

Economic Restructuring and the Retreat From Marriage

Daniel T. Lichter

Department of Sociology
The Ohio State University
Columbus, OH 43210

Diane K. McLaughlin

Department of Agricultural Economics and Rural Sociology
Pennsylvania State University
University Park, PA 16802

David C. Ribar

Department of Economics
George Washington University
Washington, DC 20052

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Mailing Address: Daniel T. Lichter, Department of Sociology, 314 Bricker Hall, The Ohio State University, Columbus, OH 43210; phone: 614-292-2308; e-mail Address: lichters.5@osu.edu. Earlier versions of this paper were presented at the NICHD conference on "The Ties that Bind: Perspectives on Marriage and Cohabitation," Bethesda, Maryland, June 29-30, 1998, and at the Institute for Research on Poverty Summer Workshop, Madison, WI, June 14-17, 1999. This research was supported by a grant from a cooperative agreement (No. 43-3AEN-3-80141) from the Economic Research Service, U.S. Department of Agriculture. Support was also provided by a Population Research Center Core Grant (P30 HD28263-01) from the National Institute of Child Health and Human Development to the Population Research Institute, The Pennsylvania State University, and by the Russell Sage Foundation. We also acknowledge the helpful computing assistance of Erica Gardner

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Abstract

Few if any empirical studies have adequately accounted for or “explained” the rapid and apparently on-going changes in the American family, especially during the recent period of economic expansion. Our objective is to link recent U.S. marriage trends to changes in the employment and earnings of the marriage-eligible population, in state welfare benefit levels, and in macroeconomic performance which are played out differently in regional economies (i.e., states). Specially, we link pooled cross-sectional data from the Census Bureau’s 1986 through 1996 annual demographic supplements of the March *Current Population Survey* (CPS) to state-year specific indicators of economic performance now available in the *Regional Economic Information System* (REIS). Our results, based on regression switching models, provide little evidence that the recent economic recovery has slowed or reversed the longstanding decline in marriage in the United States. The downward trend continued even as the overall “marriage premium” — the difference in income between single women and married couples — grew over the study period. Additional sensitivity analyses indicate that post-1990 delays in marriage continued to be widely observed across diverse female population groups, including disadvantaged women that have been the target of social policies that promote marriage (e.g., recent welfare reform legislature). Our results clearly call into question the appropriateness of monocausal economic explanations of declining marriage, which typically emphasize the blurring of traditional gender roles regarding work and family life in the United States.

Economic Restructuring and the Retreat from Marriage

Introduction

Marriage is on the public policy agenda, in part because it is increasingly viewed -- rightly or not -- as a panacea for society's most pressing social problems (Popenoe 1996; Ooms 1998; Waite 1995). For example, declining marriage rates have been largely responsible for the post-1960s rise in nonmarital fertility ratios and, by implication, the increasing "feminization" of poverty (Smith, Morgan, and Koropecj-Cox 1996). Single and divorced mothers — compared with married women --- experience much lower standards of living and higher rates of poverty. Racial divergence in family structure (i.e., female-headship) has also slowed progress toward racial economic equality (Eggebeen and Lichter 1992). Children and adolescents raised in married-couple families, on average, have clear emotional and cognitive advantages over children from single-parent families (McLanahan and Sandefur 1994; Thompson, Hansen, and McLanahan 1994). Youth growing up in single-parent families are at greater risk of delinquency, school dropout, and teenage pregnancy and childbearing. For adults, marriage seems to confer physical and emotional health advantages and promote longevity (Waite 1995; Smith and Waitzman 1994); marriage provides social support and buffers the deleterious health effects of stress. Marriage also may make men more productive in the workplace (Gray 1997). The message seems clear: marriage is good for society.

Paradoxically, marriage as an institution has seemingly declined at the same time that our awareness of the individual and societal benefits of marriage has grown. Indeed, a voluminous literature on the "retreat from marriage" has provided a rather clear picture of its most salient

dimensions. Over the past generation, first marriage rates have declined sharply, median age at first marriage has shifted upward, permanent singlehood has increased, remarriage rates have plummeted, and cohabitation has supplanted marriage as the first co-residential union experience for most young adults (Cherlin 1992; Moffitt 1998; Schoen and Weinick 1993). To slow or reverse these trends, some observers are now calling for public policies that are “marriage-friendly” rather than benign or indifferent to family change and instability. They recommend, for example, that public policies containing economic disincentives to marriage (e.g., in the tax code and in the welfare safety net) should be revised or removed, and existing marriages should be strengthened through appropriate legislative action and social policy. This may include social policies that strengthen the economic underpinnings of marriages through work supports, such as minimum wage legislation, family leaves, and child care subsidies. But it may also include other family policies that make divorce more difficult to obtain (e.g., covenant marriages), or that address potential risks associated with non-marriage (e.g., health care or home visitation for children in low income single-parent families).

To be effective and appropriately targeted, however, social policy will require an up-to-date and accurate understanding of how changes in the incentives to marry have contributed to changing patterns of marriage and family instability in the United States. Unfortunately, few if any empirical studies have adequately accounted for the rapid and apparently on-going changes in the American family, especially during the post-1990s period of economic expansion. Our paper addresses this void. Its main objective is to link shifting marriage patterns to recent changes in the employment and earnings of the marriage-eligible population (i.e., changes in the economic resources brought into the marriage market), in state welfare benefit levels, and in macroeconomic performance (i.e., industrial restructuring)

that are played out differently in regional economies and, ultimately, in patterns of marital behavior. Previous areal or multi-level studies have focused on changing local employment or earnings (e.g., local pools of economically-attractive men), but have rarely conceptualized such change as proximate determinants that mediate sectoral shifts in local labor markets (McLaughlin, Gardner, and Lichter 1999; Blau, Kahn, and Waldfogel 2000). Our approach, which addresses this limitation, links pooled cross-sectional data from the Census Bureau's 1986 through 1996 annual demographic supplements of the March *Current Population Survey* (CPS) to state-year specific indicators of economic performance now available in the *Regional Economic Information System* (REIS). Moreover, few if any previous studies have evaluated changing patterns of marriage over the economic boom period of the post-1990s, a situation that is remedied here.

Lessons About Marriage from the 1990s

The predominant theoretical paradigm of declining marriage has emphasized the changing economic roles of men and women, especially the blurring of the traditional gender division of labor (Becker 1981; Oppenheimer, Kalmijn, and Lim 1997; Goldscheider and Waite 1985). Apparent declines in household specialization, with men involved in the wage labor market and women in home activities, have eroded the traditional economic basis of marriage. Virtually all demographic studies -- contemporary and historical -- have stressed the link between economic incentives and marital behavior (Dixon 1971; Ruggles 1994; Lichter, McLaughlin, and LeClere 1991). This is apparent in studies of family formation that (a) emphasize linkages between capital assets (e.g., landownership) and men's ability to marry (Landale 1989; Landale and Tolnay 1991); (b) stress local shortages of economically-

attractive men (Brien 1997; Wood 1995); (c) emphasize that declining marital incentives have gone hand in hand with women's entry into the workplace and the rise in real wages (i.e., the "independence hypothesis") (Clarkberg 1999; McLanahan and Casper 1995); and (d) argue that welfare benefits have created economic disincentives to marriage among low-income populations (Moffitt 1992; Lichter, McLaughlin and Ribar 1997). Our working assumption is that marital opportunities and constraints are inextricably linked to national economic and employment restructuring, which are played out in regional and local employment opportunities and wage rates.

Our review of existing empirical studies provides at least three important lessons about contemporary U.S. marriage patterns. The first lesson is that virtually all recent studies are based on pre-1990 data, and none have adequately accounted for changing marriage patterns over time. Instead, most studies rely on behavioral models that link marital transitions to individual economic traits -- like earnings or welfare use -- or to characteristics of spatially-based marriage markets at a given point in time (usually before 1990 and rarely for changes in market conditions). Moreover, recent studies of marriage trends rarely acknowledge the upswing in the economy during the mid-1990s -- such as low and declining unemployment rates, unprecedented job growth, the rise in the minimum wage, the rapid expansion of the earned income tax credit, declining gender wage inequality, and the growth in real wages -- which, we argue here, has altered the economic incentives of marriage, both for men and women.¹ If the recent "retreat from marriage" is rooted largely in economic restructuring, then marriage in the 1990s may now respond in a *positive* way to improving marital opportunities and changing economic incentives. Evidence to the contrary constitutes an implicit challenge to the traditional economic paradigm.

A second lesson is that most recent studies, lacking up-to-date time-series data, have been unable to link sectoral restructuring of local or regional labor markets to changing marriage patterns. National studies linking economic change and marriage arguably mask what appear to be increasing differences in macroeconomic performance across geographic space (Massey 1996; McLaughlin et al. 1999). This new spatial inequality -- resulting from deindustrialization and industrial restructuring -- may be revealed in growing spatial differences in marriage incentives and constraints. Moreover, we are unaware of any empirical studies that have linked *changes* in labor market conditions to *changes* in marriage patterns during the 1990s. How has sectoral restructuring contributed to the changing marital status distribution of American women? And how is restructuring linked indirectly through individual traits -- such as employment or earnings -- that increase or decrease attractiveness in the marriage market?

These are important questions. Modernization or industrialization are sometimes used as catchall concepts that explain historical shifts in family structure, particularly as America as moved from an agrarian society to an industrial society and beyond (Espenshade 1985; Albrecht and Albrecht 1997). For example, rural and agricultural societies, characterized by strong familial and residential ties, typically have much higher marriage rates than urban industrial societies. Have contemporary sectoral shifts similarly affected U.S. marriage patterns over the past 10 years, as the economy has churned out a bifurcated distribution of service and retail sector jobs in place of declining numbers of manufacturing jobs? The shift to a service economy -- with low pay and job security -- arguably provides a weak basis for getting and staying married. It also suggests an alternative hypothesis to the view that today's "good" economy has been marriage-enhancing.

A third general lesson is that few studies have linked employment and earnings changes to marriage patterns among *different segments of the U.S. population* (Moffitt 1998). This is an especially important task for the 1990s. The economy in the 1990s is much different -- more fragmented -- from the economy of earlier decades. On the one hand, unprecedented job growth and historic lows in unemployment rates imply some improvement in the pool of economically attractive men for women to marry. On the other hand, the benefits of deindustrialization and restructuring have been uneven. Income inequality has increased over time, and real wages have fallen for low-skilled and low-educated men while opportunities for women, especially better-educated women, have improved (Levy 1998). Moreover, there is continuing convergence in the earnings of men and women — the wage gap in earnings has narrowed (Bianchi and Spain 1996; Morris and Western 1999). The 1990s may have ushered in an increasing economic mismatch in the available pools of men and women seeking marriage.

We ask a straightforward question: Have ongoing changes in the economy affected the economic incentives for men and women to marry, and have economic incentives differed for population subgroups that bring different economic and cultural resources to the “marriage market”? We examine recent marriage patterns among white, Black, and Hispanic women, an especially important topic in light of the continuing racial divergence in U.S. marriage rates (Koball 1998; Bennett, Bloom, and Craig 1989). We also evaluate the association between economic change and marriage among the youngest and least educated women — this is the group, at least from a policy standpoint, that interests us most because the least skilled and educated account for a disproportionate share of unwed childbearing, female-headship, and welfare dependency. Marriage may be a beneficial adaptive

response to poverty and joblessness, but it also is clear that the poor are less likely to marry than their working and nonpoor counterparts (McLaughlin and Lichter 1997).

In sum, we have three specific objectives. First, we document recent changes in the proportions currently married over 1986-1996, a period of considerable change in the U.S. economy. Second, unlike previous research, we examine the relationship between state economic restructuring — variously defined — and changing patterns of marriage, using endogenous switching regression models. Third, we evaluate the robustness of our results for particular high risk populations, especially those most likely to be affected by the expansion in the low-wage labor market, and those “at risk” of welfare dependency and who are most affected by recent welfare reform legislation (the Personal Responsibility and Work Opportunities Reconciliation Act of 1996) that emphasizes work and marriage.

Data and Measurement

This study documents characteristic changes in marriage over a recent 10-year period, using data from each of the March annual demographic supplements of the *Current Population Survey* (CPS) from 1986-1996. We link individual-level data from the CPS to annual, state-level information on marriage market conditions, including industrial employment opportunities, welfare benefits, and sex ratios. Specifically, from the 1986-96 pooled CPS files, we obtained individual-level observations for all civilian, non-institutionalized women in the surveys aged 19-54. We dropped observations on a small number of women whose survey responses were missing, inconsistent or top-coded on earnings. In the empirical analyses, all observations are treated as independent; thus, we do not account for re-

interviews across consecutive years or for clustering within families, households, or geographic areas. All of our analyses apply the “March supplement weights” provided with the CPS files, but we re-scaled the resulting nationally representative sample to reflect the actual observed sample sizes (e.g., the weights on the 1986 observations sum to the number of 1986 observations). The 1986-1996 pooled sample has 417,307 observations.

Marriage is measured as a binary indicator, distinguishing whether a woman is married with a spouse present at the date of the survey (see Lichter et al. 1991; McLanahan and Casper, 1995; Moffitt 1998; Blau et al. 2000, for similar measurement approach).² This variable reflects current marriage behavior; we argue that getting and staying married should be sensitive to current economic and demographic characteristics.³ Moreover, omnibus panel surveys of marriage (like the NLSY) are not available each year or lack measures of relevant covariates at the time of marriage. The CPS files have the obvious advantage of large sample sizes, which allow appropriate disaggregations across pertinent age, race, and education groups. We also conduct sensitivity analyses that evaluate the relationship between economic conditions and recent transitions to marriage. This is accomplished by restricting the sample to young women, aged 19-30. Most married women of this age became married within the past 5 years, which has the salutary effect of ensuring an appropriate temporal link between state economic and social conditions and marriage rates (rather than marriage prevalence).⁴

To measure the economic attractiveness of marriage, our pooled CPS file provides the time series of annual incomes (in 1995 dollars) of single and married women over 1986-96. For unmarried women, total personal income reported for the preceding year (e.g., 1995 income reported in the 1996 March CPS) is a measure of economic opportunities outside of marriage. The income variable includes

all sources of both earned and unearned income. For married women, we link records for spouses and sum the total personal incomes for both individuals to reflect economic opportunities within marriage.⁵ These income data are modeled separately for married and single women in our switching regression models (described below) and allow us to calculate and include measures of the comparative economic attractiveness of marriage and singlehood in our models of marriage.

Another advantage of the CPS, compared with records based on vital records, is that it includes many salient predictor variables, such as age, ethnic origin, educational attainment, current enrollment status, and residence in a metropolitan or rural area. These variables have conventional interpretations as determinants both of marriage and income (see, e.g., Koball 1998; Lichter et al. 1991; Wood 1995). The CPS also identifies the state of residence for each woman. The state codes link individual observations from the CPS to year- and state-specific information on economic and marriage market conditions from a variety of other secondary data sources.

For example, to describe changing economic conditions, we use annual, state-level data from the Regional Economic Information System (REIS) (U.S. Bureau of Economic Analysis 1998). The REIS provides information on employment and earnings in broad categories of industries (one-digit S.I.C. industries). Employment numbers are scaled by dividing by the number of men and women aged 16 years and older in each state (figures from the LABSTAT Geographic Profiles database of the U.S. Bureau of Labor Statistics). To obtain a measure of average annual wages in each industry, we divide industry earnings by industry employment. In the detailed empirical analysis, we focus on the four largest (by employment) industries: manufacturing, retail sales, services, and state and local government. As a general indicator of state economic conditions, we also take a measure for total

personal income from the REIS, again scaling the measure by the number of adult men and women.

State-year-specific welfare generosity is measured using the combined maximum benefits for Aid to Families with Dependent Children, Food Stamps and Medicaid for a family of four with no other income (Ribar and Wilhelm 1999). The supply of available mates, measured by the ratio of men to women aged 15 to 54 years, is obtained from state-year-age-specific intercensal population estimates provided by the Federal-state Cooperative Program of Population Estimates (U.S. Census Bureau 1997). To capture other institutional factors that might contribute a higher prevalence of marriage, the analysis data set also includes annual state measures of the number of marriages (e.g., National Center for Health Statistics 1992), scaled by the number of women 15 to 44 years of age. This variable measures whether states are “marriage-enhancing” or not, and therefore provides a proxy for unobserved cultural features.

Table 1 reports means and standard deviations for the key variables, conditional on marital status. These data indicate, not surprisingly, that unmarried women are younger and less educated on average than married women. Unmarried women are also more likely to be of African origin, reside in central cities, and be enrolled in school. We observe little difference, on average, between the state macroeconomic conditions faced by married and unmarried women; if anything, unmarried women are more likely to live in states with more favorable economic conditions.

(Table 1 about here)

Trends in Marriage, Income, and State Economic Restructuring

We begin our empirical analysis by examining recent trends in marriage, the economic opportunities of single women and married couples, and earnings and employment opportunities across

different industries. Figure 1 reveals the familiar (albeit very modest) downward trend in overall marriage prevalence during the 1986 to 1996 period. The retreat from marriage continued despite the growth in personal income and employment during the late 1980s and mid 1990s. These time series data suggest a singular conclusion: the post-1990 recovery in the macro-economy has not halted or reversed the retreat from marriage in the U.S. Such data constitute an implicit challenge to conventional microeconomic explanations of marriage declines, which typically emphasize the primacy of economic factors over social or cultural change.

(Figure 1 about here)

Whether the downturn in marriage reflects a continuing erosion of the economic advantages of marriage, as measured by recent shifts in the relative incomes of single and married women, is ambiguous. Figure 2 (top line) shows that married couples' incomes rose during the late 1980s, fell and stagnated during the early 1990s, and rose again in the mid-1990s. Incomes for unmarried women followed a similar albeit more muted pattern. For our purposes, the observed income difference between married and single women has substantial heuristic value; it provides an indicator of the net relative economic benefits associated with marriage.⁶ These data clearly indicate that the economic benefits of marriage *increased* during the late 1980s and mid 1990s. Macroeconomic changes alone are unlikely to be responsible for the uninterrupted decline of marriage over the past decade or so.⁷

(Figure 2 about here)

Table 2 reports average levels and trends in total personal income and earnings and employment by industrial sector for the U.S. These data highlight on-going shifts in industrial structure that potentially underlay observed changes in married couples' and single women's economic

opportunities. They indicate that real average incomes grew at just under one percent per year. A little over half of this increase is accounted for by the increase in employment, largely among women. The remainder reflects growth in the annual wages of workers.

(Table 2 about here)

The results also indicate very different trends for specific industries. Some sectors, such as services, had faster rates of employment and earnings growth than the overall average. Others, such as construction, experienced declining shares of employment and falling earnings. In the manufacturing sector, the employment share fell sharply while earnings per worker rose. In the retail trade sector, the opposite occurred – employment rose while earnings fell. If industries are categorized by the average annual wages paid to their workers, we see that employment growth over the period was concentrated in low-paying sectors such as services and retail trade. Employment also grew in some high-paying sectors, such as in transportation and utilities and in the federal government. In the subsequent empirical analysis, we examine how recent industrial changes affected the incomes of married couples and single individuals and, indirectly, altered the prevalence of marriage in the United States.

Results

Empirical Model

The goal of our empirical analysis is to use the individual- and state-level data from our combined data set to examine how changes in the economic opportunities available to women inside and outside of marriage are related to their marital behavior. To do this, we adopt a simple binary model of marriage outcomes.

Let $m_{i,t}$ be a binary variable which equals one if woman i is married in year t and equals zero if she is unmarried. Let $m_{i,t}^*$ be a continuous index which denotes the relative benefit associated with marriage as perceived by woman i conditional on her preferences, background, beliefs and environment. We specify the relative benefit to be a function of (a) the income available to her inside and outside of marriage, $y_{M,i,t}^*$ and $y_{U,i,t}^*$, (b) a vector of other observed variables and controls, $\mathbf{Z}_{i,t}$, and (c) an unobserved component, $\epsilon_{i,t}$, such that

$$m_{i,t}^* = \alpha \left[\ln y_{M,i,t}^* - \ln y_{U,i,t}^* \right] + \beta \mathbf{Z}_{i,t} + \epsilon_{i,t}. \quad (1)$$

We do not observe the woman's perception of benefits, $m_{i,t}^*$, directly; however, we assume that she is married if the net benefits are positive and unmarried otherwise. We further assume that unobserved error term, $\epsilon_{i,t}$, is normally distributed with mean zero and variance one. With data on women's actual marriage outcomes, their income opportunities, and other observed characteristics, it would be straightforward to estimate the coefficients in equation (1) using a standard probit procedure.

Unfortunately, it is not possible to directly and simultaneously observe a person's income inside and outside of marriage. At any given time, we observe the income associated with the person's chosen marital status but not the income associated with the alternative (counter-factual) status. Because of this observability problem, we impute women's income in the counterfactual status. For each married woman in our sample, this means imputing the total amount of money that she would earn and/or receive as unearned income as an unmarried woman. For each unmarried woman, it means imputing the total amount earned and received by both her and her potential spouse.

The approach we take is to estimate regressions in which the log incomes associated with marriage or non-marriage are specified as functions of (a) a set of economic and demographic

variables, $\mathbf{X}_{i,t}$, such as industry-specific earnings and employment, race, age, and schooling, that are observed for each woman regardless of her marital status and (b) unobserved variables, $\mathbf{g}_{M,i,t}$ and $\mathbf{g}_{U,i,t}$, that do depend on marital status, such that

$$\ln y_{M,i,t}^* = \mathbf{B}_M \mathbf{X}_{i,t} + \mathbf{g}_{M,i,t} \quad (\text{observed if } m_{i,t}^* > 0) \quad (2M)$$

$$\ln y_{U,i,t}^* = \mathbf{B}_U \mathbf{X}_{i,t} + \mathbf{g}_{U,i,t} \quad (\text{observed if } m_{i,t}^* \neq 0). \quad (2U)$$

We estimate equations (2M) and (2U) conditionally for the subsamples of married and unmarried women.

To address the selectivity that arises in these equations, we estimate them jointly with the marriage equation.⁸ Specifically, we assume that $\mathbf{g}_{M,i,t}$ and $\mathbf{g}_{U,i,t}$ are normally distributed, have zero means, but are possibly correlated with each other and with $\epsilon_{i,t}$. This allows us to write a likelihood function for the system of equations and to estimate the joint model using the method of maximum likelihood. This model is a direct application of the structural switching regression model that has previously been used by Lee (1978) to examine the conditional wages of unionized and non-unionized employees and Willis and Rosen (1979) to examine the conditional earnings of college graduates and non-graduates. Maddala (1983) discusses the general properties of the model. In the sociological literature, Smock, Manning, and Gupta (1999) provide an excellent discussion and useful empirical application to an analytically similar problem (i.e., estimating counterfactual measures of income among divorced women if they remain married).

Switching Regression Analysis: Baseline Estimates

Our principal estimation results from the endogenous switching regression model are reported in Table 3. The first column of Table 3 lists coefficients and standard errors from the binary marriage

equation (1). The next two columns provide results from the conditional log married and unmarried income equations, (2M) and (2U). Along with the explanatory variables listed in Table 3, each of the estimation equations includes dummy variables for the fifty states and the District of Columbia. The state-specific dummy variables control for confounding effects from unmeasured factors such as local norms, policies, and institutions that may be related to both marriage and the other observed variables. Previous research has shown that estimates of the determinants of family formation are sensitive to the inclusion of these types of controls (Lichter et al. 1997; Moffitt 1998). Specification tests indicate that the state dummy variables are jointly significant and belong in the model.

(Table 3 about here)

We begin by noting that the correlation coefficients (ρ 's), which serve as the selectivity controls, are both significantly different from zero. Specification tests confirm that these coefficients are jointly statistically significant. Thus, it is necessary to account for selectivity in each of the income equations. The correlation coefficient for unmarried women's incomes is strongly positive while the coefficient for couples' incomes is strongly negative. The clear interpretation is that unobserved factors that contribute positively to unmarried women's economic success also contribute positively to their marriage prospects.⁹ As such, this result provides little support for the female independence hypotheses (see also Oppenheimer et al. 1997; Qian and Preston 1993); i.e., instead, unmarried women with high wages and greater economic independence are more likely to marry. Conversely, unobserved factors associated with high incomes within marriage are negatively related to marriage prospects. Women who are (a) more productive outside the home, but also (b) more willing to specialize in household production within marriage, have better marriage prospects than other women.

Results from the log married income equation indicate that annual state and local government earnings, manufacturing employment, and retail employment have significant positive effects on income. State and local government employment has a significant negative effect. In the unmarried income equation, retail earnings and employment and service earnings have significant positive coefficients while the manufacturing earnings variable appears with a significant negative coefficient. Consequently, industrial restructuring is associated with changes in women's incomes, both inside and outside of marriage; industrial restructuring has eroded the net pecuniary benefits of marriage.

To place this substantive conclusion in better perspective, we estimate that changes in employment and earnings contributed to a 38 percent decline in the marriage premium over the last decade. Most of this drop is attributable to the decline in manufacturing employment.

Such results seemingly imply that higher relative incomes inside versus outside marriage might have promoted higher rates of marriage over 1986-96. In fact, results from the marriage equation indicate just the opposite (column 1, Table 3). The coefficient on the difference between married and unmarried women's incomes is large and significantly negative.¹⁰ If we evaluate the marginal effect of the income difference at the means of all of the variables, a \$2,000 (15 percent) increase in the estimated (selectivity-corrected) marriage premium leads to a one percent decrease in the probability of marriage. The reduced-form estimate indicates that the negative coefficient on the income difference does not result from a particular oddly-signed coefficient. In the reduced-form equation (not shown), manufacturing wages and employment both have significant negative effects on marriage while service wages have a significant positive effect. Specification tests further rule out over-identification as an explanation of the counter-intuitive coefficient.¹¹

Table 3 also includes a mixture of expected and unexpected signs among the other coefficients in the marriage equation. For example, higher state welfare benefits erode the economic attractiveness of marriage (see also Lichter et al. 1997). And, as expected, the demographic availability of potential spouses (i.e., a higher male-to-female sex ratio) is positively associated with marriage. Higher levels of schooling also are associated with lower rates of marriage.¹² On the other hand, the estimates also indicate that marriage follows a declining age profile (through about age 42) and that school enrollment is positively associated with marriage. The counter-intuitive age and school enrollment results reflect strong interaction effects from the income difference variable.¹³

The results also indicate that the persistently large black-white differences in marriage can be “explained” by the economic and demographic variables included in our models. Our endogenous switching regression models, which include counterfactual measures of income as black single and married persons, provides the strongest evidence yet that black-white differences in marriage are rooted in economic factors (Koball 1998).

Finally, Table 3 reports the estimated coefficients for the CPS year dummies (sans the 1996 reference year), which capture time trends in marriage, net of the changing demographic and economic composition of the female population. None of these dummy coefficients are statistically significant using conventional standards. The interpretation is clear: the continuing overall downward trend in marriage prevalence reported in Figure 1 largely reflects temporal shifts in the population characteristics (e.g., education, age, etc.) and industrial structure considered here. Stated differently, the economic and demographic changes observed over the past decade have, on balance, contributed to decreases in marriage rather than to the increases in marriage that were expected on the basis of conventional

economic theory.

Analysis of Recent Marriage Trends

Our sample includes a heterogeneous group of currently married women. Although demographic analyses of prevalence measures of marriage are conventional (e.g., McLanahan and Casper 1995; Blau et al. 2000), they are not without shortcomings. The most serious limitation is that married women, especially at older ages, will have been married for many years or will be in a remarriage. The resulting methodological concern is straightforward: Our baseline estimates, shown in Table 3, may be biased by the lack of proper temporal correspondence between current economic conditions and current transition to marriage. Following Qian (1997) and Blackwell and Lichter (2000), we address this issue by limiting our analyses to women at greatest risk of recent marriage -- in this case, those age 30 or less. Among married women in this age group, most will have become married relatively recently, and most will be in a first marriage rather than a higher-order marriage.¹⁴ This sample restriction insures that current state economic conditions are appropriately matched to recent first marriages (rather than divorce or remarriage). As such, we approximate a rate of incidence rather than a prevalence rate based on cross-sectional census data. It also allows us to distinguish between trends in marriage prevalence and in delayed marriage.

The retreat from marriage among young women. Recent trends in the marriage premium and marriage prevalence rates among young women aged 19-24, 25-30, and 19-30 are shown in Figures 3 and 4. In contrast to the results for all women, Figure 3 reveals a narrowing of the marriage premium over time among women of marriageable age, largely because of declines in incomes from being married rather than gains in income from remaining single. The obvious implication is that the declining

income from marriage has resulted from young men's rather than from young women's changing economic circumstances. In light of a rapidly declining marriage premium, it may not be surprising that declines in marriage have been considerably more rapid at younger ages -- especially between age 19-24 (Figure 4) -- than for women overall (Figure 1). Delayed marriage continued apace among young women over the past decade of economic expansion.

(Figures 3 and 4 about here)

To examine age differences, Table 4 reports results from switching regression models that were estimated separately for women aged 19-24, 25-30, and 19-30. The models include all of the explanatory variables from the previous full-sample specifications (except for age squared) in Table 3. They also include controls for state- and year-specific effects and selectivity. To conserve space, however, Table 4 lists coefficients only for key economic variables, ethnicity, and the year dummies.¹⁵

(Table 4 about here)

For the most part, these estimates for young women support the substantive conclusions based on our earlier analyses of the full sample. This is reassuring because it suggests that our conclusions are unlikely to be an artifact of our reliance on marriage prevalence data rather than incidence data. Specifically, we find that the difference between married and unmarried women's incomes has significant negative effects on marriage for women 25-30 and 19-30 years of age (i.e., those women most likely to be recently married). The corresponding coefficients for women aged 19-24 are small and imprecisely estimated (i.e., standard errors are over twice the of those estimated for older age groups)(see Blau et al. 2000 for parallel results of 16-24 year-olds from the 1990 Public Use Microdata Sample).

The results also show an overall pattern of positive selection on married incomes at the youngest ages (i.e., 19-24), and a negative selection on married incomes overall. Consistent with conventional economic and demographic theory (Blau et al. 2000; Lichter et al. 1997), the coefficients for welfare benefits are uniformly negative, especially for the youngest women ($b = -.419$). The coefficients for sex ratios are uniformly positive across age groups; the likelihood of being married increases directly with the demographic supply of men to marry. The welfare and sex ratio coefficients are significantly different from zero in all cases.

Industrial restructuring also has had differential and often mixed effects on income opportunities among younger women, as indicated by considerable variation in the coefficients for the married and unmarried income equations (bottom two panels, Table 4). Among all young women (column 3), and women age 25-30 (column 2), state manufacturing employment opportunities and government wage rates have statistically significant positive effects on married women's income. In the unmarried income equation, the effects of manufacturing employment are largely negative, and the effects of retail employment are positive across the three age groups. For young unmarried women overall (i.e., 19-30 year olds), local wages in manufacturing and state government are negatively associated with income, a fact which might be interpreted to mean that young unmarried women's wages are most negatively affected by declining wage rates in the manufacturing and government sectors.

Marriage has declined among African-American females over the past decade, but declines have been especially rapid among the youngest blacks (see Figure 5). Unlike the overall results (Table 3), however, delays in marriage among the young blacks cannot be "explained" by the economic and demographic factors considered here. Consistent with most micro-level analyses (Lichter et al. 1992;

Manning and Smock 1995), young black females (aged 19-24) are only about one-half as likely to be married as their young white counterparts, even when racial differences in marital incentives, economic restructuring, and marital resources (e.g., education, etc.) are controlled. Racial differences in the “retreat from marriage” seemingly reflect differences in delayed marriage rather than in permanent singlehood, and are tied less to economic factors, including industrial restructuring, than to other cultural and/or social factors not measured here.

(Figure 5 about here)

Finally, unlike the results for all women (Table 3), the results for young women in Table 4 unambiguously indicate that economic and social changes have not been responsible for declining marriage over this period, even among the youngest aged women (i.e., those 19-25). For each age group, the year effects are statistically significant. The clear interpretation is that (1) marriage prevalence is lower in 1996 than in any other year, and (2) the declining marriage cannot be explained by changes in the economic opportunities of young women, either within or outside of marriage. Nor can changes in personal income or welfare benefits account for the continuing dip in marriage of this recent 10-year period.

Marriage trends among the least and most educated women. The rise in income inequality in the United States during the past decade implies a bifurcation or divergence in marriage patterns, especially between the most and least educated women. Indeed, if conventional economic explanations apply -- those that emphasize declining employment opportunities, stagnant wages, and welfare dependence -- any effect should be most pronounced among the least educated and economically vulnerable women. This expectation is clearly revealed in Figure 6, which shows upward

shifts in marriage among the most educated women, but rapid declines over the past decade among high school dropouts.¹⁶

(Figure 6 about here)

Table 5 provides estimates from models that are estimated separately for young women who had not completed high school, women who had completed high school but not gone on in their schooling, women who had completed some college, and women who had completed at least a Bachelor's degree. Again, to approximate rates of incidence, the sample is restricted to women aged 19-30. The model specifications here parallel the full-sample model from Table 3, with the exception that education is excluded for obvious reasons. For purposes of brevity, we again restrict our discussion to the results on marriage reported in the top panel of Table 5. For completeness, however, the estimates from the married and unmarried income equations also are provided (panels 2 and 3, Table 5).

(Table 5 about here)

For most young women (i.e., those with a high school degree and/or some college education), the coefficient on the difference in log incomes between married and unmarried women is negative and significant. These sensitivity analyses again reinforce our earlier conclusions based on analyses of all women (Table 3). That is, the marriage premium is negatively associated with marriage among young women. However, as expected, the sex ratio is positively and significantly associated with marriage for all education groups, except for those with college educations. Less easily explained is that state welfare benefit levels are statistically unrelated to marriage, even among the most economically vulnerable (i.e., the least educated).

The results nevertheless reinforce the conclusion of continuing recent declines in marriage, even among those groups likely to have benefitted most from the new economy. Indeed, declining marriage is pervasive across education groups, but especially among those with a high school degree or less and among college-educated women. More important, the dummy year variables clearly indicate that marriage trends cannot be “explained” by industrial restructuring, changes in the economic benefits of marriage, changes in state welfare benefit levels, or demographic shortages of men for women to marry. The “retreat from marriage,” even among vulnerable populations of less skilled or educated women, is not located in deleterious economic changes. And, contrary to conventional economic theory, marriage has not responded positively to the post-1993 job growth and declining unemployment.

Divorce prevalence among young women. The prevalence of married women in the population is affected by rates of entry into marriage, which has been our focus here, as well as exits through divorce. The conceptual and interpretative ambiguities are obvious. As we have argued, economic models of family formation argue that an improving economy should contribute to rising marriage rates. But it is conceivable that if the marriage-enhancing effects may also (or instead) reflect positive employment or income effects on divorce. We address this issue in Table 6, which provides some additional sensitivity analyses based on a regression switching model of current divorce/separation among a sample of ever-married women, aged 19-30.

(Table 6 about here)

The results in panel 1 indicate little if any association between the “marriage premium” (i.e., the economic benefits of marriage) and divorce. On the other hand, state welfare benefit levels are positively and significantly associated with divorce, suggesting that the welfare safety net may reduce the

economic disincentives to divorce. As expected, a surplus of males -- as measured by the male-female sex ratio -- is associated with lower rates of divorce. The substantive implication is that women are more secure in their marriages when they are in relatively short supply, and are presumably more highly valued by men (Guttentag and Secord 1983). These results also are largely consistent with earlier work by South and Lloyd (1995).¹⁷

As in the case of marriage, economic factors and the demographic variables considered here could “explain” neither the high levels of divorce among black women nor the positive upward swing in divorce rates over the past 10 years. The percentage divorced among ever-married women was significantly lower in the mid-to-late 1980s than in the mid-1990s. And, more important, the recent upward tilt in divorce prevalence occurred independently of the sectoral restructuring, changing income, declining welfare benefit levels, and changing opportunities to marry. Our results reinforce the conclusion that the “retreat from marriage,” defined here by rising divorce, is only loosely linked to the shift from unfavorable to favorable economic conditions over the past decade or so.

Discussion and Conclusion

Our paper has evaluated the relationship between recent macroeconomic shifts (played out at the state level) and the downward shift in marriage over the 1986-96 period. Most previous studies of the retreat from marriage have emphasized an erosion of the economic basis of traditional marriage, i.e., husband as breadwinner and wife as homemaker. Specifically, today’s young, low-skilled men – especially minority men – are presumably less able than in the past to fulfill the traditional provider role, while women’s growing economic opportunities have removed a major incentive for them to marry (i.e.,

economic support from men). During the current economic expansion, it therefore is important to reevaluate traditional economic explanations of marriage (e.g., Becker 1981; Oppenheimer et al., 1997), especially for those most affected by a changing economy -- the young, the least educated, and racial and ethnic minorities. From the perspective of conventional theory, the rebounding economy in the 1990s seemingly portends a return to higher rates of marriage and less marital instability among American women, including some disadvantaged groups.

The problem is that virtually all previous empirical studies of marriage have been limited to data from past decennial censuses or to omnibus national surveys (such as the PSID or NLSY). These data cannot adequately track marriage trends during the most recent period of economic expansion.¹⁸ Our up-to-date results from the pooled 1986-1996 March demographic files of the *Current Population Survey* addressed this task. However, our results provide surprisingly little evidence that the recent economic recovery has slowed or reversed the longstanding decline in marriage in the United States. The downward trend continued even as the overall “marriage premium” — the difference in income between single women and married couples — grew over the study period, even as industrial restructuring dampened the “gains to marriage.” Stated differently, the economic advantages of marriage over singlehood for women were greater in 1996 than in 1986. Yet the percentages of women who are married continued its downward trend through the mid-1990s. The current economic recovery has not contributed significantly to a rebound in marriage. This is perhaps most clearly revealed in the continuing delays in marriage across diverse populations of young women of marriageable age (see Figures 4-6).

More generally, our results suggest that a fuller understanding of current trends in marriage may

require new theoretical approaches that build on simple moncausal economic models. Of course, economic expansion may yet have significant lagged effects on marriage which are only be revealed with time, i.e., job growth and declining unemployment may not yet provide great confidence regarding the likely future employment prospects of prospective spouses. At the same time, our results clearly call into question the appropriateness of conventional economic explanations of both current and past marriage trends, which typically emphasize the blurring of traditional gender roles regarding work and family life. In the 1990s, economic trends and marriage trends were moving in opposite directions.

Sweeping declines in marriage across diverse population subgroups instead may suggest broad-based cultural shifts (e.g., an ethic of individualism over familism) that have taken on a momentum of their own and that have affected virtually all segments of U.S. population (Sassler and Schoen 1999; Bumpass 1990). Sociocultural and economic differences in marriage nevertheless seem to have grown during the most recent period, as the “retreat from marriage” has been most rapid among disadvantaged groups. And these differences -- including those between blacks and whites -- continue to be rooted in past and current economic and social factors.¹⁹ At the same time, our analysis indicates that conventional economic and social factors cannot account fully for temporal declines in marriage among the most disadvantaged groups, such as African-American women or the least educated.

In sum, our results build on previous studies (e.g., Mare and Winship 1998; Brien 1997) that have sought to explain the “retreat from marriage” in the United States. No study, including this one, has been entirely successful. But unlike previous work, ours incorporates time series data from the recent period of economic expansion. It also addresses directly the difficult technical problems of observability (i.e., measuring counterfactual income of single women if they had married) and selectivity

(i.e., controlling unmeasured differences between married and single women) using endogenous switching regression models. In the end, the apparently widespread belief among some government officials, religious leaders, and family advocacy groups that lower unemployment, higher incomes, or reduced welfare benefit payments will reinvigorate marriage in the short run is not supported in our analysis. Marriage is increasingly viewed as a panacea for America's social problems – poverty, welfare dependence, female headship, crime, mental health. But if marriage benefits society and becomes an important social policy goal, then effective public policy about the changing personal incentives and structural constraints that encourage or discourage marriage will clearly require better social science.

Notes

1. The unemployment rate peaked at 7.8 percent in June 1992, dropped below 6.0 percent in September 1994, and hovered above 5.5 percent until June 1996 (Bureau of Labor Statistics 2000). Moreover, Iig and Haugen (2000) show percentage changes in employment and real median weekly earnings of wage and salary workers from 1989 to 1999. Employment increased slightly between 1989 and 1990, then stagnated before steadily increasing after 1991. Real median weekly earnings of wage and salary workers increased after 1997, but real personal per capita income increased from \$20,618 in 1990 to \$21,438 in 1995 (U.S. Bureau of the Census 2000). Income growth has been uneven. Morrison and Western (1999) report increase in wage inequality both between and within sex groups.
2. The National Center for Health Statistics no longer provides individual data on marriage (as opposed to prevalence or census-based measures) from the vital registration system for all U.S. states. Data from marriage registration system also typically lack many of the covariates used in our analyses, and, for obvious reasons, lacks comparable records for a sample of single persons.
3. The unmarried category mixes women who are never married, separated, divorced, and widowed, and the married category mixes women in first, second, and higher marriages. These limitations may be important if the determinants of marriage entry, marriage exit, and remarriage differ, an issue to which we return to in the analysis presented in Tables 4-6.
4. Data from the 1995 National Survey of Family Growth indicate that, among women aged 19 to 30 in 1995, 83% had spent 5 or fewer years in a marriage. Slightly less than 50% had been ever-married, and about 55% of these had been married 5 years or less. Nearly 3 out of five currently married women (at the time of the survey) had been married 5 years or less. Current marital status at the time of the census thus provides reasonable but imperfect approximation of a rate of incidence, and it enables us to link marriage temporally to state economic conditions. We thank Deborah Graefe for providing these additional estimates.
5. There are some shortcomings to these measures and procedures. First, marital status may have changed during the 15 months that extends from the start of the income information to the recording of the marriage information; so, incomes inside and outside of marriage are mis-recorded for an unknown (but presumably) small number of women. Second, because the measures are not scaled for family size and do not reflect contributions of other family or members, they might not reflect the actual resources available to the women. Third, there were a few cases where wives' and husbands' records could not be linked; these observations were discarded. The income measures and all other dollar-denominated measures in the paper are scaled to constant 1996 dollars using the Consumer Price Index for Urban Consumers (CPI-U).
6. Unlike previous research, the clear advantage of using the income difference is that it captures changes in ALL of the relevant economic variables (i.e., changes in unearned income, wage rates, and

work patterns for unmarried women, married women and married men). The disadvantage is that it does not allow us to distinguish between these components. Previous research which has considered the separate components has generally not considered all of the components jointly, and it has not addressed the observability and selectivity problems that we consider in this paper. For our purposes, we have opted to use comprehensive measures and to address problems associated with observability and selectivity (through our use of the endogenous switching model) because it provides the more direct evaluation of conventional economic or rational choice models of marriage (Becker 1981).

7. This conclusion is reinforced in the disaggregated trends by age, education, and race/ethnicity; indeed, the continuing “retreat from marriage” in the late 1980s and 1990s is pervasive across most population groups of this age category.

8. By construction, the marriage decision depends on the realizations of $g_{M,i,t}$ and $g_{U,i,t}$. Accordingly, the expectations of these variables, conditional on the marriage decision and the other observed variables, are likely to be different from zero.

9. Our approach does not allow us to know what accounts for this correlation -- only that it exists. For example, it could reside in unmeasured personality characteristics of the women themselves. Personal self-efficacy, physical attractiveness, and good mental health may be jointly associated with work and marriage outcomes.

10. One possible interpretation is that the recent growth in the marriage premium is having less effect on encouraging transitions to marriage, but in stabilizing existing marriages. Indeed, there is some evidence that divorce rates have stabilized or even declined over the past decade (National Center for Health Statistics 2000). However, as we later show in Table 6, the marriage premium is not strongly associated with divorce among young adults.

11. The log likelihood of the reduced form model is only 3 points lower than that for the (restricted) structural model.

12. Some preliminary bivariate analysis indicates that marriage is higher among college-educated women than less-educated women. In the multivariate analysis, college-educated women are significantly less likely to be married than high school dropouts, net of other factors. This means that the higher marriage found among college-educated women is due completely to other factors (e.g., marriage premium, welfare benefit levels, etc.) that are associated both with education and marriage.

13. Reduced form results (not shown) indicate that age and school enrollment both have gross positive associations with marriage.

14. Data from the 1995 National Survey of Family Growth indicate that, among women aged 19 to 30 in 1995, 94% of currently married women were in their first marriage.

15. Full results are available upon request from the authors.

16. This temporal shifts in the marital status composition of the population is even more pronounced among all women aged 19-54. For example, among high school dropouts, the percentage married declined from about 62% in 1986 to 57% in 1996. Among college-educated women, the percentage married increased from 63% to 66%.

17. From a methodological standpoint, it is reassuring that our results using prevalence data are largely consistent with South and Lloyd's (1995) results based on incidence measures from the National Longitudinal Survey of Youth.

18. The National Center for Health Statistics provides data, in aggregate form, as published tables of incidence rates of marriage (e.g., the crude marriage rate). The problem from an analytic standpoint is that these data are less useful for modeling marital transitions. The marriage certificate includes only a small number of relevant covariates, such as age or race, and relatively little information on other key economic indicators known to affect the decision of women to marry. One alternative strategy is to aggregate individual level marriage data to the areal level – either for counties or states – and then to fit ecological models of divorce, but to be exposed to criticisms of the “ecological fallacy” when interpreting the results. The advantage of our multilevel approach is that we can evaluate the effects of a varied set of labor and marriage market variables from multiple data sources, as well as individual economic predictors of marriage (e.g., education, earnings, school enrollment, etc.) from the best annual source on economic data currently available(i.e., the March Current Population Survey).

19. In fact, the effect of racial status (i.e., being black) is insignificant in Column 1 of Table 3. The implication is that large black-white differences in marriage prevalence are due to racial differences in the social, economic, and geographic variables considered in our models. Most previous studies, for example, have been unable to “explain” existing racial differences in marriage.

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Figure 1. Marriage Rates -- All Women

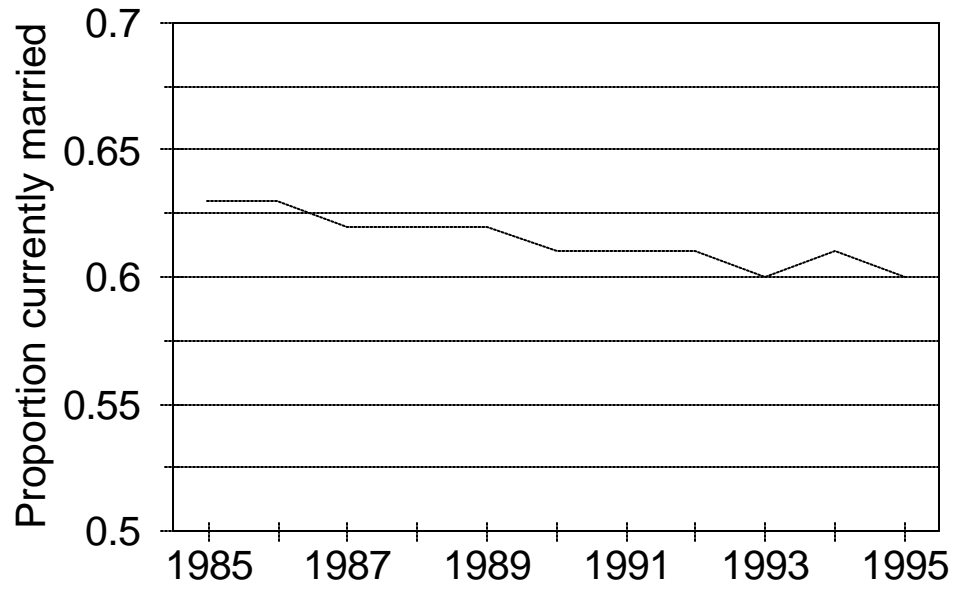


Figure 2. Incomes by Marital Status

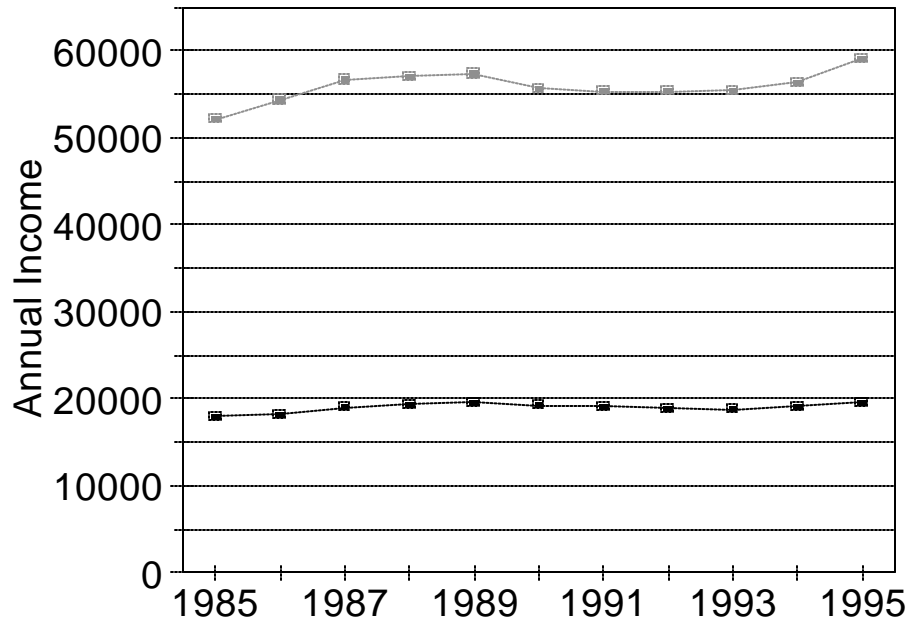


Figure 3. Incomes by Marital Status
Women 19-24 years old

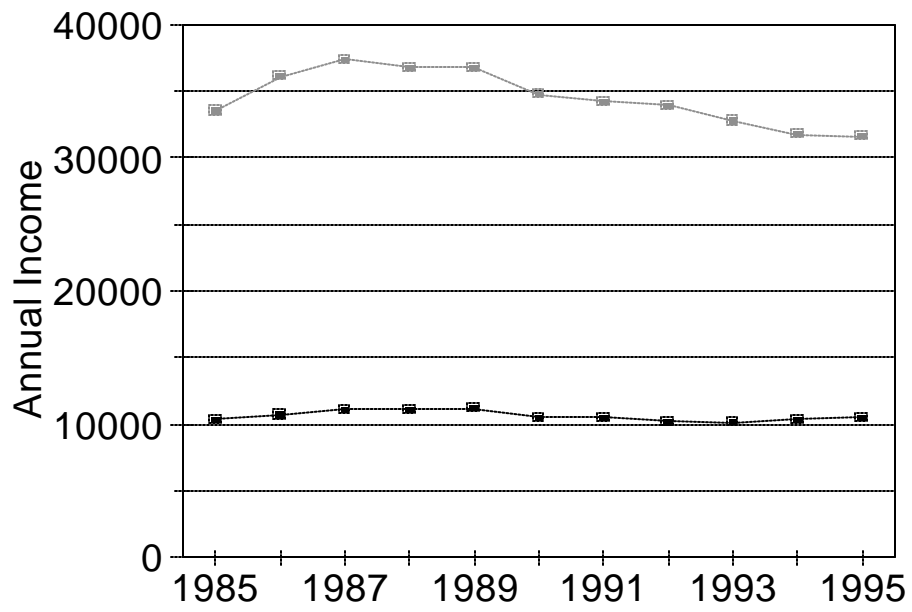


Figure 4. Marriage Rates by Age

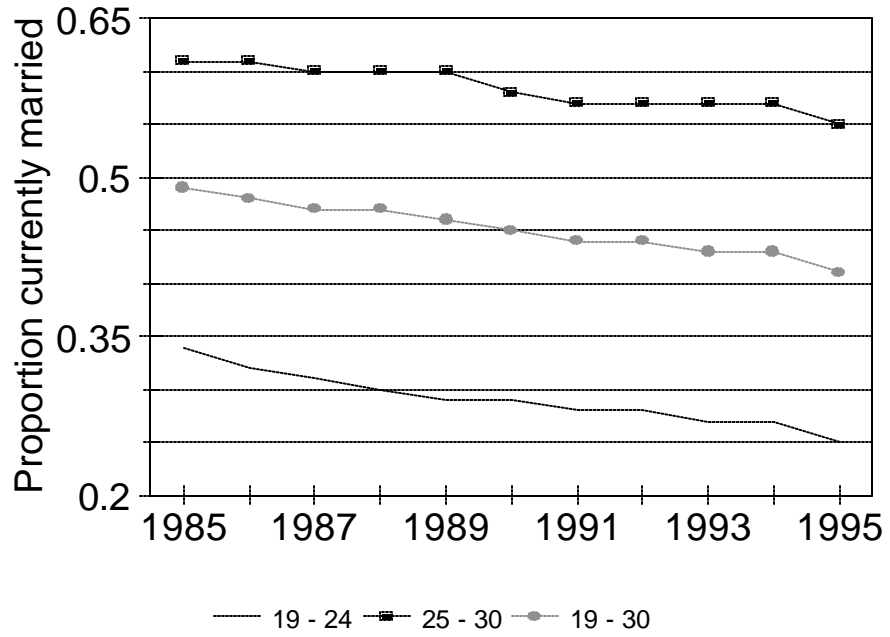


Figure 5. Marriage Rates by Race/Eth.
Women 19-30 years old

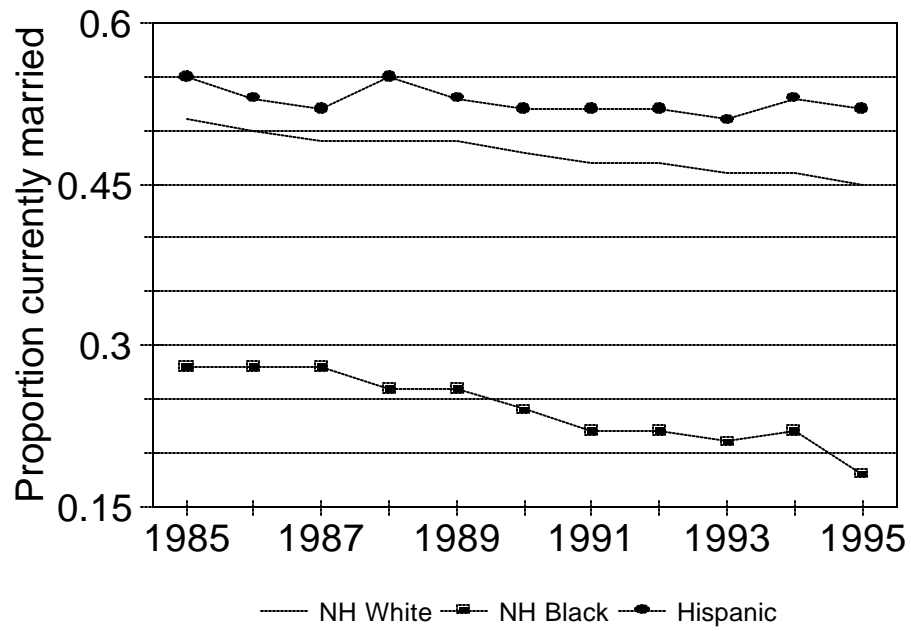


Figure 6. Marriage Rates by Education
 Women 19-30 years old

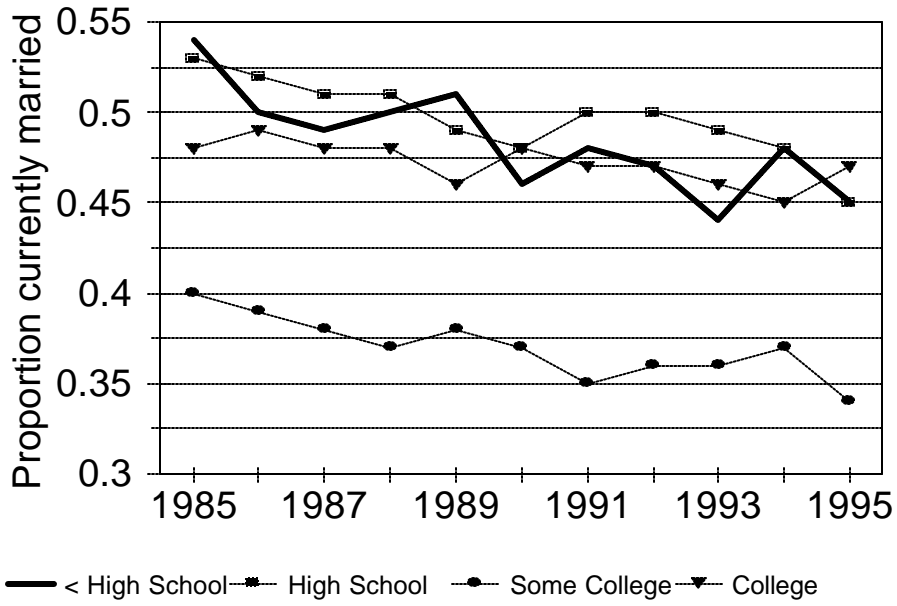


Table 1. Means and standard deviations of the analysis variables

	Married women		Unmarried women	
	Mean	Std. dev.	Mean	Std. dev.
Income	55,835.66	(35044.65)	18,956.00	(16962.18)
Manufacturing wages	41,253.96	(5892.99)	41,732.14	(6083.06)
Retail wages	17,230.29	(2044.28)	17,376.54	(2090.62)
Service wages	26,403.49	(4030.94)	26,899.38	(4254.00)
State & local gov't wages	30,368.55	(4274.82)	30,839.99	(4436.42)
Manufacturing employment	0.10	(0.03)	0.10	(0.03)
Retail employment	0.12	(0.01)	0.12	(0.01)
Service employment	0.20	(0.03)	0.20	(0.04)
State & local gov't employment	0.08	(0.01)	0.08	(0.01)
Personal income per adult	29,915.75	(4055.43)	30,359.66	(4158.15)
Welfare benefits	977.34	(164.00)	989.43	(168.54)
Sex ratio	1.00	(0.04)	0.99	(0.06)
Marriage rate	0.03	(0.02)	0.03	(0.02)
Age	37.12	(8.79)	32.21	(10.12)
African origin	0.07	(0.26)	0.21	(0.41)
Hispanic origin	0.08	(0.27)	0.09	(0.28)
Other origin	0.04	(0.20)	0.03	(0.18)
Central city residence	0.20	(0.40)	0.33	(0.48)
Non-metro residence	0.22	(0.41)	0.16	(0.37)
Enrolled in school	0.01	(0.11)	0.08	(0.27)
High school diploma	0.41	(0.49)	0.36	(0.49)
Some college	0.24	(0.42)	0.30	(0.47)
College	0.22	(0.41)	0.19	(0.40)
Observations	259,884		157,423	

Note: Estimates use weighted observations from the 1986-1996 March CPS files.

Table 2. Average Levels and Changes in Income, Earnings and Employment by Sector 1985-1995

	Earnings/income per adult		Employees as percentage of adults		Earnings/income per worker	
	Level	Annual growth	Level	Annual growth	Level	Annual growth
Total personal income / employment	\$30,089	\$ 291.25	72.6	0.405	\$41,445	\$171
Earnings / employment by sector						
Farm	254	! 6.08	1.7	-0.044	15,124	6
Agricultural services, forestry, fishing	132	3.41	0.8	0.024	17,239	! 71
Mining	232	! 10.22	0.6	-0.027	41,505	210
Construction	1,268	! 20.37	3.7	! 0.002	33,853	! 523
Manufacturing	4,249	! 43.42	10.3	! 0.160	41,375	224
Transportation & utilities	1,473	6.75	3.4	0.023	43,185	! 99
Wholesale trade	1,366	6.17	3.5	! 0.002	39,397	205
Retail trade	2,060	! 10.26	12.0	0.100	17,221	! 231
Finance, insurance & real estate	1,567	45.32	5.5	! 0.010	28,264	882

Service	5,454	167.97	20.1	0.490	27,018	188
Federal government (civilian)	691	1.93	1.6	-0.020	42,462	659
State & local government	2,427	35.43	8.0	0.073	30,474	168

Note: Figures represent national averages from the REIS. All dollars amounts are deflated to 1996 dollars using the CPI-U.

Table 3. Income and marriage switching regression results – full sample

	Marriage		Log Y_M		Log Y_U	
Income difference	-0.915***	(0.150)	-	-	-	-
Log manufacturing wages	-	-	-0.001	(0.068)	-0.221**	(0.100)
Log retail wages	-	-	0.090	(0.075)	0.208**	(0.106)
Log service wages	-	-	0.045	(0.093)	0.480***	(0.139)
Log state & local gov't wages	-	-	0.282***	(0.073)	0.082	(0.105)
Manufacturing employment	-	-	1.790***	(0.412)	-0.034	(0.604)
Retail employment	-	-	1.325**	(0.620)	1.736**	(0.874)
Service employment	-	-	-0.039	(0.345)	0.025	(0.465)
State & local gov't employment	-	-	-1.958**	(0.915)	-1.118	(1.283)
Log personal income	-	-	0.172	(0.119)	-0.034	(0.169)
Log welfare benefits	-0.117*	(0.067)	0.057	(0.051)	-0.048	(0.083)
Sex ratio	0.280***	(0.048)	-	-	-	-
Marriage rate	0.442	(0.461)	-	-	-	-
Age	-0.075*	(0.043)	-0.011***	(0.001)	0.276***	(0.002)
Age squared (/100)	0.090*	(0.051)	0.022***	(0.001)	-0.319***	(0.003)
African origin	0.185	(0.126)	0.127***	(0.005)	-0.710***	(0.007)
Hispanic origin	-0.051**	(0.023)	-0.270***	(0.005)	-0.124***	(0.008)
Other origin	-0.029	(0.033)	-0.189***	(0.007)	0.021*	(0.012)
Central city residence	-0.0001	(0.037)	0.047***	(0.004)	-0.198***	(0.006)
Non-metro residence	0.013	(0.017)	-0.226***	(0.004)	-0.121***	(0.007)
Enrolled in school	0.363**	(0.163)	0.108***	(0.010)	-0.977***	(0.011)
High school diploma	-0.175***	(0.040)	0.290***	(0.004)	0.553***	(0.007)
Some college	-0.151***	(0.015)	0.518***	(0.005)	0.614***	(0.007)
College	-0.293***	(0.048)	0.719***	(0.005)	1.034***	(0.008)
1986 dummy	-0.028	(0.026)	-0.033	(0.025)	0.132***	(0.036)
1987 dummy	0.002	(0.022)	-0.007	(0.023)	0.121***	(0.032)
1988 dummy	-0.018	(0.024)	0.020	(0.019)	0.164***	(0.027)
1989 dummy	-0.016	(0.023)	0.015	(0.016)	0.153***	(0.023)
1990 dummy	-0.024	(0.020)	0.018	(0.013)	0.135***	(0.019)
1991 dummy	-0.029	(0.019)	0.001	(0.012)	0.096***	(0.018)

1992 dummy	-0.027	(0.018)	-0.008	(0.011)	0.082***	(0.017)
1993 dummy	-0.014	(0.016)	-0.022**	(0.010)	0.048***	(0.015)
1994 dummy	-0.006	(0.010)	-0.016*	(0.008)	-0.003	(0.013)
1995 dummy	-0.007	(0.009)	-0.014*	(0.007)	0.000	(0.012)
F	-		0.775***	(0.001)	1.158***	(0.003)
D	-		-0.893***	(0.001)	0.942***	(0.001)

Log likelihood -649292.90

Note: Estimates use 417,307 weighted observations from the 1986-1996 March CPS files. Specifications include controls for state-specific effects. Standard errors appear in parentheses.

* Significant at .10 level.

** Significant at .05 level.

*** Significant at .01 level.

Table 4. Income and marriage switching regression results by age

	19-24	25-30	19-30
<i>MARRIAGE</i>			
Income difference	0.125 (0.250)	-0.498*** (0.098)	-0.594*** (0.099)
Log welfare benefits	-0.419** (0.206)	-0.260*** (0.092)	-0.240*** (0.076)
Sex ratio	0.348*** (0.133)	0.316*** (0.089)	0.351*** (0.781)
African origin	-0.635*** (0.194)	-0.147* (0.089)	-0.087 (0.077)
Hispanic origin	0.238*** (0.086)	0.033 (0.026)	0.004 (0.030)
Other origin	-0.005 (0.033)	0.029 (0.028)	0.003 (0.020)
Year = 1986	0.232*** (0.054)	0.059** (0.027)	0.072*** (0.022)
Year = 1987	0.179*** (0.037)	0.080*** (0.025)	0.090*** (0.018)
Year = 1988	0.247*** (0.060)	0.065*** (0.023)	0.067*** (0.022)
Year = 1989	0.231*** (0.056)	0.065*** (0.022)	0.068*** (0.021)
Year = 1990	0.204*** (0.051)	0.039 (0.024)	0.046** (0.021)
Year = 1991	0.187*** (0.052)	0.045** (0.019)	0.046** (0.019)
Year = 1992	0.221*** (0.060)	0.035** (0.016)	0.046*** (0.018)
Year = 1993	0.204*** (0.052)	0.053*** (0.016)	0.062*** (0.016)
Year = 1994	0.098*** (0.036)	0.025* (0.014)	0.028** (0.012)
Year = 1995	0.065** (0.032)	0.024* (0.014)	0.024** (0.012)
<i>LOG MARRIED INCOME</i>			
Log manufacturing wages	-0.647*** (0.227)	0.196 (0.179)	0.122 (0.147)
Log retail wages	-0.237 (0.253)	0.144 (0.199)	-0.088 (0.165)
Log service wages	0.574* (0.316)	-0.005 (0.243)	0.107 (0.201)
Log state and local government wages	-0.151 (0.247)	0.591*** (0.194)	0.533*** (0.164)
Manufacturing employment	1.104 (1.393)	2.862*** (1.065)	2.533*** (0.901)
Retail employment	-1.760 (2.357)	0.932 (1.666)	0.985 (1.390)
Service employment	-1.467 (1.247)	0.803 (0.919)	0.570 (0.791)
State and local government employment	-2.351 (3.091)	0.009 (2.499)	-1.631 (2.075)
Log personal income	1.260*** (0.425)	-0.194 (0.319)	0.046 (0.266)
Log welfare benefits	-0.001 (0.194)	0.102 (0.122)	0.109 (0.103)
D	-0.903*** (0.003)	-0.901*** (0.002)	-0.893*** (0.002)
<i>LOG UNMARRIED INCOME</i>			
Log manufacturing wages	-0.118 (0.197)	-0.096 (0.284)	-0.402** (0.181)
Log retail wages	0.270 (0.215)	0.470 (0.312)	0.439** (0.200)
Log service wages	-0.098 (0.258)	-0.192 (0.378)	-0.078 (0.240)
Log state and local government wages	-0.091 (0.203)	0.382 (0.304)	-0.391** (0.197)
Manufacturing employment	0.806 (1.114)	-4.467*** (1.652)	-2.043** (1.067)
Retail employment	5.150*** (1.884)	5.721** (2.594)	4.493*** (1.657)
Service employment	-0.725 (0.969)	-0.833 (1.365)	-1.378 (0.878)

State and local government employment	-2.131 (2.550)	-4.848 (3.834)	-2.645 (2.457)
Log personal income	0.176 (0.359)	0.769 (0.499)	0.791** (0.322)
Log welfare benefits	-0.075 (0.155)	-0.142 (0.190)	-0.193 (0.123)
D	0.905*** (0.002)	0.951*** (0.001)	0.931*** (0.001)
Log likelihood	-109,359.04	-127,042.10	-239,127.11
Observations	65,356	81,135	146,491

Note: Estimates use weighted observations from the 1986-1996 March CPS files. Specifications include controls for year and state-specific effects, age, ethnic origin, urban residence, enrollment and education. Marriage equation also controls for state marriage rate. Standard errors appear in parentheses.

* Significant at .10 level.

** Significant at .05 level.

*** Significant at .01 level.

Table 5. Income and marriage switching regression results for women aged 19-30 by education

	No high school	High school	Some college	College
<i>MARRIAGE</i>				
Income difference	0.056 (0.292)	-0.267** (0.131)	-0.930*** (0.187)	0.206 (0.462)
Log welfare benefits	-0.250 (0.316)	-0.170 (0.143)	-0.207 (0.204)	-0.716 (0.451)
Sex ratio	1.543*** (0.388)	0.551*** (0.113)	0.271** (0.123)	-0.253 (0.187)
African origin	-0.894*** (0.169)	-0.369*** (0.132)	0.088 (0.096)	-0.392** (0.156)
Hispanic origin	0.252** (0.108)	0.050** (0.021)	-0.033 (0.030)	0.201** (0.095)
Other origin	0.310*** (0.077)	0.035 (0.027)	0.055 ⁺ (0.031)	0.306 (0.221)
Year = 1986	0.267*** (0.058)	0.140*** (0.035)	0.008 (0.042)	0.134 ⁺ (0.071)
Year = 1987	0.194*** (0.056)	0.146*** (0.029)	0.068** (0.032)	0.200** (0.101)
Year = 1988	0.192*** (0.055)	0.131*** (0.033)	-0.003 (0.051)	0.145 ⁺ (0.077)
Year = 1989	0.150** (0.059)	0.124*** (0.031)	0.002 (0.048)	0.172 ⁺ (0.091)
Year = 1990	0.203*** (0.054)	0.091*** (0.029)	-0.030 (0.053)	0.112 (0.070)
Year = 1991	0.043 (0.065)	0.077*** (0.028)	-0.025 (0.051)	0.146 ⁺ (0.087)
Year = 1992	0.148*** (0.054)	0.079*** (0.026)	-0.036 (0.048)	0.079 (0.054)
Year = 1993	0.093 (0.060)	0.096*** (0.024)	-0.004 (0.045)	0.110 (0.067)
Year = 1994	-0.025 (0.054)	0.066*** (0.023)	-0.022 (0.032)	0.043 (0.048)
Year = 1995	0.058 (0.056)	0.053** (0.022)	0.004 (0.026)	-0.019 (0.047)
<i>LOG MARRIED INCOME</i>				
Log manu. wages	-0.236 (0.412)	0.173 (0.222)	0.092 (0.231)	0.159 (0.260)
Log retail wages	0.455 (0.498)	-0.323 (0.246)	0.064 (0.267)	0.375 (0.276)
Log service wages	0.336 (0.564)	0.644** (0.311)	0.165 (0.316)	0.405 (0.325)
Log SL gov't wages	0.276 (0.459)	0.176 (0.249)	0.507 ⁺ (0.260)	0.394 (0.253)
Manu. employment	5.119 ⁺ (2.908)	1.741 (1.348)	3.352** (1.469)	-0.129 (1.437)
Retail employment	-2.635 (4.455)	2.972 (2.082)	1.420 (2.149)	3.800 ⁺ (2.203)
Service employment	1.659 (2.318)	-1.323 (1.237)	2.850** (1.339)	0.884 (1.060)
SL gov't employment	1.513 (6.125)	-2.280 (3.063)	-0.859 (3.225)	5.328 (4.010)
Log personal income	0.204 (0.722)	0.333 (0.407)	-0.902** (0.443)	-0.579 (0.449)
Log welfare benefits	-0.058 (0.318)	-0.327** (0.158)	0.496*** (0.187)	0.401 ⁺ (0.221)
D	-0.865*** (0.007)	-0.895*** (0.003)	-0.885*** (0.003)	-0.909*** (0.004)
<i>LOG UNMARRIED INCOME</i>				
Log manu. wages	0.445 (0.454)	-0.716** (0.299)	-0.450 ⁺ (0.262)	-0.305 (0.311)
Log retail wages	-0.694 (0.511)	0.572 ⁺ (0.327)	0.547 ⁺ (0.292)	0.056 (0.309)
Log service wages	0.372 (0.602)	-0.672 ⁺ (0.408)	-0.296 (0.346)	0.216 (0.371)
Log SL gov't wages	-0.550 (0.518)	-0.281 (0.319)	0.074 (0.276)	0.224 (0.287)
Manu. employment	-3.311 (2.687)	-2.343 (1.765)	-0.300 (1.540)	-1.144 (1.579)
Retail employment	7.546 ⁺ (4.104)	4.391 ⁺ (2.668)	2.624 (2.372)	2.282 (2.520)
Service employment	0.559 (1.923)	-3.593** (1.571)	-1.055 (1.328)	1.423 (1.173)

SL gov't employment	-5.000 (6.238)	-2.910 (3.924)	-0.345 (3.578)	-6.143 (4.711)
Log personal income	0.930 (0.814)	0.917* (0.515)	0.850* (0.484)	0.102 (0.527)
Log welfare benefits	-0.128 (0.300)	0.250 (0.211)	-0.333* (0.197)	-0.109 (0.273)
D	-0.080 (0.161)	0.946*** (0.002)	0.929*** (0.002)	0.956*** (0.002)
Log likelihood	-33,208.41	-91,841.96	-70,854.82	-39,162.49
Observations	19,827	56,274	45,061	25,329

Note: Estimates use weighted observations from the 1986-1996 March CPS files. Specifications include controls for year and state-specific effects, age, ethnic origin, urban residence, and enrollment. Marriage equation also controls for state marriage rate.

Standard errors appear in parentheses.

* Significant at .10 level.

** Significant at .05 level.

*** Significant at .01 level.

Table 6. Income and divorce switching regression results

<i>DIVORCE</i>		
Income difference	-0.011	(0.193)
Log welfare benefits	0.379***	(0.102)
Sex ratio	-0.181***	(0.060)
African origin	0.476***	(0.146)
Hispanic origin	-0.090**	(0.036)
Other origin	-0.287***	(0.081)
Year = 1986	-0.048**	(0.021)
Year = 1987	-0.057***	(0.016)
Year = 1988	-0.054***	(0.018)
Year = 1989	-0.058***	(0.017)
Year = 1990	-0.030**	(0.014)
Year = 1991	-0.029**	(0.015)
Year = 1992	-0.015	(0.013)
Year = 1993	-0.027*	(0.014)
Year = 1994	-0.005	(0.013)
Year = 1995	0.011	(0.012)
 <i>LOG MARRIED INCOME</i>		
Log manufacturing wages	-0.058	(0.065)
Log retail wages	0.175**	(0.072)
Log service wages	0.257***	(0.088)
Log state and local government wages	0.234***	(0.073)
Manufacturing employment	1.562***	(0.382)
Retail employment	1.503***	(0.600)
Service employment	0.313	(0.348)
State and local government employment	-2.176**	(0.921)
Log personal income	0.011	(0.114)
Log welfare benefits	0.091*	(0.050)
D	-0.887***	(0.001)
 <i>LOG UNMARRIED INCOME</i>		
Log manufacturing wages	-0.194	(0.155)
Log retail wages	0.118	(0.169)
Log service wages	-0.017	(0.209)
Log state and local government wages	0.626***	(0.186)
Manufacturing employment	1.961**	(0.904)
Retail employment	0.215	(1.432)
Service employment	-1.460*	(0.851)

State and local government employment	2.798	(2.364)
Log personal income	-0.129	(0.272)
Log welfare benefits	-0.133	(0.141)
D	0.962 ^{***}	(0.001)
Log likelihood	-445,049.05	
Observations	318,973	

Note: Estimates use weighted observations from the 1986-1996 March CPS files. Dependent variable in marriage equation equals one if married and zero if divorced or separated; observations for never married, married with absent spouse, and widowed women are omitted. Specifications include controls for year and state-specific effects, age, ethnic origin, urban residence, enrollment and education. Marriage equation also controls for state marriage rate. Standard errors appear in parentheses.

^{*} Significant at .10 level.

^{**} Significant at .05 level.^{***}

Significant at .01 level.