

## A RAND NOTE

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NEW PARENTS

Linda J. Waite, Gus W. Haggstrom,  
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N-2488-NICHD

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The National Institute of Child Health  
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## CHANGES IN THE EMPLOYMENT ACTIVITIES OF NEW PARENTS\*

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*Using data from the National Longitudinal Survey of the High School Class of 1972, this paper examines the impact of the transition to parenthood on the amount of time men and women spend on paid employment. The majority of women have jobs prior to pregnancy; most leave these jobs as the pregnancy progresses, so that only one woman in five remains employed in the month that the child is born. Some women return to work, but by two years after the birth employment rates reach only 60 percent of their previous levels. In the absence of parenthood, the proportion employed would have steadily increased, so that the real employment deficit due to parenthood exceeds that implied by a comparison of employment before and after the birth. The most important contributor to women's decreased work activity following parenthood is withdrawal from employment. On virtually all our measures, fathers show higher levels of work activity than we would expect in the absence of the first birth, but this "parenthood effect" predates the pregnancy by a substantial amount.*

This paper examines the ways in which becoming a parent affects the amount of time men and women spend in paid employment. The arrival of the first child signals a major change for both sexes in roles and responsibilities. Not only do young children demand a great deal of time and attention, they also introduce new financial demands, including expenses for their current needs and the necessity to provide for their future.

Traditional definitions of the parental role suggest that men and women may well respond differently to parenthood in their patterns of labor-force activity. Because women still retain primary responsibility in child care even if they work, parenthood often restricts the types of jobs they can take (Hudis, 1976); because men ordinarily are still the family's principal wage earner, parenthood puts additional pressure on them to earn more (Cramer, 1979b). Thus, we expect the first birth to decrease women's work activities while increasing men's.

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Both sociological and economic perspectives have been used to explain the divergent paths men and women typically follow during their adult lives, although recent increases in labor-market activity by mothers of young children have blurred this distinction. Economists tend to focus on male-female differences in skills in the home and the market, differential wage rates, and the rewards—monetary and psychic—of work in the market versus work in the home. They argue that married women will allocate time to employment only if their wage rate exceeds the value they implicitly place on their time at home (Gronau, 1973). Presence of children, especially young children, raises the housewife's value of time at home both because purchased child care is expensive and because parents value the quality of child care they themselves provide (Hill and Stafford, 1980).

Sociological perspectives tend to focus on the social advantages of these distinct male/female constellations of activities or "roles" (Marwell, 1975), and on the incompatibility of worker and mother roles in industrial societies (Dixon, 1975; Waite and Stolzenberg, 1976). From both sociological and economic perspectives, a woman's employment choices during the time of the birth of the first child are important both as predictors of the extent of her later work activity (Mott and Shapiro, 1983) and as determinants of her career progression (Mincer and Ofek, 1982). Men's employment choices also affect later career outcomes, but in different ways from women's.

This paper examines the employment choices that young men and women make

during the time of the birth of their first child. Using data from the National Longitudinal Survey of the High School Class of 1972 (NLS), we examine changes in employment due to childbearing and childrearing by tracing the paths of young adults for seven years following high school graduation. By the end of that period, these graduates were about 25 years old, nearly all had completed their formal schooling and settled into a career path, most had married, and many had become parents. The longitudinal nature of the NLS enables us to follow individuals over time, observe changes in employment activities before and after childbearing, and compare the activities of parents with those of classmates who remained childless.

### BACKGROUND

A number of recent studies have analyzed the labor-force participation of young women around the time they have their first child; these provide a context and starting point for our analysis. Shapiro and Mott (1979) traced the labor-force participation of young women from two years prior to the first birth through the year following it. They found that rates fell sharply as the birth approaches, but that in the month after the child was born about 20 percent of the white and 40 percent of the black mothers remained in the labor force, compared to 75 and 93 percent, respectively, two years prior to the birth. The proportion employed and the proportion employed *and* at work dropped more sharply than participation, with blacks more active than whites on all three indicators.

McLaughlin (1982) found that young women's job-holding patterns during the two years centered on the first birth depend on education and work experience. Women with some college, and those with greater amounts of work experience, leave the labor force more slowly and reenter more quickly than those with less schooling or experience; they are also more likely to retain jobs throughout the pregnancy and after the birth.

Cramer (1979a) calculated the opportunity cost of a birth in the late 1960s and early 1970s for young married women who already had at least one child. The birth of an additional child reduced time spent in employment—calculated at about age two—by approximately 400 hours over the year. In addition to these substantive findings, this study makes an important point. The time cost of a birth comprises two components: the direct cost of time spent on a baby, which can be thought of as a sidetracking from one's own trajectory; and what Cramer calls the "postponement effect," or the cost of fall-

ing behind the trajectory of one's reference group. Our analysis explicitly compares the direct effect of parenthood with the indirect, or postponement, effect.

Fewer studies examine parenthood effects on men's than on women's employment, perhaps because men's employment varies so little. Cross-sectional analyses of husbands' responses to the birth of a child show trivial increases in hours of work, on the order of 10 to 20 hours per year (Lindert, 1978; Cramer, 1979a). However, one longitudinal analysis showed that men whose wives bore a child during the year increased their employment substantially—by 192 hours per year (Cramer, 1979b).

### CAUSAL RELATIONSHIP

An important theoretical and empirical issue concerns the causal nature of the relationship between parenthood and employment. Virtually all research on the causal connection between women's labor-force activity and fertility finds that—at least in the short run—fertility influences work but work has no measurable impact on fertility (see Hout, 1978; Cramer, 1980; Smith-Lovin and Tickamyer, 1978; and Mott and Shapiro, 1983). The causal picture for men is less clear-cut. A number of studies have examined the relationship between the birth of a child and men's work effort, but relatively few have tried to assess causal direction. Thus, our decision to treat only the effect of the first birth on employment receives support from previous findings for women and is not contraindicated by those for men.

Our analysis extends previous research on the impact of a birth on employment in several ways: (1) we examine activities of *both* men and women who become parents; (2) we assess several distinct dimensions of employment activity; and (3) we estimate parents' *expected* employment in the absence of parenthood. Although childbearing and childrearing affect men's and women's activities from the time they begin to plan for parenthood, we focus on those effects that manifest themselves during the crucial early years of parenthood, especially parenthood that is initiated during late teens and early twenties. We do this for several reasons. First, role specialization begins—at the latest—during high school, when adolescents first make choices about what courses to take, and in the years that follow, when they make key decisions about further education, employment, marriage, and parenthood. Entry into marriage and parenthood during these years is likely both to shape and reflect choices

about other activities (Presser, 1971; Bacon, 1974).

Second, for both men and women, changes in activities associated with parenthood appear most pronounced for the first birth (Lindert, 1978). Third, the effects of parenthood on other activities depend on its timing; marriage and childbearing before the completion of schooling seem to affect this and other activities more strongly than when these events occur later (Hofferth and Moore, 1979; Elder and Rockwell, 1976; Hogan, 1981). Sørensen (1983) finds that women who marry relatively late and who have children late are less likely than other women to leave the labor force when their first child is born. Thus, activity changes associated with childbearing and childrearing may be more pronounced for those who begin their families relatively early than for those who become parents later.

Our analysis focuses on changes in activities associated with the first birth. We make this choice because, as stated above, previous research and current descriptive data show the greatest changes in various activities with entry into the parental role rather than with additions to an established family. In addition, the relative youthfulness of the NLS sample makes it unsuitable for studying later births.

## DATA

The NLS provides a comprehensive data base for studying the educational, vocational, and personal development of high school graduates as they pass through the critical years of early adulthood. The NLS began in the spring of 1972, when 19,001 seniors from 1061 high schools were asked to complete lengthy questionnaires and take a 69-minute test battery measuring both verbal and nonverbal abilities. The participating schools were also asked to provide further information about the seniors from their student record files. Later, four follow-up surveys were administered in the fall of 1973, 1974, 1976, and 1979 to over 23,000 members of the same graduating class, including most of the seniors who were in the base-year sample.

For most respondents, the NLS provides information that allows us to pinpoint quite accurately the date of marriage and the timing of the first birth. Information on marital status was gathered on all four follow-up surveys, and married respondents were asked their dates of marriage. In the pre-1979 follow-up surveys, participants were also asked how many children they had as of the first week of October in the year the survey was taken. The 1979 follow-up elicited the exact birthdates of all the respondent's children, both natural and

adopted. Thus, the timing of the first birth can be determined exactly for respondents to the 1979 survey and estimated for most other respondents.

The analysis reported here uses NLS respondents for whom marital and parenthood status is known in 1976 and 1979; it eliminates completely those for whom marital and parenthood status is unknown in both years, and eliminates from analyses after 1976 those for whom these statuses are missing for later years (approximately 15 percent of the females and 19 percent of the males). Because the focus of our analysis is on the effects of married parenthood, which we expected would differ from the effects of unwed parenthood, we excluded unwed parents from our comparisons.

After the above exclusions, there remained a sample of 2807 women and 2477 men in the NLS who were ever-married nonparents in 1979, plus 3350 women and 2190 men who were ever-married parents by that year. The most common reason for case loss was unknown date of first birth, for the parents, and unknown marital and parenthood status for all others.

To assess the effect of the loss of respondents from the sample by the 1979 interview, we compared those who left the sample by that year with those who remained. Sample loss was selective by background characteristics, but this selectivity appears modest.

## METHODS

In this study we use an individual-effects methodology similar to that used by Haggstrom et al. (1981). Its basic premise is that the effects of parenthood on the activities of a particular individual can be estimated by comparing changes over time in the individual's activity measures with estimates of the expected changes for that individual in the absence of parenthood. In this study, the expected changes are estimated using regression equations fitted to observations on the married NLS participants who remained childless through October 1979 (or October 1976 if they did not respond to the 1979 survey).

We use this methodology to calculate the estimated average effects of parenthood, which vary over time, for each month from the twelfth month before the birth date of the first child ( $t = -12$ ) through two years after the birth date ( $t = 24$ ). We set  $t = 0$  for the birth month of the NLS respondent's first-born child.

Since the NLS participants were surveyed only three times between the base-year survey in Spring 1972 and the fourth follow-up survey in late 1979, observations on the dependent

variables  $Y_t$  are available for only a few time points. However, the NLS collected information on key activities, such as labor-force participation and hours worked, retrospectively for nonsurvey years. Observations on the dependent variables were then dated relative to the first birth. For example, an NLS respondent who first became a parent in December 1973 provides observations at  $t_1 = -14$  (October 1972),  $t_2 = -2$  (October 1973), . . . ,  $t_8 = 70$  (October 1979). Thus each respondent provides as many as eight observations 12 months apart over the period 1972 to 1979.

In calculating the values of the means  $\bar{Y}_t$  for a particular value of  $t$ , say,  $t = 10$ , we first averaged all those outcomes for parents who provided observations on the tenth month following entrance into parenthood. Having calculated these means  $m_t$  for all values of  $t$ , we then "smoothed" the time series of means using a 7-point, third-degree polynomial smoothing procedure. For methodological details, including specifications of the fitted equations used in the analyses, see Haggstrom et al. (1984).

To estimate the predicted means for parents if they had remained childless, we used fitted values from logistic regression equations (for dichotomous dependent variables) or linear equations (for all other variables) derived from observations on 2807 women and 2477 men in the NLS who were ever-married nonparents in 1979 (or, if they did not complete a survey that year, were ever-married nonparents in 1976). Inasmuch as the data set contained as many as 8 observations (one for each year) on each respondent on each variable, we had a large number of observations for fitting the equations.

These equations incorporated a variety of background characteristics (high school measures, race/ethnicity, and family background) as well as year of observation and marital status, duration of marriage, and educational attainment. The last three characteristics reflect the respondent's status at the time of observation. Fitted equations for all outcome variables provide a means for predicting the time paths that typical parents might have followed if they had remained childless, taking into account the timing of their marriage, their educational progress, their backgrounds, and the dates at which their outcomes were measured.

We analyzed a number of complementary measures of job-related activities; most are available for each year of the survey period from 1972 through 1979. These measures of employment all refer to the first week in October of each year. To determine the impact of parenthood on the nature and extent of em-

ployment among young adults, we analyze: (1) employment status; (2) full-time employment status for workers (35 hours per week or more); (3) number of hours worked per week for workers only; and (4) number of hours worked per week for all respondents.

Employment status and full-time work are dichotomous variables, scored one if the respondent was employed, or worked full time, and zero otherwise. The measure of hours worked is based on the respondent's report, with those not working either deleted, as in (3) above, or receiving codes of zero, as in (4).

## RESULTS

### *Women's Employment Activities*

Our analysis of the consequences of parenthood for women's employment activities begins by examining the percentage who had a job before and after the first birth.

To estimate the effects of parenthood as we defined them earlier, we need to compare actual outcomes over time with estimated outcomes in the absence of parenthood. Figure 1 shows how the employment rates of married women changed during the year before and two years after the first birth.<sup>1</sup> This figure shows a decline beginning at around the time of conception from an employment rate of about 75 percent to about 22 percent in the month of the birth. This latter figure is very close to the 20 percent in the labor force reported by Shapiro and Mott (1979) from the National Longitudinal Surveys of the Labor Market Experience of Young Women, and is somewhat higher than McLaughlin's (1982) 12 percent from the same data set. By two years after the birth, employment rates in our sample have risen to about 45 percent. The reader should keep in mind that we only have observations for two years after the birth for women who bore their first child before October 1977, when the NLS respondents were approximately age 23.

This plot of women's actual employment in the period surrounding the first birth depicts the "direct costs" of motherhood (Cramer, 1979a); that is, it reflects the deviation of the woman from the path she was following before the birth, as indicated by her activities preceding the birth. But it does not tell us whether she has fallen behind her reference group, defined as married women who are similar to her but childless.

Figure 1 shows estimated *expected* employment rates for these mothers if they had remained childless. These rates are based on our

<sup>1</sup> Each month's employment rate was estimated using the employment statuses of all female parents whose responses were available for that month.



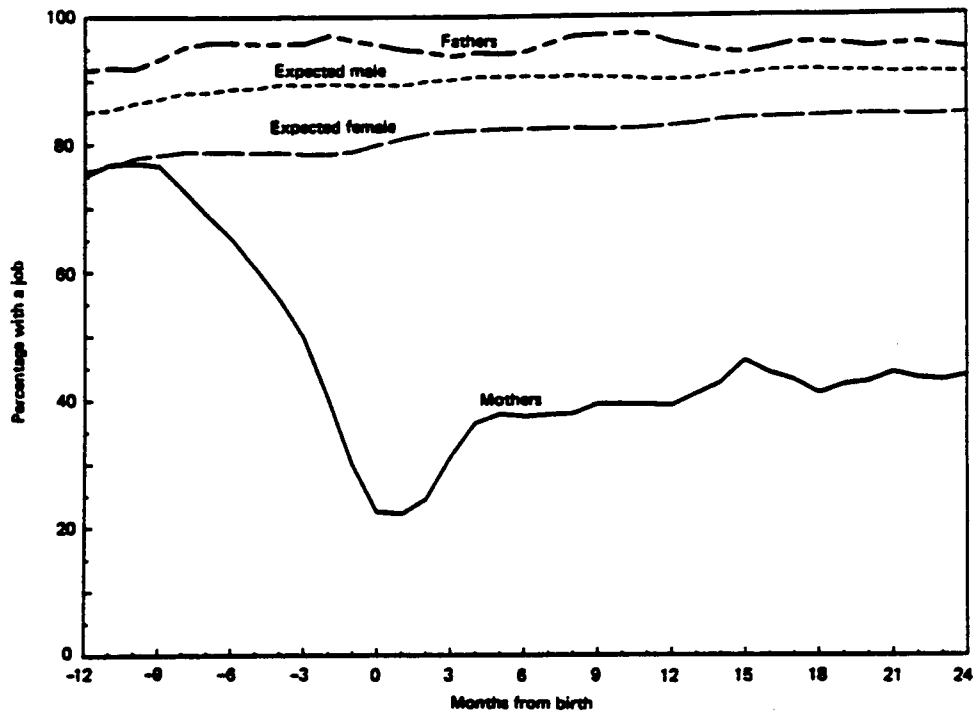


Figure 1. Proportion Employed

logistic regression model for predicting employment status for nonparents having similar marital histories and background characteristics. This graph begins at the same level as actual employment for these women—although it is not constrained by our methodology to do so—but instead of falling with the approaching birth, continues to rise gradually over the period to a rate of about 85 percent. We infer from this that, in the absence of parenthood, the women who experienced a first birth would have shown a slow but steady growth in employment rather than the decline we observe. The average effect of parenthood on employment, then, is not the difference between these women's previous rates of employment (75 percent) and those two years later (45 percent), but the difference between the 30 percent drop in their actual employment rate and the expected 10 percent increase (from 75 to 85 percent) in the absence of parenthood. This difference is about ten percentage points greater than the simple before-after comparison suggests. Next, we ask whether motherhood also influences the extent of employment for those who remain at work.

Figures 2 and 3 present actual and estimated expected outcomes for two measures: proportion employed full time and hours worked by

those with a job. These figures reflect labor supply by women in the labor force. As Figure 1 shows, the proportion of all women in the labor force falls markedly around the time of the first birth. However, for those who remain at work, the amount of time spent at work remains relatively high and stable until the two or three months following the first birth, when it begins to fall. The pattern is similar for both variables—percent of workers who work full time and hours worked per week by those employed. Several features of the data deserve mention. The decline in the level of work effort does not begin until about three months after the birth. We see no drop in the proportion of women working full time among those who remain employed in the months surrounding the birth, presumably the period when the physical demands on a new mother are greatest. The gradual declines in the proportion of women working full time and in average hours at work probably reflect the movement back to their jobs of women who left work—perhaps on a maternity leave—and returned part time.

It is clear that most of the employment-related adjustment to a first birth for women occurs through labor-force participation rather than through changes in work effort by those

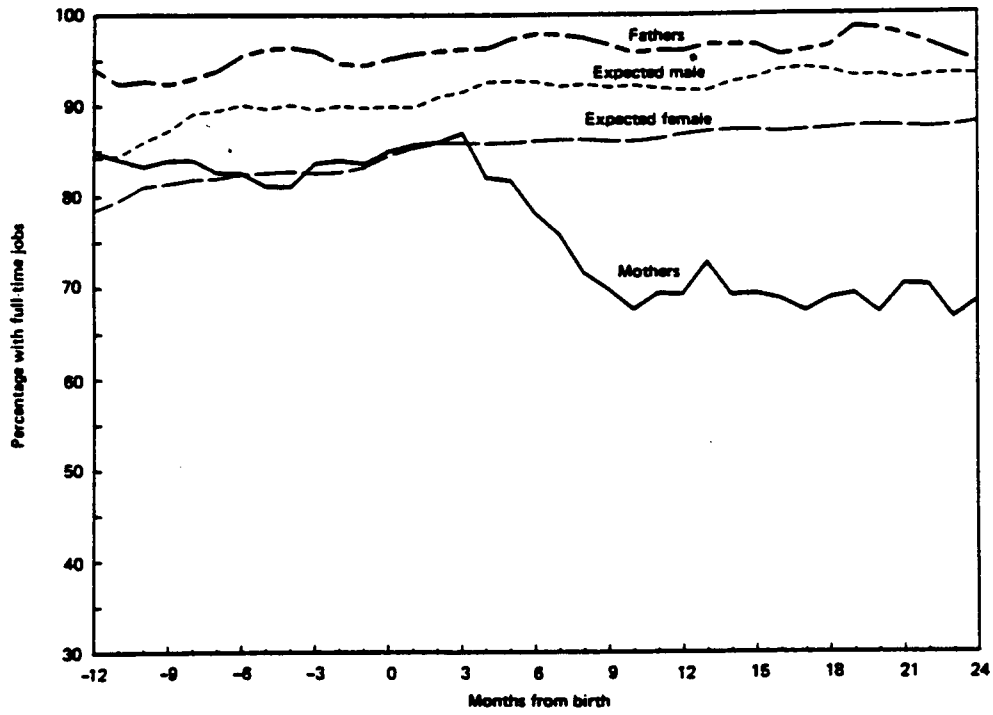


Figure 2. Proportion of Workers Holding a Full-Time Job

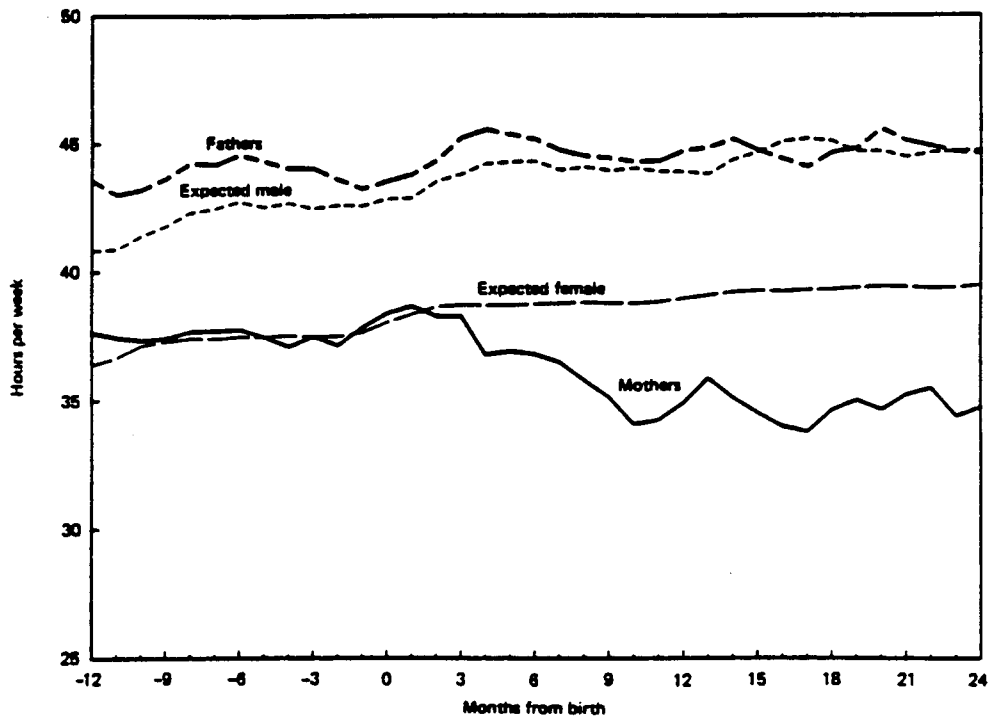


Figure 3. Total Hours Worked Per Week, Workers Only

who keep their jobs. Women who remain at work during the month preceding and the several months following the birth of their first child constitute the most committed workers, and these women apparently tend to devote full time to their jobs even when their children are infants.

The plots for estimated work activity in the absence of parenthood allow us to compare parents and similar nonparents by taking account of differences in educational attainment, marital status and duration, and other characteristics. These comparisons in Figures 2 and 3 show that motherhood does result in a drop in the average level of work activity even among those who remain employed.

The negative effect that parenthood has on women's level of work activity stands in sharp contrast to the positive effect that marriage seems to have on the same outcomes. Results of our logistic regression analysis of proportion working full time and our regression analysis of number of hours worked by those employed, not presented here, both show highly significant positive coefficients associated with marriage for women. This indicates that it is not family formation in general that pushes women toward traditional sex-role specialization, but parenthood in particular.

Next, we examine average hours employed for ever-married mothers. This measure we defined to be zero for those without a job. It reflects the combined effects of withdrawals from employment and reductions in hours worked for those who retain their jobs. Figure 4 presents the time series of hours employed for married parents and estimated hours employed in the absence of parenthood. This figure shows the same pattern as Figure 1, proportion employed. In fact, hours employed for all women workers depends primarily on employment and not hours given employment, as the reader will note by comparing the figures presented above. Average hours employed for all mothers begins to fall at about the time of conception, reaches a nadir in the birth month, and begins to rise thereafter. This measure of work activity stabilizes fairly quickly after the birth and remains at about 15 hours per woman per week, reflecting an employment rate of about 35 percent and an average work week for workers of about 35 hours. Our estimates indicate that, in the absence of motherhood, mean hours on the job would have risen for these women from 27 hours per week one year prior to the birth to 34 hours per week two years following it. The discrepancy between the actual decline and the expected increase indi-

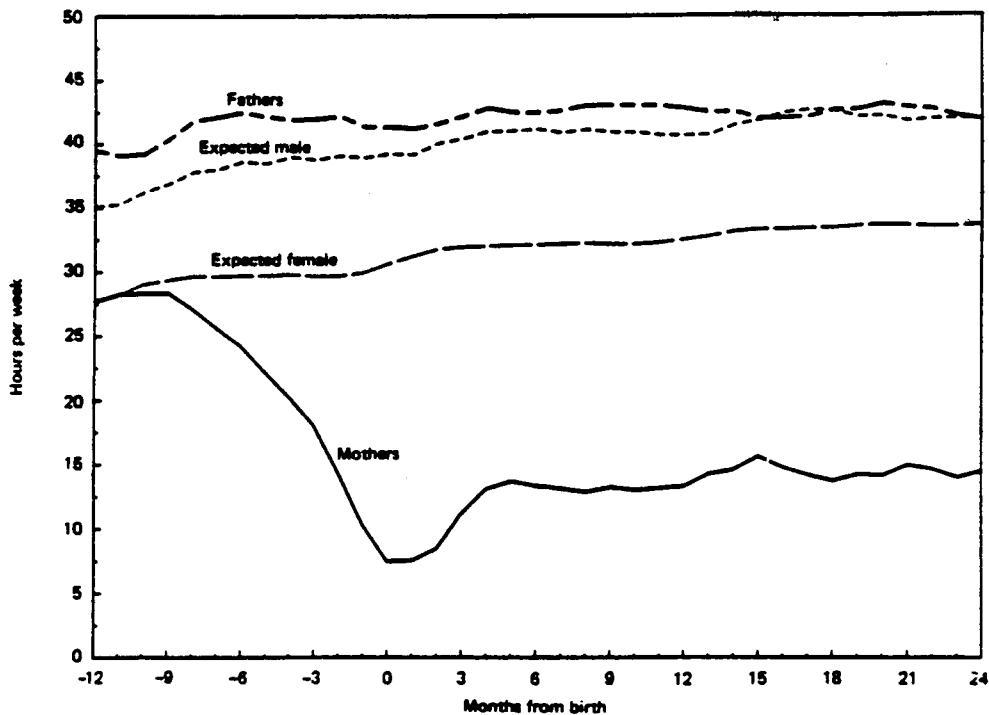


Figure 4. Total Hours Worked Per Week, All Respondents

cates the substantial effects of a first birth on the average amount of work activity for women who became parents.

### *Men's Employment Activities*

Previous research had led us to expect that parenthood has less effect on men's employment than on women's; the data bear this out.

Figure 1 shows that employment rates among married fathers are consistently higher than would be expected given their characteristics. There is no evidence that this modest divergence from expected employment rates is associated with the timing of the first birth. The fathers' greater propensity for employment begins well before the child is born, making causal interpretation difficult. The elevated employment rates could reflect anticipatory parenthood effects, or unmeasured (or uncontrolled) differences in background characteristics, or even a selection effect based on the reverse of the causal pattern we are primarily interested in; i.e., other things equal, men who are employed may be more likely to assume the additional financial responsibility of parenthood. We see the same pattern in Figure 2, which shows the proportion employed full time for married men and estimated full-time employment in the absence of the first birth; in Figure 3, which presents data on the average number of hours worked per week among those who are employed; and in Figure 4, which summarizes data on average hours worked for all NLS respondents, including those who are not employed (and whose hours worked are therefore coded as zero). Comparison of the plots for actual and estimated expected outcomes in Figures 2, 3 and 4 does reveal a tendency for the plots to converge over time. Such a pattern is consistent with the hypothesis that some married men increase their work effort in anticipation of the financial demands of pregnancy and parenthood. However, the pattern is by no means uniquely consistent with that hypothesis, and in any case the differences in hours worked are quite small relative to those observed for women.

Overall, our analyses indicate that the effects of parenthood on men's employment activities are much smaller than the effects for women. Consistent with our expectations and with prior research, those differences that do appear are in the opposite direction from those found for women; if anything, parenthood tends to increase men's employment activities. It may be that one reason we observe small effects of parenthood on men's employment activities is that their level of activity is already quite high, leaving little room for further increases.

## AMERICAN SOCIOLOGICAL REVIEW

An economic model of trade-off between time in the home and market for husbands and wives would suggest that the birth of the first child increases the value of a woman's work in the home, making her a good substitute for her husband there and lowering the value of—and thereby the amount of—his time in the home. Our results, however, are not consistent with this hypothesis because, although women's time in the home increases on average after the first birth, men's time in the market increases only during pregnancy and for a very brief period from the third to sixth month after the child is born.

Despite the general absence of noticeable short-term responses to parenthood, fathers demonstrate consistently more job activity than nonfathers do. The differences, however, appear long before the fathers become parents. These patterns could indicate the existence of long-term anticipatory effects of parenthood such that men who especially want children work harder in order to achieve the necessary financial resources. It is also possible that employment affects the timing of parenthood; that is, men who work harder have higher incomes, making it more likely that they will choose to have children sooner rather than later. Although each of these explanations is consistent with the data, we find the second one (employment affects the timing of parenthood) more plausible given our results. One reason is that, aside from some temporary increases in overtime activity, the data show very little evidence of short-term anticipatory effects, and it seems to us unlikely that young people would modify their employment behavior in accordance with long-term parenthood plans without also modifying their behavior when parenthood looms much closer.

## CONCLUSIONS

Taken together, the results presented above give us considerable information on how a first birth affects women's and men's employment. First, the majority of ever-married women have jobs prior to pregnancy; most leave these jobs as the pregnancy progresses, so that only one woman in five remains employed in the month that the child is born. Following the birth, some women return to work, but our analyses show that employment rates only rise to about 60 percent of their previous levels. Our estimates suggest that, if these women had not become parents, the proportion employed would have steadily increased, and that the real employment deficit due to parenthood exceeds that implied by comparing employment before and after the birth. Our findings for changes in job holding and for hours at work

given employment show that the most important contributor to married women's decreased work activity following parenthood is withdrawal from employment. Women who retain their jobs show some decline in hours at work, but on average work about 35 hours per week two years after the birth compared to about 38 hours per week before. These results suggest a division of the female population at first birth into those who retain their jobs—who show relatively high levels of work activity—and those who leave employment before the birth and work very little or not at all in the next two years.

How does men's employment respond to parenthood? Fathers show higher levels of work activity on virtually all our measures than we would expect in the absence of the first birth, but this "parenthood effect" begins well before the pregnancy. We reason that men who work hard may, as a result, be able to undertake the demands of fatherhood somewhat earlier than other men, and that timing of parenthood responds to rather than determines work effort.

Our analysis has clarified a number of points raised by previous studies. First, we see that the effects of parenthood on women's work effort are not universal, but are restricted to a subgroup of women who leave work before the first birth. Those who remain at work, an important minority, show few parenthood effects on their commitment to work. Second, men show only small parenthood effects on average, although our results suggest that employment might affect the timing of men's entry into fatherhood. We suggest that future research explore these issues by attempting to determine the characteristics or career experiences of new mothers who leave employment versus those who remain employed, and by examining how the nature and extent of men's (and women's) employment affects the timing and likelihood of parenthood.

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The Population Research Center was established in 1979 to advance the basic research aims of its sponsoring agency, the National Institute of Child Health and Human Development. The Center strengthens and focuses academic population studies within Rand's broader problem-solving environment.

