Economic Restructuring and the Retreat from Marriage*

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Abstract:
Our objective is to link recent U.S. marriage trends to changes in the employment and earnings of the marriage-eligible population, welfare benefit levels, and macroeconomic performance, which are played out differently across states. Specifically, we link pooled cross-sectional data from the 1986–1997 annual demographic supplements of the March Current Population Survey to state-year-specific indicators of economic performance from the Regional Economic Information System. We use these data to estimate reduced-form models of the economic, institutional, and demographic determinants of individual marriage outcomes. We also estimate endogenous switching regression models of marriage which take into account women’s expected incomes inside and outside of marriage. Our results provide several conclusions. First, the “retreat from marriage” continued unabated during the economic recovery period of the 1990s. Second, our reduced-form results reveal that the recent economic recovery has, on balance, dampened the downward trend in marriage; the percentage married would be roughly three points lower in 1997 if state employment and earnings had remained at their 1986 levels. Third, the effects of state economic restructuring were highly differentiated, with negative effects on marriage, especially among the younger, less educated, and racial minority women. Fourth, results from our endogenous switching regression models provide only modest evidence for the economic model of marriage and call into question the appropriateness of strictly economic explanations of declining marriage.

Article:
Marriage is on the public policy agenda, in part because it is increasingly viewed—rightly or not—as one possible solution to society’s most pressing social problems (Ooms, 1998; Lichter, 2001; Sawhill, 2002). 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 Koropeckyj-Cox, 1996; Bianchi, 2000). Single and divorced mothers experience much lower standards of living and higher rates of poverty than do married women (Waite, 1995). 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 appears to confer physical and emotional health advantages and promote longevity (Waite and Gallagher, 2000; Smith and Waitsman, 1994); marriage provides social support and buffers the deleterious health effects of stress. Marriage also appears to make men more productive in the workplace (Gray, 1997).

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Marriage as an institution has arguably 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” provides a 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 coresidential union experience for most young adults (Goldstein and Kenney, 2001; Bramlett and Mosher, 2001; Schoen and Weinick, 1993). To slow or reverse these trends, some observers are now calling for public policies that are “marriage-friendly.” For example, we might remove provisions in the tax code and public assistance programs that create economic disincentives to marry. Or existing marriages might be strengthened through appropriate legislative action and social policy (such as providing prenuptial counseling and marriage enrichment programs). The economic underpinnings of marriage also may be strengthened through higher minimum wages, paid family leaves, and generous child care subsidies. Other policies would make divorce more difficult to obtain (e.g., through “covenant marriages”) and reduce any deleterious effects of nonmarriage (e.g., by providing health care or home visitation for the children in low income single-parent families).

To be effective and appropriately targeted, however, social policy requires an up-to-date and accurate understanding of how shifting economic incentives to marry have contributed to recent patterns of marriage and family instability in the United States. Few if any empirical studies have adequately accounted for the rapid and apparently ongoing changes in the American family, especially during the evolving economic climate of the 1990s. Previous areal or multilevel studies of marriage 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 broader sectoral shifts in the economy (Blau, Kahn, and Waldfogel, 2000; McLaughlin, Gardner, and Lichter, 1999). Other research has evaluated the direct effects of economic resources (such as employment) or geographic or marriage market characteristics (as proxies for economic opportunity) on marriage and family formation (e.g., Schultz, 1994; van der Klaauw, 1996). No other studies have fully utilized the exogenous cross-sectional and time series variation in industrial employment to study recent marital trends.

Our investigation has two main objectives: (a) to measure the extent to which changes in state economic conditions—specifically shifts in industrial earnings and employment patterns—have contributed to the retreat from marriage and (b) to examine whether economic restructuring has altered the economic incentives to marry and affected marriage decisions as predicted by economic, rational-choice models (Becker, 1981). Specifically, our analysis links pooled cross-sectional data on marital status, incomes, and other characteristics for individuals from the Census Bureau’s 1986 through 1997 annual demographic (March) supplements of the Current Population Survey (CPS) to state-year-specific indicators of economic performance from the Regional Economic Information System (REIS). We use these data to estimate reduced-form models of the economic, institutional, and demographic determinants of individual marriage outcomes. We also estimate endogenous switching regression models of marriage which take into account single and married women’s counterfactual economic wellbeing—that is, what their incomes would have been had they instead married or remained single.

CONCEPTUAL BACKGROUND AND PREVIOUS STUDIES

The dominant theoretical paradigm of marriage emphasizes 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; Brines and Joyner, 1999). 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. This “gains to trade” model of marriage implies that recent marriage trends can best be understood in the context of changing labor market opportunities, which are expressed in the comparative employment and earnings of men and women at the local or regional level (Brien, 1997).

Indeed, virtually all demographic studies—contemporary and historical—have stressed the link between economic incentives and marital behavior (Dixon, 1971; Ruggles, 1994; Lichter, LeClere, and McLaughlin, 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 indicates at least three important limitations of existing empirical studies of contemporary U.S. marriage patterns. One limitation is that virtually all recent studies are based on pre-1990 data, and few 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 (e.g., area sex ratios or unemployment rates) at a given point in time, usually in 1990 or earlier. While these studies typically reinforce the primacy of economic factors in decisions to marry and divorce (e.g., Lichter et al., 1992), they are not designed to account for trends in marriage. One exception is the time-series study by Moffitt (2000), which examined repeated cross-sectional data from the 1968–1996 March files of the CPS. Although this study focused on national economic conditions (rather than metro- or local-level conditions), it nevertheless produced results that were consistent with traditional economic assumptions. That is, trends in women’s wages were negatively associated with the marriage time series. Male wages also fell relative to women’s over the study period, indicating declines in the gains to trade from marriage.

One substantive question, which we evaluate here, is whether the economic recovery following the 1991–1992 recession has altered the economic incentives of marriage, both for men and women.1 The recent past has been marked by 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 growth in real wages among women. If the 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 economic paradigm.

A second limitation of previous research is that few studies have linked sectoral economic restructuring across local or regional labor markets to changing marriage patterns (e.g., Blau et al., 2000). National studies linking economic change and marriage trends 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. Indeed, Blau et al. (2000) used metro-level data from the 1970, 1980, and 1990 decennial censuses to evaluate labor market effects on marriage among young women ages 16–24. They found that local-area increases in male wages were positively associated with 1980–1990 changes in female marriage rates, especially among the least educated, a result consistent with economic models of family formation. Female labor market employment opportunities (measured by the excess in female labor supply over predicted values) also were positively associated with marriage among all education groups, while welfare benefit levels were negatively associated with changing marriage rates among the least educated women.

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The study by Blau et al. (2000) provides a useful accounting framework for understanding pre-1990 trends in marriage. But we are unaware of any empirical studies that have linked spatial-temporal fluctuations in economic conditions to fluctuations in marriage patterns during the economic expansion period of 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? The shift to a service economy—with low pay and job security—arguably provides a weak basis for getting and staying married and undercuts the hypothesis that today’s “good” economy has been marriage-enhancing.

A third general limitation 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 economies of earlier decades. On the one hand, unprecedented job growth and historically low 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). Convergence in the gender earnings gap arguably has implications for men’s and women’s economic incentives to marry (Bianchi and Spain, 1996; Morris and Western, 1999). The mid-1990s and beyond may have ushered in an increasing economic mismatch in the available pools of men and women seeking marriage. Indeed, Moffitt (2000) suggests that declines in marriage among low-educated women reflect the deterioration of labor market opportunities among low-educated men. For highly educated women, however, the retreat from marriage is largely a story of increasing female earnings rather than changes in the earnings of highly educated men.

THE CURRENT STUDY
In this article, we ask two straightforward questions. Have ongoing changes in the economy affected the incentives for women to marry? And have these effects differed for population subgroups that bring different economic and cultural resources to the marriage market? To address the first question, we initially examine trends in the proportion of women currently married, the incomes of single women, and the incomes of married couples over the period 1986–1997. We then estimate reduced-form probit models of the relationship between state-level industrial economic conditions and individual marriage outcomes. We also develop and estimate a structural, endogenous switching regression model in which industrial restructuring affects marriage by altering the incomes available to women inside and outside of marriage.

To address the second question regarding differences across subgroups, we estimate our reduced-form and structural models separately for women who differ in their ages, educational backgrounds, and ethnic origins. From a policy standpoint, we are most interested in the effects of economic restructuring on marital behavior among young, less well educated women. This population subgroup accounts for a disproportionate share of unwed childbearing, female headship, and welfare dependency. Indeed, many provisions of the recent welfare reform legislation (Personal Responsibility and Work Opportunity Reconciliation Act of 1996) have been targeted precisely at this group. While marriage may provide a route out of poverty, the poor nevertheless remain less likely to marry than their working and nonpoor counterparts (McLaughlin and Lichter, 1997). We also examine patterns separately across white, black, and Hispanic women because of the continuing racial and ethnic divergence in U.S. marriage rates and economic opportunities (Koball, 1998; Bennett, Bloom, and Craig, 1989).

DATA AND METHODS
The individual-level data for our empirical analyses are drawn from the 1986–1997 annual demographic (March) supplements of the CPS. The CPS interviews large numbers of people and collects information on marital status, economic characteristics, and other personal traits. When sampling weights are used, the information for each year is nationally representative.
The CPS has several advantages which make it useful for this investigation. First, it is a general survey that records income and other information for both married and unmarried women. Second, it identifies the state of residence for each woman; this enables us to link the individual observations to year- and state-specific information on economic and marriage market conditions from a variety of other secondary data sources. Third, it includes many other salient predictor variables, such as age, ethnic origin, educational attainment, current school enrollment status, and residence in a metropolitan or rural area. These variables have conventional interpretations as determinants of marriage and income and have appeared in numerous earlier studies (see, e.g., Koball, 1998; Lichter et al., 1991; Wood, 1995). Fourth, the large sample sizes allow us to disaggregate the data by age, race, and education.

The main drawback of the March files of the CPS is that they record marital status and other information at a particular point in time and contain no longitudinal data. Thus, we can measure only the prevalence of marriage and not the transitions into or out of marriage. Unfortunately, other data sets that contain longitudinal or transitions data are either much smaller (e.g., the Panel Study of Income Dynamics), cover narrow age cohorts (e.g., the National Longitudinal Surveys), or lack a rich set of control variables (e.g., vital records data).

From the pooled 1986–1997 CPS files, we obtained individual-level observations for all civilian, noninstitutionalized women ages 19–54. We dropped observations on a small number of women who provided inconsistent survey responses, had annual incomes below $500, had top-coded hours or income information, or were married but had an absent spouse. In the empirical analyses, all observations are treated as independent; thus, we do not account for reinter-views across consecutive years or for clustering within households or geographic areas. Our analyses apply the “March supplement weights” provided with the CPS files, but we rescale the weights to reflect the actual annual sample sizes (e.g., the rescaled weights on the 1986 observations sum to the number of 1986 observations). The resulting pooled sample has 443,297 observations.

Our measure of marital status is 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 a similar measurement approach). This variable reflects current marriage behavior; we argue that both getting and staying married should be sensitive to current economic and demographic characteristics. Figure 1 depicts the average annual percentage

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2 The CPS actually does have a limited longitudinal capability, albeit in households rather than particular individuals. Specifically, households are interviewed for 4 consecutive months, left alone for 8 consecutive months, and then interviewed again for 4 consecutive months. Families and individuals who move out of the household are not followed. This is a critical weakness given our focus on family formation decisions.

3 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 the marriage registration system also typically lack many of the covariates used in our analyses and, for obvious reasons, lack comparable records for a sample of single persons.

4 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 we consider later in the article.
married from our analysis sample. The figure shows the familiar downward trend in marriage, even during the economic expansion period of the mid-1990s.

To measure the economic circumstances of single and married women, we use CPS information on annual incomes, adjusted for inflation using the Consumer Price Index for Urban Consumers (CPI-U) and expressed in 1996 dollars. For unmarried women, total personal income reported for the preceding year (e.g., 1996 income reported in the 1997 March CPS) serves as a measure of economic opportunities outside of marriage. The income variable includes all sources of earned and unearned income. For married women, we link records for spouses and sum wives’ and husbands’ total personal incomes to reflect economic opportunities within marriage. To describe economic conditions in the areas where the women in our sample live, we use annual, state-level data from the Regional Economic Information System (U.S. Bureau of Economic Analysis, 1998). The REIS provides information on employment and earnings in broad categories of industries (one-digit Standard

Average annual incomes of unmarried and married women are graphed in Fig. 2. For our purposes, the observed income difference between married and single women has heuristic value; it provides an indicator of the net relative economic benefits associated with marriage—a marriage premium. The data indicate that the economic benefits of marriage increased during the late 1980s and mid-1990s. However, further disaggregation (not shown) reveals that this was due primarily to the rising personal income of married women; husbands’ average incomes actually declined slightly. While the disaggregated trends provide mixed evidence regarding the economic attractiveness of marriage, it seems unlikely that macroeconomic changes were solely responsible for the uninterrupted decline of marriage over the past decade or so.

To describe economic conditions in the areas where the women in our sample live, we use annual, state-level data from the Regional Economic Information System (U.S. Bureau of Economic Analysis, 1998). The REIS provides information on employment and earnings in broad categories of industries. The income measures and all other dollar-denominated measures in the article are scaled to constant 1996 dollars using the Consumer Price Index for Urban Consumers (CPI-U). 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 article. 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).

There are some shortcomings to these measures and procedures. First, marital status may have changed during the 15 months that extend from the start of the income information to the recording of the marriage information; so, incomes inside and outside of marriage are misrecorded 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 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 article are scaled to constant 1996 dollars using the Consumer Price Index for Urban Consumers (CPI-U).
Industrial Classification). We divide the raw employment numbers by the number of people ages 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 six industries: manufacturing, retail trade, services, finance and insurance, construction, and state and local government. As a general indicator of state economic conditions, we also take a measure for total per capita employment from the REIS. Because we believe that marriage behavior may respond to long- rather than short-run changes in economic conditions, we use 5-year averages of our economic indicators, lagged 1 year from the date that marriage is measured (e.g., for the 1997 marriage data, we take the average employment or earnings from 1992 to 1996). We experimented with other specifications, such as single-year lags of the variables and shorter averages of the lags. The 5-year lagged averages perform better than these other measures.

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 ages 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). As with our lagged measures of employment and earnings, we also take 5-year averages on welfare benefits and the sex ratio. To capture other institutional factors that might contribute to a higher prevalence of marriage, the 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 analysis variables, conditional on marital status. These data indicate, not surprisingly, that unmarried women are younger and more educated on average than married women and they also are more likely to still be enrolled in school. Unmarried women are also more likely to be of African origin and to reside in central cities. We observe little difference, on average, between the state macroeconomic conditions faced by married and unmarried women.

RESULTS

Probit Models of Marriage

Reduced-form estimates. We begin our detailed empirical analysis by fitting a conventional probit model of the economic, demographic, and policy determi-
nants of individual marriage outcomes using the pooled data from the 1986-1997 CPS. Along with the explanatory variables listed in Table 1, the estimation equation includes dummy variables for the 50 states and the District of Columbia and dummy variables for each year covered in the sample. 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. The annual dummy variables control for national trends in attitudes, policies, and other factors. 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 and year dummy variables are jointly significant and belong in the model. The inclusion of these effects means that we must interpret the coefficients of the state-level economic, demographic, and institutional measures as estimates of the effects of changes in these variables within states over time that are distinct from a national time trend.

The estimated coefficients and standard errors for the reduced-form probit model are reported in Table 2. Coefficients for the state-level industry-specific earnings variables appear in the first six rows of the table. Manufacturing earnings are estimated to be significantly negatively related to marriage, while service earnings are positively related to marriage. The estimated coefficients for the other earnings variables are all smaller in size and statistically insignificant. The next six rows of Table 2 provide estimates for the industrial employment variables. The proportions employed in the manufacturing and finance and insurance sectors are significantly negatively associated with marriage. Employment in the other sectors and aggregate employment are not statistically significant.

For brevity, coefficients for the state dummy variables and some of the demographic controls are not shown in Table 2. Detailed results are available upon request from the authors.
Among the policy and marriage market variables, state welfare benefits are significantly negatively associated with marriage, a result consistent with previous research (Lichter, McLaughlin, and Ribar, 1997). As expected, a surplus in the supply of men relative to women also is associated with a greater likelihood of marriage. A more surprising result is that the state marriage rate—as a proxy for a favorable cultural climate toward marriage—is negatively associated with marriage at the individual level. This unexpected finding may reflect the fact that states with high percentages married may also have larger absolute populations (supplies) of unmarried persons.

Our results also indicate that Black women have substantially lower marriage percentages than White women, even after controlling for differences in other sociodemographic traits and state-level employment and earnings conditions. While the aggregate state-level variables may mask differences in race-specific economic opportunities, we cannot dispute claims that the continuing retreat from marriage among African American women has less to do with current economic conditions than perhaps with a race-specific cultural repertoire born of longstanding economic inequality and geographic isolation from mainstream society (see Cherlin, 1992).

Our examination of the coefficients for the year dummies reveals a substantial and significant negative residual trend in marriage over the period—a downward trend in marriage that cannot be explained by economic restructuring, declining welfare benefits, or changing demographics. The year dummies indicate that the likelihood of marriage was higher during the late 1980s and early 1990s than it was during the mid- to late 1990s. If changes in the economy or the other measured factors were responsible for the retreat from marriage, the year dummies would have been statistically insignificant.
Predicted probabilities of marriage. The estimates from Table 2 provide clear evidence that individual marriage is related to local industrial earnings and employment conditions. However, it is hard to gauge from the coefficients alone whether changes in state economic conditions had a net positive or negative effect on marriage or whether the effects were large or small. To aid interpre-
tation, we augment our analyses with simulations designed to illustrate the overall effects of industrial restructuring in Fig. 3.

We begin by generating a baseline trend by (a) applying the estimated coefficients from the reduced form model (Table 2) to each of 443,297 individual observations to generate latent indexes of the probability of marriage, (b) using the indexes to calculate probabilities for each individual, and (c) calculating the weighted average of the probabilities across all individual observations. The baseline prediction, shown by the top (solid) line in Fig. 3, captures all of the economic, demographic, and policy changes over time. A comparison of Figs. 1 and 3 reveals that the baseline simulation closely tracks the actual marriage probabilities.

The bottom (dashed) line in Fig. 3 is generated by applying the estimated model coefficients to the observations from 1986 and allowing only the demographic variables and time dummies to vary over time. In effect, the simulation holds state employment and earnings at their 1986 levels. The difference between the first and second lines is interpreted to reflect only the effects of state economic restructuring. Based on our calculations, changes in state-level economic conditions worked to mitigate the overall downward trend in marriage; indeed, the percentage married would be roughly three points lower in 1997 if state employment and earnings had remained at their 1986 levels. These results indicate that state-level changes in employment and earnings—across multiple sectors of the economy—have offset, not contributed to, the current retreat from marriage.

Age-, education-, and race-specific marriage probabilities. Our sample includes a heterogeneous group of currently married women. Although demographic analysis of prevalence measures of marriage is conventional (e.g.,
McLanahan and Casper, 1995; Blau et al., 2000), it is not without shortcomings. One limitation is that married women, especially at older ages, may have been married for many years. The methodological concern is that our baseline estimates, shown in Table 2, may be biased by the lack of proper temporal correspondence between the date that economic conditions are measured and the date of marriage. Following Qian (1997), Blackwell and Lichter (2000), and Blau et al. (2000), we address this issue by replicating our analysis for women at greatest risk of a recent marriage—in this case, those ages 30 or younger. Most married women in this age group will have married relatively recently, and most will be in a first marriage rather than a higher order marriage.  

Age-specific marriage percentages, shown in Fig. 4, indicate that the retreat from marriage occurred among most age groups but was especially rapid among women younger than age 30. Among women ages 18 to 24, for example, the proportion married declined nearly one-third, from about .34 in 1986 to about .22 in 1997. Among women ages 25 to 29, the decline in the proportion married was modest, from .59 to about .54. If conventional economic explanations of marriage apply for these younger women—those that emphasize declining employment opportunities, stagnant wages, and welfare dependence—any effect of economic restructuring should be most pronounced among the least educated and economically vulnerable women.  

To test this hypothesis, we reestimated the reduced-form probit models separately for women (a) over and under age 30 with different schooling levels and (b) over and under age 30 with different racial and ethnic origins. Figures 5 and 6 provide predicted probabilities of marriage from the reduced-form models for these groups (full model results are available upon request). Figure 5 shows the predicted probability of being married for women younger than 30 (left column) and women ages 30 and older (right column) by education level. It provides predicted probabilities for the full model (solid line) and predicted probabilities if economic restructuring characteristics had remained at 1986 values (dashed line). Among the least educated young women, the proportion married dropped by .09 during 1986–1997. Economic restructuring accounted for roughly one-third of that decline; or, interpreted differently, the downward shift in marriage would have been slower if state economic conditions were held constant at 1986 levels. The negative effect of economic restructuring is more pronounced among older high school dropouts (Fig. 5, upper right). The proportion married dropped by .05 over 1986–1997. Our simulations indicate that the proportions married would have risen by 1 point if economic

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9 Data from the 1995 National Survey of Family Growth indicate that, among women ages 19 to 30 in 1995, 83% had spent 5 or fewer years in a marriage, and of those currently married, 94% were in their first marriage. Slightly less than 50% had been ever-married, and about 55% of these had been married 5 years or less. Nearly three of five currently married women (at the time of the survey) had been married 5 years or less. Current marital status thus provides reasonable but imperfect approximation of a rate of incidence, and it enables us to link marriage temporally to state economic conditions.
conditions had stayed at 1986 levels. Clearly, economic restructuring over the past decade contributed to declines in marriage among the least educated women (Goldstein and Kenney, 2001). The story is different for high school graduates. For them, state economic restructuring raised the probability of marriage, but the effects were relatively modest for women both younger and older than 30 (i.e., difference between solid and dashed lines).

Our results indicate that declines in marriage were modest among young women with some college or with a college degree. They also indicate that economic restructuring has placed downward pressure on marriage; the proportion married would have been higher than the observed proportion in the absence of state economic restructuring. Indeed, in the case of young college graduates, the proportion married would have increased from .44 to .47 if state employment and earnings levels had remained constant at 1986 levels. Economic restructuring had the opposite effect on older women with some college or a college degree. For them, marriage probabilities would have been significantly lower in 1997 (by .12 and .05 points for some college and college degree, respectively) had restructuring not taken place. Economic restructuring clearly contributed to increases in marriage probabilities for older, better educated women, especially during the 1990s. For college graduates, the proportion married actually increased between 1986 and 1997 but would have declined in the absence of economic restructuring. Since many older college graduates are in existing marriages, the most plausible interpretation of these results is that economic restructuring helped to stabilize existing marriages (i.e., prevented divorce) rather than to promote entry into new marriages.
FIG. 5. Predicted marriage probabilities for different age and education groups.
Figure 6 compares predicted marriage probabilities for non-Hispanic Whites, non-Hispanic Blacks, and Hispanics. For younger White women, economic restructuring had comparatively modest effects on the downward trend in marriage. However, for Blacks, the negative effects were very large. Economic restructuring contributed to a 15-point drop in marriage probabilities from 1986 to 1997; indeed, marriage probabilities would have increased if state economic conditions in 1986 had persisted until 1997. In contrast to Blacks, economic restructuring contributed to higher marriage probabilities among Hispanic younger women—almost 11 points higher than if restructuring had not occurred over 1986–1997.

For older women (right panels, Fig. 6), the labor market effects on marriage reveal a similar pattern of racial variation. For White women, marriage probabilities would have been roughly .11 lower than observed levels in 1997 if economic conditions had remained at 1986 levels. A similar but muted pattern also was observed among older Hispanic women. In contrast, for older non-Hispanic Blacks, economic restructuring contributed roughly .08 to the decline in the proportion married over 1986–1997. In fact, in the absence of economic restructuring, the proportion married would have increased rather than declined among older Black women. But, regardless of economic scenario, Black women have substantially lower marriage than their White and Hispanic counterparts.

**Effects on divorce.** As the results for older women indicated, our estimates of the effects of economic restructuring may reflect employment or income effects on divorce. Has recent growth in the U.S. economy helped stabilize existing marriages? In some additional sensitivity analyses, we estimated a reduced-form model (similar in form to our marriage model) of the determinants of divorce status among the population of ever-married women and used the results in simulation analyses. The simulations (not shown) reveal that if state industrial employment and earnings had remained at their 1986 levels, the proportion divorced would have been
.01 higher than the observed level in 1997. Such results, although modest, reinforce our earlier conclusion that the 1990s were “marriage-enhancing” on balance.

In sum, the results from the various reduced-form probit models have established that overall changes in the industrial composition of earnings and employment have had statistically significant and substantively important effects on marriage over the 1986-to-1997 period. We now turn to the question of whether state economic restructuring has affected marriage by altering the comparative economic incentives of singlehood and marriage.

**Structural Economic Model of Marriage**

**Empirical specification.** An economic or rational-choice theory of marriage posits that people make decisions to become or remain married on the basis of their perceptions of the costs and benefits associated with being married and unmarried (Becker, 1981). Here, we adopt a specific functional form for utility that describes the benefits of marriage vis-a-vis singlehood. Let the utility of a woman being single be given by the following:

\[
U_U = \alpha_U \ln Y_U + \beta_U \tag{1}
\]

where \(Y_U\) denotes the income available to an unmarried woman and \(\beta_U\) represents other factors that affect how women value singlehood. We adopt a similar specification for the utility of married women. Let the total income in married households be \(Y_M\) and assume that the woman receives a share \(\theta\) \((0 < \theta < 1)\). We write the utility associated with marriage as follows:

\[
U_M = \alpha_M \ln (\theta Y_M) + \beta_M = \alpha_M \ln Y_M + (\alpha_M \ln \theta + \beta_M). \tag{2}
\]

Marriage occurs if the utility of marriage is greater than the utility of being single, that is, if the following:

\[
U_M - U_U = \alpha_M \ln Y_M - \alpha_U \ln Y_U + (\alpha_M \ln \theta + \beta_M) - \beta_U > 0. \tag{3}
\]

To allow for additional variation in the model, we assume that \(\alpha_M \ln \theta + \beta_M - \beta_U\) can be expressed \(\Delta'X + \varepsilon\) where \(X\) is a vector of observed variables and \(s\) is an unobserved variable.\(^{10}\) With this change, the perceived net benefits of marriage can be written as follows:

\[
M^* = \alpha_M \ln Y_M - \alpha_U \ln Y_U + \Delta'X + \varepsilon. \tag{4}
\]

We further assume that \(s\) is normally distributed with mean zero and variance 1. With data on women’s actual marriage outcomes, income opportunities, and other observed characteristics, we could estimate the parameters of the net benefits equation using a standard probit model.

We observe the incomes of married and single women but not the incomes associated with their alternative, or counterfactual, marital status. Women’s incomes in the counterfactual status must be imputed. For each married woman in our sample, this means imputing the total amount of money that she would earn 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.

We estimate regressions in which the log incomes associated with marriage or nonmarriage are specified as functions of (a) a set of economic and demographic variables, \(Z\), including race, age, sex, schooling, and state-level industry-specific earnings and employment, that are observed for each woman regardless of her marital status and (b) unobserved variables, \(\eta_M\) and \(\eta_U\), that do depend on marital status, such that we have the following:

\[10\] This is equivalent to assuming that \(\ln \theta = \Delta'X + \varepsilon_o\), \(\beta_M = \Delta'MX + \varepsilon_M\), and \(\beta_U = \Delta'UX + \varepsilon_U\) and that \(\Delta=\alpha_M\Delta_U+\Delta_M—\Delta_U\) and \(\varepsilon=\alpha_M\varepsilon_U+\varepsilon_M\varepsilon_U\).
The unobserved variables, 71M and 71U, may be correlated with the error term from the marriage equation, s, leading to possible selection bias. We estimate these equations conditionally for the subsamples of married and unmarried women. We then combine coefficient estimates from the models with the women’s observed characteristics to impute incomes inside and outside of marriage and estimate the structural probit model (4).\footnote{To address the selectivity and simultaneity that arises in these equations, we jointly estimate Eqs. (4), (5M), and (5U) using Lee’s (1979) three-step procedure. The steps in this procedure are to (a) use a probit model to estimate a reduced-form version of Eq. (4) using all of the exogenous variables from X and Z, (b) use the results from the first step to form selection-correction terms and estimate corrected versions of regression Eqs. (5M) and (5U), and (c) use results from the second step to form predictions of incomes inside and outside of marriage and reestimate the structural marriage Eq. (4). We also calculate standard errors using the method that Lee (1978) suggested.}

While we consider a static rather than a dynamic model, our approach is otherwise similar to the one used by van der Klaauw (1996).

Estimation results. 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 structural binary marriage Eq. (4). The next two columns provide results from the conditional log married and unmarried income equations, (5M) and (5U). The three equations in the structural economic model each contain the same exogenous explanatory variables as the reduced-form model from Table 2 with the following exceptions: the state-level economic and welfare benefits variables are excluded from the marriage equation, and the state-level marriage market variables are excluded from the conditional income equations.

The correlation coefficients ($\rho$’s), which indicate the extent of selectivity, are individually and jointly significantly different from zero. Thus, it is necessary to account for selectivity in each of the income equations. The correlation coefficient for unmarried women’s incomes is small and positive while the coefficient for couples’ incomes is strongly negative. This means that unobserved factors that contribute positively to unmarried women’s economic success also contribute positively, albeit weakly, to the likelihood of marriage. At the same time, unobserved factors associated with high incomes within marriage are negatively related to marriage prospects.\footnote{One interpretation is that women who are more productive outside the home but also more willing to specialize in household production within marriage have better marriage prospects than other women.}

As expected, results from the conditional log income equations reveal that state economic conditions play a large role in determining individual economic success. Do these results imply that differences in women’s marital and non-marital income opportunities affect marriage? The answer from our structural model is shown in the first two rows of Table 3. The results do not provide very strong evidence one way or the other about the validity of the economic model. The coefficient for unmarried incomes is negative, as expected, but falls short of statistical significance ($p < .16$). Contrary to the theoretical model, the coefficient for married incomes is also negative, though not significantly so. The signs on the coefficients are consistent with economic restructuring generally improving incomes and depressing marriage. While these inconclusive results do not overturn our economic model, they nevertheless suggest that restructuring affected marriage in other ways unrelated to the marriage premium—e.g., by encouraging employment (and interaction with potential mates in the work place) or by affecting residence patterns and access to marriageable men (McLaughlin and Lichter, 1997).
Because the results for the other explanatory variables in the structural marriage equation are similar to the results from the reduced form model (Table 2), an extended discussion of them is not warranted. However, in some additional sensitivity analyses (not shown), we fit alternative specifications without controls for state unobserved variables or selectivity. On the one hand, models that lack state controls and controls for selectivity produce an expected significant negative effect of unmarried income on marriage. These results provide an interpretation that is consistent with our economic model, one arguing that the retreat from marriage is associated with increasing economic independence of unmarried women. Stated more simply, when the economic conditions translate into higher incomes for single women, they are less likely to marry. On the other hand, the hypothesized positive effects of married income on marriage was not evident in our analysis. Growth in the “marriage premium” does not easily translate into more marriages.  

DISCUSSION AND CONCLUSION

We also estimated models for the different age-education groups, which are available from the authors upon request. In general, we found that the current bifurcated economy has not benefited less educated women and the low-educated, low-skilled men that they typically marry.
Our article has evaluated the relationship between recent macroeconomic shifts (played out at the state level) and the downward shift in marriage over the 1986-to-1997 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).

In light of the recent 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. 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.

Our results from the pooled 1986–1997 March demographic files of the Current Population Survey addressed this task. 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. Instead, we found that the retreat from marriage continued. Our analyses nevertheless provided clear evidence that the recent economic recovery has on balance helped slow the downward trend in marriage. The job and earnings growth and increases in the so-called “marriage premium” (i.e., the difference in the income between single and married women) have not translated easily into rebounding marriage rates in the 1990s. Economic expansion has not offset the downward pressures on marriage from other observed demographic characteristics and from unobserved cultural factors (e.g., the rise in individualism at the expense of community).

Such results suggest that a fuller appreciation of current trends in marriage requires new theoretical approaches that build on simple monocausal economic models that emphasize the comparative economic advantages of singlehood and marriage. Of course, the recent economic expansion may yet have significant lagged effects on marriage which are only fully revealed with time. Indeed, recent job growth and declining unemployment may provide insufficient confidence regarding the likely future employment stability and earnings prospects of prospective spouses. At the same time, our results clearly suggest that conventional economic explanations of both current and past marriage trends, which typically emphasize the blurring of traditional gender roles regarding work and family life, cannot account for the continuing U.S. decline in marriage.

Our study builds on previous research that has sought to explain the retreat from marriage in the United States (e.g., Mare and Winship, 1998; Moffitt, 2000). No study, including this one, has been entirely successful. But unlike previous work, ours incorporates a time series of state-specific employment and earnings 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, however, sweeping declines in marriage across diverse population subgroups suggest broad-based cultural shifts (e.g., an ethic of individualism over familism) have taken on a momentum of their own and have affected virtually all segments of the U.S. population (Sassler and Schoen, 1999; Goldstein and Kenney, 2001). While some suggest that the best “family policy” is a strong economy that is churning out good jobs, the evidence provided here is equivocal. A strong economy—at least using conventional standards—has not led to a marriage rebound.

On the other hand, economic restructuring has had different effects on different segments of the U.S. population. Our analyses showed persistently large and growing sociocultural and racial differences in marriage during the recent expansionary period. And these differences, including those between Blacks and Whites, continue to be rooted partly in past and current economic and social factors. Indeed, our simulations indicated that the effects of state economic restructuring were highly differentiated across population subgroups distinguished by age, race, and education. For example, we estimated that economic restructuring contributed to a 15-
percentage-point decline in the percentage married among young Black women over the study period. Among high school dropouts, changing economic conditions accounted for roughly one-third of the decline in marriage over 1986–1997. Conversely, for highly educated young women, economic restructuring contributed to delays in marriage while apparently stabilizing marriages at older ages. Macro economic changes (including the growing bifurcation of the economy) have had uneven effects across different segments of U.S. population.

Finally, marriage is increasingly viewed as a panacea for many of America’s social problems—poor mental health, single parenting, racial inequality, and child poverty (Lichter, 2001; Fagan, 2001). The statistical evidence is compelling in this regard (Waite and Gallagher, 2000). At the same time, the call for policies that promote marriage arguably is at cross purposes with macroeconomic trends that have eroded the economic underpinning of marriage for those most in need. Marriage in the absence of stable employment and a family wage is no economic panacea; at the same time, marriage has arguably become a “luxury” available mostly to middle-class and affluent women with the best marital prospects. Clearly, if marriage benefits society and becomes an important social goal, then effective public policy will require a much better understanding of the changing personal incentives and structural constraints that affect marriage, especially among disadvantaged women.

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