This article, originally posted to the BLS Web site on February 27, 2009, was revised and reposted on March 25, 2009. The revisions were due to calculational error and involved chiefly chart 2 and related text.

The changing impact of marriage and children on women's labor force participation

Between 1984 and 2004, the dampening effect of children on the labor force participation of 25- to 44-year-old single women disappeared, while, for married women, it fell much more slowly, especially after 1993; for married women with children younger than 3 years, the effect of those children on their mothers' participation in 2004 was as large as it was in 1989 and greater than it was in 1993

Saul D. Hoffman

Tabulations from the Bureau of Labor Statistics (BLS) show that the steady increase in U.S. women's labor force participation that characterized the post-World War II period has largely subsided. For most groups of women (all women, married women, and women with children), the trend line in the labor force participation rate flattened out in the early- to mid-1990s after nearly four decades of steady increases.[1] But as with many aggregate trends, substantial complexity and controversy lie just beneath the surface. Recent work by Heather Boushey and by Sharon R. Cohany and Emy Sok suggests two apparently inconsistent trends.[2] On the one hand, responding to anecdotal evidence in the popular press about a declining commitment to work on the part of women with children, Boushey showed that the negative impact of children on work by women aged 25–44 years declined, rather than increased, in the two decades between 1984 and 2004. On the other hand, Cohany and Sok showed that the labor force participation rate of married women with children, and especially married women with very young children, declined between 1997 and 2005, which implies that the negative impact of children on work has *increased*, at least for this group of women.

Who is right? Actually, they both are. An analysis of data from outgoing rotation groups (ORGs) of the Current Population Survey (CPS) samples from 1984 through 2004 shows that women aged 25–44 years with children were *more*—not less—likely to be working in 2004 than in 1984. But *married* women with children—especially married women with *young* children—were indeed working less in 2004 than they were a decade earlier, although more than they were two decades earlier. The difference between these findings is attributable to the behavior of single women with children, whose labor force participation jumped sharply in the 1990s. The labor force participation rate of single mothers aged 25–44 years increased 9 percentage points between 1993 and 2000, while the rate for single women aged 25–44 years with children aged 5 years or younger jumped a full 14 percentage points over the same period. In contrast, the labor force participation rate for married women with children increased 1 percentage point, and the rate for married women with children aged 5 years or younger was flat. Even more interestingly, the negative impact of children on the labor force participation of married women increased.

This article examines the changing impact of marriage and children on women's labor force participation between 1984 and 2004. The anal-

Saul D. Hoffman is professor and chair, Department of Economics, University of Delaware, Newark, DE. E-mail: hoffmans@lerner.udel.edu

ysis follows the general approach of Boushey, using logit to estimate a multivariate model, but the focus is more on interactions of marriage and children, an impact not revealed in Boushey's analysis. The analysis also looks more carefully at race and age-of-child effects. Data are from the CPS outgoing rotation group (CPS-ORG) samples for selected years from 1984 through 2004.

Background

The steady upward trend in the labor force activity of married women and of women with children in the postwar period is well known. The labor force participation rate of married women aged 16 years and older rose from 21 percent in 1950 to more than 60 percent in 1994, about where it now stands. The participation rate of married mothers followed a similar trend, rising from 17 percent in 1948 to 70 percent in the mid-1990s.[3] For all women with children aged 2 years or younger, the rate increased from 34 percent in 1975 to 59 percent in 2005.[4] For all of these groups, the labor force participation rate rose quite steadily through the mid-1990s, but has been essentially unchanged since then. For some groups, the rate peaked in 1997 and subsequently has fallen.

Several years ago, *The New York Times* and *Time* magazine featured stories about what appeared to be a declining commitment to work among women with children, especially among more educated married women with young children.[5] The evidence presented was almost exclusively anecdotal, but it clearly touched a nerve. "Opting out" became a catchphrase. It was suggested that the "long march" of married women into the labor force was arguably nearing its end. "Off-ramps" and "on-ramps" have now become a part of the jargon of discussing women's labor force participation and the cycling in and out of the labor force that still characterizes lifetime work patterns of many women.

Boushey responded to these accounts by examining data from the CPS-ORGs for selected years from 1984 to 2004.[6] Using a multivariate analysis, she focused on the independent impact of children on the probability of women's labor force participation. The explanatory variables in her analysis were primarily demographic, rather than economic: presence of a child, marital status, race/ethnicity, presence of a prime-age working male in the household, educational attainment, and year (to control for business-cycle impacts). Her sample was limited to women aged 25–44 years, but included women of all marital statuses. She used a logit model, the key variable of which was interactions of presence of a child with year, which measures what she calls the "child penalty."

Boushey found that the labor force participation penalty of having a child under 18 years declined from 20.7 percentage points in 1984 to 14.4 points in 1993 and narrowed further to 9.9 points in 2000 and 8.2 points in 2004. The corresponding penalties associated with having a child younger than 6 years were 25.5 points in 1984, 22.6 points in 1993, and 21.1 points and 19.7 points in 2000 and 2004, respectively. Both analyses thus show a narrowing difference in labor force participation between mothers and nonmothers. Accordingly, having children has become *less*, and not more, of a factor in women's labor force participation.

In contrast to Boushey's findings, Cohany and Sok document *falling* labor force participation by married mothers with young children, especially those with infants (children up to 1 year of age). The peak year for these groups' labor force participation appears to have been 1997. Participation for married mothers with children under 6 years fell from approximately 64 percent in 1997 to less than 60 percent in 2004, before rising slightly in 2005. Participation for married mothers with infants fell from 59.2 percent in 1997 to 51.7 percent in 2004 and then rose to 53.5 percent in 2005 and 55 percent in 2006.[7]

Cohany and Sok's analysis is exclusively bivariate. They do show, however, that the downward trend in participation from 1997 to 2004 holds for women 16–24 years and 25–34 years, but not for older women; for non-Hispanic Blacks and for Hispanics more than for non-Hispanic Whites; for native-born and foreign-born women; and for women with all levels of education. None of these effects control for other variables.

One obvious complication in comparing the preceding results is that the samples clearly differ: mothers aged 25–44 years, of any marital status, and with any children or with young children, as opposed to married mothers of all ages and with very young children. Timeframes differ as well. In addition, Boushey's analysis is multivariate, while Cohany and Sok's is bivariate—and, more importantly, neither examines subtler interaction effects of marital status and children.

Data and methods

The analysis that follows uses data from the CPS-ORG samples for 1984, 1989, 1993, 2000, and 2004—the same years used by Boushey.[8] The ORGs are the portion of the CPS monthly survey that is exiting the sample after either their initial 4 months or, following an 8-month absence from the sample, their final 4 months. Sample sizes are very large. In any month, one-fourth of the CPS sample is a member of one of the ORG samples. The annual CPS-ORG data files include all 12 months of ORG interviews, so the weighted total cumulates to 3 times the total population.

The sample consists of all women aged 25–44 years. For 1984, 1989, and 1993, sample sizes are approximately 70,000. For 2000 and 2004, sample sizes are 56,000 and 59,000, respectively. Estimates of labor force participation rates from these data differ slightly from official BLS reports, because the BLS analyses are based on the full CPS sample each month. For 2004, the BLS reports a labor force participation rate of 59.2 percent for all women aged 16 years and older;[9] the corresponding CPS-ORG estimate is 59.1 percent. For women with children aged 18 years or younger, the corresponding estimates are 70.7 percent and 70.2 percent, respectively. Similar comparisons by sample exist for labor force participation rates by age of youngest child. These comparisons certainly suggest that the CPS-ORG panels are appropriate for studying trends in women's labor force participation.

The subsequent analysis uses both ordinary least squares and logit to estimate a set of descriptive regressions of women's labor force participation. The ordinary least squares regressions are very easy to interpret: the estimated coefficients are simply the average effect of a particular variable on the labor force participation rate. The weakness of ordinary least squares is that resulting probabilities of participation can be less than 0 or greater than 1, something that is not possible. Consequently, economists often use logit and probit analysis for variables such as labor force participation; both methods appropriately constrain the impacts to be between 0 and 1. The analysis presented here uses logit, which is generally easier to work with than probit. Logit coefficients do not, however, have a direct interpretation in terms of their impact on the labor force participation rate. Hence, they must be transformed into more interpretable probability effects.[10]

Explanatory variables include marital status, presence of children of various ages, year dummies, educational attainment, race/ethnicity, and age, all entered as dichotomous variables. The impact of age of children is examined with three age groups: any children younger than 18 years, younger than 6 years, and younger than 2 years. The analyses of the impact of children younger than 2 years are limited to 1989–2004, because this information is not available in the CPS-ORG file for 1984.[11] To test for changing impacts, the impacts of marital status and presence of children of various ages are allowed to vary across the years. In addition, the analysis tests specifically for whether the child penalty varies across marital status.

Analysis

Table 1 presents information on the characteristics of the CPS-ORG sample of women aged 25–44 years. The figures shown are the means over all years (1984, 1989, 1993, 2000, and 2004), except for the presence of a child aged 0-2 years or 3–5 years, for which no 1984 data are available. All means are weighted and represent population estimates. The average age of these women is 34.4 years, almost two-thirds are currently married, and a similar proportion has a child aged 18 years or younger. One woman in 6 has a child aged 2 years or younger, and 1 in 5 has a child aged 3 to 5 years.[12] Seventy-two percent are non-Hispanic White, 13 percent non-Hispanic Black, and 11 percent Hispanic. The average monthly labor force participation rate for these women over the years selected is 74 percent.

Chart 1 shows the overall trend in the labor force participation rate for all women 25–44 years and separately by marital status. The rate for all 25- to 44-year-old women rose sharply between 1984 and 1989, from 70.2 percent to 74.8 percent. Over the next 5 years, the rate increased just 0.4 percent, after which it rose just a point and a half over the next 7 years (through 2000). Between 2000 and

Table 1. Weighted sample characteristics, CPS outgoing rotation groups, women aged 25–44 years, 1984, 1989, 1993, 2000, and 2004

Variable	Mean	Standard deviation[1]
Sample size	326,624	...
Age of women	34.41	5.681
Marital status:		
Married	.657	.475
Single or married:		
With child less than 18 years	.644	.479
With child 0–2 years[2]	.169	.375
With child 3–5 years[2]	.202	.402
With child 6–13 years	.412	.492
With child 14–17 years	.193	.395
Labor force participation rate	.744	.436
Race or ethnicity:		
White non-Hispanic	.718	.450
Black non-Hispanic	.130	.336
Hispanic	.105	.307
Education:		
Less than high school diploma	.113	.317
High school graduate	.350	.477
Some college	.275	.447
College graduate	.190	.392
Advanced degree	.071	.257

[1] Equal to $\sqrt{p(1-p)}$, where p is the mean, for all entries except "Age of women."

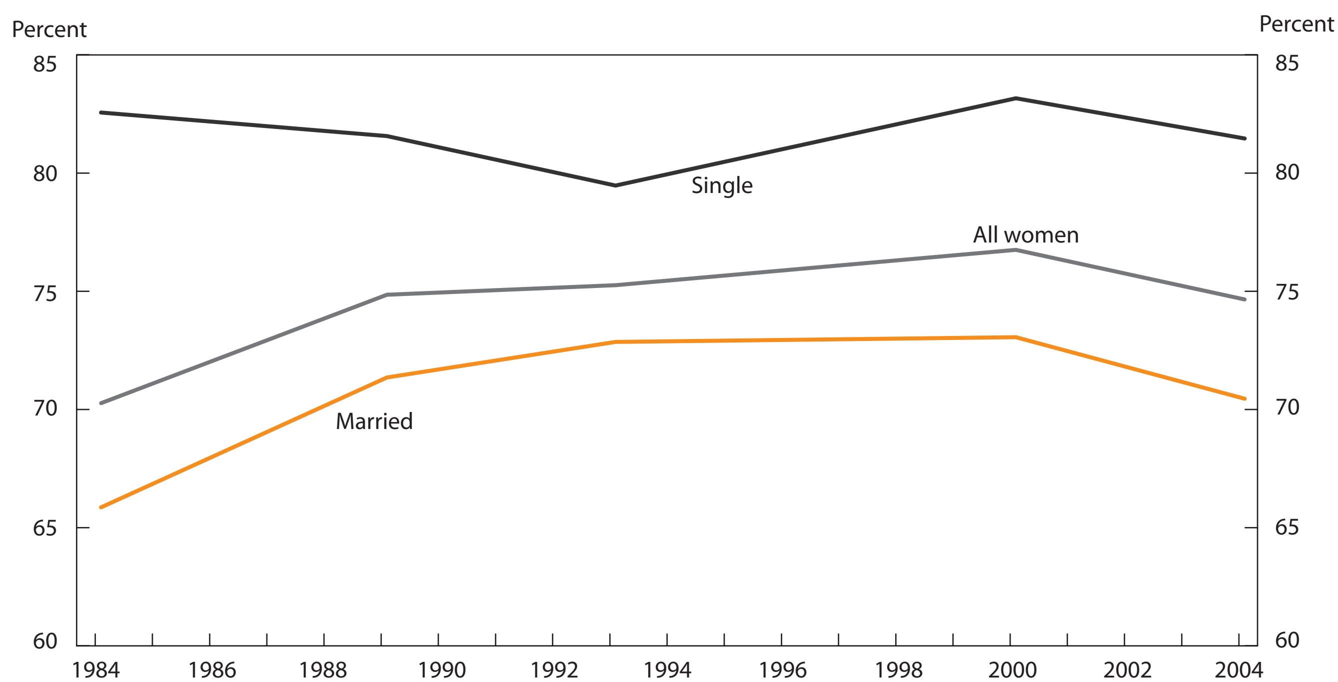
[2] Data for 1984 not available.

2004, the proportion of 25- to 44-year-old women in the labor force fell by 2.1 percentage points, to just below its 1989 level. The time series for 25- to 44-year-old married women follows essentially this same trend from a lower base. The trend for single women, however, is quite different: from a higher base (82.5 percent in 1984), their labor force participation rate declined steadily through 1993 and then increased through 2000, more than making up for the earlier decline; finally, between 2000 and 2004, the labor force participation profile of these women declined, tracking the other two trend lines. All these trends suggest a decline in the negative impact of marriage on labor force participation, from a gross (unadjusted) penalty of almost 17 percentage points in 1984 to 8–12 percentage points since 1989. In 2004, the difference was 11 percentage points. These differences do not, however, control for compositional effects.

To some extent, the trends in chart 1 conceal more than they reveal, given that the real story turns on the interaction of marital status and the presence of children and, more specifically, on the change in that interaction over the years shown. For that story, a regression analysis is required. Table 2 presents estimates from three ordinary least squares regression models and one logit model. Model 1 is similar to Boushey's model; it includes basic demographic information (race, education, and age, all entered as dummy variables), plus year dummies and whether there is a child 18 years or younger in the household.[13] The effect of a child on labor force participation is allowed to vary by year; the coefficients in the table show the changing child penalty relative to 1984. Model 2 adds a variable for marital status; this provides another measure of the child penalty, this time controlling for marital status. Model 3 adds a variable combining marital status and presence of children. This approach affords an examination of whether the labor force participation of married women with children is changing over time relative to that of single women with children. Finally, the last model is a logit version of the specification used in model 3.

Table 2 focuses on the impact of having a child aged 18 years or younger. Table 3 examines the impact of younger children, as well as any possible differences in responses by race and ethnicity. In both tables, because the sample size is so large, almost all coefficients are statistically significant at the 10-percent level or smaller. Indeed, most are

Chart 1. Labor force participation rate of women aged 25–44 years, by marital status, selected years, 1984–2004



statistically significant at the 1-percent level.

In table 2, model 1 depicts a straightforward story about the impact of children on women's labor force participation. In 1984, the child penalty on participation was 18.3 percentage points. The coefficients just below (from "Child, 1989" to "Child, 2004") show the differences in the child effect in each of those years, relative to 1984; other year-to-year changes (for example, from 1989 to 2004) can be obtained just by subtraction. The penalty falls in absolute value after 1984, by 3.4 percentage points by 1989, an additional 2.2 percentage points between 1989 and 1993 (the difference between the 1989 and 1993 estimates), and then 3.3 more percentage points by 2000. Between 2000 and 2004, no further change occurs; the two estimates of the child penalty are essentially unchanged. As of 2004, the child penalty was half its original 1984 level, down from 18 percentage points to 9. This drop is almost exactly what Boushey found; thus, she concluded that the impact of children on labor force participation is falling. As far as she goes, she is entirely correct.

Model 2 adds control for marital status, interacted with year. The control slightly weakens the impact of children on

Table 2. Ordinary least squares and logit estimates of effect of children and marriage on labor force participation of women aged 25–44 years, selected years, 1984–2004

Variable	Model 1		Model 2		Model 3		Logit model	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Constant	0.891	0.005	0.952	0.005	0.931	0.006	2.388	0.039
Presence of child less than 18 years:								
Child, 1984	–.183	.003	–.144	.004	–.083	.006	–.635	.041
Child, 1989	.034	.005	.016	.005	[1]–.010	[1].009	[1]–.034	[1].054
Child, 1993	.056	.005	.026	.005	[1]–.013	[1].008	[1].035	[1].052
Child, 2000	.089	.005	.079	.005	.085	.009	.612	.056
Child, 2004	.090	.005	.080	.005	.087	.009	.644	.054
Year:								
1989	.012	.004	–.016	.005	[1]–.007	[1].005	[1]–.057	[1].038
1993	[1]–.006	[1].004	–.049	.005	–.034	.005	–.286	.037
2000	–.012	.004	–.034	.005	–.038	.006	–.309	.039
2004	–.031	.004	–.051	.005	–.057	.005	–.444	.037
Race or ethnicity:								
Black	.082	.004	.064	.004	.059	.004	.317	.022
White	.057	.003	.058	.003	.059	.003	.323	.018
Hispanic	.018	.004	.015	.004	.015	.004	.111	.022
Education:								
Less than a high school diploma	–.280	.004	–.286	.004	–.290	.004	–1.530	.022
High school graduate	–.101	.003	–.102	.003	–.106	.003	–.688	.020
Some college	–.052	.003	–.054	.003	–.057	.003	–.416	.021
Advanced degree	–.035	.003	–.033	.003	–.034	.003	–.268	.021
Age of woman:								
25–32 years	–.036	.002	–.042	.002	–.041	.002	–.219	.011
33–39 years	–.010	.002	–.014	.002	–.012	.002	–.065	.011
Marital status:								
Married, 1984	...	...	–.110	.004	–.065	.006	–.516	.038
Married, 1989	...	...	.050	.005	.034	.008	.265	.053
Married, 1993	...	...	.083	.005	.057	.008	.465	.051
Married, 2000	...	...	.028	.006	.049	.008	.408	.055
Married, 2004	...	...	.024	.005	.048	.008	.405	.053
Interaction terms:								
Married x child, 1984	...	...	...	...	–.090	.008	–.256	.048
Married x child, 1989	...	...	...	...	.034	.011	[1].051	[1].067
Married x child, 1993	...	...	...	...	.053	.011	[1].065	[1].065
Married x child, 2000	...	...	...	...	–.029	.011	–.414	.070
Married x child, 2004	...	...	...	...	–.032	.011	–.412	.068
R^2 (adjusted)	.063	...	.068	...	.070	...	...	...

[1] Not statistically significant at 10-percent level or less.

NOTE: Models 1–3 are estimated by ordinary least squares. "Presence of child" refers to children aged 18 years and younger. Sample size for all models is 326,664.

participation, but the central story still holds. In this specification, the original negative impact of children is 14.4 percentage points and most of the change occurs between 1993 and 2000, rather than more steadily between 1989 and 2000. The trend in the effect of marriage on labor force participation follows the child-effect trend to some extent, but the timing differs. In 1984 (the base year), the labor force participation of married women was 11 percentage points lower than that of single women, all else constant. This difference fell almost in half by 1989 and then fell further by 1993. But then the marital impact reversed course: between 1993 and 2000, and continuing into 2004, the negative impact of marriage on labor force participation increased. By 2004, the impact of marriage was nearly as large as it had been in 1984: –.086, compared with –.110.

The ordinary least squares model 3 and the logit model add the marriage × child × year interaction. In these models, the child coefficients are the impacts for single women while the marriage × child variable measures the differential impact of children on the labor force participation of married women relative to single women. The marriage variable estimates are the impacts for married women without children. With this model, it is possible to combine coefficients to compare the labor force participation of single women with children relative to single women without children, married women relative to single women, and married women with children relative to married women without children.

The results for model 3 reveal entirely different trends for single and married women with children. In 1984, single women with children had a labor force participation rate 8.3 percentage points lower than that of single women without children (see the entry for "child less than 18 years"), all other demographic factors in the model held constant. The corresponding labor force participation rate that year for married women with children—that is, the sum of the marriage estimate (–.065) and the married × child effect (–.090)—was another 15.5 percentage points lower. This value is consistent with model 2's estimated marriage coefficient of –0.11, which is roughly a weighted average of the marriage effect for women with children (–.155) and for those without children (–.065).

Through 1993, the effect of children on the labor force participation rate of single women was essentially unchanged: the 1989 and 1993 child interactions are very small (coefficients of –0.010 and –0.013, respectively) and not statistically significant. Over this same period, however, the negative impact of children on the labor force participation rate for married women declined by two-thirds, from 15.5 points to 5.5 points (based on the sum of the marriage and marriage × child interactions). By 1993, marriage had essentially no effect (–.008) on the labor force participation of women without children, as shown by the difference between the marriage effect in 1984 (–0.065) and the change in the effect in 1993 (0.057). Then the trends changed course again: the labor force participation rate for single women with children jumped sharply (see the coefficients of 0.085 and 0.087 for "child, 2000" and "child, 2004," respectively), to the extent that, by 2000 and through 2004, children no longer had a net marginal negative effect on work for single women. But married women did not follow that trend: for them, the child effect remained steady through 2000 and 2004.[14] These findings confirm that, after 1993, the declining child penalty observed in models 1 and 2 reflects the impact of single women with children.

The logit estimates show an identical trend. As already noted, the logit coefficients do not have a direct quantitative interpretation in terms of the probability of labor force participation, although the sign and the statistical significance can be readily assessed. The implied logit child estimates are shown in chart 2, separately for single and married women. The trend lines shown are marital status specific; that is, they are relative to childless women of the same marital status. The different patterns are apparent. Through 1993, the child impacts are essentially constant, not as negative for single women (–11 percentage points) as for married women (–14 to –16 percentage points). Thereafter, the trends diverge, with the negative impact of children steady for married women and becoming less negative for single women. By 2000, the child effect is essentially zero for single women and 12 to 13 percentage points for married women. The net change in relative position from the 1980s and early 1990s to the 2000s is almost 10 percentage points.

Between 2000 and 2004, the labor force participation rate fell for both single and married women, with and without children. But this decline is similar for all of the groups examined: none of the 2004 marriage or children effects are statistically different from those in 2000.

The other variables in the regressions have reasonable impacts that are consistent with other estimates of their effects. Controlling for marriage and children, model 3 in table 2 estimates that Black women and White women are both about 4.5 percentage points more likely than Hispanic women, and 6 percentage points more likely than Asian women (the omitted group), to be in the labor force. Without controlling for marriage, model 1 indicates that Black women are the most likely racial/ethnic group of women to be working, but this greater likelihood reflects their lower rates of marriage. The time dummies show an across-the-board negative effect between 1989 and 1993 and then another 2-point decline between 2000 and 2004. The impact of education is considerable: women who have less than a high school diploma have far lower rates of labor force participation, by –29 percentage points (in models 2 and 3), while high school graduates with no postsecondary education also have reduced participation rates (11 percentage points). Logit estimates for these variables are quite similar.

Women with younger children. Thus far, the analysis has examined only the impact of having a child under 18 years. Much of the focus in the popular press, however, has been on women with younger children. Table 3 examines the impact on women's labor force participation of having a child younger than 6 years (model 1) or a child younger than 3 years (model 2).[15] The specification for both of these models is the same as that used for model 3 in table 2. For ease of exposition, the model uses ordinary least squares, shows only the core variables of interest, and does not include standard errors.[16] The estimates for model 2 are based only on 1989–2004 data, because information about the presence of very young children is not available earlier. In that model, 1989 is the omitted year and all year interaction effects are relative to that year.

As seen in model 1, the impact of a child younger than 6 years was very large and negative in 1984. The coefficient (–.194) is more than twice as large as the corresponding one from model 3 in table 2 (–.083). Through 1993, nothing changed much for single women, and then, exactly as before, the negative child effect diminished sharply. By 2004, the negative impact was about 6 percentage points, less than one-third of its 1984 level. For married women with children younger than 6 years, the effect of children on work barely changed over the 20-year period. In 1984, children reduced the labor force participation rate of married women by more than 20 percentage points (the sum of the child and married × child estimates). This effect diminished by 2 percentage points through 1993, but the 2004 effect was unchanged from the 1993 estimate. So again, the impact of children on the labor force participation of both single women and married women diverged after 1993. In 1984, single women with young children had a labor force participation rate 11.6 points higher than that of married women. By 2004, this difference had increased by 5 percentage points.

The impact of very young children (model 2 of table 3) also follows the patterns seen, but is more pronounced—as

Chart 2. Logit estimates of impact of children aged 18 years and younger on labor force participation rate of women aged 25–44 years, by marital status, selected years, 1984–2004

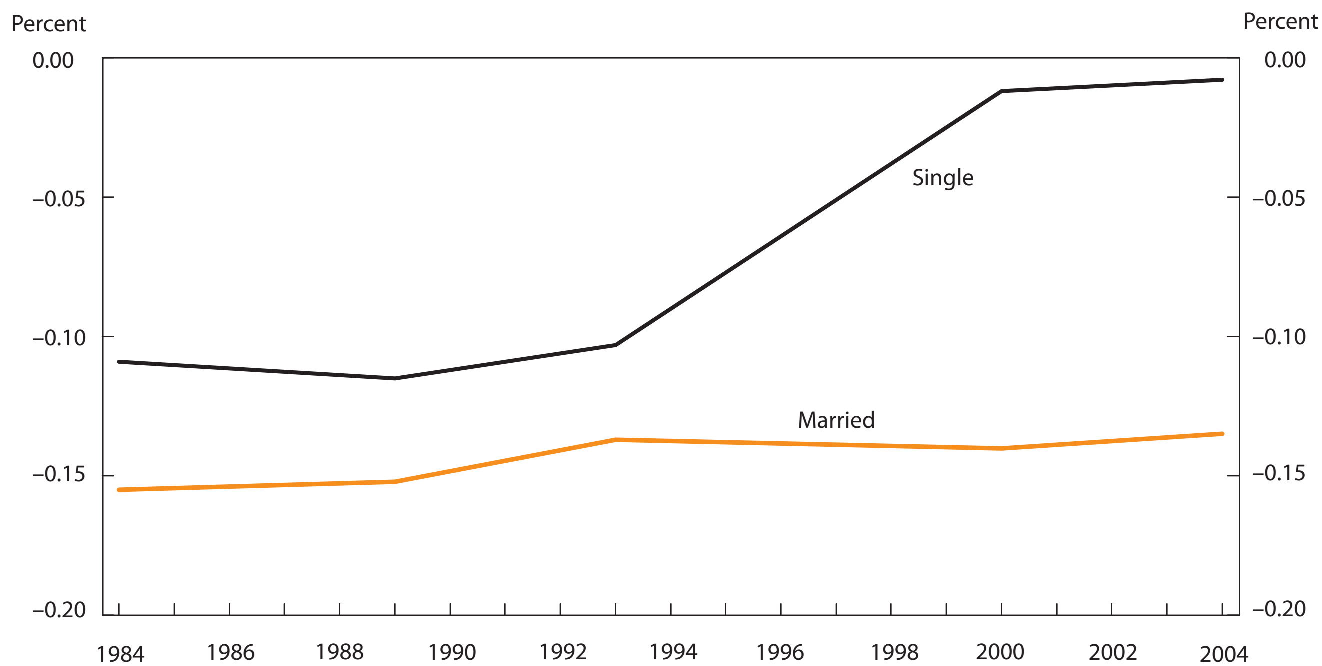


Table 3. Effect of children and marriage on labor force participation of women aged 25–44, selected years, 1984–2004, by age of child and race or ethnicity, ordinary least squares estimates

Variable	Model 1: child 0–5 years	Model 2: child 0–2 years	Model 3: White, child 0–5 years	Model 4: Black, child 0–5 years	Model 5: Hispanic, child 0–5 years
Sample size	326,664	255,979	245,517	36,255	28,255
Constant	0.897	0.895	0.965	0.924	0.878
Presence of a child:					
Child, 1984	–.194	—	–.162	–.150	–.297
Child, 1989	[1].005	–.240	–.005	[1]–.018	.079
Child, 1993	[1].010	[1].004	–.007	[1].014	.080
Child, 2000	.144	.146	.104	.152	.212
Child, 2004	.136	.144	.090	.130	.225
Year:					
1989	[1]–.004	—	–.001	[1].000	[1]–.014
1993	–.030	–.026	–.019	–.048	–.047
2000	–.015	[1]–.002	–.019	[1]–.002	[1].007
2004	–.031	–.019	–.039	[1]–.017	[1].011
Married:					
Married, 1984	–.104	—	–.119	[1]–.003	–.114
Married, 1989	.050	–.077	.048	.040	.052
Married, 1993	.079	.029	.076	.067	.071
Married, 2000	.067	[1].008	.078	[1].009	.058
Married, 2004	.064	[1].007	.079	[1].014	[1].028
Interaction terms:					
Married x child, 1984	–.012	—	–.063	.065	.118
Married x child, 1989	[1].003	.041	.017	[1].011	[1]–.041
Married x child, 1993	[1].016	[1].022	.037	[1]–.021	[1]–.044
Married x child, 2000	–.122	–.131	–.081	–.138	–.218
Married x child, 2004	–.111	–.129	–.055	–.144	–.234
R^2 (adjusted)	.088	.075	.088	.085	.102

[1] Not statistically significant at 10-percent level or less.

NOTE: In model 2, all year interactions are relative to 1989, signified by a dash in all entries for that year.

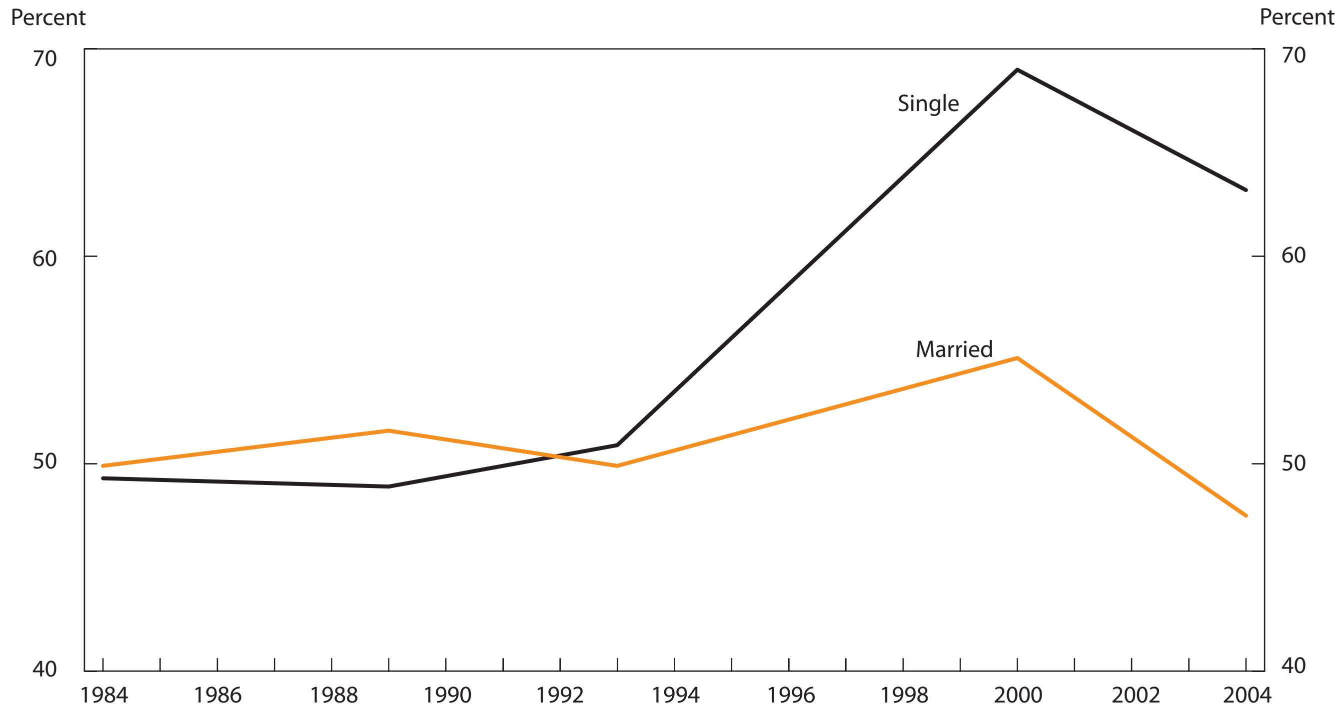
might be expected. In 1989 and 1993, a young child reduced the labor force participation of single women by about 24 percentage points. By 2000 and still in 2004, this effect attenuated, falling to less than half its previous value. For married women with very young children, the trends are similar to those for married women with older children, but with a stronger post-1993 trend. Between 1984 and 1993, married women with very young children increased their labor force participation slightly relative to married women without young children, but thereafter the gap increased. The penalty of very young children for married women increased by 3 percentage points between 1993 and 2004. The net effect is that the penalty from very young children on the labor force participation of married women was at the same level in 2004 as in 1984.

Models 3–5 of table 3 further disaggregate the sample by race and ethnicity, to examine whether the impacts are consistent across the various groups. The presence of a child less than 6 years is the child indicator in all of these analyses. Results for the presence of a child are similar for other ages. Again, only the key variables are shown. The general story here is that the patterns hold across White, Black, and Hispanic women. For all three groups, a large negative impact of children on the labor force participation of single women persists through 1993 and then is sharply cut or even disappears (in the case of Black women) by 2000. Between 2000 and 2004, the child penalty rises 1–2 points for Whites and Blacks (see the change in the child estimates between those years), while it decreases slightly for Hispanics. For married women, the 1984 impact of children varies by race: the net effect, based on the sum of the married and married × child terms, is positive for Black women, zero for Hispanic women, and negative for White women. All three groups show a growing negative impact of children on participation between 1993 and 2000, extending into 2004.

Other issues

The analysis presented herein focuses on women aged 25–44 years (the sample range used by Boushey) and thus leaves out both younger and older mothers. In 2004, one-sixth of mothers with children aged 6 years or younger

Chart 3. **Labor force participation rate of women aged 16–24 years with young children, by marital status, selected years, 1984–2004**



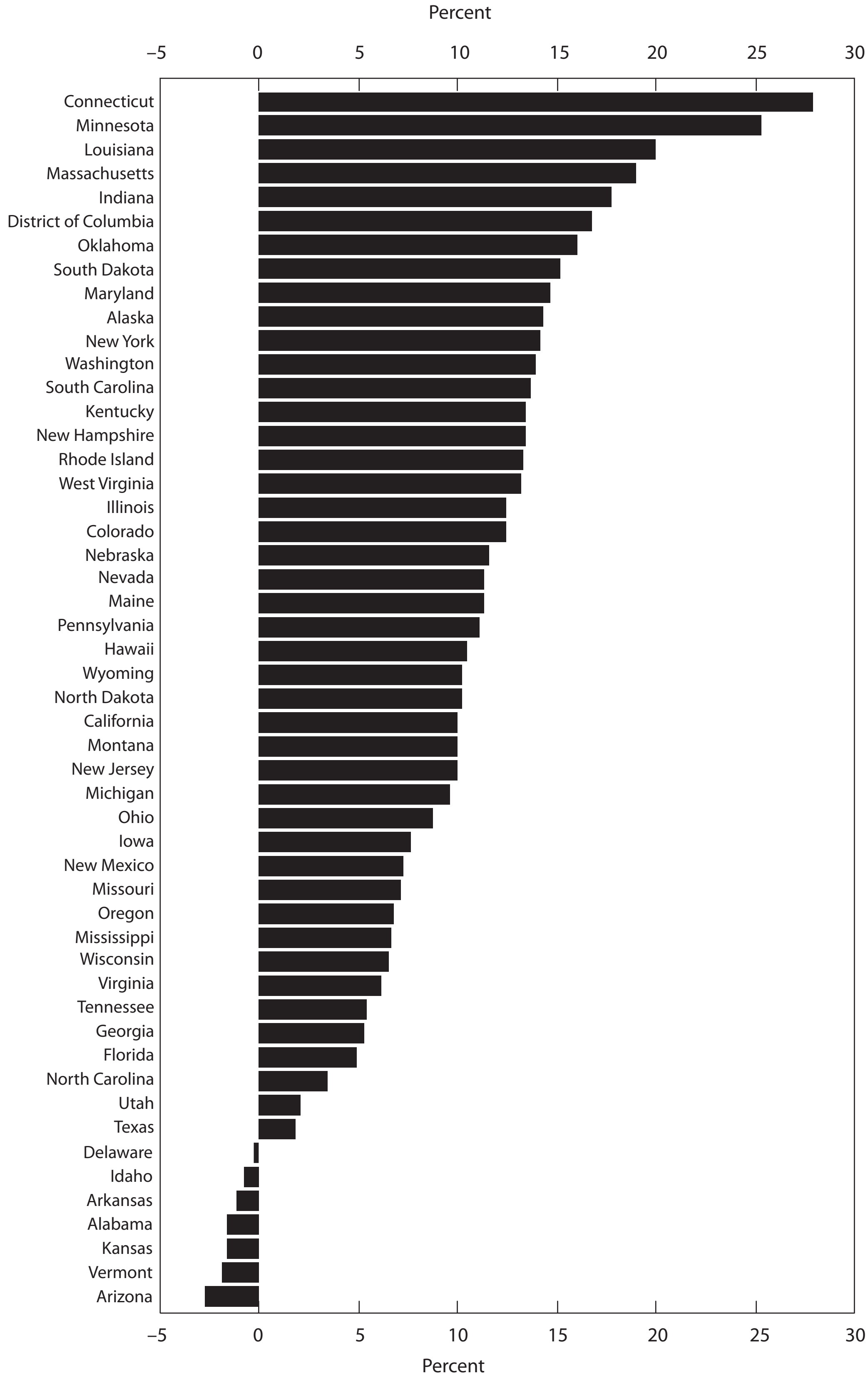
were themselves younger than 25 and another 2.8 percent were older than 44. Although women aged 25–44 years are an interesting and relevant age group, the younger ones also may be of interest. What is the effect of marriage and children on their labor force participation?

Because marriage and fertility are endogenous variables and are atypical at these younger ages, the issue must be treated cautiously. Chart 3 shows the labor force participation rates of women aged 16–24 years with a child aged 6 years or younger. Between 1984 and 1993, the rates are independent of marriage: approximately 50 percent of single women with a young child and married women with a young child worked. Then, as with the other analyses, the labor force participation rate for single women jumped, in this case by 19 percentage points between 1993 and 2000. The participation rate for married mothers also increased, by about 5 percentage points. After 2000, the rate for both groups declined 6 to 8 percentage points. This pattern suggests that including these younger women in the analysis would not alter any of the conclusions drawn.

THE BASIC STORY REVEALED BY THE DATA on women's labor force participation between 1984 and 2004 is a story in which the presence of children has had a smaller negative impact on work for all women aged 25–44 years—a finding that confirms Boushey's report of a declining child penalty. But on closer inspection, this effect varies greatly by marital status. Single women with children sharply increased their labor force participation rate, while the declining impact of children on the labor force participation of married women stalled beginning in 1993. Both of these changes occurred primarily in the 1993–2000 period and have been maintained through 2004, but not at the 1993–2000 rate of increase. The impact of children does not change much with the age of the children, be it under 18 years, under 6 years, or under 2 years. The effects also are widespread across race and ethnicity. The negative impact of a child younger than 6 years on the labor force participation of single Black women disappears between 1984 and 2000. The key contribution of the analysis presented in this article is to emphasize that focusing only on the effect of children on labor force participation provides an incomplete picture of the very different effect that the presence of children has on single women compared with married women.

A full explanation of the changes documented here is a formidable and important challenge. At this point, candi-

Chart 4. **Percent change in labor force participation rate of single women with children, by State, 1993–2000**



date explanations may be identified, but not fully evaluated. The timing of the changes for single women tracks reasonably well with both welfare reform (including the State waivers that occurred before the 1996 passage of the Personal Responsibility and Work Opportunity Reconciliation Act) and the substantial increase in the generosity of the Earned Income Tax Credit (EITC) in 1994. Between 1993 and 1996, 46 States received waivers for Aid to Families with Dependent Children and Medicaid, including 33 that generally required work, set time limits for assistance, or increased work incentives.[17] Chart 4 shows the percent change in the labor force participation rate, by State, for single mothers aged 25–44 years between 1993 and 2000; each bar represents a State, with the bars arranged from greatest to smallest percent change. Substantial variation across States is evident, which is itself interesting and worth further consideration. The average increase is 9.9 percentage points and the median increase is 10.2 points. Seven states had decreases, and another four had increases of less than 5 percentage points. The largest increases were in Connecticut, Minnesota, Louisiana, and Massachusetts, all of which had waiver programs in place, but that is not by itself sufficient evidence of a causal impact.

A simple difference-in-difference calculation of changes in labor force participation rates for married women with children and for single women with children can crudely net out common within-State effects that are due to economic growth or other statewide factors.[18] The range of difference-in-difference estimates (single minus married) is from 32.5 percentage points in Connecticut, where the labor force participation rate for married mothers declined while the rate for single mothers increased sharply, to −6.3 percentage points in Kansas, where the rate for married mothers increased and the rate for single mothers fell. The top five states (Connecticut, Minnesota, Indiana, Massachusetts, and Louisiana) all had waivers in place. Connecticut, Minnesota, and Indiana are particularly interesting in this computation, because the participation rate for single women with children increased sharply in those States, while the rate for married women with children fell.

Over the same period, maximum EITC benefits more than doubled for women with two or more children and increased 50 percent for women with one child. For single women who are not in the labor force, the EITC labor supply incentives are unambiguously positive: up to some earnings threshold, the credit acts as a wage subsidy equal to 34 percent for women with one child and 40 percent for women with two children.[19] For married women, conflicting income and substitution effects may actually generate negative work incentives if family income, net of their own potential contribution, places them on the declining-benefit portion of the EITC schedule.[20]

Changes in fertility rates are a potential, although obviously endogenous, contributing factor for married women. Fertility rates rose for these women, especially older married women. Between 1993 and 2004, the fertility rate for married women aged 20–24 years declined 3.3 percent, while the corresponding rates for 30- to 34-year-olds and 35- to 39-year-olds increased 20 percent and 44 percent, respectively.[21] More traditional economic analyses look to spousal income effects, but that information is not available on the CPS-ORG file. Also, it is possible that the changes in labor force participation rates reflect a different approach to the production of child services, with a substitution of the mother's own time for non-family-care-giver time. These issues can be explored more fruitfully with data sets such as the National Longitudinal Survey of Youth, which combine detailed family income and employment information with employment, marriage, and fertility histories. □

Notes

1 See Sharon R. Cohany and Emy Sok, "Trends in labor force participation of married mothers with infants," *Monthly Labor Review*, February 2007, pp. 9–16; and Abraham Mosisa and Steven Hipple, "Trends in labor force participation in the United States," *Monthly Labor Review*, October 2006, pp. 35–57.

2 Heather Boushey, "Are Women Opting Out? Debunking the Myth," briefing paper (Washington, DC, Center for Economic and Policy Research, November 2005); Cohany and Sok, "Trends in labor force participation."

3 The labor force participation rate of married mothers is higher than that of all married women because mothers of children aged 18 years or younger are younger than the population of all married women, a group with no upper age limit.

4 Mosisa and Hipple, "Trends in labor force participation," table 10, p. 47.

5 See Lisa Belkin, "The Opt-Out Revolution," *New York Times Magazine*, Oct. 26, 2003; Louis Story, "Many Women at Elite Colleges Set Career Path to Motherhood," *The New York Times*, Sept. 20, 2005; and Claudia Wallis, "The Case for Staying Home," *Time*, May 10, 2004.

6 Boushey, "Are Women Opting Out?" The years included in her analysis are dictated by the unavailability of information on presence of children by age in the CPS-ORG data between 1993 and 1999.

[7] Cohany and Sok, "Trends in labor force participation."

[8] Data files were obtained from the Center for Economic and Policy Research's data archive at **www.ceprdata.org/cps/org_index.php** (visited Feb. 27, 2008).

[9] "Household Data Annual Averages," table 2, "Employment status of the civilian noninstitutional population 16 years and over by sex, 1973 to date" (Bureau of Labor Statistics, 2007), on the Internet at **www.bls.gov/cps/cpsaat2.pdf** (visited Mar. 25, 2008).

[10] The logit probability is $\exp(XB)/[1 + \exp(XB)]$, where the B's are the estimated coefficients. The marginal effect in a logit model is $B \times P \times (1 - P)$, where P is the mean sample proportion.

[11] Sok, personal communication, June 2007. Thus, the sample analyzed by Cohany and Sok cannot be replicated here.

[12] These proportions are based on information on the presence of a child in given age ranges. Thirty-five percent of the observations have missing data for all child age variables. It is clear that the missing data are actually substantive 0's. With this conversion, BLS distributions of women by age of child may be replicated exactly (see *Women in the Labor Force: A Databook*, Report 985, May 2005, table 6); without it, the distributions are widely different. The relevant information is shown in the appendix to this article. It appears that some skip sequence triggered the missing data, but the details are not obvious in the CPS-ORG data.

[13] Boushey interprets year dummies as business-cycle variables. In modeling women's labor force participation, however, it is problematic to interpret trends or year dummies as due solely to business-cycle effects. Boushey finds that controlling the year has a large effect on the estimated impact of having a child on labor force participation.

[14] This calculation reflects the changing estimates of the effects of children, marriage, and marriage × children between 1993 and 2004.

[15] Just under half of the women with children aged 18 years or younger have a child younger than 6.

[16] Logit estimates are virtually identical and are available upon request.

[17] See *Welfare Reform: States' Early Experiences with Benefit Termination* (General Accounting Office, May 1997).

[18] The calculation is $(\text{LFPR}_{M,2000} - \text{LFPR}_{M,1993}) - (\text{LFPR}_{S,2000} - \text{LFPR}_{S,1993})$, where LFPR is the labor force participation rate and the subscripts M and S denote married and single women, respectively.

[19] Saul D. Hoffman and Laurence S. Seidman, *Helping Working Families: The Earned Income Tax Credit* (Kalamazoo, MI, W. E. Upjohn Institute for Employment Research, 2003).

[20] For evidence of this effect, see Nada O. Eissa and Hilary Williamson Hoynes, "Behavioral Responses to Taxes: Lessons from the EITC and Labor Supply," NBER Working Paper No. W11729 (Cambridge, MA, November 2005).

[21] The actual fertility rates were 205.2 and 198.4 births per thousand for women aged 20–24 years, 98.5 and 118.0 for women aged 30–34 years, and 37.8 and 54.5 for women aged 35–39 years. (See *Vital Statistics of the United States, 2002*: *Volume I, Natality*, on the Internet at **www.cdc.gov/nchs/datawh/statab/unpubd/natality/natab2002.htm** (visited Oct. 20, 2007); Joyce A. Martin, Brady E. Hamilton, Paul D. Sutton, Stephanie J. Ventura, Fay Menacker, and Martha L. Munson, "Births: Final Data for 2003," *National Vital Statistics Reports* (Hyattsville, MD, National Center for Health Statistics, Sept. 8, 2005), and Joyce A. Martin, Brady E. Hamilton, Paul D. Sutton, Stephanie J. Ventura, Fay Menacker, and Sharon Kirmeyer, "Births: Final Data for 2004," *National Vital Statistics Reports* (Hyattsville, MD, National Center for Health Statistics, Sept. 29, 2006). Over the entire 1984–2004 period, the fertility rate for 30- to 34-year-old married women increased 43 percent and the rate for 35- to 39-year-olds increased 107 percent.

APPENDIX: Missing data in the CPS-ORG samples

Table A-1 shows the effect of converting missing data on the presence of children in various age groups to zero in the CPS-ORG sample. Without the conversion, the distribution of women by age of children is widely different from BLS tabulations of the same. With the conversion, the distributions are nearly identical.

Table A–1. Percent distribution of women, by age of children, 2004

[In percent]

Women—	BLS estimates[1]	CPS-ORG estimates	
	Percent distribution	Percent distribution after conversion of missing data to zeros	Percent distribution with no conversion of missing data
With children under 18 years	31.8	31.6	48.7
With Children 6 to 17 years	17.7	17.6	27.1
With children under 6 years	14.1	14.0	21.6
With children under 2 years	8.2	8.1	12.4
With no children under 18 years	68.2	68.4	51.3

[1] BLS estimates are from *Women in the Labor Force: A Databook*, report 985 (Bureau of Labor Statistics, May 2005), table 6, p. 16.