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How Do Marital Status, Labor Supply, and Wage Rates Interact? A Dynamic Analysis of Men through Their Late 30s

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Abstract

The interactions between marital status and labor force outcomes are complex and dynamic. Although the association between marriage and earnings is highly positive, questions arise about causation and about the possibility that unmeasured personal attributes, such as good looks, a positive outlook and a sense of humor, might increase success both in marriage and in the job market. We jointly estimate the interactions between wage rates, hours worked, and marital flows in a dynamic context using methods that control for both selectivity and simultaneity. Unlike hazard models that use only person-years up to the entry into a marital status, we follow individuals in ways that take account of the entire sequence of marital status flows. Our findings reveal statistically significant, causal impacts running from marriage to working hours and then to wage rates, from working hours to subsequent wages, and from both wage rates and working hours to marital status. To capture the long-term changes in earnings and marital status implied by these results, we simulate how exogenous changes in the utility from marriage, in wage rates, and in working hours would alter the pathways of young men. The estimates indicate that staying married raises earnings by about 24 percent relative to remaining single and by about 17 percent relative to continuing in a divorced state. These marriage effects are more than double the returns to an additional year of schooling.

1.0 Introduction

The relationship between marriage and labor market outcomes is complex. Marriage affects the labor supply of men and women. Changes in work effort, in turn, influence each partner's accumulation of human capital and wage rates. For those who increase their human capital, higher wages over time makes work more attractive, though the income effect lessens the urgency of long hours. Both hours and wage levels interact with marital status. Added work experience and higher wages can alter the entry into marriage, divorce, and remarriage by influencing the attractiveness of an unmarried person to a potential spouse and by raising the cost of divorce. At the same time, the increased stability of a marital union may affect hours worked and wages, though these effects may well differ by gender. Marriage may also raise or lower wage rates, by influencing a worker's time horizon, investment, motivation, and acceptance of unpleasant but well-paying jobs. These marriage-induced effects on wages provide an indirect mechanism by which marriage increases the supply of labor.

The literature on each of these key relationships is extensive and goes back many years. Not surprisingly, estimates of the marriage-labor supply relationship generally show marriage raises working hours among men and lowers them among women. Even among men with poor health, marriage appears to increase hours worked (Parsons 1977). Research confirms an earnings advantage for married men dating back at least to the 19th century (Goldin 1990). The marriage earnings premium estimated from 1940-1980 decennial Census data has been consistently significant at percentages ranging from +11 percent in 1959 to +23 percent in 1969 (Loh 1996).[1]

The close associations between marital status and male earnings have continued through the latest data. Using the March 2004 Current Population Survey, we estimated standard human capital

[1] These marriage impacts on earnings control for education, years of potential experience, potential experience squared, race, immigrant status, veteran status, region, occupation, and industry.

regressions, expanded to include race, Hispanic origin, and presence of children. Among men, ages 25-49, the coefficient on being married implied a 34 percent earnings advantage over the never-married, a 25 percent advantage over separated men, and a 21 percent advantage over divorced men. These marriage-related differentials are extremely high, about two to three times the differentials associated with a year of schooling. While these cross section estimates likely overstate marriage effects on earnings because they fail to account for simultaneity and heterogeneity, they offer a strong motivation for the research trying to isolate the factors underlying marriage-earnings relationship.

Much existing research has examined pieces of the marriage-earnings relationship, including the role of self-selection in marriage wage premiums and in wage effects on marriage.[2] However, few studies have examined how marital status affects labor supply and few if any estimate the interactions between wages, labor supply, and marriage in a simultaneous context.[3] No studies of which we are aware have developed and estimated a joint model of marital status, labor supply, and wage rates in a simultaneous and dynamic context.

Yet, the simultaneous and dynamic character of the relationships is critical to understand. Consider, for example, the evidence showing that marriage raises the wage rates of men. A model of the contemporaneous relationship between marriage and wage rates ignores dynamic feedbacks that might well strengthen the impact of marriage on wages. If the higher wages induced by current marriages lengthen marriages and reduce divorces in the future, the higher future marriage rates may

[2] Though in principle the earnings gains from marriage could come from added hours or higher wages, most of the literature examines how marriage affects the wage rates of men (Korenman and Newmark 1991; Daniel 1995; Cornwell and Rupert 1997; Gray 1996; Loh 1996; Chun and Lee 2001; Ginther and Zavodny 2001; and Stratton 2002) and not their labor supply. See Ribar (2003) and Lerman (2002) for more detailed reviews of the literature on the gains from marriage.

[3] Gould (2003) models the simultaneity of schooling, work in low or high skill jobs, and marriage, but does not take account of hours worked. Van Der Klaauw (1996) develops a theoretical model and empirical estimates of the interdependence between marital status and labor force participation of women. But, he also treats work status as dichotomous and not continuous.

well generate a separate positive impact of current marriage on wage rates. In addition, positive marriage impacts on hours of work might well lead to higher future wages as a result of the added work experience. For these reasons, contemporaneous impacts of marriage on wage rates of men are likely to understate long-term effects of current marital status.

In a companion paper (Ahituv and Lerman 2004), we examined the interactions between job stability, marital stability and wage rates among men. The focus was on young men moving through their 20s and early 30s and how multiple job changes affected wage growth and the transitions to marriage, divorce, and remarriage. Among the key findings were robust negative impacts of job changing on wage rates and on flows into marriage.

This paper moves beyond our earlier study and attempts the ambitious job of estimating the links between marriage, labor supply, and wages in a dynamic context. In this analysis, we follow young men through their late 30s and incorporate marital status effects on hours worked. We develop a theoretical framework that ties together marital flows, hours worked, and wage rates, and apply the general Dynamic Selection Control method to the special case of two continuous variables (hours worked and wage rates) and one categorical variable (marital status). No other study of which we are aware incorporates all three sets of variables into one dynamic analysis. The model captures the simultaneity between the variables, controls for selection bias, and estimates dynamics interactions among the variables.

The estimation approach builds on the Dynamic Selection Control method used in other applications by Cameron and Heckman (1998), Hotz *et al.* (2002), and Ahituv and Tienda (2004). Unlike hazard models of entry into a specific marital status that use only person-years of those at risk of entry into that status, we follow individuals through more than one change in status in ways that take account of the entire sequence of marital status. Finally, we use the estimated parameters and initial conditions to simulate how changes in variables early in the life cycle affect long-term

outcomes. The simulations allow one to project a variety of feedback effects, such as the impacts of changes in employment conditions or in the utility of marriage on long-run marital and labor force status.

The interpretation of the results goes beyond a review of the impacts and statistical significance of key variables. In addition to examining impacts with and without taking account of selection and simultaneity, we simulate how work and marital status pathways change in response to external shocks, such as changes in employment conditions or preferences about marriage. By comparing pathways with and without these external shocks, we can identify a variety of long-term impacts, including the direct and indirect effects of marriage on wage rates.

The findings reveal substantial and statistically significant effects of marital status on labor market outcomes, even net of simultaneity and heterogeneity. Relative to being single, marriage induces about a 24 percent gain in earnings. While higher wages and working hours increase the odds of marriage and remarriage, the wage rate effect is small and the hours worked effect is moderate, though both are statistically significant. The simulations reveal some noteworthy feedback effects, such as how a positive shock to hours worked leads to both higher wages and slightly faster entries into marriage.

The paper continues as follows. The next section examines selected studies of marriage and men's wages that incorporate aspects of simultaneity and/or controls for selection. Section 3 describes the data and basic statistics on men's marital flows and wages. In section 4, we present our methodology and estimation strategy. Section 5 analyzes the multivariate results on wage rates, hours worked, and the dynamics of marital status. In section 6, to capture the role of feedbacks between labor market and marital status, we present simulations of the impact of exogenous shocks on the wage, hours, and marital status pathways of men over time. Section 7 highlights the key findings and their implications.

2.0 Selected Studies of Marriage and Labor Market Outcomes of Men

To place this study in context, we review selected studies of marital status-labor force interactions that use controls for the selection problem and/or that explicitly deal with simultaneity issues. Nearly all focus on causal impacts in one direction, either from marital status to wages or from labor market outcomes to marital status.

Authors estimating the effect of marriage on wages have tried to capture unobserved heterogeneity with panel data and specifications involving individual-specific fixed effects and/or random effects. In one application examining the log of wage rates of young white men from 1976 to 1980, Korenman and Newmark (1991) estimate an 11 percent marriage premium among white men without random effects and about 6 percent with random effects. Divorce reduced wage rates relative to marriage, but only by about 2 percent. The authors note that these are average effects of men who are young and thus in relatively short marriages (or short divorces). Allowing the marriage premiums to rise with the duration of marriage, Korenman and Newmark find wages rise with marital tenure at about 2 percent per year in the first two years and 1 percent thereafter. Their results yield a marriage premium reaching about 15 percent for those with the average years of marriage; this selection-adjusted premium is about 90 percent of the unadjusted premium.[4]

Expanding the data for one additional year, to follow a cohort of 19-29 year-old white men in 1970 to 29 to 39 in 1980, Cornwell and Rupert (1997) find marriage premiums of 8.3 percent when estimated from random effects, 5.6 percent, when estimated from fixed effects, and 3.3 percent, when using fixed effects and including job tenure and years of marriage. Using the same models as Korenman and Neumark, Gray (1996) compares the NLS cohort of 24-31 year-olds in 1976 with the NLSY79 cohort of 24-31 year-olds in 1989. He follows each cohort of white males over a six-year periods. Gray's results suggest that marriage gains fell sharply over time. In the

NLSY79 cohort, the coefficient on the marriage dummy is only 1.4 percent and is not statistically significant.

One reason both the Cornwell and Rupert study and the Gray study may understate the marriage premium is that they hold constant for occupation and industry variables, a decision that eliminates a mechanism by which married men raise their earnings. Neither occupation nor industry variables appeared in the Korenman and Neumark study. Another limitation of all of these studies is that they do not specify a simultaneous relationship between marriage and earnings. It is important to understand impacts flowing in both directions and to account for wage shocks affecting marriage in the estimates of marriage premiums.

Chun and Lee (2001) account for both selection and simultaneity by applying a switching model to cross section data. The marriage equation is identified based on an index of the marriage market, predicted hours of a wife's work, and the mother's country of birth—factors that should influence marriage but not directly affect wages. The authors use a sample of all 18-40 year-old working males drawn from the March 1999 CPS. The estimated marriage premiums are about 12 percent, both from an OLS equation on log wage rates and from the switching equation. These results cast doubt on the importance of the selection effect on the marriage premium. Chun and Lee find that the effects on wage rates are much higher in marriages in which wives did not work (about 27 percent) than in cases in which they did work (a 15 percent effect at 20 hours of work by wives). This is consistent with the theory that husband-wife specialization is a big reason for the marriage impact on wages. The determinants of marriage were expected in some ways but not in others. Tight marriage markets reduced marriage probabilities while higher predicted hours of wives raised them. Surprisingly, higher levels of education lowered the likelihood of marriage.

[4] Daniel's 1995 analysis of a more recent cohort of young men found similar overall effects, with slightly higher shares associated with selection.

Overall, the estimates of the marriage premium on wage rates for men vary across studies, perhaps because of the differences in samples and specifications. The estimates range from a high of 27 percent for 18-40 year-old men with nonworking wives to a low of 1.4 percent among white men ages 24-31 in 1989. Although all of these studies take account of unobserved heterogeneity, most through the use of random effect specifications, only Chun and Lee deal with the simultaneity between wage rates and marriage, but only with a CPS cross section. None of the studies take account of hours worked and thus are likely to understate the full impact of marital status on earnings (and thus the capacity to support a family). The three studies based on panel data use only a few years of information. All but one study includes only white young men.

Turning to the impacts of male earnings on marital status, we see a variety of studies. Some create empirical tests of the Wilson hypothesis (Wilson 1997), which explains the decline in marriage rates among black men as largely the result of their ability to obtain good, steady jobs. While researchers show evidence that better job options for men lead to higher marriage rates[5], worsening job opportunities over the 1970s and 1980s accounted for only a modest reduction in the decline in marriage (Wood 1995).

Studies often use duration analysis to determine how employment, unemployment, wage rates, or earnings affect flows into a marital or cohabitation status. For example, Oppenheimer (2003) uses event-history, multinomial logit equations to determine how time since leaving school, current earnings, and recent work experience influenced the risk of entering cohabitation or marriage (if single) and the risk of entering marriage or separating (if cohabiting). High earnings increased entry into marriage but not cohabitation, and less than full-time work reduced the

[5] See, for example, Manning and Smock (1995), Call and Teachman (1996), Presser (2000), Smock and Manning (1997), Teachman, Call, and Carver (1994), and Weiss and Willis (1997).

likelihood of entering a marriage, but not a cohabiting union. Although the findings are interesting, the study did not control for selection or simultaneity.

Burgess, Propper and Aassve (2003) examine entry into marriage (among those single) or divorce (among those married) as a function of current and long-term earnings (or wage rates) and other income potentially available in each marital status, including the average earnings of a potential spouse. Using a sample of white men and women in the NLSY79, they take account of simultaneity by substituting each individual's fixed wage rate or earnings effect in the long run, holding constant for work experience, urban location, local unemployment rate and number of children. This technique limits but does not fully avoid the simultaneity problem, since the estimated fixed effects do not control for contemporaneous or long-term marital status. For men, the results show higher earnings (or wage rates) increase entry into marriage and slow or reduce marital dissolutions while the average wage of a potential mate has virtually no effect. Long-run measures of earnings and wage rates exert a higher impact than do current earnings or wage rates.

Charles and Stephens (2004) uncover evidence that a spouse's displacement from a job increases the transition rate into divorce. Other studies have shown a link between high male earnings inequality and low marriage rates (Gould and Passerman 2003; Loughran 2002). The argument they propose for this relationship is that, the higher is male wage dispersion, the greater are the gains from extending search in the marriage market.

This study goes beyond the existing literature by dealing with both simulataneity and selection and jointly estimating how wage rates and hours worked affect marital flows and how marital flows and patterns affect wage rates and hours worked. No other study of which we are aware incorporates all three sets of variables into one dynamic analysis. Unlike standard hazard models of marital flows, which use only person-years up to the entry into one or another marital status, our model follows individuals through more than one change in status in ways that take

account of the entire sequence of marital status. By basing our estimates on the marital status and labor market pathways of males through their late 30s and early 40s, we can use the estimated parameters and initial conditions to simulate how changes in variables early in the life cycle affect long-term outcomes. The simulations allow one to project a variety of feedback effects, such as the impacts of changes in employment conditions or in the utility of marriage on long-run marital and labor force status.

3.0 The Data and Basic Statistics

3.1 The Data

The National Longitudinal Survey of Youth (NLSY79) is an attractive data source for this study because it provides detailed information on respondents' family background, schooling and abilities, marital status, parenthood, work histories and the exact timing of marriages and divorces and other changes in household status. The NLSY79 is a national probability sample of 12,686 individuals (6,403 male) ages 14 to 21 as of January 1, 1979 who were re-interviewed annually until 1994 and semi-annually through 2004.[6]

In deriving our primary analysis sample of male respondents, we wanted to include full work and marriage histories. Given evidence of low returns to work-while-in-school (Hotz *et al.* 2002) and the fact that less than one percent of 17 year-olds are married, we chose to follow job and marital histories from age 17. As a result, youth become part of our sample only after reaching 17 in 1979, 1980, 1981, 1982, or 1983. Because information about jobs held prior to 1978 is not always complete, we restricted the multivariate analyses to individuals who were ages 14-19 in 1979, thereby excluding 1,772 cases. Next, because the NLSY itself dropped some groups from follow-up

[6] The survey consists of a cross section sample of 6,111 youth representing the non-institutionalized population born between January 1, 1957 and December 31, 1964, a supplemental sample of 5,295 non-institutionalized black, Hispanic, and low-income white youth, and an armed forces sample of 1,280 youth. The military sample was discontinued in 1986 and the economically disadvantaged non-black, non-Hispanic supplementary sample was dropped in 1991. Of the

interviews, we excluded the low-income white oversample (521 cases) and the military oversample (237 cases). The absence of data on wage rates and hours worked during military service forced us to exclude an additional 509 males who served time in the military. Finally, we chose to include only those completing at least 10 interviews, a decision that reduced the sample by 366 cases. The result is a sample of 2,863 male respondents and 61,234 male person-years. For Tables 1 and 2, in order to follow the same individuals as they aged to age 40, we used a subsample made up of those in the primary sample who were ages 17-19 in 1979.

To incorporate the role of neighborhood on life-cycle paths, we added data on county employment growth, income levels, unemployment rates, marriage, and divorce rates. The economic data come from the Bureau of Economic Analysis, Regional Economic Information System. The divorce rates were compiled from the City-County Data book. These variables were merged to the main data, using county codes.

Because our approach emphasizes annual flows, we require annual data on work, wages, and marital status. To obtain these data after 1994, when the NLSY79 began to conduct interviews every two years, we undertook the task of compiling this information from variables capturing dates of various activities. Deriving the estimates of wage rates and annual hours worked involved accessing the NLSY79 work history files. Wage data were available on all jobs between surveys. For those who did not report any work in a particular year, we imputed a wage based on prior year's wage rate. We used information on the dates of marriage and divorce to derive annual marital status flows.[7]

Our analyses include five dependent variables: wage rates, annual hours of work, and three marital status transitions. Although the data allow us to employ several definitions of family formation, we chose to rely on the formal definition for singles and marriages and a definition of

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remaining sample of 9,964, nearly 80 percent (7,724) completed interviews in 2002. At this point, sample members were ages 37-44.

[7] A full description of this procedure appears in Appendix A.

divorce that includes separation. Among the reasons are that most cohabitation leads to separation without children, while most marital separations lead to formal divorces.

In examining the dynamics of marital status, we use an exclusive, exhaustive classification system that defines each individual in each year (i.e., each person-year) as:

1) Remaining single, never married,

2) Entering marriage for the first time during this calendar year,

3) Remaining married in the current year after having been married in the prior year (including second marriages),

4) Becoming divorced or separated during this year,

5) Remaining divorced or separated in the current after having been divorced or separated in the prior year, or

6) Remarrying during this calendar year

This classification defines the five dummy variables (with remaining single as the zero category) used as right hand side endogenous explanatory variables in equations predicting labor market outcomes. For marital status transitions as dependent variables, we simplify the categories and focus on the transition rates from being single to first marriage, from marriage to divorce/separation, and from divorce/separation to remarriage.

The definition of the individual's wage rate is the natural log of the hourly rate of pay in the main job during the last annual year. Work effort is defined as hours employed in the prior year. To avoid measurement error, we top-coded the annual hours of work at 3,120 per year (60 hours per week for 52 weeks) or hours above the 93rd percentile.

Descriptive statistics on our full analysis sample appear in Appendix B. Minorities are over-represented in this sample, with black men contributing about 28 percent of the person-years and Hispanic men contributing another 20 percent. About 7 percent of the person-years involve foreign-

born young men. Sample members often came often came from families with less-educated mothers (the mean education level of mothers is less than 11 years of schooling) and with mothers heading families (18 percent of person-years).

Looking at the means for variables that change over time, we see few person-years of school attendance (17 percent). The mean age of the person-years is about 28. In the average person-year, sample members had accumulated 3.4 years in marriage, almost 9 years of accumulated work experience, three years of experience on a current job, and 12.5 years of schooling. The average number of hours worked per week is almost 35, or nearly full-time for 50 weeks.

3.2. The Age Profiles of Marital Transitions and Labor Market Outcomes

A useful first step in understanding the distinctive marital transition variables used in this study is to look at the age evolution of marital transitions across the six states described above. The second step examines how these marital transitions interact with wage rates and hours worked. Panel A in Table 1 shows the proportion of all males in these marital states, and Panel B shows the rates of entry into first marriage (among men single in the prior year), divorce (among men in a married or remarried state in the prior year), and remarriage (among men in a divorced state in the prior year). Changes in marital status were mostly common for men in their mid 20s and early 30s. However, non- trivial changes occur for teens, and men in their 40s. Annual flows into a first marriage reached about 6-8 percent of all men in their mid-20s and 7-11 percent of single men in this age group. Annual entry rates into divorce or separation (of those married or remarried in the prior year) reached 6.4 percent of 24-26 year-olds and then declined to 2.1 percent by ages 39-40. Annual entry rates into remarriage were substantial, amounting to about 14 percent of those married in the prior year. Note that only 40 percent of men were still single by age 28, and 18 percent by age 40.

The proportion of men in a *first* marriage reached a near peak at age 32. At this age, just over 49 percent of the cohort were in a first marriage and 29 percent were single (never-married). After

age 32, the number ending a first marriage largely offset the number of men entering a first marriage. By age 38, when 19 percent were still single, the share in a first marriage stood at 50.2 while the remaining share of divorced, separated, or remarried rose from 23 to 31 percent. Though age-marital status profiles varied widely by race, the proportion in first marriages among Hispanic, black, and white young men is highest at age 32. Moving from age 32 through 38, the share in first marriages stayed at about 30 percent of blacks and 54 percent of non-Hispanic whites, but fell slightly from 47 to 45 percent among Hispanic men (not in table).

The tabulations in Table 2 suggest the close connection between marriage and favorable labor market outcomes. Given the large gap in marriage rates between black and whites, Table 2 presents marital status and labor market outcomes separately for black men. Married men attained higher levels on all the main labor market indicators over divorced/separated and never-married men of the same age. The wage rate advantage of those in first marriages over never-married widened with age, from 10 percent at age 24, to 20 percent at age 32, to 48 percent at age 40. Divorced or separated men had especially low wage rates, even lower than single men at ages 28-40. Between ages 24 to 40, the wage differential between married and single black men increased from 10 to 55 percent, faster than among the subsample of all men.

Married men worked several more weeks per year and hours per week than unmarried men. By age 24, married men were already working 22 percent more hours per year than never-married men. Though the never-married raised their annual hours to almost full-time year-round, the 22 per cent advantage for married men remained through age 36 and reached 34 percent by age 40. Again, the married-single differential was even higher among blacks (reaching 45-65 percent at ages 36-40), because of the much lower number of hours worked by single black men than by all single men.

One interesting indicator of work commitment is the years of work experience accumulated by those who are married or not married in their late 30s. Men in their first marriage as of age 38 (no

matter when they married) have accumulated about 17 percent more years of work experience than never-married and 11 percent more than divorced men.

The descriptive results indicate a significant and substantial positive association between men's labor market outcomes and marital status. The question is: to what extent do the associations reflect a causal role for marriage, wages, or work commitment? To answer this question, we first develop theoretical and estimation frameworks for assessing these relationships and then proceed to generte the empirical results.

4.0 The Theoretical Framework and Empirical Strategy

This section presents a simple dynamic model for estimating the interactions between marital status, wage rates and hours of work. Following Becker et al. (1977) and Weiss and Willis (1997), we view marriage as a voluntary partnership, formed to improve production and consumption activities of both partners, including the production and raising of children. The focus of this analysis is on the behavior of men.

4.1 The Theory

In this dynamic framework, the decisions whether to marry and whether to stay married are characterized with the aid of a value function, and the sequential nature of marital life. Initially, all young men are singles. Young men will choose to marry at age t if the value of the expected gain from marriage exceeds the value of staying single,

$$V_{it}(Marry \mid \Omega_t) > V_{it}(Single \mid \Omega_t), \tag{1}$$

where V_{it} denotes the expected lifetime value of individual i who chooses one of the two alternatives at age t, and Ω_t represents his information and beliefs sets in that period. Hence, at the time of marriage, the expected gain from marriage is always positive.

Once a marriage is formed, the partners start to create marital capital, changing their household production function and consequently their activities in the labor market and at home. Thus, we expect that marriage will change immediately the amount of work commitment of the man. Since we unable to observe work commitment, we will use annual hours work as an indicator for it. . In addition to Marital Status (MS) and marital capital (k), hours work is off course a function of his background characteristics (X), and work experience (Z):

$$h_{it} = H_{it}(X, Z, MS, k), \tag{2}$$

When a man marries, his wage rate should not change immediately. Instead, it should increase gradually as he accumulates more human capital. Married men may be more likely to invest in on-the-job effort and training than do unmarried men. This might occur because of the longer time horizon of married men and because the division of labor within the household allows men to concentrate on the job. A second and indirect reason for wage growth is that the added hours of work by married men increases their work experience, which additionally raises their human capital. The wage rate of individual *i* at time *t* is thus also a function of his marital status and work experience,

$$w_{it} = W_{it}(X, Z, MS, k). \tag{3}$$

Once a marriage is formed, dissolving is costly because of the division of property, child custody, and the loss of marital capital. However, the value from being married varies over time, and a decline in the value may lead to marital dissolution. We expect that the causes of divorce are different from the causes of marriage. For example, the number of children should have negative effects on divorce (an indicator of marriage capital), but may have positive effects on marriage. The signs on the labor market coefficients (both wage rate and hours worked) predicting entry into marriage should be the opposite of the signs on coefficients predicting entry into divorce. Men who

are more confident in remaining married are more likely to have a strong commitment to work. This strong commitment to work within marriage may, in turn, reduce the likelihood of divorce.

Conditioned on currently being married, the man is now at a risk to divorce. At age *t'>t*, a person chooses to dissolve the marriage if

$$V_{it'}(Divorce \mid \Omega_{t'}) > V_{it'}(Stay\_Married \mid \Omega_{t'}), \quad (4)$$

where $V_{i,t'}$ denotes the expected lifetime value of individual *i* who face the two possible alternatives. One important difference between the decision to marry and the decision to dissolve the marriage is that marrying requires the voluntary consent of both partners, while a decision by only one of the partners is often sufficient for dissolving the marriage. Since we observe the behavior and outcomes only for men, it is possible that the wife—the partner that we do not observe—makes the decision to dissolve. Still, we expect her to be influenced by her husband's employment and earnings. Her other preferences are embedded in the error term of the equations we estimate.

As in the case of earlier two decisions, a divorced person *i* chooses to re-marry if

$$V_{it''}(Marry \mid \Omega_{t''}) > V_{it''}(Divorce \mid \Omega_{t''}), \quad (5)$$

given that he is divorced or separated at age *t''>t'*. Note that in this specification Ω is different than the one in the marriage equation, implying that his information and beliefs sets differ from his beliefs at first marriage, which of course affecting his preferences.

4.2 The Econometric Model

Estimating our model requires some modifications and simplifications. We base ours on McFadden's (1984) *Random Utility Model* for dynamic discrete-choices in discrete-time and on the *Dynamic Selection Control* method used in other applications by Cameron and Heckman (1998), Hotz *et al.* (2002), and Ahituv and Tienda (2004).

We let each period represent one year, so that t=0 when the individual is 17. For simplicity, we consider *linear specifications* of the V_{it}`s , H_{it}*'s* and W_{it} that depend on: (1) indicators of group

membership, birth cohort, family background variables, AFQT, and local market conditions (X); (2) a vector of age-related variables measuring, at the beginning of each period, the accumulated amounts of schooling, children, and work experience, and tenure in his present job (Z); (3) the total history of marital status changes (V); and (4) a set of state-specific unobservable variables that differ from one equation to another (μ, ε and ν). To insure the parameters of the model are identified, we include characteristics of local areas and time periods that directly affect one type of variable (say, labor market outcomes) but not the other (say, marital status. Appendix Table B displays how the variables in the X`s and the Z's vary across equations (e.g. $X^H \neq X^W$, $Z^H \neq Z^W$ and so on).

The value that an individual obtains from each marital status alternative is equal to

$$V_{itj} = X_{it}^{V} \beta_j^{X} + Z_{it-1}^{V} \beta_j^{Z} + \mu_{itj}, \quad (6)$$

where β's (and γ's and δ's below) are vectors of parameters to be estimated for each equation,[8] and where the value and the coefficients of "to remain at the same state" are constrained to be zero. The estimated dependent variables are equal to one if the individual enters a first marriage (relative to staying never-married), if the individual separates or divorces (relative to remaining married), or if the individual remarries (relative to staying separated or divorced).

The discrete-choice marital change equations are estimated jointly with work commitment (annual hours worked) and the wage rate equations. Hours are in linear form (divided by 1,000), and wage takes a log-linear form:

$$H_{it} = X_{it}^{H}\gamma^{X} + Z_{it}^{H}\gamma^{Z} + MS_{it}^{H}\gamma^{MS} + \varepsilon_{it}, \quad (7)$$

and

$$W_{it} = X_{it}^{W}\delta^{x} + Z_{it-1}^{W}\delta^{z} + MS_{it}^{W}\delta^{MS} + \nu_{it}. \quad (8)$$

[8] The coefficients across marital statuses j=2,4,6 are not constrained to be the same.

Unbiased estimation of (6) to (8) requires that the error terms are independently distributed across these alternatives for each individual, a condition that might not be true in our application.

Estimation of the parameters in (6)-(8), using the data on the observed choices, is complicated by several related problems of endogeneity and selection bias. For example, if the stochastic elements of the value functions (the μ's and ε's) are correlated over time (that would be the case if they contained person-specific, time-invariant components), the marital status variables (MS_{it}) in (7) will not be orthogonal to the ε's. A second potential problem is the endogeneity that can arise in cases where shocks that increase wage (the ν's) are correlated with the unobserved components of work commitment (the ε's) (that would be the case of endogeneity). Given these problems and the orthogonality conditions that are required by the standard estimation methods, using standard methods to estimate the parameters in (6)-(8) is potentially subject to selection bias. Failure to account for these problems may produce inconsistent estimates of the parameters in the equations.

To deal with such problems, we must account for the correlation structure of stochastic elements in the estimation of equations (6)-(8) and control for the correlation between these elements and the experience variables (*Z* and *MS)* at each age. Following the approach of Heckman and Singer (1984), and Hotz *et al.* (2002), we estimate the model by a conditional maximum likelihood (ML) strategy in which the likelihood function is conditional on the estimated distribution of the unobserved individual factor.

We assume that the stochastic elements can be written as the following functions of a (common) person-specific stochastic component and idiosyncratic errors:

$$\begin{aligned} \mu_{itj} &= \alpha^V \xi_i + \omega^V_{itj} \\ \varepsilon_{it} &= \alpha^H_k \xi_i + \omega^H_{it} \end{aligned} \qquad (9)$$

and

$$\upsilon_{it} = \alpha^W \xi_i + \omega^W_{it}$$

In this set of equations, ξ_i denotes a person-specific disturbance (or factor), α_j 's are specific factor loadings for marriage, hours of work, and wage rates, and ω_{isj} 's denote idiosyncratic disturbance terms assumed uncorrelated with ξ_i. Given the stochastic structure in (9), it follows that the μ's and the ε's will be correlated across time and across states, i.e.,

$$\text{Cov}(\varepsilon_{it}, \mu_{ij't}) = \alpha^H \alpha_j^V \text{Var}(\xi_i), \quad \text{for } t \neq t', \text{ and for all } j \tag{10}$$

$$\text{Cov}(\mu_{itj}, \mu_{it'm}) = \alpha_j^V \alpha_m^V \text{Var}(\xi_i), \quad \text{for } t \neq t', \text{ and } j \neq m.$$

The above expressions indicate that the signs of the covariances between the μ's and the ε's are determined by the products of the corresponding factor loading, a property we use to classify the factors representing unobserved heterogeneity. Given the stochastic structure in (9), the correlations between the ε's and ν's, and between ν's and μ's will have similar properties. Hence, the distribution of ξ_i (the unobserved heterogeneity) is identified from the correlation of marital status, hours of work, and wage rates within and across time periods using maximum likelihood (ML) methods. Assuming that the idiosyncratic disturbance terms (ω) are normally distributed with $E(\omega)=0$, the finite distribution of ξ is estimated non-parametrically (Heckman and Singer, 1984). Specifically, we use the estimated four-point discrete distribution for ξ, and estimate the intermediate point as well as the probability mass at each point (the two extreme points are normalized to 0 and 1).

One of the advantages of this method over the previous IV literature is that it explicitly (rather then implicitly) accounts for the endogeneity of past choices. As Ichimura and Taber (2002) and Hotz *et al.* (2002) recently show, the nonparametric procedure to account for ξ_i, combined with the dynamic selection structure of the model, implies that $E(\omega_{it}^W \mid X_{it}^W, Z_{it-1}^W, MS_{it}^W, \xi_i) = 0$. This is

because the choices that led to the present accumulation of labor market experiences and marital statuses at age t are accounted for, given that the initial condition

$$E(\xi_i \mid X^W_{i,16}, Z^W_{i16}, MS^W_{i,17},) = 0,$$

holds. This is a plausible assumption in our case because at age 16, less than one percent of youth have been married, and 89 percent are still in school. The panel data created in this study allows us to model all subsequent work and family choices and thereby allow ω_i to be uncorrelated with the experience variables at each subsequent age in the estimation process.

5.0 Estimated Impacts on Marital Change, Wages and Hours of Work

5.1 How Marital Status Affects Wage Rates and Hours Worked

The results in Tables 3 and 5 show estimates based on OLS regressions and probits that do not control for selection and on the Dynamic Simulation Control Model that takes account of unobserved heterogeneity and simultaneity. The two continuous dependent variables are log wages and hours worked while the dichotomous dependent variables are entry into marriage (of those single in the prior year), entry into separation or divorce (of those married in the prior year), and entry into remarriage (of those divorced or separated in the prior year).

We begin by examining how the dynamics of marriage, divorce, and remarriage affect wage rates and hours of work. Since earnings are the primary determinant of living standards, it is important to take account of how marital status affects the hours worked component as well as the wage rate component of earnings. The coefficients shown in Table 3 represent the effects of each marital status variable on labor market outcomes relative to remaining never-married. Note that these estimates of marital status effects are net of lagged hours worked as well as an array of human capital, family background, and local labor market variables.

Entry into marriage exerts positive and significant impacts on both wage rates and hours worked. The induced impact on working hours is enormous, raising working hours by 262 hours per year, or an additional 6.5 weeks of full-time employment. The size of the impact is similar with and without controls for selection. The gain in wage rates from entering marriage (relative to remaining never-married) is about 9 per cent, after controlling for selection.[9] This gain is about 75 percent of effect with no controls on unobserved heterogeneity.

Continuing in marriage moderates the hours effect but expands the wage rate effect. Hours worked are still 155 hours per year higher than those remaining single; this is an increase of about 9 percent of the mean annual hours worked. The wage advantage of continuing in marriage reaches 14.6 percent, compared to the never-married, declines to just over 5 percent, when the comparison is with those entering a divorce, but expands to 9 percent, when compared to those continuing in a divorce state. The 9 percent advantage observed for continuing marriage over continuing divorce exceeds the 7.1 percent wage gain from a year of schooling, while the 14.6 percent marriage advantage over single men is equivalent to 2 years of added schooling. Without controls for unobserved heterogeneity, the hours impacts would be similar but the wage impacts would be about 20 percent higher.

As men enter and continue in the state of divorce, hours worked and wage rates both fall sharply. The initial impact of hours involves only about a 40 hour annual reduction compared to those continuing in marriage. However, most divorced men were in a continuing divorce, which meant a reduction of 144 hours worked and only about a 10 hour per year advantage over never-married men. The wage loss relative to continuing in marriage is more sudden. For those entering a divorce, wage rates are about 5 percent lower relative to continuing in marriage. The subsequent

[9] We adjust the coefficients on the dummy variables in Table 4 to take account of the point made by Halvorsen and Palmquist (1980) on the appropriate interpretation of dummy variables in semilog equations.

decline is about another 4 percent. Selection has little effect on the estimates of effects of entering or continuing in divorce.

Entering a remarriage from a divorce induces both large hours worked and wage rate effects. Because the remarried have already divorced and thus differ from those remaining in a first marriage, this finding reinforces our confidence that the marriage premiums are genuine. Working hours rise by about 136 hours per year when moving from a continuing divorce to a remarried state, while wage rates go up by about 4 percent. Not controlling for unobserved heterogeneity would have virtually no effect on the estimate of hours worked but would raise the wage impact by about 25 percent.

Though marriage exerts positive effects on both wage rates and hours worked, the patterns are not quite the same. When men enter a first marriage, their hours of work jump substantially, but then the effect declines as they continue in marriage. On the other hand, wages increase more in a continuing marriage than they do when a man first enters a marriage. One possible reason for differential pattern of wage and hours effects is that wage gains from marriage come as a return on investments that accrue over time, while added hours worked result from motivational factors that peak immediately after a marriage and then settle down to a moderate level.

Another explanation is that the marriage effects on hours worked are measured net of the positive effects of lagged wage rates, which were affected by marital status in the prior year. Some of the marriage-induced added hours worked by those in continuing marriages may come indirectly through the positive effect of lagged wage rates on current hours worked. Those entering a first marriage do not yet have their hours influenced by a marriage-induced increase in wage rates. The marriage coefficients probably understate the full impact of marriage because of the lagged effect of work experience, which exerts a positive impact on both wage rates and subsequent hours worked. Since the marital status coefficients in Table 3 are net of work experience, they do not incorporate the indirect effect of marriage-induced increases in past hours of work. In section 6, we examine

these and other feedback effects of marital and labor force status on the pathways of men over a 10-15 year period.

In the case of divorce, the initial decline in both wages and hours worked (relative to a continuing marriage) is followed by much larger reductions with a continuing divorce. On the other hand, remarriage raises both wage rates and hours worked compared to a continuing divorce.

To illustrate the magnitude of the marriage impact on the contemporaneous wage rates, hours worked, and earnings, consider a man working at $20 per hour, about the median wage for full-time workers in 2003. Using the estimated gains from continuing marriage, the wage rate would rise to $22.92 and hours worked would increase by 155. If initial hours worked were 1900 hours per year, total earnings would rise from $38,000 to $47,100, or 1.24 times the original earnings level. Of the $8,600 earnings gain, we can attribute 61 percent to higher wage rates (at initial hours), 34 percent to higher hours worked (at initial wage rates), and 5 percent to the interaction of higher wage rates and higher hours worked.

Although the marriage earnings advantage is at a maximum when the comparison is between married and single men, the marriage premium remains high when the comparison is with divorced men. Remaining married gives men a 17 percent earnings advantage over remaining divorced. This figure is below the 24 percent marriage premium over single men, but still quite substantial. Even when men embark on a second (or later) marriage, they will generally respond by raising their earnings. Remaining divorced leaves men about 11 percent behind in earnings compared to comparable men who remarry. As noted above, the divorced men resemble the remarried in that both groups had at least one prior marriage and were thus "marriageable" at some point.

These estimates of marriage effects are higher than estimates in some other studies. Our 14.6 percent marital wage rate premium over singles is close to the premiums found by Korneman and Neumark and by Chun and Lee, and well above the wage gains estimated by Gray and by

Cornwall and Rupert. The marital wage premium over divorce is much larger in this study than in the others. More importantly, because we analyzed effects on working hours, our estimate of the total impacts of marriage on earnings well exceed those presented in other studies. Finally, while few studies have examined remarriage, we found that remarriage exerts a sizable positive impact on earnings relative to those remaining divorced.

The results in Table 3 reveal other interesting effects on labor market outcomes that are adjusted for human capital, family background, marital status, as well as unobserved heterogeneity and simultaneity. Black men experienced a 6 percent wage shortfall, while Hispanic men faced no statistically significant wage disadvantage. Hours of work were 25-99 hours per year lower among Hispanic and black males than among white males. As expected, foreign-born men worked longer hours than the native-born, approximately one additional week per year. Higher AFQT test scores are associated with higher wage rates but lower hours worked. Having children lowered hours of work by a modest 9 hours per year for 1-2 children and 29 hours per year for more than 2 children. Perhaps, the required increase in house work offsets any reduction in leisure. The work experience and education variables operate largely as expected. As Heckman and Cameron found, the negative impact of the GED on wage rates actually increases substantially after controlling for selection, from a -5 percent to a -11 percent impact on wage rates.

5.2 How Labor Market Outcomes Affect Marital Status

The long-term decline in the U.S. marriage rates is an important focus of researchers and policymakers[10], a trend some attribute to declining male earnings. This section presents new evidence on how wages and hours worked affect they dynamics of marital status using estimates

[10] See Ellwood and Jencks (2004). Also, note that the preamble to the 1996 welfare reform legislation places great emphasis on the declining marriage rates in the U.S. as a cause of increased poverty and dependency.

from a simultaneous framework that takes account of unobserved heterogeneity and many observed differences among young men.

The results in Table 4 indicate that higher wage rates and longer amounts of work experience generally stimulate entry into marriage, discourage entry into divorce, and raise the likelihood of remarriage. One exception is that past hours worked do not have an impact on entry into divorce. For remarriage, the positive coefficient on lagged wage rates is also not statistically significant. The percentage impacts of lagged wages are larger than the percentage impacts of lagged hours worked. However, the differences are not substantial, except in the case of entry into divorce.

To illustrate the magnitude of these effects, we calculate how 10 percent changes in continuous independent variables and a 0-1 changes in the dummy variables affect the percent change in the probability of the dependent variables. These impacts are evaluated both at the means of other independent variables and at other specified values.

The predicted entry rate into marriage using the coefficients in Table 4 and the mean values of the independent variables is 8.31 percent. A 10 percent increase in the wage rate raises the entry rate to 8.67 percent, about a 4.5 percent increase. A 10 percent increase in hours worked has a similar impact, raising the probability of marriage by 5.3 percent. To examine how wage and hours worked affect marriage entry at other initial levels, we repeat the calculations, assuming the individual is 30 years old and at the mean wage and hours worked of 30 year-olds. The magnitude of the wage impact remains at 4.5 percent, but the hours worked effect rises from 5.2 to 6 percent. When we use the means of independent variables for black males (assuming the individual is black), similar percentage gains emerge from improved wages and work experience, Entry into marriage is predicted to rise by 4.5 percent for a 10 percent wage increase and 5.5 percent for a 20 percent increase in hours worked.

These magnitudes are higher than comparable wage and hours effects on divorce and remarriage. A 10 percent increase wage rates lowered the probability of divorce (among those initially married) by 2.8 percent and raised the probability the probability of remarriage (among those initially divorced or separated) by about 1 percent. The hours worked effects are much larger than wage effects; an additional 10 percent of hours of work lower entry into divorce by 5 percent and raised the entry probabilities into remarriage by 12 percent.

These relationships reveal only the direct effects of labor market outcomes on current marital status. Indirect effects are also possible. For example, the induced marriages resulting from high initial wage rates will raise future wage rates and, in turn, lower divorce rates. Similarly, a positive shock to hours of work will increase marriage entry rates, which will raise hours worked in the future and lower divorce rates. We investigate possible indirect effects in the next section of the paper.

The results capture how factors other than labor market success influence marital status in ways that take account of simultaneity and unobserved heterogeneity. Simple tabulations show that black men are 47 percent less likely to enter a marriage, 47 percent more likely to divorce (if initially married), and 22 percent less likely to remarry (if initially divorced) than non-Hispanic whites. Although the racial differentials in marriage are well known, they are often attributed to differences in the capacity of men to support a family. Surprisingly, the projected black-white differences in probabilities reveal larger marital status gaps, even after taking account of individual differences in human capital, work hours, and family backgrounds. For example, changing the race variable from non-Hispanic white to black (at the mean levels of other independent variables) lowers the probability of entering marriage by 65 percent, raises the probability of entering a divorce by 56 percent, and reduces the probability of entering a remarriage by 33 percent. On the other hand, Hispanic men are not significantly different from non-Hispanic whites with respect to flows into marriage, divorce, and remarriage.

Living in an urban area lowered considerably the percentage who are married, by reducing rates of entering marriage (by 22 percent) and of entering remarriage (by 15 percent) and by raising raise of entering divorce (by 16 percent). Surprisingly, Catholics have a lower rate of entry into a first marriage. The fact that Catholics have no lower rate of entering divorce might be related to our inclusion of separations with divorces. Living in a female-headed family at age 14 reduces the entry into marriage by 10 percent but has no significant effect on divorce or remarriage. In contrast, growing up with a less educated mother actually raises the entry into marriage by about 5 percent, though mother's education has no significant effect on divorce or remarriage. Holding other variables constant, prior family income has little impact; the only significant effect is that higher family income lowers the propensity to divorce. An additional year of schooling exerted only a modest 3 percent on the likelihood of entering marriage, but lowered entry into divorce by 9 percent and raised entry into remarriage by 10 percent.

To examine the robustness of how the labor market and marital status variables interact, we tried a number of specifications including or excluding variables, such as lagged hours in the wage equation. In all cases, the coefficients for the labor market-marital status relationship were robust and changed little or not at all. The findings represent solid evidence for causal impacts of marital status on earnings and of earnings on marriage.

6.0 Simulations of Marriage and Earnings Impacts

With estimates of how marital status affects earnings and how earnings affects marital status flows, we can simulate how shocks to independent or dependent variables affect the pathways of young men as they age. Of special interest are potential feedback effects that generate high long-term, rather than simply short-term wage premiums from marriage. We chose to simulate the pathways resulting from three shocks: 1) a positive change in the preference for being married; 2) an exogenous increase in every male's wage rate; and 3) an exogenous increase in employment growth.

Effects of Simulated Increases in the Utility from Marriage

Raising the value individuals place on marriage and improving the ability of couples to sustain healthy marriages are key objectives of the US policymakers. In pursuit of these goals, the US Department of Health and Human Services is embarking on the Healthy Marriage Initiative to fund a range of activities, including premarital and marriage education classes.[11] Suppose these programs increased the preferences for marriage among young and middle-aged men. What would be the impacts on marriage, divorce, wage rates, hours worked, and earnings over time?

The simulation presented in Table 5, panel A projects an upward shift in each man's utility in the married state beginning at age 25 and lasting through age 38. We display the annual changes by comparing the simulated magnitudes with the base levels of marital and labor force status. The induced changes in marriage in the simulation raise the married percentage by 7 percentage points at age 25, by 15 points at age 28, and by 13 points at age 33. The reason for the decline after age 31 is that some of the added marriages lead to divorces. By age 38, the percent single has declined by 18 percentage points, as marriages are 13 points higher and divorces 5 points higher. At age 37, of those affected in some year by the simulation, 41 percent were married but would have been married even without the simulation and nearly 18 percent were divorced in the simulation but would have mostly been single in the absence of the simulation.

The induced changes in marriage and divorce increase wage rates, hours worked, and earnings in line with the estimates in Table 3. Average earnings for the entire cohort were 3.2-3.6 percent higher as a result of the added marriages and divorces. About one-third of the men changed their marital status in at least one year as a result of this simulation. The earnings gain for these men by their mid-30s was about 11 percent. Almost all of this impact took place among those currently affected by the simulation. Those with simulated-induced marriages at age 37 saw earnings gains of

[11] See http://www.acf.hhs.gov/healthymarriage/ for details on the initiative.

24 percent relative to their base earnings. Earnings increased only about 5 percent among 37 year-olds with simulation-induced divorces. One might have expected a secondary effect whereby the simulation causes an earlier marriage but no long-term difference in marital status. However, the earnings gain for the group affected by the simulation but subsequently in the same marital status was only about 0.3-0.4 percent.

In addition to these simulation-induced effects on earnings, feedback effects might arise if the induced marriage levels increase earnings and the higher earnings reduce divorce. Because earnings gains from marriage exceed the gains from divorce, the higher share staying married should induce a secondary impact on earnings. In fact, while the reduction in divorce associated higher wage rates and hours worked is statistically significant, the effect is small. In a typical year, the decline in the proportion divorcing falls from about 5.7 to 5.4 percent. Since the simulation raises the married share in a typical year by only about 15 percentage points, the cumulative reduction in divorce over a 6-8 year period works out to result in a 0.3 percentage point rise in the married share of men in their late 30s.

For black men, the impacts of raising the utility from marriage on marital status are substantially higher than among white and Hispanic men. About 40 percent of black men change their marital status as a result of the simulation, as compared to 32 percent of other men. The simulation raises the marriage rate of 35-38 year-old black men from 34 to 53 percent and reduces the single share from 46 percent to 18 percent. Those affected by the simulation earn about 15 percent more as of ages 35-38 than they would have; those affected and still married experience higher (25-28 percent) gain in earnings.

Overall, although we find very small feedback effects from the simulated increases in marriage, the contemporaneous effects of higher marriages on earnings are substantial. The average

gain in earnings is about 24 percent for those married because of the simulation and about 11 percent for all affected by the simulation.

Effects of Simulated Increases in Wage Rates and Hours Worked

We now turn to examine the impacts of exogenous wage increases and hours worked on marital status and subsequent wages as young men age. The two separate simulations begin by adding 20 percent to wages or to hours worked at age 21. We next calculate the impact of these changes on marital status, wages, and hours worked at age 22 and then add 20 percent to wages (or hours worked in the hours simulations). We repeat the process at age 23 and subsequent ages by first calculating the wage or hours impacts on marital status, wages, and hours and then again add 20 percent.

The simulated wage gains increased entry into marriage, which, in turn, increase hours of work and raise wages further. The simulated wage increases altered the marital status of 7 percent of men in the sample. As of ages 36-38, about 3 percent more men were married and about 1 percent more are divorced than in the base case. These marital status changes led to further gains in earnings. For all men, the additional gains raised earnings from the initial addition of 20 percent to a long-term increase of 20.7 percent. About 0.6 of the 0.7 percent additional increase took place because of the gains (an additional 20 percent rise in earnings beyond the assumed 20 percent increase) observed for the 3 percent of men who are married in the simulation but not in the base case.

The simulated increase in hours worked has stronger long run effects on marriages and subsequent gains in wage rates and earnings than did comparable wage increases. First, the added hours on the job translated into added work experience, which exerts a positive impact on wage rates. Second, as of ages 36-38, the added hours and resulting modest increases in subsequent wage rates led to an increase in the proportion of men married by nearly 4 percentage points (59.6 to 55.7)

and to a 1 percentage point increase in the share divorced. The combination of the induced wage and marriage effects generated earnings gains of nearly 5 percent beyond the 20 percent increases due to the simulation itself. Among the 9 percent of men who were married in at least one year because of the simulation's added hours and wage rates, the earnings gains amounted to 35 percent, or 15 percent beyond the amount linked to the simulation itself. Still, most of the feedback effect was felt by the other 91 percent, because of the impact of hours worked on subsequent wage rates and the resulting 23.9 percent earnings gain (3.9 percent higher than the assumed 20 percent).

Overall, about 72 percent of the extra gain (i.e., the gain beyond 20 percent) resulted from the impact of added hours on subsequent wage rates among those who did experience a change in marital status due to the simulation. The remaining 28 percent came indirectly as the simulated rise in work hours increased or sped up marriages, which, in turn, led to higher wage rates, hours worked and earnings. Thus, the simulation yielded a kind of virtuous cycle, with added hours of work leading to higher wages, both leading to an increase in marriage, and then a subsequent rise in earnings.

The feedback effects of the hours simulation were qualitatively similar but slightly higher for black men than for other young men. The added hours increased work experience, wage rates, and marriage. As of ages 36-38, about 8 percent had their marital status affected in at least one year and the share married at that point rose from 34 to 38 percent. As with the sample as a whole, about 70 percent of the feedback effect resulted simply from the impact of added hours worked on subsequent wages for those whose did not change marital status in the simulation. The remaining 30 percent involved the chain of effects noted above—from hours to wages, from gains in both to marriage, and from marriage to further gains in both hours and wages.

7.0 Conclusions

The interactions between marital status and labor force outcomes are complex and dynamic. Although the association between marriage and earnings is highly positive, questions arise about causation and about the possibility that unmeasured personal attributes, such as good looks, a positive outlook and a sense of humor, might increase success both in marriage and in the job market. To take account of simultaneity and unobserved heterogeneity, we use modern econometric techniques to estimate jointly the determinants of the wages, working hours, and flows into marriage, divorce, and remarriage. The estimates cover young men as they age from 17 in 1979 to their late 30s/early 40s in 2002, following each individual through all marital status changes over a 23 year period. Most studies of the marriage premium focus exclusively on wage rates, while this analysis deals with effects on working hours as well. As a result, we project marriage effects on labor market status than are more extensive than those described in other studies.

The findings reveal statistically significant, causal impacts running from marriage to wage rates and working hours, from working hours to subsequent wages, and from both wage rates and working hours to marital status. Especially powerful are the large positive impacts of entering marriage and remaining married on wage rates and working hours. The marriage wage effect is larger for continuing marriage while the hours worked effect is larger for entering marriage. Putting the wage and hours effects together, we see earnings gains of 21-24 percent caused by entering or remaining married as compared to staying single. The marriage effect relative to divorce remains substantial, about 17 percent; and remarriage leads to an 11 percent advantage over those remaining divorced. Marriage effects of these magnitudes are equivalent to earnings gains associated with 1.7-2.4 years of schooling, depending on whether the comparison is with divorced or with single men.

The reverse effect, that success in the labor market raises the likelihood of entering and remaining married and of remarrying, is significant but smaller in magnitude. Increases in hours

worked exert larger percentage impacts on marital flows than do increases in wage rates. The higher hours impacts are especially notable in reducing divorce and increasing remarriage.

To capture the long-term, quantitative changes in earnings and marital status implied by these results, we simulated how exogenous changes in the utility from marriage, in wage rates, and in working hours would alter the pathways of young men. Our simulation of an exogenous increase in utility from marriage raises the married proportion of men and speeds up entry into marriage. Although the higher utility in marriage reduced divorce among those who would have married anyway, the overall percentage of divorce men goes up because the added marriages mean more men were at risk of divorce. The added and earlier marriages increased wage rates (by 14 percent), hours worked (by 9 percent), and earnings (by 24 percent) for those who were married instead of being single. Gains in earnings also accrued to those who were divorced instead of single. Nearly all of these gains were contemporaneous impacts of marital status. The expected feedback effects of marriage on hours worked (and thus subsequent wages) or of marriage on wage rates (and thus reducing divorce) were quite limited.

The simulated exogenous increases in wage rates and working hours yielded similarly modest, short-term effects but different long-term effects. The married proportions of men were 3 percentage points higher in response to 20 percent higher wage rates and 4 percentage in response to 20 percent higher working hours. As for long-term and feedback effects, increased wage rates were of minimal importance, but increased hours led to higher work experience and higher subsequent wage rates.

What are the implications of these large causal impacts of marriage, wage rates, and hours worked? First, marital status should become more important in the analysis of labor market outcomes and trends. For example, the declining share of married men might well have contributed to the rising earnings inequality and to the stagnancy of wages of less-skilled men. Second, though

exogenous improvements in labor force outcomes will generate more and more stable marriages, the magnitude of the effects are likely to be small. Third, given the large and positive impact of marriage on men's earnings, many of the unmarried men who appear unable to support a family because of low current earnings could become adequate breadwinners once they marry. Thus, if proposed programs are able to increase the utility from and appreciation of marriage, they are likely to generate earnings gains for men as an important side effect.

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Appendix A: Filling in Information for Post-1994 Non-Interview Years

This analysis uses the NLSY79 from 1979 to 2002. Hence, we have to adjust the data after 1994 (when the NLSY79 conducted only biannual interviews). Fortunately, the NLSY includes work-history array on a weekly basis that allowing recovering information on all job related variables, and good information on dates of marital statuses changes, and birth. We could not calculate comparable information for schooling and location variables. Below we explain how we construct the key variables of our analysis.

The NLSY79 work-history includes variables on work activities (including hours worked, job change, and wage) for each week of the 1,304 weeks, starting from January 1978 to December 2002. To obtain the correct number of hours worked or weeks worked in each calendar year, we simply looped through each of the 52 weeks and calculated a running sum.

Prior to 1994, hourly wage and job tenure are those reported for the current job. For those men that are not employed during the interview week, the primary job is the longest job in the year prior to the interview week. The wage is the last hourly wage earned on this job, and job tenure is zero. For the odd-post-1994 years, we use the following method. First, we designate a "quasi-interview" week, exactly 52 weeks prior to the actual interview week in the subsequent year. Second, we code the start and end weeks for each job. Third, we determine hourly wage and job tenure for the odd (post-1994 years) similarly to the method describes above.

The NLSY reports the exact date of each change in marital status. Again, we linked the change in marital status to the dates of the most recent interview, and to the date of the "quasi-interview". Those events taking place within 52 weeks prior to the interview week were current year transitions. If the transitions occurred more than 52 weeks before the even-year interview, then we coded that change as having occurred in the odd-year.

For the following variables, we could not record changes in the odd-post-1994 years. County of residence (say, in 1999) was set equal to the county where the individual lived in the subsequent even-year (say, 2000). Once we specified the county of residence for the odd-post-1994 year (say, 1999), we used the relevant year's (say, 1999) information on county variables, such as county employment growth and unemployment rates. For highest grade completed in the odd-post-1994 years, we used the grade achieved as of the subsequent even-year. If the difference between two even post-1994 year (say, 1996 and 1998) is two, we set the odd year to the mean between the two years (total of only 90 cases). Note that at the ages reached by cohort members after 1994, only 450 observations-years are in school.

Appendix Table B: Variables Descriptions

Variable Name	Description	Appears in Equations	Means
DEPENDENT AND ENDOGENOUS VARIABLES			
Marital Status	Marital status of R: single, new marriage, cont. marriage, new divorce, cont. divorce, new remarriage	6	2.14
Ln of Hourly Wage Rate	Ln of Hourly Wage Rate	7	1.85
Annual Hours Work	Annual Hours Work, cap at 3,120	8	1,731
SELECTED INDEPENDENT VARIABLES			
Ascribed Traits and Scholastic Aptitude (X)			
Age	Age at the beginning of the year	6,7,8	28.18
Black	Dummy variable indicating African American	6,7,8	0.28
Hispanic	Dummy variable indicating Hispanic	6,7,8	0.20
Foreign	Dummy variable indicating Foreign born	8	0.07
AFQT	Armed Forces Qualify Test score (Age and scale adjusted to 1,10 interval)	6,7,8	3.00
Family Background (X)			
Family Income	Total annual family income in 1979 ($1,000,000)	6,7,8	0.02
Mother's Education	Highest grade completed (in years) by R's mother	6,7	10.94
Number of Siblings	Number of living siblings in 1979	6	3.79
Female-Headed Household	Dummy, R lived in a female-headed household at age 14	6	0.18
Social Affiliation and Pre-work Experience (X)			
Illegal Activities	Had any illegal activity by age 17	7,8	0.14
Baptists Religion	Self response as practice Baptists religion	6	0.27
Catholic Religion	Self response as practice Catholic religion	6	0.35
Frequency of Church Att.	Frequency of religious attending in 1979 (6 points scale, with 6 as highest)	6	3.20
Highest grade completed	Highest grade comp. through the beginning of this year	6,7,8	12.48
In School	Attending school at the Interview date	7,8	0.17
GED	Received GED	7	0.09

Appendix Table B: Variables Descriptions (continued)

Variable Name	Description	Appears in Equations	Means
Local Market Conditions (X)			
Resident in Urban area	R. is presently resident in Urban area	6,7,8	0.79
County Average Earnings	Average earnings per job, county of residence ($1,000)	6,7	14.17
County Empl. Growth	Percent employment growth in R's county of residence	7,8	0.02
County Unemployment Rate	Unemployment Rate in R's county of residence	8	6.88
County Marriage Rate	Marriage rates per 1,000, County of residence	6	10.13
County Divorce Rate	Divorces rates per Marriages, County of residence	6	0.51
Work Experience and Education Indicators (Z)			
Work Experience	Weeks (divided by 52) worked from age 17 to this year	6	8.39
Accumulated Hours	Total hours worked (in 1,000) from age 17 to this year	6,7	17.85
Number of Jobs	Total number of jobs ever reported	7	7.96
Tenure	Tenure with current employer (weeks divided by 52)	8	3.16
Ln wage prior year	Lag of Hourly Wage Rate from prior year	6,8	1.82
Marital and Family Statuses (MS)			
New Marriage	Those who married for the first time during this calendar year	7,8	0.03
Continuing Marriage	Those who continue to be married in the current year (including second marriages)	7,8	0.34
New Divorce or Separation	Those who divorced or separated during this year	7,8	0.02
Continuing Divorce or Separation	Those who continue to be divorced or separated during the current year	7,8	0.08
New Remarriage	Those who remarried during this calendar year	7,8	0.01
One or Two Child	Has one or two children at the beginning of this year	7,8	0.35
Three or more children	Has three or more children at the beginning of this year	7,8	0.12
Spouse Grade	Spouse Grade, just if spouse exists	8	12.75

Table 1: Annual Marital Status Flows of Men, Ages 17 to 40

Age	From Single to Single	From Single to First Marriage	From Marriage (or Remarriage) to Marriage	From Marriage (or Remarriage) to Divorce	From Divorce to Divorce	From Divorce to Remarriage	Share in First Marriages
17	99.4	0.6	0.0	0.0	0.0	0.0	0.6
18	97.5	2.1	0.4	0.1	0.0	0.0	2.5
19	93.7	4.3	1.9	0.1	0.0	0.0	6.2
20	87.9	5.7	5.6	0.7	0.1	0.0	11.3
21	83.0	5.1	10.0	1.3	0.7	0.1	15.0
22	76.8	6.2	13.7	1.5	1.5	0.4	19.8
23	68.8	8.2	18.5	1.6	2.3	0.6	26.2
24	61.9	7.1	25.3	1.9	3.2	0.6	31.4
25	54.7	7.3	31.0	2.1	4.2	0.8	36.9
26	48.6	6.1	36.8	2.4	5.2	1.0	40.9
27	44.0	4.6	41.1	2.6	6.4	1.4	43.3
28	40.2	3.9	44.3	2.8	7.4	1.4	44.6
29	36.6	4.1	46.9	2.3	8.7	1.4	46.5
30	33.9	2.7	49.8	2.4	9.6	1.6	47.1
31	31.6	2.2	52.1	2.2	10.9	1.1	47.9
32	29.0	2.5	53.7	1.8	11.7	1.3	49.4
33	27.0	1.6	55.6	2.3	12.3	1.3	49.6
34	25.3	1.8	56.6	1.8	12.7	1.8	50.0
35	23.9	1.6	58.4	1.7	13.4	1.1	50.4
36	22.8	1.2	59.0	2.2	13.6	1.3	50.3
37	21.6	1.3	59.2	2.2	14.0	1.8	49.8
38	19.9	1.4	60.4	2.2	14.7	1.4	50.2
39	19.1	0.3	61.4	1.6	15.8	1.8	50.2
40	17.7	0.4	63.3	1.6	15.1	1.9	50.7

Annual Rates of Inflow Into Marriage, Divorce, and Remarriage by Age Group

Age	Entry Rate Into 1st Marriage From Single Status	Entry Rate Into Divorce from Marriage or Remarriage	Entry Rate Into Remarriage from Divorce
19-21	5.4	10.5	20.7
24-26	11.0	6.4	15.8
29-31	8.1	4.4	12.1
34-36	5.9	3.2	9.4
39-40	1.9	2.5	10.7

Source: Tabulations by authors from the NLSY79 sample of 2,863 males described in the text. The data are weighted to correct for the oversampling of black and Hispanic respondents.

Table 2: Work Outcomes by Age and Marital Status for 1960-1962 Cohort

Panel A: Hourly Wage (in 1985 $), Ratios to Single Men in Parentheses

	Full Sample				Black Men			
Age	Single	Married	Divorced	Remarried	Single	Married	Divorced	Remarried
20	$5.56	$6.66	$5.08	na	$4.66	$5.53	$3.60	na
	(1.00)	*(1.20)*	*(0.91)*		*(1.00)*	*(1.19)*	*(0.77)*	
24	6.86	7.52	7.08	7.66	5.61	6.17	7.39	2.51
	(1.00)	*(1.10)*	*(1.03)*	*(1.12)*	*(1.00)*	*(1.10)*	*(1.32)*	*(0.45)*
28	8.55	10.12	8.20	11.61	6.52	7.19	6.98	6.31
	(1.00)	*(1.18)*	*(0.96)*	*(1.36)*	*(1.00)*	*(1.10)*	*(1.07)*	*(0.97)*
32	8.74	10.48	7.10	9.88	6.55	8.58	5.57	7.62
	(1.00)	*(1.20)*	*(0.81)*	*(1.13)*	*(1.00)*	*(1.31)*	*(0.85)*	*(1.16)*
36	9.26	12.61	9.07	10.41	6.17	9.01	8.24	8.66
	(1.00)	*(1.36)*	*(0.98)*	*(1.12)*	*(1.00)*	*(1.46)*	*(1.34)*	*(1.40)*
40	11.05	16.38	9.48	10.85	6.28	9.77	8.41	9.30
	(1.00)	*(1.48)*	*(0.86)*	*(0.98)*	*(1.00)*	*(1.55)*	*(1.34)*	*(1.48)*

Panel B: Hours Worked Past Year, Ratios to Single Men in Parentheses

	Full Sample				Black Men			
Age	Single	Married	Divorced	Remarried	Single	Married	Divorced	Remarried
20	1,282	1,978	1,260	na	998	1,683	1,225	na
	(1.00)	*(1.54)*	*(0.98)*		*(1.00)*	*(1.69)*	*(1.23)*	
24	1,712	2,101	1,954	2,196	1,382	1,779	1,645	1,880
	(1.00)	*(1.23)*	*(1.14)*	*(1.28)*	*(1.00)*	*(1.29)*	*(1.19)*	*(1.36)*
28	1,892	2,238	1,994	2,271	1,467	2,072	1,700	2,321
	(1.00)	*(1.18)*	*(1.05)*	*(1.20)*	*(1.00)*	*(1.41)*	*(1.16)*	*(1.58)*
32	1,783	2,306	1,962	2,098	1,334	2,027	1,657	1,818
	(1.00)	*(1.29)*	*(1.10)*	*(1.18)*	*(1.00)*	*(1.52)*	*(1.24)*	*(1.36)*
36	1,887	2,303	2,047	2,160	1,468	2,134	1,669	1,942
	(1.00)	*(1.22)*	*(1.08)*	*(1.14)*	*(1.00)*	*(1.45)*	*(1.14)*	*(1.32)*
40	1,720	2,282	2,003	2,134	1,285	2,124	1,689	1,886
	(1.00)	*(1.33)*	*(1.16)*	*(1.24)*	*(1.00)*	*(1.65)*	*(1.31)*	*(1.47)*

Source: Tabulations by authors from the NLSY79 sample of 1,446 males born in 1960-62. The data are weighted to correct for the oversampling of black and Hispanic respondents..

Table 3: Impacts of Marital Status and Other Determinants of Wage Rates and Hours Worked: Simulataneous Models With and Without Adjustments for Selection

	Ln Hourly Wages		Hours Worked	
	Not Adjusted for Selection	Adjusted for Selection	Not Adjusted for Selection	Adjusted for Selection
Factor Loading		0.7563***		34.7165***
Constant	0.5370***	0.0168	2697***	2681***
Entry into marriage	0.1178***	0.0881***	261.9***	261.8***
Continuing marriage	0.1746***	0.1361***	154.8***	155.7***
Entry into divorce	0.1056***	0.0879***	114.6***	115.5***
Continuing divorce	0.0572***	0.0543***	10.0*	10.9*
Entry into remarriage	0.1192***	0.0910***	146.3***	146.7***
Work Experience (weeks)			237.9***	238.1***
Experience squared			-6.2***	-6.2***
Work Experience (hours)	0.0239***	0.0207***		
Experience squared	-0.0002***	-0.0002***		
Job Tenure	0.0124***	0.0094***	36.0***	36.0***
Number of Jobs	-0.0047***	-0.0027***	9.8***	9.9***
Lag of Log of Hourly Pay			16.6***	5.6
Age	-0.0050**	0.0033*	-128.0***	-128.0***
Age Squared	-0.0002***	-0.0002***	0.791***	0.785***
Black	-0.0443***	-0.0608***	-99.1***	-100.3***
Hispanic	0.0111***	-0.0034	-25.4***	-25.8***
Foreign Born			45.6***	45.4***
AFQT	0.0259***	0.0237***	-3.08***	-2.89**
Family Income, 1979	1.7307***	0.1873**	978.8***	931.2***
Missing Family Income	0.0529***	-0.0233***	58.9***	56.1***
Illegal	0.0014***	0.0012**	-61.1***	-60.1***
Mother's Education	0.0283***	0.0502***		
Highest Grade Completed	0.0569***	0.0726***	43.3***	44.5***
In School	-0.2074***	-0.1998***	-566.4***	-568.4***
GED Level	-0.0496***	-0.1143***		
One or two children			-9.6**	-10.5**
Three or more children			-30.0***	-31.0***
Residence in Urban Area	0.0178***	0.0133***	-14.6***	-14.5***
County Average Earnings	0.0290***	0.0242***		
County Employment Growth	0.0032***	0.0009*	1.89**	1.80**
County Unemployment Rate			-7.32***	-7.41***

Note: These represent estimates of equations (7) and (8), as discussed on page 17.
Source: Estimates based on NLSY79 data on 2,863 men from 1979 through 2002.

Table 4: Impacts of Wage Rates, Hours Worked and Other Determinants on Marital Status Transitions: Simultaneous Models, With and Without Adjustments for Selection

	Entry into marriage		Entry into divorce/separation		Entry into remarriage	
	Not Adjusted for Selection	Adjusted for Selection	Not Adjusted for Selection	Adjusted for Selection	Not Adjusted for Selection	Adjusted for Selection
Factor Loading		0.0291		-0.0173		0.1287
Constant	-4.4817***	-4.4980***	-0.1016	-0.0931	2.4373**	2.4285**
Work Experience	0.0379***	0.0380***	-0.0148**	-0.0148**	0.0275**	0.0284**
Experience squared	-0.0005***	-0.0005***	0.0001	0.0001	-0.0003	-0.0003*
Lag of Log of Hourly Pay	0.2424***	0.2342***	-0.1406**	-0.1340**	0.1002*	0.0542
Age	0.2363***	0.2366***	-0.0132	-0.0136	-0.2394***	-0.2406***
Age Squared	-0.0050***	-0.0050***	0.0002	0.0002	0.0028**	0.0028**
Black	-0.3472***	-0.3482***	0.2673***	0.2679***	-0.1744**	-0.1798**
Hispanic	0.0220	0.0218	-0.0217	-0.0213	0.0319	0.0337
AFQT	-0.0263***	-0.0263***	-0.0150*	-0.0152*	0.0065	0.0072
Family Income, 1979	-0.6903	-0.7277	-1.7552*	-1.7283*	-2.2403	-2.3367
Missing Family Income	0.0561*	0.0543*	0.0254	0.0272	-0.0707	-0.0869
Mother's Education	-0.0135**	-0.0135**	-0.0011	-0.0011	-0.0035	-0.0035
Siblings	0.0011	0.0011	-0.0274***	-0.0274***	-0.0063	-0.0064
Female Headed Household	-0.0617*	-0.0617*	-0.0087	-0.0092	-0.0075	-0.0039
Residence in Urban Area	-0.1324***	-0.1325***	0.0660*	0.0659*	-0.0931*	-0.0903*
Highest Grade Completed	0.0136**	0.0145**	-0.0414***	-0.0421***	0.0534***	0.0577***
Baptist Religion	-0.0151	-0.0156	0.0583*	0.0589*	-0.0478	-0.0515
Catholic Religion	-0.1044***	-0.1047***	-0.0095	-0.0089	-0.1856**	-0.1889**
Frequency of Church Attendance, 1979	0.0129*	0.0131*	-0.0199**	-0.0199**	0.0136	0.0148
County Average Earnings	-0.0118***	-0.0117***	0.0015	0.0014	-0.0133*	-0.0131*
County Marriage Rate	0.0034*	0.0034*			0.0078	0.0076
County Divorce Rate			0.4069***	0.4082***		
Spouse Grade			-0.0142*	-0.0141*		
One or two children			-0.1872***	-0.1869***	0.0897*	0.0842
Three or more children			-0.2326***	-0.2323***	0.2420***	0.2372**

Table 4 (continued)

Estimates of Common Unobserved Factors in Full Model with Simultaneity and Selection Adjustments

Support Point 1	0.0000	Prob Mass for Pt 1	0.2510***
	(0.0000)		(0.0097)
Support Point 2	0.4688***	Prob Mass for Pt 2	0.5592***
	(0.0032)		(0.0108)
Support Point 3	1.0000	Prob Mass for Pt 3	0.1898
	(0.0000)		(0.0000)

Note: These represent estimates based on equation (6), as discussed on page 17.

Source: Estimates from unweighted simulataneous models described in the text using NLSY79 data on 2,863 men.

Table 5: Simulated Effects of Raising the Utility of Marriage, Wage Rates, and Hours Worked

	Age										Average
	20	22	24	26	28	30	32	34	36	38	
Base Level											
Single	87%	78%	66%	54%	45%	38%	32%	28%	26%	26%	48%
Married	12%	20%	29%	38%	44%	50%	54%	55%	56%	54%	42%
Divorced	1%	2%	5%	8%	11%	12%	14%	17%	18%	20%	11%
Hours Worked	1,212	1,426	1,660	1,820	1,926	2,004	2,057	2,086	2,073	2,009	1,841
Ln Wage	1.535	1.653	1.770	1.857	1.919	1.980	2.034	2.088	2.122	2.137	1.914
Effects of Raising the Utility of Marriage, Age 25 and Beyond (percentage points on marital status, % change for hours and wage rates)											
Single			0.0	-12.0	-16.0	-18.0	-18.0	-17.0	-18.0	-18.0	-15.3
Married			0.0	11.0	15.0	14.0	14.0	13.0	13.0	13.0	12.1
Divorced			0.0	1.0	2.0	4.0	4.0	5.0	5.0	5.0	3.2
Hours Worked			0.0%	1.3%	1.2%	1.2%	1.1%	1.0%	1.0%	1.0%	1.1%
Wage Rate			0.0%	1.4%	2.2%	2.3%	2.4%	2.2%	2.2%	2.2%	1.9%
Effects of Raising Wage Rates by 20%, Age 25 and Beyond (percentage points on marital status, % change for hours and wage rates)											
Single	0.0	-1.0	-1.0	-2.0	-2.0	-3.0	-2.0	-3.0	-2.0	-3.0	-2.2
Married	0.0	0.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0	3.0	2.0
Divorced	0.0	1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.1
Hours Worked	0.0%	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%
Wage Rate	0.0%	**20.0%**	**20.2%**	**20.3%**	**20.4%**	**20.4%**	**20.4%**	**20.4%**	**20.3%**	**20.4%**	20.3%
Effects of Raising Hours Worked by 20%, Age 21 and Beyond (percentage points on marital status, % change for hours and wage rates)											
Single	0.0	0.0	0.0	-1.0	-2.0	-2.0	-2.0	-3.0	-2.0	-3.0	-1.7
Married	0.0	0.0	1.0	1.0	2.0	3.0	3.0	4.0	4.0	5.0	2.3
Divorced	0.0	1.0	-1.0	0.0	-1.0	0.0	-1.0	-1.0	-2.0	-2.0	-0.6
Hours Worked	0.0%	**20.1%**	**20.1%**	**20.2%**	**20.2%**	**20.3%**	**20.3%**	**20.3%**	**20.4%**	**20.4%**	20.2%
Wage Rate	0.0%	0.5%	1.5%	2.5%	3.3%	3.9%	4.3%	4.3%	3.9%	3.3%	3.0%

Note: The simulated impacts presented in this table are based on the selection-adjusted results shown in Tables 3 and 4 and the NLSY79 sample of 2,863 males.