0785	***	0.0010	0.0553	***
	(4.516)	(3.918)		(4.522)	(4.392)		(1.008)	(3.156)		(4.500)	(2.251)	
35–44 years	0.0371	0.0322		0.0427	0.0392		0.0106	0.0688	***	–0.0175	0.0385	***
	(3.006)	(3.007)		(3.518)	(3.667)		(0.467)	(2.735)		(0.787)	(1.542)	
45–54 years	0.0227	0.0310		0.0317	0.0377		–0.0176	0.0395	***	–0.0413	0.0118	***
	(1.792)	(2.832)		(2.530)	(3.414)		(0.763)	(1.541)		(1.816)	(0.463)	
55–64 years	–0.0165	0.0198	**	–0.0036	0.0269	*	–0.0807	–0.0362		–0.1025	–0.0637	
	(1.251)	(1.732)		(0.278)	(2.337)		(3.371)	(1.360)		(4.319)	(2.399)	
Number of children												
Ages 0–2	–0.0023	–0.0031		–0.0030	–0.0035		–0.0195	–.00742	*	–0.0163	–0.0681	*
	(0.579)	(0.893)		(0.752)	(1.003)		(2.867)	(9.788)		(2.430)	(9.102)	
Ages 3–5	0.0059	0.0005		0.0060	0.0012		–0.0332	–0.0645	*	–0.0320	–0.0616	*
	(1.507)	(0.152)		(1.590)	(0.354)		(5.153)	(9.012)		(5.078)	(8.726)	

(continued)

Table 2 (continued)

	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
Independent variable	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Ages > 5	0.0022	0.0007		0.0011	0.0005		–0.0192	–0.0277	*	–0.0167	–0.0224	***
	(1.445)	(0.559)		(7.250)	(0.348)		(7.749)	(10.082)		6.843	8.206	
Constant	2.1163	1.5883	*	2.1341	1.5712	*	1.9751	1.5201	*	1.9535	1.4841	*
	(151.034)	(130.867)		(127.509)	(106.577)		(75.150)	(52.004)		61.491	(41.755)	
R^2	0.0313	0.0086		0.0841	0.0305		0.0276	0.0696		0.0408	0.0713	
Correlation coefficient of residuals	0.1455			0.1379			0.1545			0.1371		
Breusch–Pagan test of independence (p-value)	0.0000			0.0000			0.0000			0.0000		
Number of observations	16,280			16,280			14,635			14,635		

[a] Absolute values of *t*-statistics are in parentheses.
*** = Significant at 1% level.
** = Significant at 5% level.
* = Significant at 10% level.

[b] Controls for marital status, relationship to family head, education, region, mother tongue, immigrant, and visible minority were all included in all regressions. Job control variables are firm size, industry, occupation, union coverage, tenure, and pension coverage. Age 17–19 is the omitted variable.

cycle, labor supply in both dimensions declines slowly. For both genders, the increase in weekly hours is the result of a larger percentage increase in days than hours, but only in the case of women are these differences statistically significant at 10 percent.

These results are somewhat at odds with those of Hamermesh (1996), who found that the inverse U-shaped pattern was steeper in the case of hours than days for both U.S. and German male and female workers. He reasoned that the steeper hours profile implied that hours are less costly to add than days. In our case, male workers do add hours slightly more rapidly than days until they reach their peaks between 25 and 34 years. Thereafter, hours fall off more rapidly than days. Because 82 percent of the males in our sample work a standard five-day workweek, flexibility in weekly hours obviously comes from changes in hours. For female workers, it is days that rise more rapidly to a peak at 20–24 years, and then both days and hours decline at a similar rate. Thus females appear to be more flexible in altering both days and hours than males.

Because women still generally hold the primary responsibility for child care, the presence of young children should decrease their labor supply. Indeed, the number of young children present does have a negative effect on supply of both hours and days. In the case of no job controls, the point estimates show that the presence of a child two years of age or less is related to a drop in hours of almost 2 percent but a drop in days of over 7 percent. By contrast, the presence of young children has no statistically significant effect on the male supply of hours and days. Thus, the data show that young children are correlated with a decline both the hours and days supplied by the mother. If the fixed costs of child care are incurred on a daily basis versus an hourly basis, we would expect the decline in labor supply to be borne by a larger decline in days. This indeed is the case.

JOB-CHANGE BEHAVIOR AND HOURS PER DAY AND DAYS PER WEEK

Insofar as hours and days combinations within jobs are less than optimal for workers, we might expect job change to occur in order to

attain the desired combination. Since the LMAS contains data on up to five job changes per worker per year, we can use this information to estimate a model of job change behavior that will help give further insights into the daily and hourly fixed costs of labor supply.

Modifying the labor force participation model of Blank (1988), we assume that an individual *i* in period *j* attains the utility level $U_i^j(H_i^j, D_i^j, E_i^j)$, where H_i^j is hours of work per day at the job held in period *j*, D_i^j is days per week at job *j,* and $E_i^j = H_i^j \cdot D_i^j \cdot W_i^j$ represent the weekly earnings at job *j,* which has an hourly wage rate of W_i^j. If we assume that the individual has perfect information about all the arguments in his or her utility function, and that job mobility is cost-free, then an individual will change jobs only if

(4) $$P^* = U_i^2(H_i^2, D_i^2, E_i^2) - U_i^1(U_i^1, D_i^1, E_i^1) \geq 0.$$

If we further assume that P^* is linearly dependent on the three arguments in the utility function, as well as other demographic and economic variables that determine job change, we can write

(5) $$P^* = \lambda \boldsymbol{Z} + v,$$

where $\boldsymbol{Z}$ is the aforementioned vector of job change determinants, λ is its corresponding vector of coefficients, and *v* is the white noise error term. Utility is unobservable and therefore so is the variable P^*. What we do observe, however, is a dichotomous variable *P,* where

$P = 1$ if $P^* \geq 0$ and $P = 0$ if $P^* < 0$.

If we assume that an individual is in equilibrium at the initial job, utility is being maximized. A shock which affects one or more arguments in the individual's utility function may result in the utility no longer being maximized at that job, and job change will occur if utility can be maximized at a new job. The birth of a child, for example increases the fixed costs of employment along both time dimensions. If the fixed costs of hours are more costly than the fixed costs of days, we would expect job-changers to want to move out of jobs with longer hours. Conversely, if days are more costly than hours, we would expect the probability of leaving to be positively related to the days variable.

Probit estimates of Eq. 5 appear in Table 3. Again, only the relevant coefficients are included with full results contained in Table A3 in the appendix. Independent variables include all personal and job controls used in the previous analysis, plus variables for ln (hours) and ln (days) at the initial job, a dummy which equals 1.0 if respondents said that they desired more monthly hours at their initial job, and interactions of this variable with ln (hours) and ln (days). Separate probits are also estimated without personal and job controls. Of the 16,280 males in our sample, some 1,563 changed jobs in 1990 for a probability of 0.096. For women, the probability of moving from a first to a second job was 0.090 (1,318 changers from a sample of 14,635).

The effects of personal and job characteristics on job change are very similar for both genders. Probability of job change decreases as age increases. The presence of small children also reduces the likelihood of job change for both genders, especially women. Older children have little influence on the job change behavior of men but continue to slightly lessen female mobility. Union members tend to exhibit less job mobility as do those with more job tenure. These results are consistent with the literature.[9]

The marginal effects of hours, days, and wanting extra monthly hours on job-change probability are presented in Table 4. For males, the number of hours and days worked at their initial jobs have little effect on job-change probability when control variables are included. In the case of no controls, the coefficient on ln (hours) is twice as large as that on ln (days), although only the former is significant. The effect of the desire for extra hours, however, is significant in both cases, accounting for about half of the predicted probability when controls are not included. For females, a different pattern emerges as the ln (days) and ln (hours) coefficients are similar in magnitude and significant in each instance. The effect of the desire to work extra hours is significant in each case and large compared to the predicted probabilities of each model.

These results are not supportive of the hypothesis that the addition of days is more costly than the addition of hours, but that could simply be a result of unobserved heterogeneity between workers, which causes them to separate from their initial jobs if their preferences do not favor the given hours/days combination. Regardless of the reason, this result shows that the desire to work extra hours significantly increases the

Table 3 Probit Estimates of Job Change Probability, Males and Females[a,b]

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
ln (hours per day)	0.2869	0.048	0.0806	0.010	0.3203	0.051	0.2358	0.027
	(3.442)		(0.890)		(4.394)		(2.997)	
ln (days per week)	0.1946	0.033	–0.0321	–0.004	0.3093	0.049	0.2330	0.027
	(1.832)		(0.296)		(4.522)		(3.188)	
Extra hours wanted	1.7816	0.548	0.5529	0.092	0.8750	0.208	0.5999	0.098
	(4.231)		(1.263)		(2.913)		(1.919)	
Extra hours wanted × ln (hours)	–0.2810	–0.047	0.0388	0.005	–0.1086	–0.017	–0.0309	–0.004
	(1.515)		(0.199)		(0.791)		(0.213)	
Extra hours wanted × ln (days)	–0.5910	–0.100	–0.3389	–0.041	–0.1856	–0.029	–0.2079	–0.024
	(3.518)		(1.950)		(1.651)		(1.763)	
Age								
20–24 years			–0.3188	–0.031			–0.0973	–0.011
			(3.487)				(0.836)	

25–34 years	–0.4625 (4.925)	–0.049	–0.2862 (2.459)	–0.031
35–44 years	–0.5028 (5.145)	–0.052	–0.4378 (3.641)	–0.045
45–54 years	–0.6083 (5.852)	–0.055	–0.5785 (4.616)	–0.051
55–64 years	–0.8859 (7.612)	–0.063	–0.7840 (5.477)	–0.055
Number of children				
Ages 0–2	–0.1106 (2.771)	–0.013	–0.2743 (5.783)	–0.032
Ages 3–5	–0.0032 (0.085)	0.000	–0.0619 (1.425)	–0.007
Ages > 5	–0.0196 (1.242)	–0.002	–0.0345 (2.015)	–0.004
Covered by union agreement	–0.2124 (5.768)	–0.025	–0.2854 (6.611)	–0.032
Tenure at job (weeks/100)	–0.1179 (18.130)	–0.014	–0.1460 (15.541)	–0.017

(continued)

Table 3 (continued)

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
Constant	–2.2614		–0.3095		–2.5003		–1.6369	
Covered by union agreement	(9.773)		(1.096)		(14.577)		(6.028)	
Pseudo R^2	0.007		0.124		0.012		0.119	
X^2(5, 55, 5 and 54 d.f.)	69.32		1277.03		110.18		1055.43	
Observed P		0.096		0.096		0.090		0.090
Predicted P		0.095		0.061		0.087		0.058
Number of observations	16,280		16,280		14,635		14,629	

[a] Absolute values of t-ratios are in parentheses.

[b] Controls are marital status, relationship to family head, education, region, mother tongue, immigrant, visible minority, firm size, industry, occupation, and pension coverage. Age 17–19 is the omitted variable.

Table 4 Effect of Independent Variables on Predicted Job Change Probability[a]

	Males		Females	
	w/o controls	w/controls	w/o controls	w/controls
Hours	0.052	0.010	0.060	0.032
	(3.372)	(0.932)	(4.672)	(3.257)
Days	0.026	–0.008	0.055	0.029
	(1.415)	(0.661)	(4.691)	(3.178)
Extra hours wanted	0.048	0.011	0.076	0.032
	(5.388)	(1.921)	(8.222)	(4.580)
Predicted *P*	0.095	0.061	0.087	0.058

[a] Absolute values of *t*-ratios are in parentheses.

probability of job change for both genders, suggesting that those who want these hours may face hours and/or days constraints in their initial jobs and have to change jobs to relax these constraints.

The fact that extra hours are desired indicates that the individual may not be in equilibrium at his or her current job. The interactions of the extra hours variable with the days and hours variables in Table 3 provide us with additional information about the reasons for job change. If a lack of hours (or days) on the current job is the constraint on lower-than-desired total hours and thus at least part of the motivation for seeking a new job, then we would expect a negative coefficient on the interaction term. For example, if one wanted extra days per week, the probability of job change should decrease as the number of days at the current job increase. The significant negative coefficients on the extra hours/days interaction variables in the case of males support this assertion. For the extra hours/hours interaction, however, we cannot reject the null of no effect on job-change behavior. Thus, a male who wants extra hours is less likely to leave his current job as days per week increase, while hours per day have no significant effect on job change. For females, none of the coefficients on either of the interaction variables is statistically significant.

These results suggest that for males who do not desire extra hours, the costs of additional hours of work are higher, at least within their first jobs, than those of additional days of work because the increase in

job-change probability is greater for an increase in hours relative to a comparable increase in days. For females, increases in both days and hours result in similar changes in job-change probabilities. For both who want more monthly hours, a larger number of hours at the worker's initial job has a smaller negative effect on job-change behavior than an equivalent increase in days. Thus, the probability of job change decreases as extra hours and days are added within the initial job, although the negative effect of the latter is larger. This appears to be inconsistent with the hypothesis of higher daily fixed costs, although it may simply imply that the monetary benefits to working extra days far outweigh the fixed costs of these days. It may also mean that job-changers are somewhat constrained in their choices, as new job offers are more apt to include a higher number of days rather than a higher number of hours.[10]

These estimates do give us insight into what motivates job change, but they tell us little about the changes in hours and days that result from job change. This is addressed in the following section.

DETAILED ANALYSIS OF JOB-CHANGERS

Tables 5 and 6 show the extent to which the means and variances of ln (days) and ln (hours) vary as workers change jobs. In both these tables, columns 1 through 4 display the means and variances of ln (hours) and ln (days) for each of the two jobs held by job-changers, and the one job held by job-stayers. Column 5 shows the mean changes in log weekly hours as well as the corresponding variances. Columns 6 and 7 disaggregate weekly hours changes into changes in ln (hours) and ln (days). Columns 8 and 9 display the test statistics for differences in the means and variances in ln (hours) and ln (days) changes.[11] We also disaggregate the sample of job-changers, first into voluntary and involuntary job-changers, and then into those who wanted extra hours at their first job and those who did not.[12] In each of these two subsamples, significant differences exist between the two groups in terms of mean changes and variances in almost every time dimension. For example, both the means and variances of changes in weekly hours are significantly different when comparing those who desired extra

Table 5 Selected Means and Variances of ln (hours) and ln (days), Jobs 1 and 2 and First Differences, for Male Job-Stayers and Job-Changers[a]

	Job 1		Job 2		First differences			Tests for differences in[b]	
								Means	Variance
	ln (hours)	ln (days)	ln (hours)	ln (days)	Δln (wkly. hours)	Δln (hours)	Δln (days)	*z*	*F*
Job stayers (n = 14,577)	2.116 (0.0341	1.602 (0.0234)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)		
Job changers (n = 1,563)	2.128 (0.0395)	1.596 (0.0423)	2.132 (0.0433)	1.598 (0.0394)	0.0067 (0.1497)	0.0040 (0.0578)	0.0027 (0.6640)	0.146	1.149**
Voluntary (n = 1,000)	2.119 (0.0429)	1.589 (0.0389)	2.125 (0.0412)	1.603 (0.0276)	0.0190 (0.3548)	0.0058 (0.0548)	0.0131 (0.0511)	0.709	1.072
Involuntary (n = 563)	2.142 (0.0331)	1.607 (0.4830)	2.143 (0.0470)	1.591 (0.0602)	–0.0150 (0.1916)	0.0007 (0.0632)	–0.0158 (0.0933)	0.990	1.476*
Extra hours wanted (n = 230)	2.045 (0.0584)	1.459 (0.0942)	2.117 (0.0379)	1.570 (0.0390)	0.1824 (0.2134)	0.0714 (0.0686)	0.1110 (0.1155)	1.400	1.684*
Extra hours not wanted (n = 1,333)	2.142 (0.0349)	1.619 (0.0299)	2.134 (0.0442)	1.603 (0.0393)	–0.0236 (0.1326)	–0.0076 (0.0551)	–0.0160 (0.0557)	0.921	1.011

[a] The top data row of each pair is the mean (μ) and the second row, in parentheses, is the variance (σ^2).
[b] * and ** denote significance at the 1% and 5% levels, respectively.

Table 6 Selected Means and Variances of ln(Hours) and ln(Days), Jobs 1 and 2 and First Differences, for Female Job-Stayers and Job-Changers[a]

	Job 1		Job 2		First differences			Tests for differences in[b]	
								Means	Variance
	ln (hours)	ln (days)	ln (hours)	ln (days)	Δln (wkly. hours)	Δln(hours)	Δln(days)	*z*	*F*
Job stayers (n = 13,245)	1.967 (0.0813)	1.491 (0.0100)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)		
Job changers (n = 1,318)	1.996 (0.0469)	1.520 (0.0784)	1.997 (0.0547)	1.507 (0.0909)	–0.0113 (0.2429)	0.0008 (0.0732)	–0.0121 (0.1287)	1.624	1.758*
Voluntary (n = 998)	1.991 (0.0462)	1.509 (0.0814)	1.998 (0.0453)	1.518 (0.0787)	0.0162 (0.2306)	0.0071 (0.0690)	0.0091 (0.1179)	0.146	1.709*
Involuntary (n = 320)	2.012 (0.0488)	1.553 (0.0670)	1.993 (0.0841)	1.475 (0.1280)	–0.0969 (0.2724)	–0.0188 (0.0858)	–0.0782 (0.1569)	2.157**	1.829*
Extra hours wanted (n = 238)	1.862 (0.0814)	1.329 (0.1692)	1.985 (0.0635)	1.483 (0.0989)	0.2768 (0.3967)	0.1225 (0.1072)	0.1542 (0.2275)	0.845	2.122*
Extra hours preferred (n = 1,080)	2.026 (0.0345)	1.562 (0.0487)	2.000 (0.0528)	1.513 (0.0891)	–0.0747 (0.1870)	–0.0260 (0.0618)	–0.0487 (0.0996)	2.299**	1.612*

[a] The top data row of each pair is the mean (μ) and the second row, in parentheses, is the variance (σ^2).
[b] * and ** denote significance at the 1% and 5% levels, respectively.

monthly hours with those who did not.[13] The evidence appears to support the hypothesis that flexibility in weekly work schedules is important to employees.

Males who changed jobs worked slightly more hours per day and marginally fewer days per week at their initial jobs compared with those who did not change jobs, although only the former difference is statistically significant. The variances of both ln (hours) and ln (days), however, are significantly higher in the case of job-changers than job-stayers. Thus, although we cannot reject the hypothesis that the average job-changer works the same number of daily hours as the average job-stayer, job-changers show much more variation in their work schedules at their initial jobs, and this variation persists as they move into new jobs. This is generally consistent with the results of Altonji and Paxson (1986), who found that the variance of time worked in a number of dimensions (hours/week, weeks/year, or hours/year) increased for people who changed jobs, relative to those who did not change jobs.[14]

For all male job-changers, column 5 of Table 5 shows that job-changers worked marginally more weekly hours at their new jobs. Disaggregating these changes into changes in hours and days, however, we cannot reject the hypothesis that the change in weekly hours was the result of equal changes in both hours and days. The variance of days changes, however, is higher than that of hours at the 5 percent level. Voluntary changers had an increase in ln (weekly hours) of 0.019, with the adjustment coming equally from increases in hours and days. Involuntary changers, by contrast, had a decline of 0.015 in ln (weekly hours). Although we cannot reject the hypothesis that the change came equally from changes in hours and days, we see that the variance of the change in days is significantly higher than the change in hours.

Males who wanted extra hours had an increase in ln (weekly hours) of 0.182 compared to a decline of 0.024 for those who did not. Only in the former case, however, is the variance of the change in ln (days) significantly higher than that of the change in ln (hours). The higher variances for those desiring extra hours also imply a great deal of flexibility in finding the preferred combinations of hours and days. Similar results are obtained by Altonji and Paxson (1988, 1992), who found that workers who desired to work more weekly hours were more likely to increase these hours when they changed jobs.

The results for females are presented in Table 6 and show much more variation in all time dimensions compared to males. Comparing the distributions of hours and days on the first job between stayers and changers, both means are significantly larger for job-changers. For job-changers, the variance in log hours is significantly smaller than for stayers while the opposite holds for the variance on ln (days). Female job-changers find new jobs with only marginally more hours and marginally fewer days compared to their previous positions, in neither case are the differences significant. Changers do, however, move into jobs with significantly higher variances in both days and hours.

For all female job-changers, average total weekly hours declined slightly following job change, although the changes in hours and days are statistically indistinguishable. The variance of hours changes, however, is statistically much smaller than the variance of days changes. Voluntary changers had a modest increase in weekly hours compared to involuntary changes. Only in the latter case, however, can we say that the bulk of this change was the result of the steep decline in days. Those women who wanted extra hours increased their ln (weekly hours) by an average of 0.277, the result of an equal increase in both hours and days. Those who did not want extra hours saw their mean ln (weekly hours) decline by 0.075, with most of this decline the result of a drop in days. In each case, the variance of the days change is statistically larger than that of the hours change.

Both male and female job-changers experience changes in days and hours as they change jobs. Mean differences, however, appear to hide important details. In many cases we cannot say with certainty that the adjustment in weekly hours is the result of either changes in days or hours. The fact that the variance of changes in days is frequently significantly larger in the case of males, and is always significantly larger in the case of females, shows that the changes in days are much more flexible than changes in hours when workers change jobs. This then implies that changes in days are less flexible than changes in hours within jobs. These results are generally inconsistent with those obtained by Hamermesh (1996) for German and American workers. Only in the case of German males did the variance of the change in ln (days) exceed that of the change in ln (hours). For German women and American men the opposite held, while there was little difference for American women.[15]

In sum, we have seen that job-changers have a larger number of hours and days, generally with higher variances at their initial jobs compared with those who do not change jobs. Job change does not increase the average number of hours or days amongst changers but, with the exception of changes in male days, variances also increase. Voluntary job-changers of both genders experience higher average increases in both days and hours than those who do not change jobs voluntarily, although the variances in the changes of log hours and log days are larger for involuntary movers. Finally, those desiring extra hours at their initial jobs are likely to find these extra hours in the form of both more daily hours and more days per week, with the variances here (i.e., on the new job) smaller for those who did not want extra hours.

In terms of the daily and hourly costs of employment, the above provides weak evidence that the latter may be proportionately less than the former. Only in two cases (female involuntary changers and females not desiring extra hours) are the differences between mean ln (hours) and mean ln (days) changes statistically significant. In both of these cases, the percentage decline in hours is much smaller than the percentage decline in days. This suggests that hours of work are less costly to eliminate than days of work as these women changed jobs. Conversely, if we make the reasonable assumption of symmetry of costs in adding and subtracting days or hours, then adding extra days are more costly than adding extra hours.

The above results give us a good idea of the differences in mean hours and days changes along with their dispersions as job-changers move from one job to the next. This analysis, however, depends on differences in average hours and days changes between groups and thus could cloud the direction of changes in hours and days as workers move between jobs. Looking at the direction and magnitude of changes in hours and days by job-changers may offer some insights into what motivates job change. If daily fixed costs are indeed relatively high compared to hourly costs, we would expect changers to sort into new jobs with fewer days and more hours, all other things equal. Furthermore, we might expect these changes to be especially pronounced in the case of voluntary job-changers because they presumably are less constrained in their choices than those who change involuntarily. In other words, the voluntarily displaced worker may

only change jobs if the hours/days combination at the new job is sufficiently different from the original job, a choice which an involuntarily displaced worker may not have. We might also expect those who want extra hours to attain these hours by increasing their daily hours rather than by increasing days. Females, who have exhibited more flexibility in our sample, might also be more apt to change into jobs with relatively fewer days and more hours.

Tables 7 and 8 show contingency tables for days and hours changes for male and female job-changers. In all but one case, χ^2 values allow us to reject the hypothesis that the distributions of days and hours are independent.[16] In other words, changes in hours and days between jobs are not purely random. In each of the 10 panels in Tables 7 and 8, no change in days is more likely than no change in hours for job-changers. Thus, it appears that rigidities in days are more prevalent than changes in hours. If larger fixed costs are incurred on a daily basis, these results are what we would expect.

The second and third panels of Table 7 show that there are differences between voluntary and involuntary job-changers. If voluntary job-changers are able to sort into a more palatable days/hours combination, and if the costs of adding a day of work are higher than adding more hours, we would expect positive hours changes to be more likely as workers move between jobs. If we simply look at aggregate days and hours changes, this does not appear to be the case. Although voluntary changers are more likely to hold on to both their original days and hours, the distributions show few other differences, if we only look at column and row totals. What is interesting is the off-diagonal elements of each panel. In this case voluntary changers were about as likely to increase days and decrease hours as they were to do the opposite. Involuntary changers, however, were more likely to increase hours and decrease days than to decrease hours jointly with increasing days. This is the opposite of what we expected, although somewhat supportive of the higher daily fixed costs hypothesis. This also suggests that factors other than the costs of days and hours exert more of an influence on voluntary job-changers as they sort into new jobs.

Those who said they wanted additional hours at their first jobs do, however, display important differences compared with those who did not want extra hours. Job-changers were more likely to have both positive hours and days changes if they wanted extra hours than if they did

Table 7 Changes in Hours and Days for Male Job-Changers (%)

	Δ Hours					
Δ Days	≥ 2.0	0.1– 2.0	0	< 0 & >–2	≤ –2	Total
All job-changers (n = 1563)[a]						
> 1	2.94	0.70	1.41	0.38	0.70	6.14
1	2.82	1.15	3.20	0.90	1.60	9.66
0	4.73	5.63	49.07	5.76	4.67	69.87
–1	2.30	0.45	2.11	1.15	1.98	8.00
< –1	1.15	0.13	2.05	0.38	2.62	6.33
Total	13.95	8.06	57.84	8.57	11.58	100.00
Voluntary job-changers (n = 1000)[b]						
> 1	3.30	0.40	1.10	0.50	0.80	6.10
1	2.40	1.40	3.10	1.10	1.30	9.30
0	4.20	5.70	51.00	6.40	4.60	71.90
–1	2.30	0.40	1.40	1.20	2.10	7.40
< –1	0.80	0.10	2.20	0.50	1.70	5.30
Total	13.00	8.00	58.80	9.70	10.50	100.00
Involuntary job-changers (n = 563)[c]						
> 1	2.31	1.24	1.95	0.18	0.53	6.22
1	3.55	0.71	3.37	0.53	2.13	10.30
0	5.68	5.51	45.65	4.62	4.80	66.25
–1	2.31	0.53	3.37	1.07	1.78	9.06
< –1	1.78	0.18	1.78	0.18	4.26	8.17
Total	15.63	8.17	56.13	6.57	13.50	100.00
Extra hours wanted (n = 230)[d]						
> 1	6.96	1.30	3.48	2.61	2.17	16.52
1	6.96	2.61	3.04	1.30	1.30	15.22
0	6.09	3.48	41.74	4.78	2.17	58.26
–1	3.04	0.00	0.87	0.87	1.30	6.09
< –1	0.87	0.00	2.17	0.00	0.87	3.91
Total	23.91	7.39	51.30	9.57	7.83	100.00

(continued)

Table 7 (continued)

	Δ Hours					
Δ Days	≥ 2.0	0.1– 2.0	0	< 0 & >–2	≤ –2	Total
Extra hours not wanted (n = 1080)[e]						
> 1	2.25	0.60	1.05	0.00	0.45	4.35
1	2.10	0.90	3.23	0.83	1.65	8.70
0	4.50	6.00	50.34	5.93	5.10	71.87
–1	2.18	0.53	2.33	1.20	2.10	8.33
< –1	1.20	0.15	2.03	0.45	2.93	6.75
Total	12.23	8.18	58.96	8.40	12.23	100.00

[a] χ^2 (16 d.f.) = 400.33 (p = 0.000)
[b] χ^2 (16 d.f.) = 278.68 (p = 0.000)
[c] χ^2 (16 d.f.) = 151.88 (p = 0.000)
[d] χ^2 (16 d.f.) = 73.98 (p = 0.000)
[e] χ^2 (16 d.f.) = 336.48 (p = 0.000)

Table 8 Changes in Hours and Days for Female Job-Changers (%)

	Δ Hours					
Δ Days	≥ 2.0	0.1– 2.0	0	< 0 & >–2	≤ –2	Total
All job-changers (n = 1318)[a]						
> 1	2.58	1.44	2.35	0.53	1.37	8.27
1	2.43	1.29	2.35	0.61	1.52	8.19
0	4.86	8.27	39.45	4.48	8.35	65.40
–1	1.21	1.29	2.50	0.46	2.43	7.89
< –1	0.91	1.21	3.19	0.46	4.48	10.24
Total	11.99	13.51	49.85	6.53	18.13	100.00
Voluntary job-changers (n = 998)[b]						
> 1	2.71	1.70	2.51	0.60	1.40	8.92
1	2.40	1.00	2.20	0.50	1.60	7.72
0	4.61	8.12	42.28	5.31	8.12	68.44
–1	1.20	1.40	2.10	0.30	1.80	6.81
< –1	0.90	0.80	2.61	0.40	3.41	8.12
Total	11.82	13.03	51.70	7.11	16.33	100.00
Involuntary job-changers (n = 320)[c]						
> 1	2.19	0.62	1.88	0.31	1.25	6.25
1	2.50	2.19	2.81	0.94	1.25	9.69
0	5.62	8.75	30.63	1.88	9.06	55.94
–1	1.25	0.94	3.75	0.94	4.38	11.25
< –1	0.94	2.50	5.00	0.62	7.81	16.88
Total	12.50	15.00	44.06	4.69	23.75	100.00
Extra hours wanted (n = 238)[d]						
> 1	9.24	5.04	5.88	1.26	1.68	23.11
1	6.72	3.78	6.72	1.68	1.68	20.59
0	9.24	6.30	15.97	1.26	5.88	38.66
–1	2.10	2.10	3.36	0.84	2.10	10.50
< –1	2.52	0.84	0.84	0.42	2.52	7.14
Total	29.83	18.07	32.77	5.46	13.87	100.00

(continued)

Table 8 (continued)

	Δ Hours					
Δ Days	≥ 2.0	0.1– 2.0	0	< 0 & >–2	≤ –2	Total
Extra hours not wanted (n = 1080)[e]						
> 1	1.11	0.65	1.57	0.37	1.30	5.00
1	1.48	0.74	1.39	0.37	1.48	5.46
0	3.89	8.70	44.63	5.19	8.89	71.30
–1	1.02	1.11	2.31	0.37	2.50	7.31
< –1	0.56	1.30	3.70	0.46	4.91	10.93
Total	8.06	12.50	53.61	6.76	19.07	100.00

[a] χ^2 (16 d.f.) = 209.66 (p = 0.000)
[b] χ^2 (16 d.f.) = 164.58 (p = 0.000)
[c] χ^2 (16 d.f.) = 53.19 (p = 0.000)
[d] χ^2 (16 d.f.) = 21.42 (p = 0.163)
[e] χ^2 (16 d.f.) = 166.24 (p = 0.000)

not. Again, the off-diagonal elements show that these job changes had a higher propensity to accept more days in combination with fewer hours rather than fewer days and more hours. These results are contrary to our expectations.

Female job-changers show more flexibility in changing work schedules compared with males. This is reflected by the fact that they are less likely to move between jobs with identical hours and days pairs. Subsamples within female job-changers exhibit similar patterns to those of male job-changers. The off-diagonal elements show that in each of the five cases, female job-changers are marginally more likely to move into jobs with more hours and fewer days than into jobs with more days and fewer hours. This evidence is mildly supportive of our hypothesis of higher fixed costs of working more days.

In sum, these results suggest that there is a great deal of rigidity in job schedules. This is especially true of days per week since job-changers are less likely to change days than to change hours. As we have already discussed above (Table 1), females generally have more flexibility in their work schedules than men. Job change simply increases this flexibility.

CONCLUSIONS

By disaggregating weekly labor supply into hours per day and days per week, we have learned several interesting things. In bivariate distributions, employees tend to be clustered around standard hours and days, with men on average exhibiting less flexibility in hours and days worked than women. The self-employed are much less likely to work standard hours and days. Most of the self-employed males work both more hours and days compared to paid employees. Self-employed females also work more hours and days, but they are also more likely to work fewer hours per day.

The OLS estimates of hours and days supplied show that women with young children supply less labor in both dimensions, although the percentage drop in days is significantly larger. This implies that child care costs are borne on a daily basis, or at least are higher on a daily basis than an hourly basis.

Probit estimates show that a larger number of hours at the worker's initial job are significantly related to an increased probability of job change for both genders. Days per week are also a significant determinant of job change for females but have little effect on male job change behavior. For both genders, the desire for extra hours is related to increased probability of job change. As extra days are added at the initial job, this probability declines. The addition of hours at the initial job, however, has no significant effect on job change among those who want extra monthly hours. These results do not generally support the hypothesis that daily costs of employment are higher than hourly costs, although these costs may have been outweighed by the benefits of working more days, which may be the motivating factor behind job change.

A more detailed analysis of hours and days changes reveals that job-changers desire flexibility in their weekly work schedules. Not only do job-changers show more variability in their days and hours compared to job-stayers at their first jobs, but this carries over to their new jobs as well. The wider distribution in days changes compared to hours changes implies that flexibility in days is more important to job-changers than flexibility in hours. That working standard days is more common than working standard hours in the sample simply underlines the importance of flexibility in days, at least amongst job-changers.

The direction of hours and days changes suggests that there is a great deal of rigidity in weekly work schedules, especially in terms of days. Male job-changers are much more likely than females to move into new jobs with the same or very similar days and hours combinations. The fact that women are marginally more likely to increase hours and decrease days than to do the opposite, is mildly supportive of the hypothesis of higher daily fixed costs.

On the basis of the evidence presented above, we cannot say conclusively that the daily or hourly costs of employment drive the behavior of individuals, although they do appear to be influential. We can conclude that workers do desire more flexibility in their choice of hours and days. This is particularly true of days. Our analysis also points to the difficulty that workers may encounter in attaining optimal hours and days combinations. What we can conclude with more certainty is that using weekly hours, or more aggregated labor supply measures, hides important differences in the labor supply decisions of individuals.

Underlying the fact that the common labor supply aggregates hide important details are a host of policy implications. We have argued that the costs of employment are largely incurred on a daily rather than an hourly basis. Workers must get out of bed, go through the physical preparations for work, prepare lunches, get the kids ready for the day ahead and transport them to daycare or school before braving the daily commute to the worksite. This all happens before they actually do or are paid for work in the market. At the end of the day, this scenario is largely reversed. Every one of these costs is incurred on a daily basis, regardless of the number of hours actually worked. While little can be done about most of these daily costs, child care and commuting do have important policy implications for employers and for government.

The importance of young children in females' labor force participation decisions is already well-known. The results above also show that the presence of young children influences labor supply differently along the hours and days dimensions. This suggests that policies that reduce the daily costs of child care might be more important than those that reduce the hourly costs. Company provision of child care facilities at the worksite, for example, could result in significant savings to parents in terms of the time and dollar expenses of delivering children to an outside facility before commuting to work. For the employer, a bet-

ter understanding of workers' time preferences could mean lower turnover rates, thus lowering associated costs. It could also mean less absenteeism and enhanced productivity from employees if they are able to work their desired hours/days combinations.

The increase in flexible working schedules has arguably been useful in reducing rush-hour traffic congestion in many North American cities (although increasing the length of the "hour"). This has likely resulted in reduced daily commute times and the costs of traveling to and from the worksite. Increased flexibility could further reduce these daily commuting costs. As cities continue to spread out over larger geographical areas, commute times, and the expenses associated with them, may also grow. A one-hour commute to the worksite in any major urban center in Canada is no longer considered unreasonable. The increased direct and indirect costs associated with longer commutes, along with the growth in appropriate technology, are undoubtedly reasons for the increased popularity of telecommuting. What does having the ability to work at home imply about the desired hours/days combination? Obviously the costs of both time dimensions decrease, but what is the optimal combination for the employee?

Related to this are public policy decisions regarding the provision of roadways and public transportation. Such decisions could benefit from a better understanding of days and hours preferences. If employees prefer to have more flexible daily hours and work fewer days per week, a large investment in public transportation facilities would not be warranted as the number of daily trips would be reduced.

There exists a potential for fruitful research on this subject. One option would be to estimate the costs of hours and days of work using a hedonic wage model. In doing so, we could arrive at estimates of the magnitude to which workers would have to be compensated to vary their hours/days combinations. This would give a good indication of the relative daily and hourly costs of employment. A second option would be to use panel data to analyze the shocks to individual utility functions that result in changes in hours and days for both job-stayers and job-changers. Disaggregating weekly labor supply into its days and hours components is an important, albeit first, step in analyzing a rich variety of policy questions.

Notes

1. Hamermesh (1996) notes that most surveys ask the question, "How many hours did you work last week?"
2. Cogan (1980, 1981), Hanoch (1980b), and Hausman (1980) have all shown that higher fixed costs of entering the labor force result in lower participation rates. Since average fixed costs decline over the number of hours worked, a person must be able to work a minimum number of hours to recoup these costs.
3. Specifically, the questions asked were 1) How many weeks per month did [the subject] usually work at this job? 2) In those weeks, how many paid days per week did he/she usually work? 3) On those days, how many paid hours per day did he/she usually work?
4. In Table 1, the sample is broadened to include the self-employed, but only where appropriate data is available. Unfortunately, the LMAS only includes data on hours and days for a subsample of the self-employed. For this reason, the analysis past Table 1 will be limited to paid workers only.
5. Specifically, we began with a with a sample of 30,924 males and 32,092 females. By eliminating those who held no jobs in 1990, the male (female) sample was reduced by 4,766 (10,326). The self-employed were also dropped (5,131 males and 2,728 females), as were full-time students (2,985 males and 2,746 females). Also eliminated were 179 males and 124 females who did not meet our age criteria, and 70 males and 71 females who claimed to work more than 18 hours per day or earn less than $1.00 per hour at their first job. Another 737 males and 536 females were dropped because they held more than two jobs in 1990. An additional 821 males and 924 females did not meet our criterion of no job overlap. Finally, 5 males (2 females) either earned less than $1.00 per hour or worked more than 18 hours per day at their second jobs (if they held second jobs) and were dropped. This leaves us with 16,280 males and 14,635 females.
6. An additional 140 males and 72 females who held paid jobs preceding self-employment were removed.
7. Direct comparability is a problem because Hamermesh uses an 8-hour day as a standard workday, whereas we define the range 7.5 to 8.5 hours to be standard.
8. The hourly wage rate is not included as a regressor because it is generally derived from earnings per time period and the number of hours worked per time period (the exception is for workers paid by the hour because hourly wage data was collected independently of hours and days data). Such introduction of the wage into the regressions would result in a negative spurious correlation with the hours and days variables.
9. Weiss (1984) found younger workers more likely to quit than older workers. Farber (1980) and Freeman (1980) discussed the lower quit probabilities of unionists in the United States. Blau and Kahn (1981), Meitzen (1986), and Sicherman (1996) all found a negative correlation between tenure and quit behavior.
10. Part of the reason for these inconsistent results may be as a result of our treatment of days as a continuous variable when in fact it is an integer.

11. Throughout this section we use the statistic

$$z = (\overline{X}_1 = \overline{X}_2) / \sqrt{\left(s_1^2 / n_1\right) + \left(s_2^2 / n_2\right)},$$

where $\overline{X}_1, \overline{X}_2$ are the sample means of the two distributions, s_1^2, s_2^2 are the corresponding estimated variances, and n_1, n_2 are the sample sizes. With large sample sizes, this approximates a normal distribution. For testing differences in estimated variances, we use the statistic

$$F_{n_1 - 1, n_2 - 1} = s_1^2 / s_2^2,$$

where the variables have already been defined and $s_1^2 \geq s_2^2$.

12. Those respondents who changed jobs because of a labor dispute, a layoff, a company moving or going out of business (i.e., a plant closure), or a dismissal are considered involuntary movers. Voluntary movers changed jobs because of an illness or disability, personal or family responsibilities, to move to a new residence or return to school, a retirement, a new job, or because of a variety of poor working conditions.
13. All such pairwise comparisons are statistically different (at least the 10 percent) in both means and variances of changes. The exceptions are the means of ln (daily) hours at the first job between male stayers and changers, mean changes in ln (weekly) and ln (daily) hours between male voluntary and involuntary changers, and mean changes in ln (daily) hours between female voluntary and involuntary changers.
14. This analysis suffers from censored data because we are only able to observe hours/days changes for job-changers. Altonji and Paxson (1986) have panel data and can use a "difference-in-difference" approach.
15. These comparisons are not strictly equivalent. Hamermesh uses a "difference-in-difference" approach, comparing changers and stayers. Data limitations prevent us from performing similar calculations.
16. The exception is in the case of females who desired extra hours. Given that the distribution is skewed in favor of both more days and hours, the fact that we can't reject this hypothesis comes as little surprise.

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Table A1 Sample Mean Personal and Job Characteristics of Male and Female Paid Workers, Job-Changers, and Job-Stayers[a]

	Males			Females		
Variable	Full sample	Job-stayers	Job-changers	Full sample	Job-stayers	Job-changers
Usual work schedule						
(hours/day) job 1	8.448	8.435	8.556	7.398	7.387	7.516
(hours/day) job 2	N/A	N/A	8.597	N/A	N/A	7.540
(days/week) job 1	5.012	5.011	5.019	4.625	4.617	4.712
(days/week) job 2	N/A	N/A	5.026	N/A	N/A	4.675
Voluntarily left job 1	N/A	N/A	0.640	N/A	N/A	0.757
Extra monthly hours wanted at job 1	0.098	0.092	0.147	0.115	0.108	0.181
Personal characteristics						
Age (%)						
17–19	0.017	0.014	0.054	0.012	0.010	0.032
20–24	0.090	0.081	0.177	0.088	0.077	0.193
25–34	0.303	0.294	0.386	0.324	0.315	0.407
35–44	0.295	0.300	0.240	0.306	0.313	0.239
45–54	0.187	0.196	0.106	0.188	0.197	0.101
55–64	0.107	0.114	0.038	0.082	0.087	0.027
Children						
Number of kids ages 0–2	0.144	0.142	0.150	0.130	0.132	0.110
Number of kids ages 3–5	0.146	0.145	0.152	0.133	0.133	0.132
Number of kids ages > 5	0.907	0.914	0.845	0.897	0.902	0.838
Marital status (%)						
Married	0.748	0.759	0.633	0.745	0.754	0.659
Single	0.204	0.192	0.322	0.157	0.147	0.250
Other	0.048	0.049	0.044	0.098	0.099	0.091
Relationship to family head (%)						
Head	0.815	0.825	0.711	0.253	0.249	0.290
Spouse	0.058	0.056	0.075	0.664	0.674	0.562
Other	0.127	0.118	0.214	0.083	0.077	0.148

(continued)

Table A1 (continued)

Variable	Males			Females		
	Full sample	Job-stayers	Job-changers	Full sample	Job-stayers	Job-changers
Education (%)						
Elementary	0.094	0.095	0.088	0.054	0.054	0.047
Some high school	0.224	0.221	0.250	0.180	0.179	0.181
Graduated high school	0.227	0.227	0.230	0.272	0.271	0.285
Some postsecondary	0.093	0.091	0.107	0.099	0.097	0.124
Postsecondary diploma	0.126	0.128	0.109	0.191	0.192	0.175
University degree	0.139	0.142	0.105	0.131	0.134	0.096
Trade	0.097	0.096	0.111	0.075	0.073	0.092
Region (%)						
BC	0.105	0.104	0.115	0.099	0.097	0.113
Prairies	0.269	0.266	0.291	0.289	0.287	0.305
Ontario	0.205	0.208	0.183	0.210	0.210	0.216
Quebec	0.160	0.161	0.152	0.149	0.154	0.105
Atlantic	0.261	0.261	0.259	0.252	0.252	0.260
Native language (%)						
English	0.722	0.720	0.744	0.738	0.733	0.789
French	0.187	0.187	0.184	0.175	0.179	0.144
Other	0.092	0.093	0.072	0.087	0.089	0.067
Other characteristics (%)						
Immigrant	0.097	0.099	0.079	0.093	0.094	0.078
Visible minority	0.032	0.032	0.030	0.034	0.034	0.027
Job characteristics						
Firm size (%)						
19 or fewer employees	0.218	0.203	0.345	0.260	0.254	0.309
20–99 employees	0.156	0.151	0.198	0.149	0.149	0.149
100–499 employees	0.122	0.124	0.106	0.126	0.127	0.115
500 or more employees	0.363	0.379	0.220	0.326	0.333	0.263
Don’t know	0.141	0.143	0.131	0.139	0.137	0.165

Variable	Males			Females		
	Full sample	Job-stayers	Job-changers	Full sample	Job-stayers	Job-changers
Industry group[b]						
Goods sector						
Primary (01–08)	0.091	0.089	0.107	0.031	0.031	0.029
Construction (29–30, 52)	0.098	0.089	0.175	0.016	0.015	0.019
Manufacturing (09–28)	0.239	0.244	0.194	0.103	0.102	0.108
Service Sector						
Distributive services (31–35)	0.182	0.187	0.146	0.069	0.069	0.062
Business services (37–39, 44)	0.058	0.057	0.062	0.115	0.112	0.144
Consumer services (36, 43, 45–47)	0.144	0.135	0.214	0.286	0.275	0.386
Education, health and welfare (40–42)	0.095	0.101	0.050	0.303	0.316	0.178
Public administration (48–51)	0.093	0.097	0.052	0.078	0.078	0.074
Occupation group[b]						
Managerial and administrative (01–03)	0.133	0.137	0.087	0.104	0.103	0.112
Professional and technical (04–16)	0.128	0.131	0.106	0.225	0.234	0.143
Clerical (17–22)	0.056	0.056	0.061	0.308	0.309	0.309
Sales (23–24)	0.059	0.057	0.077	0.086	0.085	0.098
Service (25–28)	0.084	0.084	0.087	0.167	0.163	0.203
Primary (29–33)	0.064	0.062	0.087	0.018	0.018	0.022
Processing (34-35)	0.063	0.064	0.050	0.034	0.032	0.050
Machining, fabricating, assembling, and repairing (36–42)	0.161	0.163	0.141	0.030	0.031	0.029

(continued)

Table A1 (continued)

Variable	Males			Females		
	Full sample	Job-stayers	Job-changers	Full sample	Job-stayers	Job-changers
Construction trades (43–45)	0.124	0.117	0.187	0.004	0.003	0.011
Transport operating and materials handling (46–49)	0.126	0.127	0.116	0.022	0.022	0.024
Other occupations (50)	0.000	0.000	0.001	0.000	0.000	0.000
Other						
Covered by union agreement (%)	0.453	0.476	0.266	0.384	0.402	0.214
Part-time employment (<120 hours per month) (%)	0.043	0.038	0.086	0.246	0.248	0.222
Tenure at job (weeks)	412	445	136	296	315	114
Covered by pension (%)	0.396	0.395	0.409	0.328	0.327	0.336
Number of observations	16,280	14,577	1,563	14,635	13,245	1,318

[a]Values may not add to 100% due to rounding.
[b]LMAS industry codes.

Table A2 Full Regression Results from Table 2[a,b]

Independent variable	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Personal characteristics												
Age												
20–24 years	0.0493	0.0385		0.0501	0.0413		0.0327	0.0853	***	0.0248	0.0787	***
	(4.067)	(3.667)		(4.239)	(3.970)		(1.441)	(3.373)		(1.115)	(3.160)	
25–34 years	0.0549	0.0412		0.0537	0.0460		0.0225	0.0785	***	0.0010	0.0553	***
	(4.516)	(3.918)		(4.522)	(4.392)		(1.008)	(3.156)		(0.045)	(2.251)	
35–44 years	0.0371	0.0322		0.0427	0.0392		0.0106	0.0688	***	–0.0175	0.0385	***
	(3.006)	(3.007)		(3.518)	(3.667)		(0.467)	(2.735)		(0.787)	(1.542)	
45–54 years	0.0227	0.0310		0.0317	0.0377		–0.0176	0.0395	***	–0.0413	0.0118	***
	(1.792)	(2.832)		(2.530)	(3.414)		(0.763)	(1.541)		(1.816)	(0.463)	
55–64 years	–0.0165	0.0198	**	–0.0036	0.0269	*	–0.0807	–0.0362		–0.1025	–0.0637	
	(1.251)	(1.732)		(0.278)	(2.337)		(3.371)	(1.360)		(4.319)	(2.399)	
Children												
Number of kids ages 0–2	–0.0023	–0.0031		–0.0030	–0.0035		–0.0195	–0.0742	*	–0.0163	–0.0681	*
	(0.579)	(0.893)		(0.752)	(1.003)		(2.867)	(9.788)		(2.430)	(9.102)	
Number of kids ages 3–5	0.0059	0.0005		0.0060	0.0012		–0.0332	–0.0645	*	–0.0320	–0.0616	*
	(1.507)	(0.152)		(1.590)	(0.354)		(5.153)	(9.012)		(5.078)	(8.726)	

Number of kids ages > 5	0.0022	0.0007		0.0011	0.0005		–0.0192	–0.0277	*	–0.0167	–0.0224	***
	(1.445)	(0.559)		(0.725)	(0.348)		(7.749)	(10.082)		(6.843)	(8.206)	
Marital status												
Single	–0.0216	–0.0094	***	–0.0170	–0.0070		0.0062	0.0306	***	0.0069	0.0317	***
	(3.966)	(2.002)		(3.203)	(1.489)		(0.586)	(2.583)		(0.660)	(2.717)	
Other	0.0033	–0.0106		0.0031	–0.0104		0.0182	0.0395		0.0192	0.0400	
	(0.477)	(1.756)		(0.459)	(1.737)		(1.648)	(3.215)		(1.779)	(3.304)	
Relationship to family head												
Spouse	–0.0070	–0.0106		–0.0018	–0.0088		–0.0201	–0.0207		–0.0195	–0.0191	
	(1.115)	(1.951)		(0.294)	(1.637)		(2.307)	(2.136)		(2.281)	(1.995)	
Other	–0.0293	–0.0147	***	–0.0309	–0.0168	***	–0.0063	–0.0229		–0.0042	–0.0217	
	(4.697)	(2.715)		(5.087)	(3.144)		(0.602)	(1.956)		(0.408)	(1.873)	
Education												
Some high school	–0.0149	–0.0168		–0.0047	–0.0140		0.0117	–0.0229	**	0.0183	–0.0183	**
	(2.626)	(3.401)		(0.847)	(2.849)		(1.033)	(1.808)		(1.621)	(1.448)	
Graduated high school	–0.0271	–0.0253		–0.0048	–0.0205	**	0.0215	–0.0239	*	0.0233	–0.0292	*
	(4.671)	(5.028)		(0.826)	(4.027)		(1.935)	(1.933)		(2.046)	(2.287)	
Some postsecondary	–0.0410	–0.0254	***	–0.0128	–0.0208		0.0225	–0.0341	*	0.0195	–0.0393	*
	(5.996)	(4.284)		(1.867)	(3.440)		(1.787)	(2.440)		(1.509)	(2.720)	
Postsecondary diploma	–0.0524	–0.0194	*	–0.0204	–0.0167		0.0603	–0.0586	*	0.0479	–0.0475	*
	(8.169)	(3.499)		(3.119)	(2.900)		(5.272)	(4.605)		(3.954)	(3.507)	
University degree	–0.0629	–0.0173	*	–0.0098	–0.0171		0.0513	–0.0294	*	0.0227	–0.0076	***
	(10.062)	(3.189)		(1.383)	(2.738)		(4.274)	(2.200)		(1.733)	(0.518)	

(continued)

Table A2 (continued)

Independent variable	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Trade	–0.0243	–0.0178		–0.0037	–0.0147		0.0343	–0.0250	*	0.0407	–0.0193	*
	(3.628)	(3.058)		(0.551)	(2.518)		(2.609)	(1.713)		(3.040)	(1.290)	
Region												
BC	0.0140	–0.0104	*	0.0099	–0.0129	*	–0.0104	–0.0324	***	–0.0010	–0.0201	
	(2.568)	(2.202)		(1.851)	(2.729)		(1.176)	(3.296)		(0.109)	(2.056)	
Prairies	0.0113	0.0035		0.0080	–0.0029	**	–0.0154	–0.0365	**	–0.0041	–0.0274	**
	(2.649)	(0.948)		(1.886)	(0.780)		(2.331)	(4.965)		(0.626)	(3.732)	
Quebec	–0.0279	–0.0022	*	–0.0183	–0.0012	**	–0.0300	–0.0021	**	–0.0294	–0.0029	***
	(4.457)	(0.408)		(2.986)	(0.227)		(3.006)	(0.192)		(3.005)	(0.267)	
Atlantic	0.0152	0.0133		0.0134	0.0080		0.0172	0.0255		0.0257	0.0335	
	(3.440)	(3.469)		(3.043)	(2.071)		(2.459)	(3.284)		(3.672)	(4.282)	
Native language												
French	0.0036	–0.0041		–0.0021	–0.0034		–0.0024	0.0022		–0.0025	0.0065	
	(0.678)	(0.888)		(0.399)	(0.760)		(0.287)	(0.232)		(0.297)	(0.700)	
Other	–0.0152	–0.0042		–0.0191	–0.0030	**	–0.0063	0.0015		–0.0084	–0.0005	
	(2.377)	(0.758)		(3.068)	(0.551)		(0.640)	(0.132)		(0.870)	(0.049)	
Other												
Immigrant	0.0095	0.0104		0.0115	0.0100		–0.0019	0.0056		–0.0015	0.0092	
	(1.498)	(1.906)		(1.870)	(1.834)		(0.193)	(0.515)		(0.155)	(0.851)	

Visible minority	–0.0243	–0.0059	***	–0.0153	–0.0025		0.0475	0.0765	0.0427	0.0680	
	(2.767)	(0.781)		(1.794)	(0.328)		(3.446)	(4.994)	(3.159)	(4.498)	
Job characteristics											
Firm size											
20–99 employees				0.0145	–0.0107	*			0.0509	0.0298	**
				(3.041)	(2.547)				(6.797)	(3.554)	
100–499 employees				0.0209	–0.0137	*			0.0515	0.0326	
				(3.876)	(2.899)				(6.197)	(3.509)	
500 or more employees				0.0147	–0.0188	*			0.0287	0.0329	
				(3.278)	(4.756)				(4.298)	(4.406)	
Don’t know				0.0135	–0.0022	**			–0.0048	0.0236	*
				(2.671)	(0.488)				(0.629)	(2.746)	
Industry group											
Goods sector											
Construction				–0.0460	0.0143	*			–0.0730	0.0229	*
				(5.366)	(1.892)				(2.893)	(0.812)	
Manufacturing				–0.0808	–0.0040	*			0.0266	0.0477	
				(11.254)	(0.629)				(1.373)	(2.198)	
Service sector											
Distributive services				–0.0926	0.0110	*			–0.0285	0.0270	**
				(12.776)	(1.719)				(1.486)	(1.257)	
Business services				–0.1093	–0.0003	*			–0.0171	0.0285	***
				(12.354)	(0.041)				(0.925)	(1.378)	

(continued)

Table A2 (continued)

Independent variable	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Consumer services				–0.1133	0.0016	*				–0.0197	–0.0059	
				(14.890)	(0.232)					(1.106)	(0.296)	
Education, health and welfare				–0.1377	–0.0007	*				–0.0723	–0.0310	
				(16.364)	(0.100)					(3.979)	(1.524)	
Public administration				–0.1124	–0.0012	*				–0.0304	0.0243	**
				(14.102)	(0.165)					(1.588)	(1.134)	
Occupation group												
Managerial and administrative				0.0378	0.0389					0.0768	0.0610	
				(5.207)	(6.086)					(9.369)	(6.649)	
Professional and technical				0.0219	0.0312					0.0717	–0.0427	*
				(2.821)	(4.575)					(8.896)	(4.731)	
Sales				0.0321	0.0268					–0.0033	–0.0409	*
				(3.835)	(3.631)					(0.359)	(3.960)	
Service				0.0283	–0.0026	*				–0.0265	–0.0163	
				(3.599)	(0.375)					(3.442)	(1.899)	
Primary				0.0563	0.0678					0.0521	0.0966	
				(5.757)	(7.874)					(2.316)	(3.837)	
Processing				0.0663	0.0079	*				0.0668	0.0174	**
				(7.656)	(1.041)					(4.277)	(0.995)	

Machining, fabricating, assembling and repairing				0.0320	0.0269					0.0706	0.0172	**
				(4.522)	(4.305)					(4.524)	(0.983)	
Construction trades				0.0430	0.0236	***				0.1711	0.1125	
				(5.326)	(3.316)					(4.468)	(2.625)	
Transport operating and materials handling				0.0698	0.0153					–0.0185	–0.0136	
				(9.613)	(2.388)					(1.150)	(0.754)	
Other occupation				0.1344	0.0720					–0.0233	–0.0521	
				(1.981)	(1.206)					(0.211)	(0.420)	
Other												
Covered by union agreement				–0.0161	–0.0184					0.0313	0.0181	
				(4.735)	(6.152)					(5.281)	(2.730)	
Tenure at job (weeks/100)				–0.0001	0.0007	***				0.0026	0.0053	**
				(0.304)	(2.152)					(3.534)	(6.316)	
Covered by pension				–0.0024	0.0002					0.0105	0.0096	
				(0.849)	(0.080)					(2.190)	(1.789)	
Constant	2.1163	1.5883	*	2.1341	1.5712	*	1.9751	1.5201	*	1.9535	1.4841	*
	(151.034)	(130.867)		(127.509)	(106.577)		(75.150)	(52.004)		(61.491)	(41.755)	
R^2	0.0313	0.0086		0.0841	0.0305		0.0276	0.0696		0.0408	0.0713	

(continued)

Table A2 (continued)

Independent variable	Males						Females					
	No job controls			Job controls			No job controls			Job controls		
	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*	Hours	Days	*t*
Correlation coefficient of residuals	0.1455			0.1379			0.1545			0.1371		
Breusch–Pagan test of independence (*p*–value)	0.0000			0.0000			0.0000			0.0000		
Number of observations	16,280			16,280			14,635			14,635		

[a] *, **, and *** denote that the pairwise *t*-statistics are significant at 1%, 5%, and 10%, respectively.

[b] Omitted categorical variables are age 17–19, married, head of household, elementary education, Ontario, English, 19 or fewer employees, primary industry group and clerical occupation group.

Table A3 Full Probit Results from Table 3[a,b]

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
ln (hours per day)	0.2869	0.048	0.0806	0.010	0.3203	0.051	0.2358	0.027
	(3.442)		(0.890)		(4.394)		(2.997)	
ln (days per week)	0.1946	0.033	–0.0321	–0.004	0.3093	0.049	0.2330	0.027
	(1.832)		(0.296)		(4.522)		(3.188)	
Extra hours wanted	1.7816	0.548	0.5529	0.092	0.8750	0.208	0.5999	0.098
	(4.231)		(1.263)		(2.913)		(1.919)	
Extra hours wanted*ln (hours)	–0.2810	–0.047	0.0388	0.005	–0.1086	–0.017	–0.0309	–0.004
	(1.515)		(0.199)		(0.791)		(0.213)	
Extra hours wanted*ln (days)	–0.5910	–0.100	–0.3389	–0.041	–0.1856	–0.029	–0.2079	–0.024
	(3.518)		(1.950)		(1.651)		(1.763)	
Personal characteristics								
Age								
20–24 years			–0.3188	–0.031			–0.0973	–0.011
			(3.487)				(0.836)	
25–34 years			–0.4625	–0.049			–0.2862	–0.031
			(4.925)				(2.459)	

(continued)

Table A3 (continued)

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
35–44 years			–0.5028	–0.052			–0.4378	–0.045
			(5.145)				(3.641)	
45–54 years			–0.6083	–0.055			–0.5785	–0.051
			(5.852)				(4.616)	
55–64 years			–0.8859	–0.063			–0.7840	–0.055
			(7.612)				(5.477)	
Children								
Number of kids ages 0–2			–0.1106	–0.013			–0.2743	–0.032
			(2.771)				(5.783)	
Number of kids ages 3–5			–0.0032	0.000			–0.0619	–0.007
			(0.085)				(1.425)	
Number of kids ages > 5			–0.0196	–0.002			–0.0345	–0.004
			(1.242)				(2.015)	
Marital status								
Single			–0.0396	–0.005			–0.0186	–0.002
			(0.769)				(0.275)	
Other			–0.0157	–0.002			0.0413	0.005
			(0.212)				(0.553)	

Relationship to family head				
Spouse	0.1353	0.018	–0.0654	–0.008
	(2.262)		(1.136)	
Other	–0.0426	–0.005	–0.0045	–0.001
	(0.750)		(0.070)	
Education				
Some high school	0.0086	0.001	0.0349	0.004
	(0.147)		(0.427)	
Graduated high school	–0.0221	–0.003	0.0516	0.006
	(0.360)		(0.627)	
Some postsecondary	0.0860	0.011	0.1434	0.018
	(1.210)		(1.581)	
Postsecondary diploma	0.0010	0.000	0.1432	0.018
	(0.014)		(1.637)	
University degree	0.0347	0.004	0.1443	0.018
	(0.453)		(1.501)	
Trade	0.0977	0.012	0.1749	0.023
	(1.415)		(1.859)	
Region				
BC	0.0528	0.007	0.0409	0.005
	(0.942)		(0.691)	
Prairies	0.0300	0.004	0.0064	0.001
	(0.672)		(0.142)	

(continued)

Table A3 (continued)

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
Quebec			–0.0626	–0.007			–0.2722	–0.027
			(0.962)				(3.877)	
Atlantic			–0.0807	–0.009			–0.1201	–0.013
			(1.703)				(2.453)	
Mother tongue								
French			0.0293	0.004			0.0802	0.010
			(0.548)				(1.397)	
Other			–0.0422	–0.005			–0.0693	–0.008
			(0.614)				(0.962)	
Other								
Immigrant			0.0136	0.002			0.0020	0.000
			(0.202)				(0.028)	
Visible minority			–0.1126	–0.012			–0.1648	–0.017
			(1.225)				(1.683)	
Job characteristics								
Firm size								
20–99 employees			0.0073	0.001			–0.0426	–0.005
			(0.163)				(0.839)	

100–499 employees	–0.0458 (0.844)	–0.005	0.0668 (1.160)	0.008
500 or more employees	–0.1421 (3.131)	–0.017	–0.0138 (0.300)	–0.002
Don't know	–0.0832 (1.667)	–0.010	0.0510 (1.005)	0.006
Industry group				
Goods sector				
Construction	0.0632 (0.738)	0.008	0.1419 (0.784)	0.018
Manufacturing	–0.0402 (0.528)	–0.005	0.1601 (1.151)	0.020
Service sector				
Distributive services	–0.0682 (0.881)	–0.008	0.2621 (1.892)	0.036
Business services	–0.0597 (0.656)	–0.007	0.3302 (2.493)	0.047
Consumer services	0.0228 (0.292)	0.003	0.2928 (2.273)	0.038
Education, health and welfare	–0.2051 (2.178)	–0.022	0.1318 (0.998)	0.016
Public administration	–0.1125 (1.268)	–0.013	0.3878 (2.813)	0.058

(continued)

Table A3 (continued)

	Males				Females			
	No controls		With controls		No controls		With controls	
Independent variable	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.	Coefficient	Partial deriv.
Occupation group								
Managerial and administrative			–0.2265 (2.878)	–0.024			0.0379 (0.670)	0.005
Professional and technical			–0.0082 (0.100)	–0.001			–0.0089 (0.151)	–0.001
Sales			–0.0788 (0.942)	–0.009			–0.0519 (0.846)	–0.006
Service			–0.0837 (1.028)	–0.010			0.0183 (0.353)	0.002
Primary			–0.1227 (1.222)	–0.014			0.1909 (1.248)	0.025
Processing			–0.1824 (1.942)	–0.019			0.2698 (2.685)	0.038
Machining, fabricating, assembling and repairing			–0.1924 (2.573)	–0.021			0.1031 (0.959)	0.013
Construction trades			–0.0147 (0.174)	–0.002			0.6209 (2.968)	0.112
Transport operating and materials handling			–0.1643 (2.130)	–0.018			0.0189 (0.174)	0.002

Other occupation			–0.0703 (0.110)	–0.008			variable dropped	
Other								
Covered by union agreement			–0.2124 (5.768)	–0.025			–0.2854 (6.611)	–0.032
Tenure at job (weeks/100)			–0.1179 (18.130)	–0.014			–0.1460 (15.541)	–0.017
Covered by pension			0.0185 (0.621)	0.002			0.0153 (0.459)	0.002
Constant	–2.2614 (9.773)		–0.3095 (1.096)		–2.5003 (14.577)		–1.6369 (6.028)	
Pseudo R^2	0.007		0.124		0.012		0.119	
χ^2 (5, 55, 5 and 54 d.f.)	69.32		1277.03		110.18		1055.43	
Observed P		0.096		0.096		0.090		0.090
Predicted P		0.095		0.061		0.087		0.058
Number of observations	16,280		16,280		14,635		14,629	

[a] Absolute t-ratios are in parentheses.

[b] Omitted categorical variables are age 17–19, married, head of household, elementary education, Ontario, English native language, 19 or fewer employees, primary industry and clerical occupation.

Working Time in Comparative Perspective

Volume I

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

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and
Garnett Picot
Editors

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