

This study investigates the impact of parental leave laws, policies that help families balance work and family life, and the supply, cost, and quality of substitutes for the mother's time on how soon mothers begin working outside the home following childbirth. The data come from the National Child Care Survey 1990, a survey of 4,400 families with children under age 13, and A Profile of Child Care Settings, a study of child care centers conducted at the same time in the same communities. The sample consists of 613 mothers who had a child in the year before the survey. Proportional hazards models were used to model the effects of policies on the risk of working within the year after childbirth, controlling for characteristics of the mother and the family. The results suggest that employer policies affect how quickly mothers who had been employed prior to the birth reenter the workforce.

Effects of Public and Private Policies on Working After Childbirth

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The increase in women's labor force participation over the past 50 years has been dramatic. Between 1940 and 1994, the participation rate of women in the U.S. labor force increased from 27% to 58%. Between 1970 and 1992 alone, the proportion of married mothers with preschool children in the labor force doubled from 30% to 62% (Bureau of Labor Statistics, 1995). However, the most dramatic increase of all has been in the labor force participation of mothers of infants. Using data from the Survey of Income and Program Participation (SIPP), O'Connell (1990) showed that whereas only about 14% of mothers with newborns who had their first baby in 1961-1965 were working by the time the child was 6 months old (increasing to 17% by the twelfth month), 44% of new mothers in 1981-1984 were working 6 months after childbirth, increasing to 53% by the twelfth month. By the mid-1980s, this proportion had risen to 53% by the sixth month and 61% by the twelfth month (Joesch, 1994). In 1994, 56% of married mothers of infants were in the labor force (Bureau of Labor Statistics, 1995).

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378

Over the same period, employers increased their family benefits, and numerous states passed parental leave legislation. There has been a dramatic growth in employer-provided benefits since the late 1970s. According to private surveys of employers, in 1978, only 110 employers provided child care support; by 1995, over 6,000 employers provided such assistance (The Conference Board, 1988; Families and Work Institute, personal communication, 1995).

This article examines the link between state and employer policies and the employment behavior of mothers of infants. We first discuss previous research on working after childbirth, the development and expansion of employer and state policies, and our framework for why such policies should affect maternal employment behavior. We then discuss the data, the variables, and the statistical methods and present the results.

PREVIOUS RESEARCH ON WORKING AFTER CHILDBIRTH

Several previous studies have looked at factors associated with the timing of maternal employment following childbirth. How quickly new mothers enter or reenter employment depends upon work patterns during pregnancy and financial need. Working during pregnancy predicted earlier entry into employment. Of those who worked sometime during pregnancy, 56% were back within 6 months (O'Connell, 1990). Of those who continued working until 1 month of a birth, 71% returned within 6 months. These figures are not surprising, because women who work during pregnancy and close to the time of the birth are more attached to their jobs than are those who do not work during pregnancy. They tend to be older, White, and more educated as well. In contrast to the characteristics of those who work during pregnancy, those who are most likely to be working soon after the birth are Black women, women with premarital first births, and teenagers (O'Connell, 1990). It is likely that these latter women depend on their own earnings to keep their families solvent. Clearly, financial need is an important factor in working soon after a birth. Another study of the determinants of women's employment after first childbirth, using the National Longitudinal Survey of Youth (NLSY), found that higher wage mothers worked sooner, but that those with higher other family incomes delayed their return to work longer after birth (Leibowitz, Klerman, & Waite, 1992). Because they affect the speed of working after childbirth differently, it is important to distinguish between the mother's earnings or human capital and other family income. Finally, little work has examined the impact of the availability of maternity leave and other benefits in determining how soon mothers work after childbirth. In the SIPP study (O'Connell, 1990), recipients of maternity leave benefits worked sooner than

those who did not receive such benefits. That study did not ask, however, who had such benefits available but did not take advantage of them. Thus we cannot conclude that availability of benefits affects how soon mothers enter the workforce after childbirth.

CONCEPTUAL FRAMEWORK

The theoretical model is based upon the new home economics framework of Becker (1965, 1991). This framework assumes that the goal of individuals and families is to maximize the consumption of goods and services, given resource constraints. It implies that the employment decision of a mother will be based upon a comparison of the value of her market time (her wage rate, net of child care expenses, and accumulated human capital—education, job skills, seniority, and experience; Desai & Waite, 1991; Joesch, 1994; Leibowitz et al., 1992) with the value of her time at home (the reservation wage).¹ The opportunity cost of not working is the wage forgone plus the depreciation of skills due to the time off from work and any future reduction in earnings due to this time out of work. The opportunity cost of working is the loss in investment in the home and child due to time spent outside the home. A mother will work outside the home when the value of her market time or earnings is greater than the value of her home time.

The relative costs and benefits of employment and time at home depend upon the ages of children (Leibowitz et al., 1992). Even if a new mother could find someone to care for her newborn, the cost of such care would be high (the opportunity cost of the father equals his net wage, for example). Thus, after having a baby, the value of a mother's home time is greater than her market wage, so she remains home. However, as the child ages, the need for her time and attention declines, alternative caregivers become feasible and affordable, and the value of her time at home may decline relative to the value of her time at work. Other factors that affect this decision vary from family to family, so two mothers with the same wage level will not necessarily return to work at the same time. For example, age and race may proxy tastes or preferences for working outside the home versus inside the home.

The process of entry into work after childbirth varies from mother to mother. After the birth, the value of the mother's home time gradually declines and the value of her market time increases. When the value of market time exceeds the value of home time, she may wish to return to the market for a few hours. Unfortunately, work often comes only in a fixed full-time schedule. If so, a mother may have to stay home until the market wage exceeds the reservation wage by enough to balance the substantial loss of

home time and the cost of working full-time. Many mothers prefer to work part-time first when they enter the workforce after the birth of a child. For them, moving back into the workforce may occur in two stages—a return to a part-time schedule followed by a shift to full-time work. For some, the choices are part-time or no work; if they cannot work part-time, they will not work at all. Others will first work full-time either because they cannot find part-time work and they need the money, or because they are committed to their work. The availability of alternative schedules should be crucial in determining how quickly mothers return to work and whether they return part-time or full-time.

Previous research has found the opportunity structures and normative climates in communities to affect individuals' social, economic, and psychological costs of engaging or not engaging in certain behaviors (Billy & Moore, 1992). We were specifically interested in two important area characteristics: employment opportunities and the normative climate regarding the appropriate behavior of young mothers. The county unemployment rate in 1986 proxies the demand for labor in the local labor market prior to measurement of return to work.² We expected that areas of greater unemployment would have mothers who take longer in entering employment following childbirth because their employment opportunities would be limited. We used the 1987 county income per capita, a proxy for affluence of the area, and suburban residence as measures of a normative climate more favorable to mothers staying at home with young children. Because of the hypothesized greater value of home time to wealthier families and the ability of such families to afford one parent staying home, the higher the county income per capita, the more it may be accepted that mothers will remain at home during much of the first year after childbirth. Many families choose a suburban residence over an urban one because of a family-centered lifestyle; in such families, mothers should be more likely to stay home longer after childbirth.

HYPOTHESES REGARDING THE EFFECTS OF PUBLIC AND PRIVATE POLICIES

The availability, quality, and cost of substitutes for the mother's time, characteristics of the family and community, and public and private policies affect the value of both market and home time. They can act to alter entry into the workforce in two ways: they may reduce the cost and increase the benefit of working relative to staying home, thereby raising the effective wage, or they may reduce the cost and raise the benefit of staying home relative to going to work, thereby raising the reservation wage.

State policies and regulations. Access to state policies that reduce the cost of working may affect mothers' employment. These include higher expenditures for children's programs, which should reduce the price, increase the quality, and increase the availability of substitute arrangements and programs, thus making employment more attractive. Policies that reduce the cost of staying home should cause mothers to remain home longer. Such policies include the availability of state-mandated parental leave, with or without pay, and the availability of higher welfare benefits to those who are eligible (Moffitt, 1992). Finally, strict regulations have offsetting effects—they may increase quality but reduce supply and increase costly (Gormley, 1991; Hofferth & Chaplin, 1995; Phillips, Lande, & Goldberg, 1990).

Public and private sector employer policies. The second set of policies are employer benefits regarding work and family life. Mothers who have access to benefits through their employer that reduce the cost and increase the benefit of staying home will take longer to work following childbirth than those without access to such benefits. Parental leave is the clearest example. This relationship should be stronger if the leave is paid.

Mothers who have access to employer-sponsored benefits that help parents balance work and family life by reducing the cost and increasing the benefit of working will return sooner than those who do not have access to such benefits. Employers may offer workplace child care, part-time work, liberal unpaid leave, a flexible spending account to help the employee pay for care, flexible schedules, or a cafeteria benefit plan where one benefit the employee does not want can be traded for another that the employee does want. Having access to part-time work increases employment because mothers can gradually increase their labor market time as the value of their at-home time declines. A flexible schedule and liberal leave make the management of work and family life easier.

Although parents who have greater need (lower income) will work sooner than employees with higher incomes, if they have access to employer benefits they may work even sooner because the benefits of working are higher. That is, we hypothesize a significant interaction between income and the effect of benefit policies.

Characteristics of the child care market. Finally, the characteristics of the local child care market—the availability, price, and quality of care in the area—may affect the rate of maternal employment after childbirth because they reduce the cost of working or increase the benefit of staying home. Mothers living in areas with a greater supply of child care centers and family day care are expected to work sooner, like mothers with access to other adults

either in the home or nearby who could care for their child. Mothers who live in a community in which child care is less expensive will be likely to work sooner than mothers who live in an area in which child care is more expensive. Mothers living in areas of higher quality child care should work sooner than other mothers, because they would be less concerned about the quality of care their child would receive. All three factors reduce the cost and increase the benefit of working.

DATA

These hypotheses are examined on a sample of all mothers who had a birth in the year before the survey. Data come from the National Child Care Survey 1990, A Profile of Child Care Settings, and a contextual data file.

NATIONAL CHILD CARE SURVEY 1990

The National Child Care Survey 1990 (NCCS) is a nationally representative survey of households with children under age 13, funded by the National Association for the Education of Young Children and the Administration for Children, Youth, and Families (Hofferth, Brayfield, Deich, & Holcomb, 1991). A nationally representative survey of households with children under age 13 was fielded by Abt Associates from November 1989 through May 1990. Of the families surveyed, 1,679 of these families had a youngest child under age 3, 1,092 had a youngest child 3 to 5 years old, and 1,621 had a youngest child 6 to 12 years of age. Through random digit-dial techniques, 4,392 households in 100 primary sampling units (144 counties) representative of the United States were interviewed by phone using computer-assisted telephone interviewing methods. The response rate to the screener was 83%, and the response rate to the survey was 69%, making the overall response rate to the survey 57%. Based upon the Current Population Survey, weights were computed that adjust for differential response rates as well as differential coverage rates due to households without telephones. Because of concern for potential bias, estimates of key variables from the NCCS were compared with estimates from the 1988 and 1991 waves of the Survey of Income and Program Participation and from the 1988 Child Health Supplement to the National Household Interview Survey (Hofferth et al., 1991, Appendix B). Based upon these comparisons, the results of the NCCS appear to be unbiased.

For the present study, the 613 women who had borne a child within the year prior to the interview were selected. The NCCS obtained a detailed

employment history for both parents over the year before the survey date. A 1-year period was selected to minimize reporting errors due to the length of period of recall. Respondents were asked to provide beginning and ending dates of all jobs held during this period. Because some jobs may have been in effect for several years, the incidence of missing values in the reported month and year were examined. The incidence of missing data was small, with the respondent less likely to provide the month of the event than the year. As expected, the more time that had passed since the event, the less likely the respondent was to report the month.

Finally, the NCCS asked a set of questions about employer benefits, including parental leave. Respondents who were employed or whose spouse was employed at the time of the survey were asked a series of questions about the availability of a variety of employer benefits at either their or their spouse's workplace.³ These included child care at the workplace, a flexible (pretax) spending account, a cafeteria benefit plan, vouchers for child care, an information and referral system, flexible scheduling (flex-time), liberal unpaid leave, part-time work, and work at home. This analysis examines the effect of whether or not the mother reported access to an employer-provided benefit on employment behavior following childbirth.

A PROFILE OF CHILD CARE SETTINGS

The objective of A Profile of Child Care Settings (PCS) was to obtain national estimates of the level and characteristics of early childhood programs available in 1989-1990 for young children through telephone interviews with a representative sample of early education and child care providers (Kisker, Hofferth, Phillips, & Farquhar, 1991). The sampling frame consisted of all regulated and nonregulated preschool programs and regulated family day care homes. A survey of providers was fielded by Mathematica Policy Research from October 1989 through February 1990. Using computer-assisted telephone interviewing methods, interviews were conducted with 2,089 center directors and 583 family day care providers in 144 counties representative of the United States. The response rates for the PCS study were high. Interviews were conducted with 89% of center programs and 87% of home-based providers eligible for the study. Comparisons with other data show the results to be representative of licensed and registered center-based and home-based care in the United States in 1990. The PCS survey obtained detailed information on general administrative characteristics, admission policies, enrollment size, fees and subsidies, staffing, curriculum and activities, health and safety, and operating experiences and expenses. Both the NCCS and the PCS share the same first-stage sample.

In the present study, the NCCS was the source of data on the employment history of mothers with children under 1 year of age in 1990. The PCS was the source of data on the availability and quality of the center-based and regulated family day care homes in each community in which these children lived.

CONTEXTUAL DATA FILE

Using data from the U.S. Bureau of the Census (1988), the median income per capita and unemployment rate in each of the 144 counties in the NCCS and PCS were compiled. To develop the lists of providers in each county from which the PCS obtained its sample required calling officials at the state and the county level. Information was compiled on state regulations regarding staff qualifications, group size, staff/child ratios, parental involvement, health and safety, space, liability insurance, and inspections for centers and family day care. The ratio of centers and family day care homes to 1,000 preschool children in the county was obtained from the actual count of programs. Finally, information on state policies regarding parental leave, welfare benefits, and state expenditures on children was obtained from published sources (Adams & Sandfort, 1992; Bond, Galinsky, Lord, Staines, & Brown, 1991; Center for Policy Alternatives, 1992; Committee on Ways and Means, 1992; Finn-Stevenson & Trzcinski, 1990).

METHOD

THE HAZARD MODEL

This analysis focuses on the decision to work or remain at home made by 613 mothers during the first year after the birth of a child. We modeled this process using a proportional hazards model. The hazard model allows us to estimate the rate at which mothers enter the workforce based upon their characteristics, those of their family, characteristics of the community, and public and private policies such as access to leave and child care.

From the date of birth of the youngest child and dates of employment in the last year, we calculated the length of time before mothers started working after a birth if mothers changed jobs or were not previously employed.⁴ If they remained at the same job, we calculated length of leave from a separate question that asked mothers the amount of maternity leave they took. This allows us to establish the rate at which mothers entered or reentered the workforce. Similar to multiple regression analysis, the hazard model esti-

mates the simultaneous influence of a number of covariates on the rate of entering employment. Unlike standard regression analysis, the hazard model can easily incorporate censored observations (i.e., mothers who, by the time data were collected, had not yet returned to work). Because our interest is in the effects of the covariates rather than in the functional form or actual value of the hazard, we used Cox's (1972) proportional hazards model. The advantage of the proportional hazards model is that the distribution of the hazard does not need to be specified. Because this model is in wide use today, only a brief description is presented here (see Menken, Trussell, Stempel, & Babakol, 1981, and Teachman, 1982, for detailed discussions).

The particular form used for the rate of working after childbirth is the following:

$$h_j(t;X) = h_o(t)\exp(XB), \text{ and } h_j(t;X)/h_o(t) = \exp(XB) \quad (1)$$

where:

- $h_j(t;X)$ is the hazard for a particular time t , a particular event j , and a particular set of covariates;
- $h_o(t)$ is the baseline hazard function for a particular t and event j ;
- t indexes months since birth;
- B is a vector of parameters;
- and X is a vector of covariates such as family income and race.

The hazard at duration t is the product of an underlying hazard for a baseline or reference group and the covariates $\exp(XB)$. $\exp(XB)$ represents the ratio of the hazard of the category to the underlying hazard. If there are no covariates, $XB = 0$ and the ratio of hazards equals 1. When covariates are categorical, e^b for a category of a covariate is interpreted as the relative risk of the outcome for that category compared with the omitted category ($e^0 = 1$). When continuous, e^b represents the relative risk of the outcome for a one-unit change in the independent variable. Risk ratios are calculated and presented in tables along with the coefficients and standard errors.⁵

EVALUATION OF THE PROPORTIONAL HAZARDS ASSUMPTION

The assumption of proportionality implies that the shift in the hazard rate due to covariates is proportional throughout the duration of observation (Allison, 1984; Yamaguchi, 1991). To establish whether this assumption holds, we conducted several tests. For those variables that we thought might vary over time in their effects, we plotted the log of length of time before working against the log ($-\log[S(t)]$) for several categories of our independent

variables as a test for proportionality (Allison, 1984). The plots suggested departure from proportionality for working during pregnancy. Consequently, we included a term for the interaction between working during pregnancy and time in our model:

$$[XB]_2 = [XB]_1 + b(z) + c(zt) \quad (2)$$

where z is whether worked during pregnancy. In so doing, we control for whether the mother worked during pregnancy and permit the relationship between working during pregnancy and time to employment after childbirth to vary over time.⁶ The coefficients b and c proved to be highly significant in our analyses.

SEPARATE MODELS

To test whether the assumption of similar coefficients for mothers who worked and who did not work during pregnancy was reasonable, we also divided the sample by whether the mother worked during pregnancy and computed separate hazard models for the two groups. This method allows both the baseline hazard rate and the coefficients to vary without restrictions across the two groups.⁷

COMPETING RISK HAZARD MODEL

As discussed earlier, we expected that factors that affect whether a mother first works part-time might differ from factors that affect whether she first works full-time. This we modeled using a competing risk framework in which separate hazard models were created for first working part-time and for first working full-time after a birth.⁸

Suppose there are m different types of events, j_1, \dots, j_m . If the occurrence of one type removes the individual from the risk of the other types of events, then each event can be considered a separate hazard model and the sum of the hazards of the separate events equals the hazard of any event occurring (Allison, 1984). To calculate this competing risk or *type-specific* hazard model, individuals are considered to be censored either at the end of observation with no events or at the point of any event other than the one being modeled. In the model for return to work, mothers, who by the survey date have not yet begun working for the first time after the birth are censored. In addition, mothers who first worked part-time after birth, are censored at that time in the model for first working full-time, and mothers who first worked full-time are censored at that time for first working part-time after the birth.

RESULTS

SURVIVAL FUNCTIONS

Kaplan-Meier estimates of the survival function based upon the NCCS weighted to the U.S. population were calculated. About 64% of mothers who had a baby in the previous year were still at home at 3 months, 56% at 6 months, half at 9 months, and 48% at 1 year after birth (Figure 1). That is, 36% were working within 3 months, 44% within 6 months, half within 9 months, and 52% within 1 year of the birth.

Working during pregnancy. In the NCCS, about half of mothers (53%) worked during pregnancy. Mothers who were employed during pregnancy moved into the labor force at a much faster pace than those who did not work during pregnancy. Of mothers who worked during pregnancy, 65% were back within 3 months, 73% within 6 months, and 83% within 1 year. Among mothers who did not work during pregnancy, 7% were back within 3 months, 16% within 6 months, and 24% within 1 year.⁹

Summary statistics. The means and standard deviations for all the variables used in the hazards models are presented in Table 1. These are not weighted, because our hazards models were conducted using unweighted data. There are a few differences between weighted and unweighted means. Because weights were used to correct for the underrepresentation of low-income families, the population has a slightly higher proportion of low-income families (15%) and Black families (16%) than the unweighted sample (13% and 12%, respectively). The population is slightly more Western and slightly less Midwestern than the sample.

HAZARD MODELS

According to the theoretical framework, the value of the mother's time should be an important factor in the rapidity with which she entered the workforce following childbirth. The mother's wage is an indicator of the value of her time. Because not all mothers were employed at the time of the survey, a predicted wage was calculated for those with no wages based upon the ordinary least squares regression of the wages of mothers who reported wages at the survey on a series of background factors, including age, education, work experience, work experience squared, race, partner status, other household income, number of children, regional dummies, metro residence, per capita income in the county, and county unemployment rate.¹⁰

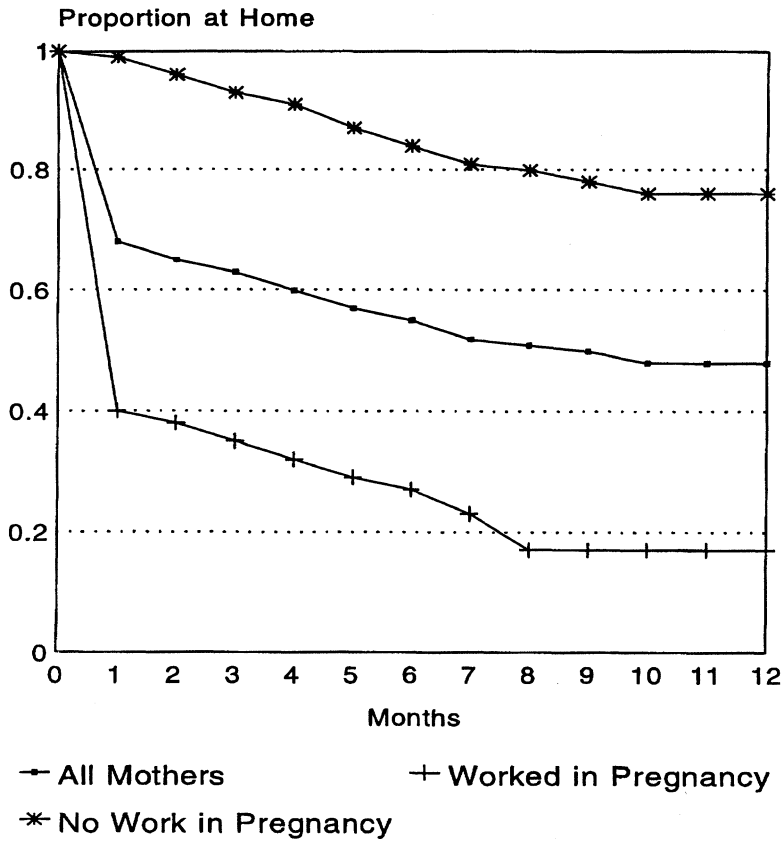


Figure 1: Survival Function for Return to Work by Work in Pregnancy

We first ran the models with and without employment during pregnancy to test its contribution. In the first column of Table 2, we present the model of working after childbirth for all mothers without any of the policy variables and excluding the variable “working during pregnancy.” The second column adds working during pregnancy and the interaction between working during pregnancy and time. Columns 3 and 4 show the same model for mothers who worked and who did not work during pregnancy, respectively.

Column 1 shows that several background variables are associated with working soon after childbirth. As expected, younger, more educated mothers with fewer children and more job experience work sooner after childbirth

TABLE 1: Descriptive Statistics for Variables Used in the Analysis

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>
Control variable		
Black (non-Hispanic)	0.124	0.330
Hispanic	0.072	0.258
Education of mother (years)	13.311	2.208
Two parents (1 = yes)	0.865	0.342
Mother's hourly wage	11.770	9.541
Other family income than mother's (in thousands)	32.428	24.404
Age of mother	27.848	5.354
Mother's work experience (years)	7.631	5.358
Work experience squared	86.890	101.743
Number of children <13	1.812	0.909
Northeast	0.202	0.402
West	0.176	0.381
Midwest	0.281	0.450
Central city	0.444	0.497
Suburb	0.307	0.461
Per capita income in county (in thousands)	15.587	3.854
Unemployment rate in county	6.994	2.966
Worked during pregnancy	0.563	0.496
Benefit availability		
State has parental leave law	0.305	0.461
Proportion whose employer offers:		
Liberal unpaid leave	0.215	0.411
Cafeteria benefit plan	0.049	0.216
Flexible spending account	0.091	0.288
Flex-time	0.157	0.364
Part-time work	0.274	0.446
Information and referral	0.062	0.241
Work at home	0.069	0.253
Workplace child care	0.078	0.269
Mother took maternity leave	0.083	0.276
Mother took paid maternity leave	0.020	0.141
Availability of substitutes		
Other adult in household	0.055	0.229
Relative lives nearby	0.514	0.500
Ratio of centers per 1,000 preschool children in county	5.475	3.278
Ratio of family day care homes per 1,000 preschool children in county	9.807	10.123
State expenditures per child on early childhood services	42.262	29.751
Quality and price of child care in county		
Family day care—Child/staff ratio	5.468	1.703
Center—Child/staff ratio	8.596	1.195
Family day care—Provider trained?	0.548	0.341
Center—Provider trained?	0.787	0.117

TABLE 1: Continued

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>
Quality and price of child care in county		
Family day care—Group size	4.914	2.739
Center—Group size	15.976	2.327
Family day care—Average hourly fee	1.462	0.462
Center—Average hourly fee	1.611	0.485
Income		
Aid to Families with Dependent Children (1 = yes, 0 = no)	0.113	0.317
Poor (1 = yes, 0 = no)	0.125	0.331
Near poor (between 100% and 125% of poverty)	0.139	0.346
Maximum AFDC benefit for a family of three in state	405.677	115.127
State regulations		
Are family day care homes regulated?	0.949	0.219
Family day care—Is training required?	0.338	0.473
Center—Is training required?	0.855	0.353
Family day care—Child/staff ratio for 2-year-old	3.605	1.796
Center—Child/staff ratio for 2-year-old	7.376	2.927

than do other mothers. Each year of education increases the relative risk of working by 8%.¹¹ Each year of age reduces the risk of working by 4%. Each additional year of work experience raises the risk of working by 16%. However, the negative coefficient on work experience squared suggests that the effect of tenure is nonlinear, declining at higher levels of experience. As expected, mothers living in families with higher income other than their own earnings did not return to work as rapidly after childbirth as mothers living in families with lower incomes. Each additional \$1,000 in other family income reduced the risk of working by about 1%. The effect of the mother's wage on working is not statistically significant. Each additional child reduced the probability of working soon after childbirth by 14%. Finally, mothers living in areas of high unemployment did not work as quickly after childbirth as mothers living in areas of lower unemployment.

In the second column, working during pregnancy and the interaction between working during pregnancy and time are added. Working during pregnancy is highly related to working soon after birth. A mother who worked during pregnancy had a risk of returning more than 12 times that of someone who did not work during pregnancy. In addition, the large and significant interaction term coefficient suggests that the effect of working during pregnancy declines sharply over time.

TABLE 2: Effects of Demographic Variables on Risk of Working in Year After Childbirth

	All Mothers			Worked During Pregnancy			Did Not Work During Pregnancy		
	Model 1	Risk Ratio	Model 2	Risk Ratio	Model 3	Risk Ratio	Model 4	Risk Ratio	
Black	-.015	(.219)	.028	(.221)	.158	(.238)	-.290	(.626)	
Hispanic	.004	(.260)	-.006	(.260)	.056	(.279)	-.046	(.777)	
Education of mother	.080	(.040)*	1.083	(.039)	.037	(.042)	.132	(.124)	
Two parents	-.077	(.224)	-.027	(.228)	.040	(.250)	-.820	(.599)	
Mother's wage	.001	(.011)	.002	(.010)	.004	(.009)	-.069	(.071)	
Other income	-.011	(.004)**	-.008	(.004)*	-.008	(.004)†	.010	(.019)	
Age of mother	-.044	(.023)†	.957	(.022)	.005	(.025)	-.077	(.059)	
Work experience	.152	(.044)***	1.164	(.042)	.049	(.046)	.054	(.116)	
Work experience squared	-.004	(.002)†	.996	(.002)	-.002	(.002)	-.000	(.006)	
Number of children	-.149	(.089)†	.862	(.085)	.049	(.091)	-.218	(.258)	
Central city	.123	(.187)	.229	(.190)	.296	(.209)	-.497	(.491)	
Suburb	-.183	(.188)	-.152	(.189)	-.101	(.210)	-.837	(.463)†	
Per capita income	-.039	(.025)	-.050	(.025)*	.951	(.028)	-.098	(.071)	
Unemployment rate	-.064	(.029)*	-.074	(.029)*	.929	(.032)	-.217	(.082)**	
Worked during pregnancy			2.543	(.324)***	12.712				
Worked during pregnancy x Time			-.116	(.256)***	.328				
N	541		541		320		221		
-2 log L	3,016		2,867		2,419		318		
Chi square (df)	59 (14)		208 (16)		14ns (14)		23† (14)		

NOTE: Standard errors in parentheses. ns = not significant.

†p < .10. *p < .05 **p < .01 ***p < .001.

Many of the effects of the other variables are no longer significant. This is because variables such as age, work experience, and number of children affect whether a mother works during pregnancy (not shown). Once working during pregnancy is controlled, these variables are no longer significant. The remaining maternal characteristic that is significantly associated with return to work is other family income. The risk of returning to work, for mothers in families with higher other income, was significantly lower than the risk of mothers with low other income. Each \$1,000 in other earnings reduced the risk of working by about 1%. Income had both a direct negative effect on working during pregnancy (not shown) as well as a direct negative effect on working in the year following a birth. Finally, both a higher per capita income in the county and a higher unemployment rate reduced the risk of working within the first year. Presumably, families that live in a more prosperous area may place a greater value on work at home than those in less prosperous areas, and those in an area of high unemployment who did not work during pregnancy may not be able to work as soon after birth because they cannot find jobs.

The first two models include mothers who did not work during pregnancy as well as those who did. Model 3 shows the results just for mothers who worked during pregnancy. The only variable that remains significant after this adjustment is other family income. The risk of returning to work among mothers who worked during pregnancy was marginally lower for mothers in families with higher other family incomes. No other factors approach statistical significance. In Model 4, which only includes mothers who did not work during pregnancy, the only two variables related to work after childbirth are living in the suburbs and the unemployment rate. Mothers living in the suburbs entered the workforce after childbirth more slowly than mothers living in rural areas. This variable may proxy a greater value placed on work at home while children are very young. Finally, in areas with greater levels of unemployment, the rate of entry to work following childbirth was significantly reduced. This did not so affect mothers who worked during pregnancy, suggesting that the local labor market opportunity structure only affects those without prior attachment.¹² Even though there is little evidence that the models are significantly different, prior labor force attachment is so important that it reduces the significance of almost all the other variables. Consequently, we separated the sample by employment status during pregnancy and conducted separate analyses of the effects of policy variables. We focused on the effects of public and employer policies upon return to work after childbirth among mothers who worked during pregnancy: Because they already had a

job, such mothers should be most affected in returning to work by such policies. A larger set of individual-level factors affect the decision to work after childbirth, but their influence is mediated by labor force attachment.

EFFECTS OF POLICY VARIABLES AMONG MOTHERS WHO WORKED DURING PREGNANCY

Months from birth until return to work or censoring were regressed separately upon each set of policy variables separated by blank lines, controlling for the variables in Model 3, Table 2. Table 3 shows the coefficients for the policy variables entered a set at a time. The effects of the control variables are the same over all models; consequently, we have not presented their coefficients for each of the separate regressions.

None of the state policy variables was significantly associated with the risk of returning to work soon after childbirth (Table 3), and no interactions between state policy and poverty status were significant (not shown). It appears that state policies do not significantly affect maternal employment behavior.

Employer policies were significantly associated with return to work. As a group, the only significant policy was the availability of part-time employment, which was associated with a faster return. Because several employer policies were correlated,¹³ we also entered them one at a time into the multivariate model. Policies that were individually associated with a faster return included the availability of liberal unpaid leave, a flexible spending account, part-time work, work at home, and child care at the workplace. Work at home was strongly associated with liberal unpaid leave, so when we entered these five simultaneously in a model, work at home was no longer significant in any model and was not included in the final set of employer variables.

None of the interactions between employer policies and poverty status was statistically significant. Although the coefficients were large for several interactions, standard errors were also large, indicating that we do not have a good estimate of their effects. Consequently, we cannot draw any conclusions about differential effects of employer policies on the return to work of poor mothers compared with nonpoor mothers.

Two of the other policy variables were significantly related to return to work after childbirth. Families receiving Aid to Families with Dependent Children (AFDC) and families with incomes above but close to the poverty level were less likely to return to work soon after a birth. With all the other variables in the model, only the poverty level continued to be significantly related to return to work and that variable was retained.

TABLE 3: Effects of Policy Variables on Risk of Returning to Work, Mothers Who Worked in Pregnancy

	<i>Parameter Estimate</i>	<i>Standard Error</i>	<i>Risk Ratio</i>
State has parental leave law	.142	(.165)	1.153
Mother took maternity leave	-.073	(.261)	.930
Mother took paid maternity leave	.028	(.394)	1.028
Employer offers:			
Liberal unpaid leave	.216	(.181)	1.241
Cafeteria benefit plan	.119	(.335)	1.127
Flexible spending account	.218	(.255)	1.244
Flex-time	.067	(.220)	1.069
Information and referral	.120	(.291)	1.127
Work at home	.233	(.264)	1.263
Workplace child care	.180	(.220)	1.198
Part-time work	.478	(.168)	1.612**
Interactions:			
Liberal unpaid leave	.575	(.155)	1.777***
Liberal leave × Poverty	.088	(1.149)	1.092
Poverty status	.349	(.330)	1.417
Flexible spending account	.494	(.231)	1.638*
Spending account × Poverty	0	(0)	
Poverty status	.215	(.319)	1.240
Child care at workplace	.316	(.218)	1.371
Workplace child care × Poverty	.274	(1.100)	1.315
Poverty	.172	(.325)	1.188
Part-time work	.674	(.149)	1.962***
Part-time work × Poverty	-.307	(.680)	.735
Poverty	.366	(.360)	1.442
Availability:			
Other adult in household	.280	(.312)	1.324
Relative lives nearby that could care for child	.191	(.145)	1.211
Ratio of number of centers to number of preschool children in county	.009	(.026)	1.009
Ratio of family day care to number of preschool children in county	.003	(.008)	1.003
State expenditures per child	.0007	(.002)	1.001
Quality and price:			
Family day care child/staff ratio	-.020	(.065)	.980
Center child/staff ratio	-.013	(.078)	.987
Center teacher trained	.557	(.711)	1.745

(continued)

TABLE 3: Continued

	<i>Parameter Estimate</i>	<i>Standard Error</i>	<i>Risk Ratio</i>
Quality and price:			
Family day care teacher trained	-.035	(.309)	.966
Center—group size	.023	(.041)	1.023
Family day care—group size	.017	(.054)	1.017
Family day care—average hourly fee	-.006	(.228)	.994
Center—average hourly fee	.013	(.270)	1.013
State regulations:			
Are family day care homes regulated?	.843	(.577)	2.323
Family day care—is training required?	-.013	(.148)	.987
Center—is training required?	-.273	(.235)	.761
Family day care—child/staff ratio for 2-year-old	.044	(.060)	1.045
Center—child/staff ratio for 2-year-old	-.016	(.030)	.984
Income:			
Aid to Families with Dependent Children (AFDC)	-.700	(.387)	.496 [†]
Poor	-.039	(.336)	.962
Near poor	-.578	(.285)	.561*
Maximum AFDC benefit for family of three in state	.0005	(.0005)	1.001

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Our final model is shown in Table 4. In this model, only the policy variables are related to how quickly mothers return to work after childbirth. Having part-time work available increased the speed of return, as does liberal leave policy. Finally, mothers in near-poor families were less likely to return to work quickly than mothers in better-off families.

COMPETING RISK MODEL FOR RETURNING TO WORK PART-TIME OR FULL-TIME, MOTHERS WHO WERE EMPLOYED DURING PREGNANCY

The models for return part-time and full-time are shown in Table 4, along with the model for all returns to work. None of the background factors was associated with return to work at all (Columns 1 and 2). As expected, several background variables affected part-time (Columns 3 and 4) and full-time (Columns 5 and 6) return in different ways. Higher other family income reduced the risk of returning to work full-time but had no effect on returning

TABLE 4: Effects of Demographic Variables on Risk of Returning to Work at All, Full-Time, and Part-Time, Mothers who Worked During Pregnancy

	All Returns		Return Full-Time		Return Part-Time	
	Coefficient (Standard Error)	Risk Ratio	Coefficient (Standard error)	Risk Ratio	Coefficient (Standard error)	Risk Ratio
Black	.223 (.246)		.476 (.261)		-.014 (.475)	
Hispanic	-.082 (.282)		-.173 (.328)		.355 (.450)	
Education	.005 (.042)		-.014 (.051)		.032 (.064)	
Two parents	.030 (.274)		.042 (.303)		.587 (.549)	
Mother's wage	.005 (.009)		-.002 (.012)		.027 (.010)**	1.028
Other income	-.007 (.005)		-.010 (.006)†	.990	.001 (.006)	
Age of mother	-.0001 (.026)		-.317 (.327)		.011 (.036)	
Work experience	.037 (.046)		.087 (.056)		-.012 (.073)	
Work experience squared	-.001 (.002)		-.002 (.003)		-.000 (.003)	
Number of children	.084 (.092)		-.046 (.113)		.284 (.134)*	1.329
Central city	.191 (.217)		.369 (.255)		-.207 (.340)	
Suburb	-.201 (.215)		-.008 (.250)		-.225 (.320)	
Per capita income	-.021 (.028)		-.035 (.032)		-.023 (.048)	
Unemployment rate	-.044 (.033)		-.054 (.038)		-.028 (.053)	
Flexible spending account	.284 (.234)		.475 (.255)†	1.608	-.510 (.472)	
Part-time work	.474 (.165)**	1.606	.071 (.190)		1.475 (.267)***	4.374
Child care at work site	.298 (.219)		.318 (.253)		.611 (.330)†	1.842
Liberal unpaid leave	.293 (.174)†	1.340	.499 (.198)*	1.647	-.169 (.278)	
Poor	.209 (.340)		-.092 (.403)		.864 (.536)	
Near poor	-.528 (.292)†	.590	-.639 (.327)†	.528	.323 (.412)	
N	320		320		320	
-2 Log L	2,390		1,808		926	
Chi squared (df)	43 (20)		41 (20)		55 (20)	

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

part-time. The mother's wage had a significant positive effect on return to work part-time. Mothers with higher expected earnings returned more quickly to work on a part-time basis than mothers with lower earnings. The effect was negative but not statistically significant for return to work full-time. Thus, as hypothesized, higher income suppressed returns and higher wages increased them, but the effects only appeared when part-time and full-time returns were separated. Higher income suppressed returns full-time and higher wages increased returns part-time. This makes sense. Mothers who do not need the money as much do not need to return full-time; they may decide to return part-time. Part-time (but not full-time) work is also attractive to mothers with higher wages. Finally, the larger the number of children, the greater the risk of returning to work part-time. The costs of working full-time are higher for such mothers.

EFFECTS OF EMPLOYER POLICIES IN COMPETING RISK MODELS, MOTHERS WHO WERE EMPLOYED DURING PREGNANCY

At the bottom of Table 4 are shown the effects of the six basic policy variables found to be significantly associated with return to work in the basic model. For all returns, mothers who had access to part-time work or liberal unpaid leave returned to work more quickly. Mothers in families that were near poor returned to work less quickly than mothers in better-off families. Policy factors were differentially associated with whether the first return to work was part-time or full-time. Having access to a flexible spending account (from which to pay for child care) and having access to liberal leave were associated with first returning to work full-time. Having access to part-time work and to child care at the work site were associated with first returning to work part-time.¹⁴

Although in general, as income rises, the rapidity of returning full-time declines, there is an especially low rate of return to work among mothers in near-poor families, relative to mothers in higher- or lower-income families.

DISCUSSION AND POLICY IMPLICATIONS

In this study, we found that income and employer policies—family income and the mother's own wage, and having access to part-time work, flexible spending accounts, liberal leave policies, and child care at the work site—were related to maternal rate of return to working after childbirth. These factors operate by affecting the relative value of work outside the home versus work at home caring for a young child.

Clearly, family income is an important factor in returning to work. Mothers who could rely on substantial incomes of other family members while they were on leave did not return to work as quickly as mothers living in families in which other family members had lower incomes. Mothers in families just above the poverty line had a very low risk of returning to work early, and the effects were strongest for returning on a full-time basis. For them, the benefits of staying home exceed those of working. Other research has shown that working-class mothers often have less access to benefits such as a flexible spending account or unpaid leave and to certain types of child care subsidies than do higher-income mothers. Thus they may be doubly disadvantaged (Hofferth, 1995; Miller, 1992). In addition, there is no evidence that low-income parents are more likely to use these employer benefits if they are available. Net of other family income, mothers with higher earnings returned to part-time work more quickly than mothers with lower earnings, as expected. The benefits of working are higher for those with better wage opportunities, and first returning part-time is a way many mothers find attractive to maintain their human capital and still manage to care primarily for an infant at home.

There has been considerable discussion about the part that employer benefits can play in helping mothers manage work and family life. One important employer policy that was consistently associated with return to work was the availability of part-time work. Mothers working for employers offering part-time work returned to work, particularly to part-time work, much more quickly than mothers without access to such policies. Although part-time work offers substantial short-term advantages, in the long-term, part-time work may sidetrack mothers onto the "Mommy Track," with its lower promotion, pay, and benefit opportunities (Schwartz, 1989).

A second employer policy associated with a more rapid rate of return to work, particularly full-time work after childbirth, was access to a flexible spending account. With this account, employees can pay for child care in pretax dollars, thus reducing their tax burden. Unfortunately, such benefits are more often available to high rather than low-income families (Hofferth et al., 1991). In the present study, no poor mothers reported having access to a flexible spending account.

A third employer policy that was associated with a more rapid rate of return to work was liberal leave. Mothers were more likely to return, particularly full-time, if their employer had a liberal unpaid leave policy. In 1993, the Family and Medical Leave Act, which mandates that firms with 50 or more employees provide unpaid parental leave in all states, was passed and signed by President Clinton (Zuckman, 1993). Our research suggests that even if the

newly available leave is unpaid, it adds additional flexibility to help employees return to their jobs at their own pace.

Finally, mothers were more likely to return on a part-time (but not full-time) basis if their employer provided child care at the work site. Given that child care at the work site is center-based care and most parents prefer informal care for infants, it is likely to attract only the part-time employee. Mothers who return full-time may have contracted with a full-time sitter before birth and neither need nor want full-time care at the work site.

CONCLUSIONS

The first study to examine the effects of public and private policies on the employment patterns of American mothers after childbirth finds that mothers who have access to employer-sponsored benefits return to work sooner. Those who have access to part-time work through their employer or to child care at the work site return to work part-time sooner, and mothers who have access to a flexible spending account or liberal unpaid leave return to full-time work sooner, than mothers who do not have access to such policies. Whereas such policies operate like the proverbial carrot—by encouraging commitment to their employer or by attracting new employees—mothers who are low income are compelled by their need for income to return to work sooner and have no choice but to work full-time. Income is a consistent predictor of when a mother returns. Without income replacement, mothers from low-income families will continue to return to work sooner than those from wealthier families. High wage mothers were also more likely to return to work part-time. The opportunity cost of not working is higher for them and they can afford to compromise by working part-time. In this study, there were too few mothers who received paid leave to draw any conclusions about the impact of income replacement on return to work.

Although the data did not permit us to estimate the impact of employer-sponsored child care at the workplace with any certainty, the effects were generally consistent with mothers taking such policies into account in their employment decisions following childbirth. Greater employer flexibility in work schedules in response to maternal needs and the availability of benefits such as child care or a flexible spending account at the workplace may help new mothers. Employers who have such policies may retain employees who return sooner after childbirth or attract employees to work for them because of their benefits.

NOTES

1. The value of home time, although not directly measured, depends upon other income sources, such as the income of the husband or partner and AFDC receipt, the number of parents, and the number and ages of children. For families with children, having a nonworking mother has tended to be a normal good (Mason & Kulthau, 1989), one that can only be afforded by higher-income families. More income also raises the demand for home-produced services and the value of the time of homemakers in producing them. Thus a higher other family income increases the value of the mother's time at home relative to time outside the home. It is expected that a higher level of mother's hourly earnings and human capital will shorten her time to work following childbirth, whereas a higher level of other family income will lengthen it. A larger number of children also increases the value of home time and should lengthen the time it takes to enter or reenter the workforce.

2. Although the actual value of unemployment may vary from year to year, the relative ranking of communities on this measure is not likely to vary much over the course of 3 years.

3. In preliminary analyses, we separated the benefits into availability at spouse's, own, both, and neither workplace. Fathers' benefits are clearly underreported. Fathers are reported to have only about half the benefits mothers report, most likely because the mother is the respondent and simply does not know what the father has available. Consequently, fathers' benefits added only slightly to the model.

4. Defining the length of leave after childbirth is not straightforward. The National Child Care Survey (NCCS) collected an employment history for both parents for the year prior to the survey. Consequently, for children born during the year before the survey, information on all jobs their mother held during that first year is available. With these unique data, we can rather accurately characterize the employment patterns after birth of mothers who change employers. Whereas in most surveys (such as the National Longitudinal Survey of Youth), it is difficult to identify maternity leave if the mother stayed with the same employer, the NCCS obtained additional information to use to determine whether a mother who stayed with the same employer took leave and when she returned to work. The NCCS asked a set of direct questions about whether the mother was on leave at the time of the survey. If not, she was asked whether she took leave at the birth of her youngest child, how much leave she took, and whether and how she was paid during that time. Mothers who did not report any time between jobs or who did not report taking any leave were assigned 2 weeks of leave (half a month). It is unlikely that these women took no leave; they simply did not report it. Assigning 2 weeks' leave permits us to test for the dependence of variables on time using a log specification (Equation 1) while not altering our findings.

5. The SAS procedure PHREG was used to obtain regression parameters based on the Cox proportional hazards model (SAS Institute, 1991).

6. This is the same as stratifying by whether the mother worked during pregnancy (Allison, 1984).

7. Because parents were only asked about their access to employer policies that help manage work and family life at the time of the survey, and only if they or their spouse was employed, employment is confounded with access to benefits. We do not know whether mothers who are not employed have access to employers with the same types of benefits. Consequently, the effects of employer benefits were examined using a sample of mothers who were employed at the time of the survey. A substantial proportion of mothers change jobs; consequently, the employer providing benefits at the survey date may not be the same one for whom the mother

worked during pregnancy. Thus we also examined the effects of employer benefits on a subset of mothers who at the time of the survey had been working for the same employer since before the birth of their child. This provides the most rigorous test of the impact of parental benefits on return to work, although selection may be a problem. The results of both analyses are very similar to those of mothers who had worked during pregnancy.

8. This is comparable to competing risk studies of cohabitation versus marriage where the dependent variable is the first occurrence of living with a partner, with the competing risks being nonmarital cohabitation or first marriage (Axinn & Thornton, 1992). If the dependent variable is marriage, then individuals who cohabit first are censored as they are no longer eligible for a marriage without cohabitation. If the dependent variable is cohabitation, then individuals who marry first are censored as they are no longer eligible for cohabitation prior to marriage.

9. The proportion of mothers who worked during pregnancy is lower in our sample of mothers of all parities than in a sample of first-time mothers such as that of O'Connell (1990) because labor force participation rates are lower for mothers than for nonmothers. According to Survey of Income and Program Participation (SIPP) data (O'Connell, 1990), 64% of mothers who had a first birth between 1981 and 1984 worked during pregnancy.

The same SIPP study shows that, of women with a first birth in 1981-1984, 44% were working within 6 months, and 53% by the twelfth month. We divided our sample by parity and conducted separate life tables for each parity. Our results show that first-time mothers enter the workforce more quickly than later parity mothers. About 42% of first-time mothers are working by 3 months, 51% by 6 months, 58% by 9 months, and 61% by 12 months (not shown). In contrast, among women with a second birth, 36% are back within 3 months, 44% by 6 months, 47% by 9 months, and 48% by 12 months. Of mothers with a third birth, 25% are working within 3 months, 28% within 6 months, and 34% within 12 months. Sample sizes are too small to calculate life tables for higher parity mothers.

10. Regional dummies were used as instruments for the wage equation as they are associated with wages but not with working after childbirth. The R^2 for the equation is .29. We did not correct for self-selection into the labor force. Mroz (1987) found no evidence that the failure to control for self-selection yields biased results. Leibowitz et al. (1992) also found no evidence for selection bias in the wage equation.

11. Calculated as $(\text{Relative risk} - 1) \times 100$. This represents the percentage increase (or decrease) in risk of returning to work associated with a change in the dependent variable or the given category compared with the omitted category.

12. Thanks to an anonymous reviewer for this interpretation.

13. The policies affecting schedules—part-time work, flex-time schedules, liberal unpaid leave, and work at home—were strongly correlated.

14. There is some question as to why there is any variation in access to part-time work among those who return part-time. That is, logically, everyone who returns part-time has part-time work available. However, when we examined our data, we found that what mothers apparently consider part-time work and what we defined as part-time work were not the same. We did not define *part-time* in the question about access to part-time work; we coded work of 1 to 34 hours per week as part-time, consistent with U.S. Department of Labor practice. Yet 40% of mothers working under 35 hours per week at the time of the survey said that they did not have access to part-time work. When we examined the hours mothers worked, we found that mothers who had access to part-time work in fact worked fewer hours (mean = 32) than mothers who did not have access to part-time work (mean = 40). Apparently many mothers have a higher hours threshold for work to be considered part-time work than do statistical agencies.

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