

## LABOR SUPPLY BEHAVIOR OF PROSPECTIVE AND NEW MOTHERS

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*Abstract*—Utilizing unique data generated from the National Longitudinal Surveys of Young Women, this paper examines the labor force participation of young mothers in the months immediately preceding and following the birth of the first child. Labor supply behavior at this point in the life cycle is described in greater detail than has hitherto been available. In addition, we analyze the independent effect of several factors of interest on the probability that a young woman will be in the labor force during various intervals surrounding the first birth.

### INTRODUCTION

While female labor force attachment at almost all life cycle points has been increasing for some time, the birth of the first child remains a major transition point for women. Reflecting the birth event and subsequent presence of an infant, substantial numbers of young women withdraw from the labor force. This paper examines, both descriptively and analytically, the labor force participation of young mothers in the months immediately preceding and following the first birth. Patterns of labor force withdrawal and reentry associated with the first birth are described in greater detail than has hitherto been available. In addition, we analyze (in a multivariate framework) the effects of several factors of interest on the likelihood that a young woman will be in the labor force during various intervals surrounding the first birth.

Analysis of female labor force attachment immediately before and after the first birth is interesting in its own right, since the magnitude of this attachment is not generally known and the dynamics of the movements in and out of the labor

force at this life cycle point are not well documented or understood. In addition, however, the implied secular increase in attachment to the labor force has important long-run implications. For example, it has been suggested recently that sex differences in the extent of lifetime attachment to the labor force are primarily responsible for the large gap in average hourly earnings between men and women (Mincer and Polachek, 1974). While there is some disagreement concerning the precise magnitude of the effect on relative earnings of differences in attachment over the life cycle (Sandell and Shapiro, 1978), it seems reasonable to suggest that, historically, these differences have played an important role. We believe that the evidence in this paper strongly indicates that the large sex difference in lifetime labor force attachment that has traditionally existed is narrowing. If this is indeed the case, it implies that wage differences between men and women (and other work-related dimensions associated with expectations of lifetime labor force attachment, such as differences in occupational distributions) should diminish over time, as the female

work force increasingly behaves in a manner more similar to that of the male work force.

#### DATA AND METHODOLOGY

The data used in this paper are from the National Longitudinal Surveys of Labor Market Experience of Young Women (NLS). Beginning in 1968 with a sample of more than 5,000 respondents representing women aged 14 to 24 at that time, these panel surveys were conducted annually through 1973. (For a complete description of the NLS data, see Center for Human Resource Research, 1977.) The analyses below focus on the more than 1,400 women who had a first birth between the 1968 and 1973 interviews.

The data set for these analyses was constructed utilizing a pooled cross-section technique. Since the date of birth of the first child is known, the precise fertility "status" of each respondent on each interview date can also be determined. For example, a woman interviewed each February who bears her first child in March of 1970 was thirteen months (-13) before the first birth as of her 1969 interview date. By the same token, she was one month before the birth when interviewed in 1970, eleven months after the birth when interviewed in 1971, and so forth. Since the surveys provide considerable information on each respondent's labor force status at each interview date, one can readily relate a respondent's labor force status to her fertility status.

As the example above suggests, a respondent can be included in our data set for more than one interview date. Hence, the 1,405 women who had a first birth between 1968 and 1973 provided an effective sample which included considerably more than 1,405 data points. By pooling in this manner, then, it was possible to develop a large and highly detailed work pattern for women 14 to 29 years of age not only at all stages of pregnancy but also for every month immediately following the birth of a first child. One way in which our sample has been restricted is that if on a given interview date a woman

already had had a second birth, information from that particular interview date was excluded from postbirth analyses of the relevant interval. However, since the postbirth analyses extend to only twelve months after the birth, this exclusion is not of much empirical consequence.

It should be noted that the NLS labor force participation rates, employment rates, and unemployment rates cited throughout this paper appear to be systematically several points higher than estimates for comparable population groups from the 1970 Census. While population groups exactly comparable to those reported on in this paper cannot be found in any Census report, crude comparisons can be made by comparing NLS and 1970 Census (U.S. Bureau of the Census, 1973) data for ever-married one-parity women 20 to 24 years of age whose child was under the age of three. The NLS labor force participation rate for such women was 42.9 percent compared to 34.5 percent from Census data. Nearly two-thirds of this difference consists of higher NLS rates in the following categories: employed part-time, with a job but not at work, and unemployed. For black women, all of the difference in rates (an NLS labor force participation rate of 62.9 percent compared with a Census rate of 52.7 percent) can be attributed to these three categories.

The higher labor force participation rates from the NLS data are probably in large part a reflection of the fact that all of the NLS interviews are with the respondent herself. The respondent is more likely to recall marginal work or job search activities than would another household member—whereas in the Census and the Current Population Survey, information about the activities of young women is sometimes provided by other household members. Additional evidence that labor force participation rates from the NLS are higher than those from other data sources (both for young men and young women) is provided in Borus, Mott and Nestel, 1978.

In addition, the NLS respondents may

have acquired a “sensitivity” over the years to the standard series of labor force questions they are asked, perhaps resulting in greater efforts to recall work activities of a marginal nature. Finally, the NLS labor force participation rates of young mothers reported in this paper will be high because our analyses exclude a small percentage of women who were enrolled in school on the various interview dates. These young women have generally lower levels of labor force participation than their nonenrolled counterparts.

#### DESCRIPTIVE OVERVIEW

Labor force participation rates for black and white women in the months surrounding the first birth are depicted in Figure 1. These rates drop from roughly 80 percent at the beginning of the pregnancy to 50 percent about three or four months before the birth, and then fall to approximately 20 percent for whites and 40 percent for blacks near the birth event. While labor force participation does decline sharply as the birth is approached, there nonetheless are substantial proportions of women who choose to remain in the labor force throughout the pregnancy.

In the first year following the birth event, labor force participation rates begin to rise—up to about 40 percent for whites and to 55 to 60 percent for blacks. A major portion of the difference between the black and white rates is due to the higher levels of black unemployment: both before and after the birth, unemployment rates for blacks are consistently 10 or more percentage points higher than those of whites. Further evidence of racial differences in postbirth labor supply is apparent upon examining the proportion of women employed and at work on a full-time (35 hours or more per week) basis. While prebirth differences by race are negligible, after the birth approximately 50 to 55 percent of working white women are working full-time, while nearly 70 percent of employed black women are working full-time immediately after and the rate rises to 80 percent within a year after the birth. Thus, it appears that the presence of

an infant in the household has a greater inhibiting effect on the labor market behavior of young white mothers than on that of their black counterparts.

It should be noted that in the months immediately surrounding the birth event, actual work activity is distinctly less than the measured labor force participation rates or employment rates. For example, it is apparent from Figure 2 that the percentage of both black and white women actually at work in the month following the birth is less than 10 percent, while the percentage employed (with a job and either at work or not at work) is around 20 percent and the labor force participation rates are approximately 40 percent for blacks and just over 20 percent for whites.

The gross racial differences apparent in Figure 1 mask some important variations by education levels. There are distinct differences in participation levels among the different race-education groups, with the prebirth labor force rates being lowest for the black and white respondents with less than 12 years of schooling. After the birth, black women with 12 or more years of schooling return to the labor force in substantially greater proportions than do any of the other groups. At six months after the birth, over 60 percent of the black respondents with at least a high school diploma are in the labor force compared with about 50 percent for black dropouts and about 40 percent for the two groups of whites. The pattern of postbirth participation rates by race and education again suggests that the presence of an infant in the household is a greater deterrent to labor force participation among whites than among blacks, with the racial difference being larger among those with higher levels of schooling.

#### MULTIVARIATE ANALYSES

##### *Conceptual Framework*

In this section, we utilize the neoclassical labor supply theory of economics to provide a framework for analysis and to ascertain if those factors found to be important determinants of female la-

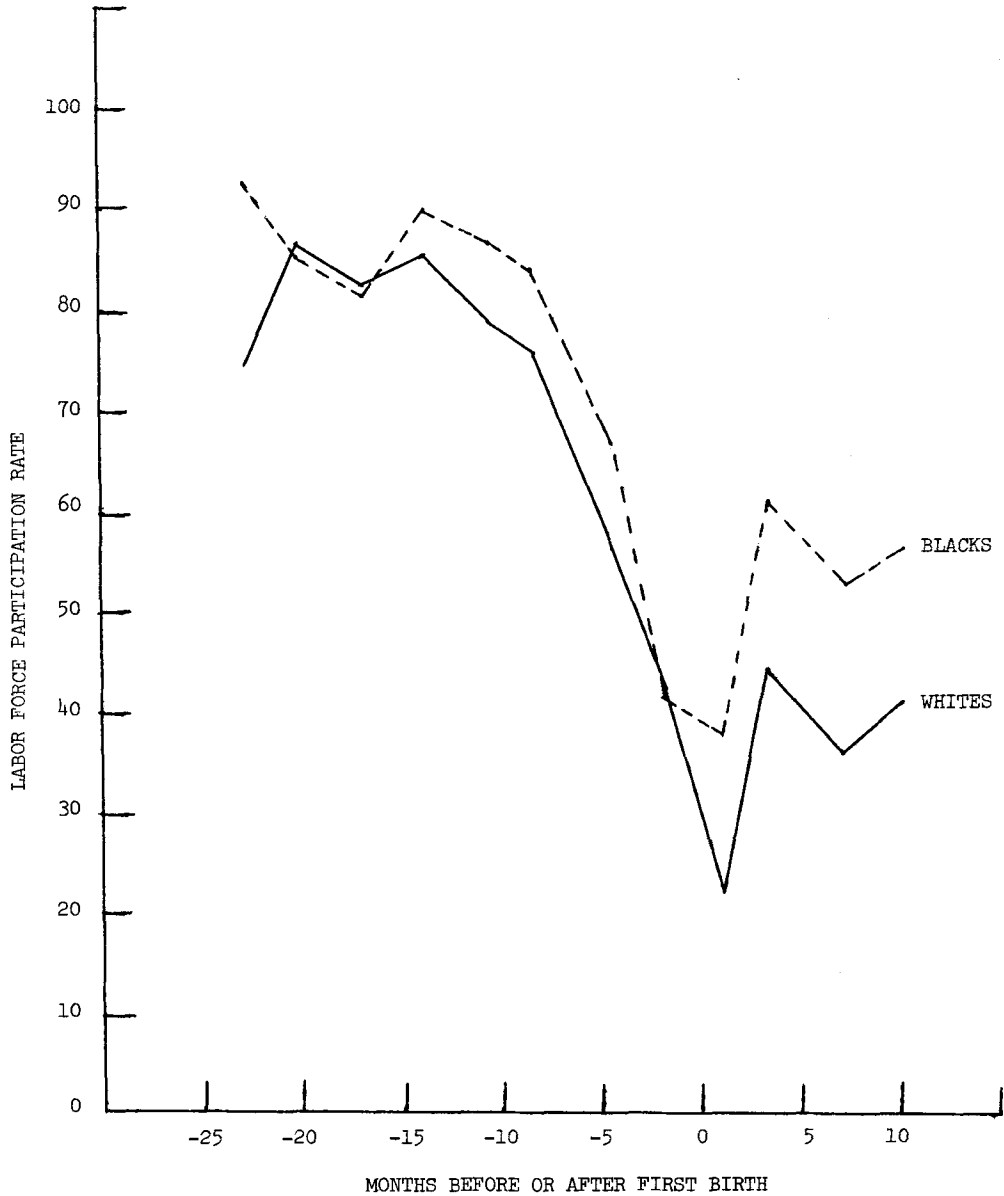


Figure 1.—Labor Force Participation Rates Before and After First Birth, by Race

bor force participation generally are also relevant to participation decisions for the periods just before and after the first birth.

Empirically, we estimate labor force participation functions in which participation is related to observable (exogenous) variables that are determinants of the po-

tential wage rate and the shadow price of time (e.g., see Heckman and Willis, 1977; Gronau, 1973). This reduced-form approach can be derived from an approach suggested by Heckman (1974), in which consistent estimates of functions determining the potential wage rate and the

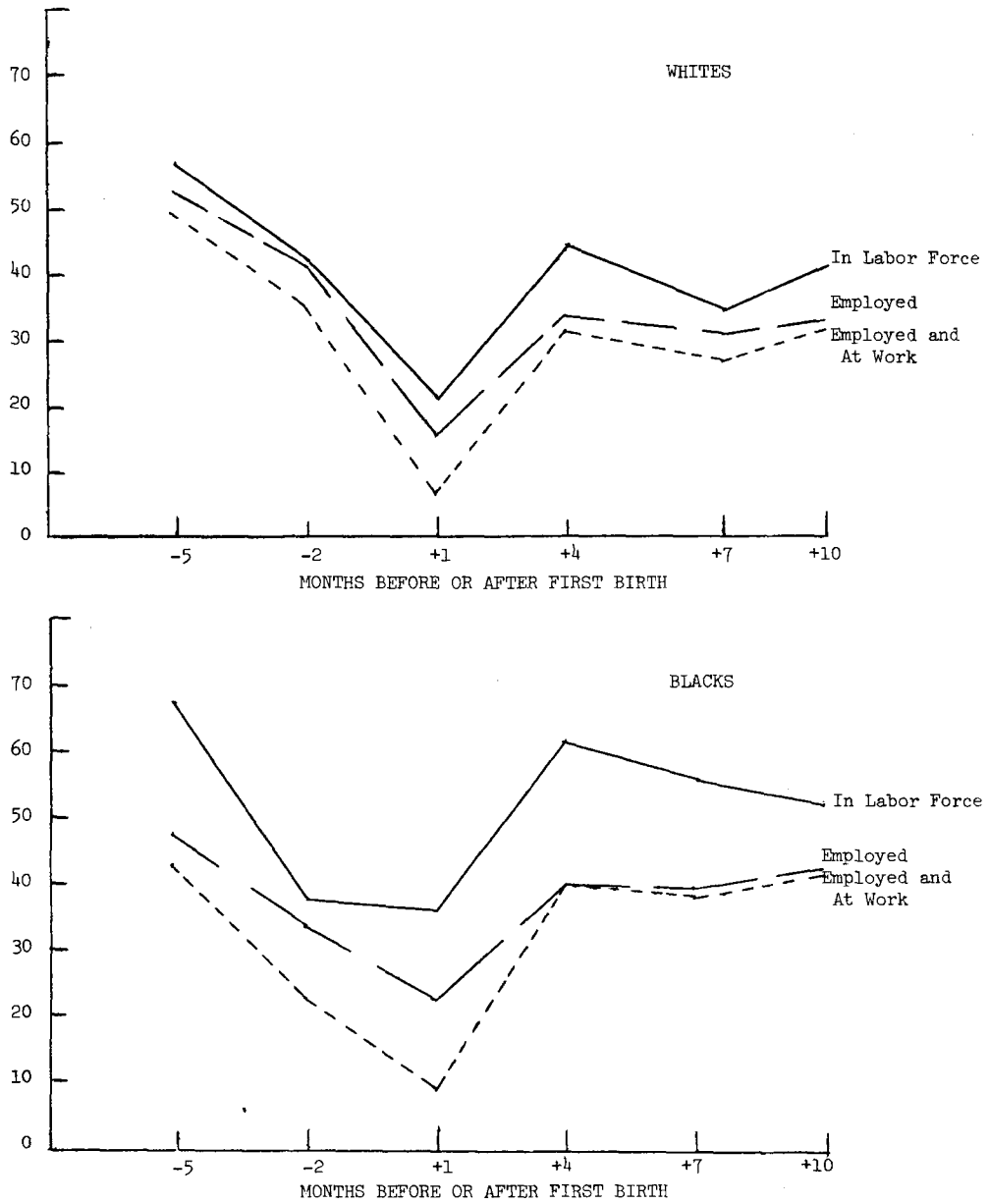


Figure 2.—Percentage in Labor Force, Percentage Employed, and Percentage Employed and at Work, Before and After First Birth, by Race

shadow price of time are generated and then used to estimate the probability that a woman with given characteristics will be in the labor force.

The reduced-form equations to be estimated are represented as follows:

$$LF = f(INC, EDUC, AGE, WORK35, MARST, HEALTH, ADULT),$$

where LF is a dichotomous variable equal to one if the respondent is in the labor force during a particular interval before or

after the birth, and otherwise equal to zero (several intervals are examined below; for simplicity, time subscripts are deleted from the above function); INC measures total family income less respondent's earnings; EDUC measures the highest grade of schooling completed by the respondent; AGE measures the respondent's age as of the interview date falling within the interval being examined; and the remaining variables are all dichotomous—WORK35 differentiates respondents according to whether or not they plan to work in the labor market at age 35, MARST distinguishes respondents by marital status, HEALTH differentiates respondents according to whether or not their health limits the amount or kind of work they can do in the labor market, and ADULT (included in the postbirth equations) indicates whether or not there is an adult in the household other than the respondent and her spouse.

Variables representing the number and ages of children are omitted from the equations because within each equation *all* respondents are identical with respect to such variables. That is, the intervals in which labor force participation is examined are defined with reference to a particular time span before or after the first birth.

Consistent with the available literature, we anticipate that the likelihood that a young woman will be in the labor force is negatively related to other family income and positively associated with educational attainment (e.g., Heckman, 1974; Bowen and Finegan, 1969). Also, we expect, *ceteris paribus*, a positive association between age, "tastes for work," the presence of another adult (for babysitting assistance) and labor force participation. Finally, we anticipate negative associations between the presence of a husband or the prevalence of a health problem and participation in the labor force.

Race *per se* does not explicitly enter into our conceptual framework. However, there are distinct racial differences in fertility expectations, socioeconomic back-

ground and life style expectations that are consistent with higher labor force participation among blacks at this life cycle stage (see Mott et al., 1977, Chapter 3). Black women in our sample at a *given* educational level come from poorer backgrounds, have less accumulated savings and greater accumulated debts. They also have husbands with lower current earnings and lower prospective earnings potential; in addition they anticipate fewer future children than their white counterparts.

### *Empirical Results*

The equation in the preceding section is tested by means of multiple classification analysis (MCA), a version of multiple regression analysis in which the explanatory variables are all expressed in categorical form. The MCA technique permits one to calculate the mean value of the dependent variable for each category of a particular explanatory variable, adjusted for the effects of all other variables in the model. Differences in these adjusted values among the categories of a given variable may be interpreted as indicating the "pure" (*ceteris paribus*) effect of that variable on the dependent measure. Consequently, we examine our hypotheses by focusing on these adjusted proportions.

The dependent variable in our analyses is a dichotomous variable equal to one if the respondent is in the labor force during a particular interval and equal to zero if she is not in the labor force. The analyses cover the following intervals before and after the first birth: (1) thirteen to eighteen months before the birth; (2) six to twelve months before the birth; (3) zero to five months before the birth; (4) one to five months after the birth; and (5) six to twelve months after the birth. The adjusted proportions of respondents in the labor force for the independent variables in our model are presented in Table 1.

Other family income was expected to be inversely related to the likelihood that a young white woman would be in the labor force. It is apparent that the data provide

only partial support for this hypothesis. That is, there is no clear relationship between other income and labor force participation prior to pregnancy or in the months immediately surrounding the birth. At the same time, however, white women from high-income households do have distinctly lower labor force participation rates than their lower-income counterparts both in the early stages of pregnancy and in the latter half of their children's infancy. Among blacks, there is no evidence of an inverse relationship between participation and other family income—in fact, more often than not, high-income blacks show the *highest* (adjusted) participation rates. Comparison of white and black participation rates by income group reveals that after the birth these rates are distinctly higher for blacks. More generally, the differential by race tends to be widest among the high-income women.

The expected positive relationship between educational attainment and labor force participation is readily confirmed by the data. For both whites and blacks, higher schooling is associated with higher participation rates in virtually every interval. This result is consistent with previous findings on the effects of educational attainment on labor force participation and indicative of a greater effect of schooling on a woman's market wage than on her home wage (shadow price of time). Our earlier racial discussion led us to anticipate a stronger positive effect of schooling on participation among blacks than among whites. Prior to the birth, this is not the case—participation rate differentials by schooling are wider among whites. However, after the birth these differentials narrow for whites and widen for blacks. It has been noted earlier that the presence of an infant in the household has a greater depressing effect on participation of whites than on that of blacks. The data confirm this and suggest that, among blacks, the participation-depressing effect of an infant in the household is clearly related to schooling, with the smallest

such effect apparent for the better-educated respondents.

The remaining variables in the analyses generally performed as expected, although there were some anomalies. Prior to the birth, as anticipated, older women (both black and white) generally had higher participation rates than their younger counterparts. However, after the birth there was no clear relationship between age and labor force participation. As anticipated, married women of both races consistently had lower participation rates than non-married women. Somewhat surprisingly, plans to work in the labor market at age 35 were not strongly related to labor force participation rates except in the interval immediately following the birth, during which time both black and white women with future work plans had distinctly higher participation rates than their "no plans" counterparts. It is, however, interesting to note that the strongest effect of future work plans—included here essentially as an indicator of tastes for market work—is apparent during the interval in which the mother's time input into child care is presumably most intensive.

#### SUMMARY AND CONCLUSIONS

Traditionally, young women have followed a pattern of postschool work, extensive interruption of labor market activity for childbearing and child rearing and, perhaps, a return to work when the children reach school age. The NLS data suggest that this traditional pattern is eroding as large numbers of young women, particularly blacks, choose to retain close ties to the labor market during their early childbearing years. While we have examined labor force attachment for only a relatively brief span in the life cycle, the evidence strongly suggests that the lifetime labor force attachment of today's young women will eventually reach unprecedented levels. Over time, it seems likely that increasing numbers of women will have work careers that are substantially continuous.

To the extent that these speculations are

Table 1.—Adjusted Proportions of Respondents in the Labor Force Before and After a First Birth, by Race: Multiple Classification Analysis

Variable	White				
	Months Before Birth			Months After Birth	
	18-13	12-6	5-0	1-5	6-12
Total family income less respondent's earnings (adjusted to 1967 dollars)	*	**			*
Less than \$3,000	.84	.80	.42	.33	.42
\$3,000 - \$7,499	.89	.80	.43	.37	.43
\$7,500 or more	.82	.65	.43	.33	.31
Not ascertainable	.70	.70	.42	.32	.38
Health limitation					
Yes	a	.63	.60	a	.33
No	.85	.76	.42	.34	.39
Highest grade of schooling completed					
0-11	.74	***	***	.29	**
12	.84	.55	.14	.35	.39
13-18	.89	.79	.47	.38	.45
Does respondent desire to work at age 35?				***	
Yes	.84	.76	.46	.46	.38
No or don't know	.84	.75	.41	.28	.39
Marital status		***			**
Married, spouse present	.82	.71	.41	.34	.37
Other	.89	.86	.52	.40	.53
Age		***			
14-18	a	.57	.38	.46	.32
19-24	.82	.74	.43	.33	.42
25-29	.90	.87	.45	.30	.33
Other adult age 21 or older present in household					
Yes				.33	.38
No				.40	.43
Grand mean	.84	.75	.43	.33	.39
R <sup>2</sup> (adjusted)	.02	.10	.09	.03	.02
F-ratio	1.59*	5.50***	5.11***	2.08***	1.92**
N	258	428	426	441	548



Table 1.—Continued

Variable	Black				
	Months Before Birth			Months After Birth	
	18-13	12-6	5-0	1-5	6-12
Total family income less respondent's earnings (adjusted to 1967 dollars)					
Less than \$3,000	.87	.79	.37	.54	.50**
\$3,000 - \$7,499	.80	.85	.47	.47	.53
\$7,500 or more	a	a	a	.51	.78
Not ascertainable	a	a	.60	.57	.62
Health limitation		***			
Yes	a	a	a	a	a
No	.84	.85	.46	.51	.56
Highest grade of schooling completed				***	
0-11	.82	.78	.42	.35	.51
12	.84	.84	.51	.58	.56
13-18	a	a	.59	a	.73
Does respondent desire to work at age 35?					
Yes	.86	.78	.51	.55	.59
No or don't know	.83	.84	.45	.43	.53
Marital status		*	*		**
Married, spouse present	.80	.75	.41	.47	.49
Other	.86	.86	.54	.56	.63
Age		**	***		
14-18	a	a	.24	.64	.53
19-24	.86	.81	.60	.41	.57
25-29	a	a	a	a	a
Other adult age 21 or older present in household					
Yes				.50	.60
No				.52	.53
Grand mean	.85	.82	.48	.51	.56
R <sup>2</sup> (adjusted)	-.07	.15	.11	.06	.04
F-ratio	.42	3.37***	3.12***	1.93**	2.02***
N	85	137	170	171	253

Note: "a" indicates sample size under 20. Also, universe consists of women who were not enrolled at the appropriate reference point.

\* F-ratio significant at the 10 percent level.

\*\* F-ratio significant at the 5 percent level.

\*\*\* F-ratio significant at the 1 percent level.

correct, there are important long-run implications. As more young women plan on essentially lifetime careers in the labor market, various aspects of their labor market behavior will be affected. For example, occupational choice, investment in on-the-job training, and wages are all likely to be influenced by expectations (as well as the actual levels) of lifetime labor force attachment. If the lifetime labor force attachment of women increases and approaches that of men over time, one should observe increased investment in on-the-job training by women, decreases in the degree of occupational segregation by sex, and diminution of wage differences between men and women.

While labor force participation rates surrounding the first birth are generally quite high, the multivariate analyses of factors contributing to variations in the likelihood that a young woman will be in the labor force indicate that several variables influence labor force participation. The effects of these variables are generally quite consistent with the hypotheses derived from neoclassical labor supply theory. However, the data for whites provide greater support than the data for blacks for the economic hypotheses. We have suggested that at least a part of the differences by race that we observe may be due to differences in intergenerational mobility and assets between blacks and whites.

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