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Working Paper 2001-14  
July 2001

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**Working Paper Series**

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Daniel Rodriguez and Madeline Zavodny

**Abstract:** Labor force outcomes after an involuntary job loss tend to differ systematically between men and women, with women experiencing a lower probability of finding another job, a longer average duration of nonemployment, and larger losses in hours given reemployment. This study examines the role of family structure in such sex differences in postdisplacement outcomes. Data from the Panel Study of Income Dynamics indicate that unmarried women have postdisplacement outcomes similar to men whereas married women's outcomes differ considerably from those of men. The presence of children in the household appears to partially account for sex differences in postdisplacement outcomes, with women with young children less likely to be reemployed and more likely to not be in the labor force than their childless counterparts and than men.

JEL classification: J65, J63, J12

Key words: displacement, reemployment, family structure

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The authors thank Marianne Bitler, Donna Ginther, and participants at the Federal Reserve System Applied Microeconomics Conference for helpful comments. Sherry Okun provided excellent research assistance. The views expressed here are the authors' and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System. Any remaining errors are the authors' responsibility.

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## **Family Structure and Sex Differences in Post-Displacement Outcomes**

### **I. Introduction**

Women have historically had lower rates of involuntary job loss than men. However, women tend to experience more negative outcomes after displacement, including a longer average duration of nonemployment, lower likelihood of reemployment, and higher likelihood of part-time reemployment, although these differences appear to have narrowed somewhat in the 1990s (Farber, 1997; Hipple, 1999). Average earnings losses given reemployment, in contrast, generally appear similar for men and women. This study examines whether family structure can explain such sex differences in post-displacement outcomes.

Previous research suggests that family structure influences post-displacement outcomes. Attewell (1999) finds that single parents and workers with young children are more likely than other workers to remain unemployed one year after being displaced. Swaim and Podgursky (1994) find that married women and women with children have lower hazards of reemployment than other women, conditional on remaining in the labor market after displacement. Chan and Stevens (2001) note that, among older involuntary job losers, married women are less likely to return to work than are unmarried women. Using Canadian displacement data, McCall (1997) reports that the duration until reemployment is higher among married women with children and among single women with young children than among comparable unmarried, childless women. Male Canadian heads of household are reemployed sooner than non-heads, but the presence of children does not have a significant effect among displaced men. Farber (1999) finds that married female job losers are relatively more likely than men or single women to be involuntarily reemployed part time.

We investigate the extent of sex differences in post-displacement outcomes and the effect of family structure on these differences. Using data from the Panel Study of Income Dynamics, we find that marital and parental status play a key role in explaining differences in men and women's post-displacement outcomes. Single women appear to have post-displacement outcomes similar to men, whereas married women's outcomes are considerably different. Having children also contributes to sex differences in post-displacement outcomes, with women with children less likely to be reemployed than both their childless counterparts and men.

This study makes several contributions to the literature. First, previous studies did not focus on the role of family structure in sex differences in post-displacement outcomes. We also examine the effect of spousal labor supply and earnings on reemployment outcomes among married displaced workers. Previous research reached differing conclusions regarding the extent to which job-specific skills and discrimination contribute to the sex differences in the costs of displacement, and our findings shed some light on this debate (Manning, 1987; Crossley, Jones, and Kuhn, 1994). Crossley et al. indicate that differences in family structure may underlie the sex differences in post-displacement outcomes, a possibility explored here. In addition to suggesting that differences in opportunity costs of working associated with family structure play a key role in sex differences in post-displacement outcomes, our results are generally not consistent with theories of sex differences in specific human capital.

## **II. Theoretical background**

Potential reasons for sex differences in post-displacement outcomes include sex differences in human capital accumulation, sex differences in opportunity costs of labor supply,

and discrimination. This section outlines the predictions of simple versions of these theories for differences in post-displacement outcomes.

Job- and industry-specific human capital is generally believed to affect both displacement probabilities and post-displacement outcomes (e.g. Carrington, 1993; Neal, 1995). Lower levels of specific human capital may lead to greater likelihoods of displacement and lower pre-displacement wages. However, workers with less specific capital may experience smaller post-displacement earnings losses because they did not receive the wage benefits associated with specific skills at their previous position. Workers with less specific capital may also be more willing to switch industries and occupations than workers with more specific capital, leading to a higher likelihood of reemployment and shorter duration of nonemployment after displacement.

Women may accumulate less specific human capital than men because women tend to work fewer years and to be in the labor force on a more intermittent basis.<sup>1</sup> Such differences imply that women may be reemployed sooner after displacement than men. Women with children may have accumulated less specific human capital than childless women if the former temporarily left the labor force to have children, thereby having fewer years to acquire job-specific skills. Women with children should therefore experience smaller earnings losses and should be more likely to be reemployed than both childless women and men. Similarly, married women may have lower incentives to accumulate job-specific skills than men and single women, leading to larger sex differences in post-displacement outcomes for married women than for unmarried women. Married women who are the primary household earner, however, may have the same incentives to accumulate specific human capital as men and unmarried women. Sex

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<sup>1</sup> See, e.g. Landes (1977). In addition, Light and Ureta (1990) find that, even among continuously employed individuals, women are more likely to separate from a job than are men. However, such sex differences appear to have narrowed over time (Light and Ureta, 1992)

differences in post-displacement outcomes may therefore be smaller for married women with lower-earning spouses than for married women with higher-earning spouses.<sup>2</sup>

There may be sex differences in general human capital for similar reasons. If women accumulate less general human capital than men do, displaced women should have a lower likelihood of reemployment and a longer duration of nonemployment than displaced men do. Such differences should be largest among married women and women with children, who may have the lowest incentives to acquire general as well as specific human capital. These predictions for post-displacement outcomes are essentially the opposite of those of the simple specific human capital model. Differences in general human capital accumulation should not affect changes in earnings if workers with more general human capital have higher earnings at both the pre- and post-displacement job, similar to the prediction of the specific human capital model. The two human capital models do not give a clear prediction for part-time versus full-time reemployment.

Sex differences in the opportunity cost of supplying market labor versus household labor offer another reason for sex differences in post-displacement outcomes. When deciding whether to work, individuals take into account the opportunity cost of their time. Because women tend to supply more household labor than men do, the average opportunity cost associated with supplying market labor is higher for women than for men. Married women are likely to have higher opportunity costs than unmarried women, and parents—particularly parents of young children—are likely to have higher opportunity costs than are childless individuals.<sup>3</sup>

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<sup>2</sup> In addition, women's (and men's) incentives to accumulate human capital are likely to vary across age groups, with younger workers having greater incentives to accumulate human capital than the older workers because they have more potential years to reap the benefits of specific human capital. Changes in family structure and women's labor force participation over time may make such age-related differences more important among women than among men.

<sup>3</sup> Among married individuals, women spend about two to three times as many hours on housework as men, whereas single or cohabiting women spend about one-third more time on housework than men (South and Spitze, 1994;

The opportunity cost hypothesis predicts that married women are less likely to be reemployed after a job loss than men and unmarried women are, and similarly for parents versus childless workers. Married women with children—especially young children—are likely to have the highest opportunity cost of supplying market labor and are therefore the least likely to be reemployed after displacement. Predictions for the duration of nonemployment following displacement are similar. These predictions of the opportunity cost hypothesis are generally similar to those of the general human capital model, except that workers with young children have particularly high opportunity costs of working but may not have fewer general skills than other workers with similar ages and education.

Among married individuals, the opportunity cost associated with working rises as the spouse's labor supply and earnings increase.<sup>4</sup> Reemployment and labor force participation likelihoods may therefore decrease as the non-displaced spouse's labor supply and earnings rise, and the duration of nonemployment grow longer. Such differences are again predicted to be larger among married women than among men.

The likelihood that a worker displaced from a full-time job is reemployed part time may increase with the individual's opportunity cost of working. Involuntary job loss may prompt some full-time workers to, in essence, reoptimize and remain in the labor force but reduce their hours. Some of these individuals may not have been able to reduce their hours at their pre-displacement job but wanted to work fewer hours at that same job; displacement forces them to search for a new job, taking such preferences into account. Married women with young children may be particularly likely to be reemployed part time because they have especially high

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Hersch and Stratton, 1997). Married, cohabiting, and single men spend similar amounts of time on home production (South and Spitze, 1994; Hersch and Stratton, 2000).

<sup>4</sup> However, assortative mating may counterbalance this effect if women with high wages marry men with high wages, as suggested by Juhn and Murphy (1997).

opportunity costs of working. Similarly, individuals with high opportunity costs may opt not even to remain in the labor force after an involuntary job loss.

Individuals with higher opportunity costs of working should require higher wages. Post-displacement wage losses, given reemployment, are therefore likely to be smaller among individuals with higher opportunity costs (and higher reservation wages). Consistent with this opportunity cost theory, Crossley et al. (1994) suggest that displaced women have higher reservation wages than do displaced men. This theory predicts that married women have smaller earnings losses, on average, than do men and unmarried women, and parents have smaller earnings losses than childless displaced workers. Among married displaced workers, the spouse's labor supply and income may affect wage changes, given reemployment. The availability of another income may allow married displaced workers to search longer for a good match at a post-displacement job than single workers can, leading to smaller earnings losses; such differences may increase as the spouse's income rises. These predictions differentiate the opportunity cost model from the human capital hypotheses, which do not yield clear predictions for wage changes.

Finally, discrimination against women may contribute to sex differences in post-displacement outcomes. Women may have more limited opportunities to find a new job after displacement than men do, leading to a lower likelihood of reemployment and a longer duration of nonemployment. Married women and women with children may face greater discrimination than unmarried women or women without children, although employers may also discriminate against women who may get married or have children in the future. The discrimination hypothesis implies that women should earn less than men both at the lost job and at any post-displacement job, so women may not experience larger earnings losses than men. Based on an

examination of earnings losses of men and women displaced in 1983, Manning (1987) concludes that discrimination underlies at least part of the sex-wage differential.

Some of the predictions of the discrimination hypothesis are similar to those of the opportunity cost model because workers with high opportunity costs also tend to be workers against whom employers are more likely to discriminate. However, the predictions for wage changes differ, with the discrimination hypothesis giving predictions similar to the human capital models. In addition, the discrimination hypothesis does not predict systematic differences in the likelihood of part-time reemployment.

### **III. Data**

We use data from the Panel Study of Income Dynamics (PSID) during the period 1984-1993. The PSID is a longitudinal sample that began with about 4,800 households in 1968. New households have been added to the survey as children of original participants formed their own households and as separations and divorces occurred. The annual survey includes questions about labor force participation, earnings and household composition. We weight all observations by their family survey weights each year in order to make the sample nationally representative.<sup>5</sup>

The PSID asks workers who are unemployed or working at their current job for less than a year the reason their previous job ended. The potential responses include company closure, strike, layoff or firing, quitting, promotion, completion of a seasonal job, and other reasons. We focus on workers who report that their previous job ended for involuntary reasons: because the

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<sup>5</sup> The weights adjust for the oversampling of low-income households in the original survey design and for differential attrition. The results were generally not sensitive to the use of weights. We use the family weights instead of the individual-level weights because many of the individual-level weights (25 percent) were inexplicably equal to zero.

company went out of business, or because they were laid off or fired.<sup>6</sup> We investigate whether these displaced workers are reemployed at the time of the current survey, their duration of nonemployment, and whether nonemployed individuals are in or out of the labor force. We also examine the likelihood that individuals are reemployed part-time if displaced from a full-time job as well as the change in earnings and hours among the reemployed.

This study of post-displacement outcomes begins with the 1984 PSID because that year the survey began asking a fairly consistent set of questions about employment history, and these questions enable us to identify the dates of job changes and employer changes.<sup>7</sup> The PSID includes the month and year the previous job started and ended, the month and year the current job began, and tenure (in months) at the current employer for workers who are reemployed at the time of the survey, allowing us to calculate the duration of the lost job and the duration of nonemployment.<sup>8</sup> We right-censor the duration of nonemployment at the time of the survey in which the displacement is first reported; the hazard model used below corrects for this censoring of the nonemployment spell.

We restrict the sample to individuals between the ages of 20 and 60 at the time of the involuntary job loss. We do not include workers older than age 60 in order to reduce concerns

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<sup>6</sup> Fired workers are generally not viewed as involuntarily displaced, but they cannot be separated from laid-off workers in the PSID. Boisjoly, Duncan, and Smeeding (1999) report that about 16 percent of workers in the laid-off/fired category were fired.

<sup>7</sup> The employment history questions in the PSID changed considerably during the earlier survey waves. Brown and Light (1992) provide a detailed discussion of the difficulties in using the earlier waves of the PSID to examine job changes, and the appendix in Polsky (1999) lists the tenure questions in the PSID. Workers who report that they returned to their previous employer after an involuntary job loss are not included in the sample, nor are workers who report that they were previously or currently are self-employed.

<sup>8</sup> About 11 percent of displaced workers did not report the month the lost job started. We impute tenure at the lost job as the mean for the sample and include an indicator variable equal to one for these observations. Where available, we used tenure at the current employer instead of the start date of the current job to calculate the duration of nonemployment because workers may have switched positions since having started at the post-displacement employer. In 1988, the PSID switched from asking the date respondents began working at their previous job to asking the date they began working at their previous employer. To control for this change in wording, we include a post-1987 dummy variable interacted with the duration of employment at the previous job in the regressions.

about capturing the effect of job loss on retirement behavior. The PSID only asks labor supply questions of the household head and his/her spouse or cohabiting partner, so our sample does not include adult children living with their parents. Our sample consists of heads and wives who report an involuntary job loss in the 1984-1993 surveys. Heads and wives who report an involuntary job loss in a given survey wave are matched with the record for the household in which they lived during the survey wave preceding their job loss. Measures of household structure and income and spousal labor supply are drawn from that previous survey wave in order to reduce endogeneity problems.

We use the PSID instead of the Displaced Worker Supplements (DWS) to the Current Population Survey (CPS) for several reasons. The DWS offers a retrospective history on displacement in the last three or five years, whereas the PSID is a panel. The PSID therefore allows us to observe household labor supply and composition prior to and at the time of the displacement, whereas the CPS yields such information only as of the time of the survey. This is of concern because household composition and one spouse's labor supply may respond to changes in the other spouse's employment status. For example, Cullen and Gruber (2000) and Stephens (2001) note that wives' labor force participation increases when their husband becomes unemployed, and Charles and Stephens (2000) find that involuntary job loss raises the likelihood of divorce. In addition, the CPS does not track households that move, whereas the PSID attempts to follow households. Job displacement may lead to migration, particularly among workers who find another job. The main disadvantage of using the PSID is that the survey offers a considerably smaller sample size than does the DWS.

Our sample includes 3019 individuals who reported an involuntary job loss. About one-third of these individuals reported more than one displacement episode and are included in the

sample more than once. Table 1 provides descriptive statistics for the sample, which indicate that reemployment rates are lower among women than among men. However, the reemployment rate among unmarried women is similar to that among unmarried men and is higher than the reemployment rate among married women. Sex differences in the average duration of nonemployment are also apparent, and unmarried women tend to be reemployed more quickly than do their married counterparts. Among individuals who are not reemployed, the proportion seeking a job (the unemployed) versus not participating in the labor force is lowest among married women.

Among the reemployed, average real hourly wages losses are smaller among unmarried workers than among married displaced workers. Previous studies also find that, on average, displaced workers experience earnings losses (Farber, 1997; Jacobson, LaLonde, and Sullivan, 1993). The smaller wage losses among unmarried workers may be due in part to their younger average age because earnings losses tend to increase with age. The fraction of women who are reemployed on a part-time basis, conditional on working full time at the pre-displacement job, is substantially higher than among men, and the difference is most striking among married women.

#### **IV. Methods**

We use several methods to examine the role of marital status and family structure in sex differences in post-displacement outcomes. We focus on five post-displacement outcomes: the probability of reemployment, the duration of nonemployment following displacement, the probability of labor force participation among those not reemployed, the probability of part-time reemployment, and the change in earnings. The analysis focuses on differences between men and women in the effect of marital status and children on each of these outcomes.

We use a linear probability model to examine the determinants of the probability of reemployment following displacement.<sup>9</sup> Individuals are considered reemployed if they are working at another employer at the time of the survey in which an involuntary job loss is first reported. The model includes indicator variables measuring whether a worker is female, married, divorced, black, Hispanic, has a child under age 6, and has a child aged 6-17. Time-varying variables are measured as of the time of the job loss. Specifications that focus on married workers include an indicator variable for whether the spouse was working at the time of displacement and a linear variable measuring the spouse's real hourly earnings at the time of displacement. The models also include age at displacement and its square, tenure at the lost job, and dummy variables for four education categories, eleven industries for the lost job, seven occupations for the lost job, and for the year the job was lost.<sup>10</sup> In order to examine sex differences in post-displacement outcomes, some specifications interact the female indicator variable with the variables measuring marital status and children. Because some individuals are included in the sample more than once, the standard errors are clustered on individuals in all regressions.

We use a hazard rate model to examine the duration of nonemployment after displacement. The hazard model estimates the likelihood that a displaced individual transitions from nonemployment to employment in a particular month, given that the individual has remained nonemployed up to that month.<sup>11</sup> We use a Weibull hazard function, which allows the

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<sup>9</sup> We use linear probability models throughout for ease in interpreting of the results. For all of the probability models, derivatives of the coefficients, evaluated at sample means, from probit regressions were similar to the OLS results.

<sup>10</sup> The results in all of the models were robust to including state fixed effects or the state unemployment rate the month an individual was displaced. The unemployment rate variable is negatively associated with the probability of reemployment and the duration of nonemployment, but including it did not significantly affect the other outcomes.

<sup>11</sup> The hazard rate model also offers a means of controlling for differences across individuals in the time elapsed between displacement and the survey when examining reemployment likelihoods. We focus on nonemployment instead of unemployment to avoid issues about sex differences in withdrawal from the labor force.

hazard rate to change with the duration of nonemployment.<sup>12</sup> The hazard rate model also allows us to correct for right censoring in the data, which occurs because some individuals are still not employed at the time they are surveyed. The model includes the variables used in the model of reemployment, and some specifications interact the female indicator variable with other variables in order to examine sex differences in the relationship between transitions from nonemployment to employment and marital status and children.

Linear probability models are used to examine the determinants of the probability of participating in the labor market among those not reemployed and of the probability that individuals displaced from full-time employment are reemployed part time, conditional on reemployment.<sup>13</sup> The same variables used in the model of reemployment are included in the models. Individuals are labor market participants if they report actively seeking a job (being unemployed) instead of being retired, in school, doing only housework, etc. A job is considered full time if it is 35 or more hours per week; hours are measured at the end of the lost job and at the start of the new job.

OLS regressions are used to examine the change in real hourly earnings among displaced workers who are reemployed.<sup>14</sup> The difference in log hourly earnings, deflated using the PCE deflator, is regressed on the same variables used in the other models. A linear variable measuring how many months an individual has been employed at the post-displacement job is

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<sup>12</sup> We obtained similar results using a Cox proportional hazard model.

<sup>13</sup> The labor force participation sample includes 2243 observations on 1837 individuals, and the subsample of 1084 married individuals has 1265 observations. The sample for the part-time reemployment regressions includes 1386 observations on 1212 individuals who were employed full time at the lost job, and the subsample of 739 married individuals includes 838 observations.

<sup>14</sup> The sample in the earnings regressions has 1767 observations on 1501 individuals, including 1061 observations among 916 married individuals.

also included because workers who have been reemployed longer have had more time to receive raises.<sup>15</sup>

If differences in specific human capital account for sex differences in post-displacement outcomes, women should be more likely to be reemployed, to be reemployed sooner, and to have smaller earnings losses than men. In addition, such differences might be larger among married women and women with children. If differences in general human capital, opportunity costs, or discrimination underlie sex differences in post-displacement outcomes, women should be less likely to be reemployed and should have longer durations on nonemployment than men. Again, marriage and children are likely to affect women's post-displacement outcomes in different ways than for men.

There are several ways to distinguish between the general human capital, opportunity cost, and discrimination hypotheses. Under the general human capital and discrimination hypotheses, women earn less than men at both the pre- and post-displacement job, so there should not be sex differences in earnings changes, whereas the opportunity cost hypothesis predicts that earnings losses, given reemployment, are smaller for workers with higher opportunity costs. In addition, the opportunity cost hypothesis predicts that the spouse's labor force status and earnings affect the probability of reemployment and the duration of nonemployment among married displaced workers, whereas the other simple models do not yield clear predictions. The opportunity cost model also predicts systematic differences in the probability of remaining in the labor force, whereas the other hypotheses do not. Another means of distinguishing between the theories is that women with older children may have less general human capital than women with younger children because they may have had spent fewer years in the labor force accumulating general skills—implying that women with older children should

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<sup>15</sup> The estimated coefficients on the other variables are not sensitive to controlling for the duration of the new job.

experience lower reemployment probabilities than women with young children—whereas women with young children should have the highest opportunity cost of working and therefore should be the least likely to be reemployed if the opportunity cost model is applicable.

## **V. Results**

This section uses the data from the PSID to examine the validity of the human capital, opportunity cost and discrimination hypotheses. As discussed below, the results are generally consistent with sex differences in opportunity costs related to young children.

### *A. Probability of reemployment*

Not controlling for sex differences in the relationship between reemployment and other characteristics, women are significantly less likely to be reemployed than men after displacement. As column 1 of Table 2 indicates, women are about 7 percent less likely to be reemployed than men. Married women are 15 percent less likely to be reemployed than married men (column 3). Having children also generally appears to lower the probability of reemployment. The likelihood of reemployment among married displaced workers falls as the spouse's earnings increase. In results not reported in Table 2, the probability of reemployment increases with education and is lower for blacks and Hispanics than for whites.

The sex difference in reemployment probabilities appears to be due to sex differences in the effects of other characteristics. As columns 2 and 4 indicate, the main effect of the female indicator variable is smaller in magnitude and no longer statistically significant when the female variable is interacted with the marital status and children variables; the sign is even positive, although imprecisely estimated, in column 2. The probability of reemployment is substantially

lower among married women and women with young children than among their single and childless counterparts. The effect of school-aged children on reemployment does not differ across sexes. The results in column 4 suggest that the negative relationship between spousal earnings and reemployment is concentrated among women, although the difference across sexes is not statistically significant. The results also suggest that having a working spouse may lower reemployment probabilities among women relative to men.

### *B. Duration of nonemployment*

The hazard rate model results indicate that women experience considerably longer durations of nonemployment following displacement. In addition, as columns 1 and 3 of Table 3 show, displaced workers with children are less likely to transition from nonemployment to employment each period. As in the reemployment model, unreported results indicate that less educated and non-white displaced workers have lower hazard rates of reemployment.

The difference between men and women in the hazard rate of exiting nonemployment is due to sex differences in the effect of marital status and young children. As column 2 indicates, women become reemployed at the same rate or sooner than men after controlling for sex differences in the effect of other characteristics on the hazard rate. Married women and women with children under age 6 account for the lower hazard rate among women as a whole. Among married displaced workers, women with children under age 6 also have significantly lower exit rates from nonemployment than their male counterparts. Spousal labor force outcomes do not have a significant effect on the hazard rate for married displaced workers, but the results suggest that a married woman has a lower exit rate from nonemployment if her husband is employed and

if her husband has a high-paying job. As in the reemployment model, the effect of school-aged children is negative but does not differ across sexes.

### *C. Labor force participation*

Among individuals who are not reemployed, women are considerably less likely to be in the labor force, as Table 4 shows. Women are about 30 percent less likely to be in the labor force than men, and the difference rises to 38 percent among married displaced individuals. Married individuals are also less likely to be unemployed but in the labor force than never-married individuals (column 1), with the difference concentrated among women (column 2). Having young children raises the probability of not being in the labor force by 16 to 20 percent for women but has no significant effect among men. Spousal employment status and earnings do not significantly affect labor force participation among married individuals, but the results suggest that a woman may be less likely to remain in the labor force if her husband is employed (column 4).

### *D. Part-time reemployment status and change in earnings*

Among workers who were displaced from a full-time job and are reemployed, women appear to be more likely to be reemployed on a part-time basis than men. As Table 5 reports, women are almost 10 percent more likely to be reemployed at part-time jobs than men are. The results for the full sample suggest that this difference is due to a higher propensity for married women to find part-time jobs; however, the results for the married subsample do not suggest that married women are more likely to be reemployed part time than married men after controlling for sex differences in the effect of children or spousal labor force outcomes. Although none of the interactions in the married specification shown in column 4 are significant, the results

suggest that married women with young children may be the most likely to be reemployed on a part-time basis.

There are few sex differences in the average change in hourly earnings among the reemployed. Table 6 indicates that men and women experience similar average earnings losses after controlling for other characteristics. Childless workers and parents also have similar earnings losses. The results do suggest that married women with an employed spouse experience an increase in earnings after displacement, given reemployment, relative to other married displaced workers.

#### *E. Discussion*

The results are broadly consistent with the opportunity cost, general human capital and discrimination hypotheses. However, we interpret the findings as most supportive of the opportunity cost model for several reasons. First, sex differences in post-displacement outcomes occur primarily among married women and women with young children; these women, particularly those with a child not yet school-aged, would be expected to have relatively high opportunity costs of working. For the results to support the discrimination hypothesis, they would require that employers discriminate primarily against married women and women with young children rather than against all women.

Several other results also support the opportunity cost hypothesis. Among displaced individuals who are not reemployed, women with young children are the least likely to remain in the labor force. Married women are less likely to remain in the labor force than comparable men and single women. The results also suggest that married women with a working husband have lower hazard rates of transitioning from nonemployment to a new job and lower probabilities of

being reemployed, as do women with high-earning spouses. These results are clearly consistent with the opportunity cost model. In results not shown here, we also find that women who perform more hours of housework have a lower hazard rate of exiting nonemployment and a higher probability of being reemployed part-time, findings consistent with the opportunity cost hypothesis.<sup>16</sup>

If the general human capital model holds, women with older children would be expected to have a lower likelihood of reemployment than other workers if they have participated in the labor force for fewer years and therefore have lower levels of general human capital. The results, however, indicate that women with young children have relatively low probabilities of reemployment, whereas men and women with a school-aged child have similar post-displacement outcomes. In addition, in results not shown here, interactions of the education variables with the female indicator variable did not indicate that women experience worse post-displacement outcomes than men in the same education group; indeed, conditional on reemployment, women who did not attend college experienced smaller average earnings losses than did comparable men. If the simple general human capital model applied, women might be expected to have worse post-displacement outcomes than men in the same educational group.

Our failure to find sex differences in earnings changes is consistent with the discrimination and general human capital hypotheses. However, the result that married women with employed spouses experience relative gains in earnings is consistent with the opportunity cost hypothesis because having a working husband may allow these women to be more selective in employment; in other words, these women have high reservation wages and do not take a new job unless, compared with other displaced workers, they can find a relatively high-paying job.

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<sup>16</sup> We did not find a clear effect of the cost of childcare on post-displacement outcomes. The PSID only includes questions on childcare costs after 1987, which reduces the sample size considerably.

The findings presented here provide little support for the hypothesis that differences in specific human capital accumulation account for sex differences in post-displacement outcomes. In other results, we find that reemployed men and women are equally likely to switch industries. Among each sex, 33 percent of displaced workers are reemployed in the same 2-digit industry. If men tend to have more specific human capital than women, they should be less likely to switch industries because doing so leads to earnings losses associated with the inability to use industry-specific capital. There is also no difference in the fraction of displaced workers switching industries within marital/sex groups. In addition, we did not find a significant difference between men and women in the effect of tenure at the previous employer on post-displacement outcomes, also suggesting that any sex differences in specific capital do not play a sizable role in sex differences in post-displacement outcomes. These results are consistent with those of Crossley et al. (1994), who find that wages rose with tenure at the pre-displacement job at similar rates for men and women displaced in Canada, suggesting that women do not accumulate less specific capital than men.

## **VI. Conclusion**

Data from the PSID indicate substantial differences between men and women in post-displacement outcomes. Women are less likely to be reemployed, experience longer durations of nonemployment, are less likely to remain in the labor force, and are more likely to be reemployed part time. However, women do not experience larger earnings losses than men. Sex differences in post-displacement outcomes are primarily accounted for by married women and women with young children, and spousal labor force variables also appear to affect some post-displacement outcomes among married women.

These findings are consistent with the conclusion of Crossley et al. (1994) that neither a simple specific human capital model nor a simple discrimination model is likely to account for sex differences in post-displacement outcomes. Instead, they suggest that differences in the opportunity cost of working underlie sex differences in post-displacement outcomes. Further research should examine the extent to which the effect of marital status and young children on women's post-displacement outcomes is due to individual heterogeneity, limited geographical mobility, difficulty in finding adequate child care, or other such factors. In addition, exploring whether such differences have narrowed over time is an area for future research.

## References

- Attewell, Paul. 1999. "The Impact of Family on Job Displacement and Recovery." *Annals of the American Academy of Political and Social Science* 562 (March): 66-82.
- Boisjoly, Johanne, Greg J. Duncan, and Timothy Smeeding. 1998. "The Shifting Incidence of Involuntary Job Losses from 1968 to 1992." *Industrial Relations* 37 (April): 207-231.
- Brown, James N., and Audrey Light. 1992. "Interpreting Panel Data on Job Tenure." *Journal of Labor Economics* 10 (July): 219-257.
- Carrington, William J. 1993. "Wage Losses for Displaced Workers: Is It Really the Firm that Matters?" *Journal of Human Resources* 28 (Summer): 435-462.
- Chan, Sewin, and Ann Huff Stevens. 2001. "Job Loss and Employment Patterns of Older Workers." *Journal of Labor Economics* 19 (April): 484-521.
- Charles, Kerwin K., and Melvin Stephens, Jr. 2000. "Job Displacement, Disability, and Divorce." Mimeo, University of Michigan.
- Crossley, Thomas F., Stephen R.G. Jones, and Peter Kuhn. 1994. "Gender Differences in Displacement Cost: Evidence and Implications." *Journal of Human Resources* 29 (Spring): 461-480.
- Cullen, Julie B., and Jonathan Gruber. 2000. "Does Unemployment Insurance Crowd out Spousal Labor Supply?" *Journal of Labor Economics* 18 (July): 546-572.
- Farber, Henry S. 1997. "The Changing Face of Job Loss in the United States, 1981-1995." *Brookings Papers on Economic Activity: Microeconomics*, pp. 55-128.
- Farber, Henry S. 1999. "Alternative and Part-Time Employment Arrangements as a Response to Job Loss." *Journal of Labor Economics* 17 (October): S142-S169.
- Hersch, Joni, and Leslie S. Stratton. 1997. "Housework, Fixed Effects, and Wages of Married Workers." *Journal of Human Resources* 32 (Spring): 285-307.
- Hersch, Joni, and Leslie S. Stratton. 2000. "Housework Specialization and the Male Marriage Wage Premium." *Industrial and Labor Relations Review* 54 (October): 78-94.
- Hipple, Steven. 1999. "Worker Displacement in the Mid-1990s." *Monthly Labor Review* (July): 15-32.
- Jacobson, Louis, Robert LaLonde, and Daniel Sullivan. 1993. *The Costs of Worker Dislocation*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

- Juhn, Chinhui, and Kevin M. Murphy. 1997. "Wage Inequality and Family Labor Supply." *Journal of Labor Economics* 15 (January): 72-97.
- Landes, Elisabeth M. 1977. "Sex Differences in Wages and Employment: A Test of the Specific Capital Hypothesis." *Economic Inquiry* 15 (October): 523-538.
- Light, Audrey, and Manuelita Ureta. 1990. "Gender Differences in Wages and Job Turnover Among Continuously Employed Workers." *American Economic Review* 80 (May): 293-297.
- Light, Audrey, and Manuelita Ureta. 1992. "Panel Estimates of Male and Female Job Turnover Behavior: Can Female Nonquitters Be Identified?" *Journal of Labor Economics* 10 (April): 156-181.
- Manning, Janice F. 1987. "Gender Differences in the Cost of Displacement: An Empirical Test of Discrimination in the Labor Market." *American Economic Review Papers & Proceedings* 77 (May): 246-251.
- McCall, Brian P. 1997. "The Determinants of Full-Time versus Part-Time Reemployment following Job Displacement." *Journal of Labor Economics* 15: 714-734.
- Neal, Derek. 1995. "Industry-Specific Human Capital: Evidence from Displaced Workers." *Journal of Labor Economics* 13 (October): 653-677.
- Polsky, Daniel. 1999. "Changing Consequences of Job Separation in the United States." *Industrial and Labor Relations Review* 52 (July): 565-580.
- South, Scott J., and Glenna Spitze. 1994. "Housework in Marital and Nonmarital Households." *American Sociological Review* 50 (June): 327-347.
- Stephens, Melvin, Jr. 2001. "Worker Displacement and the Added Worker Effect." NBER Working Paper No. 8260 (April).
- Swaim, Paul, and Michael Podgursky. 1994. "Female Labor Supply following Displacement: A Split-Population Model of Labor Force Participation and Job Search." *Journal of Labor Economics* 12 (October): 640-656.

**Table 1**  
**Descriptive Statistics for Displaced Workers**

	Men		Women	
	Married	Not married	Married	Not married
<u>Labor force variables:</u>				
Fraction reemployed	.54	.48	.43	.48
Duration of non-employment in months	3.72	3.98	4.35	4.29
Fraction in labor force, given not reemployed	.90	.89	.45	.70
Change in real hourly earnings, given reemployed (%)	-6.63	-2.45	-4.30	-2.73
Fraction employed part time, given reemployed and full time at lost job	.03	.06	.17	.09
Fraction employed full time at lost job	.62	.52	.40	.47
Tenure at lost job in months	46.11	28.27	32.49	26.12
<u>Family structure variables:</u>				
Child under age 6	.42	.21	.32	.26
Child aged 6-17	.50	.23	.50	.46
Divorced		.30		.53
Spouse employed at time of displacement	.59		.78	
Spouse's real hourly earnings at time of displacement, given spouse employed	9.72		16.48	
<u>Demographic variables:</u>				
Age at displacement	38.21	31.47	37.40	34.37
Less than high school education	.24	.24	.19	.19
High school graduate	.43	.42	.49	.49
Some college education	.18	.23	.22	.22
Black	.10	.23	.09	.36
Hispanic	.08	.08	.10	.05
Number of individuals	980	595	856	661
Number of observations	1296	825	1037	876

Notes: College or higher education is the omitted educational category. Duration of unemployment is truncated at the time of the survey for workers who are not reemployed at the time of the survey.

**Table 2**  
**Sex Differences in Determinants of Reemployment**

	All		Married	
	(1)	(2)	(3)	(4)
Female	-.067** (.025)	.057 (.045)	-.150** (.033)	-.020 (.066)
Married	-.019 (.030)	.052 (.038)		
Married x female		-.167** (.051)		
Divorced	-.080* (.038)	-.124* (.051)		
Divorced x female		.035 (.069)		
Child under age 6	-.058* (.025)	-.001 (.031)	-.044 (.030)	.024 (.038)
Child under age 6 x female		-.145** (.045)		-.160** (.055)
Child aged 6-17	-.046 (.026)	-.060 (.033)	-.085** (.032)	-.085* (.040)
Child aged 6-17 x female		.022 (.045)		.014 (.054)
Spouse employed at time of displacement			.038 (.037)	.064 (.056)
Spouse employed x female				-.092 (.080)
Spouse's real hourly earnings at time of displacement			-.003* (.001)	-.001 (.005)
Spouse's earnings x female				-.002 (.005)
Adj. R-squared	.118	.131	.110	.117
Number of observations	4034	4034	2333	2333

Notes: \* p<.05; \*\* p<.01. Shown are estimated coefficients from linear probability regressions in which the dependent variable equals one if a worked is reemployed as of the time of the survey in which the job loss was first reported and zero otherwise. The regressions include additional demographic controls as described in the text.

**Table 3**  
**Sex Differences in Nonemployment Duration Hazard Models**

	All		Married	
	(1)	(2)	(3)	(4)
Female	-.236** (.077)	.220 (.131)	-.445** (.105)	-.071 (.196)
Married	.017 (.089)	.247* (.104)		
Married x female		-.573** (.155)		
Divorced	-.218 (.126)	-.318 (.187)		
Divorced x female		.025 (.244)		
Child under age 6	-.234** (.074)	-.075 (.086)	-.237** (.085)	-.050 (.102)
Child under age 6 x female		-.464** (.146)		-.538** (.172)
Child aged 6-17	-.220** (.079)	-.231* (.099)	-.270** (.094)	-.244* (.112)
Child aged 6-17 x female		-.037 (.141)		-.013 (.167)
Spouse employed at time of displacement			.169 (.112)	.219 (.152)
Spouse employed x female				-.186 (.255)
Spouse's real hourly earnings at time of displacement			-.007 (.007)	-.003 (.013)
Spouse's earnings x female				-.005 (.015)
Log likelihood	89132.63	89540.35	51025.87	51133.40
Number of observations	4034	4034	2333	2333

Notes: \* p<.05; \*\* p<.01. Shown are the estimated coefficients from a Weibull hazard model of duration of nonemployment in months. The regressions include additional demographic controls as described in the text.

**Table 4**  
**Sex Differences in Labor Force Participation Status, Given Nonemployment**

	All		Married	
	(1)	(2)	(3)	(4)
Female	-.296** (.031)	-.125 (.068)	-.378** (.041)	-.274** (.081)
Married	-.122** (.037)	-.023 (.041)		
Married x female		-.226** (.071)		
Divorced	.021 (.044)	-.033 (.048)		
Divorced x female		.049 (.079)		
Child under age 6	-.056 (.029)	.017 (.034)	-.063 (.035)	.037 (.039)
Child under age 6 x female		-.164** (.053)		-.200** (.062)
Child aged 6-17	.003 (.030)	-.008 (.032)	-.002 (.039)	-.014 (.043)
Child aged 6-17 x female		.005 (.049)		.036 (.064)
Spouse employed at time of displacement			-.005 (.041)	.109 (.065)
Spouse employed x female				-.150 (.099)
Spouse's real hourly earnings at time of displacement			-.003 (.002)	-.010 (.007)
Spouse's earnings x female				.007 (.007)
Adj. R-squared	.118	.258	.311	.323
Number of observations	2243	2243	1265	1265

Notes: \* p<.05; \*\* p<.01. Shown are estimated coefficients from linear probability regressions in which the dependent variable equals one if an individual is in the labor force (unemployed) as of the time of the survey in which the job loss was first reported and zero if the individual is not in the labor force. The sample only includes individuals who are not reemployed. The regressions include additional demographic controls as described in the text.

**Table 5**  
**Sex Differences in Part-Time Reemployment**  
**(Given Reemployment and Full-Time Employment on Lost Job)**

	All		Married	
	(1)	(2)	(3)	(4)
Female	.095** (.025)	.016 (.039)	.115** (.037)	.108 (.086)
Married	.035 (.024)	-.021 (.028)		
Married x female		.144** (.050)		
Divorced	.013 (.035)	-.018 (.031)		
Divorced x female		.089 (.063)		
Child under age 6	.023 (.023)	.007 (.024)	.024 (.025)	-.001 (.025)
Child under age 6 x female		.007 (.024)		.088 (.074)
Child aged 6-17	-.005 (.024)	.025 (.021)	-.008 (.028)	-.004 (.023)
Child aged 6-17 x female		-.081 (.049)		-.025 (.061)
Spouse employed at time of displacement			.019 (.034)	.024 (.032)
Spouse employed x female				-.030 (.098)
Spouse's real hourly earnings at time of displacement			-.002 (.002)	-.002 (.002)
Spouse's earnings x female				.001 (.004)
Adj. R-squared	.089	.105	.130	.135
Number of observations	1386	1386	838	838

Notes: \* p<.05; \*\* p<.01. Shown are estimated coefficients from linear probability regressions in which the dependent variable equals one if a worked is reemployed part time and zero otherwise, conditional on full-time employment at the lost job. The regressions include additional demographic controls as described in the text.

**Table 6**  
**Sex Differences in Real Hourly Wage Changes, Given Reemployment**

	All		Married	
	(1)	(2)	(3)	(4)
Female	-.008 (.029)	.006 (.047)	.006 (.040)	-.107 (.079)
Married	-.012 (.028)	-.008 (.039)		
Married x female		-.010 (.056)		
Divorced	-.037 (.042)	-.034 (.067)		
Divorced x female		-.002 (.083)		
Child under age 6	-.023 (.027)	-.039 (.034)	-.032 (.034)	-.057 (.042)
Child under age 6 x female		.038 (.052)		.074 (.062)
Child aged 6-17	-.026 (.027)	-.005 (.037)	.007 (.033)	.006 (.043)
Child aged 6-17 x female		-.051 (.050)		.001 (.059)
Spouse employed at time of displacement			-.011 (.043)	-.079 (.061)
Spouse employed x female				.179* (.086)
Spouse's real hourly earnings at time of displacement			.001 (.002)	.003 (.004)
Spouse's earnings x female				-.005 (.005)
Adj. R-squared	.080	.081	.108	.115
Number of observations	1767	1767	1061	1061

Notes: \* p<.05; \*\* p<.01. Shown are estimated coefficients from OLS regressions of the change in real log hourly wages among reemployed workers. The regressions include additional demographic controls as described in the text.