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Marriage, Divorce, and Tax and Transfer Policy

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I use variation from the 1990s in the Earned Income Tax Credit and welfare reform to estimate the effects on marrying and divorcing. I examine flows into and out of marriage, use test scores to predict who is most likely to be affected by the policy changes, and employ a flexible functional form to estimate heterogeneous effects. I find that low-earning single parents are more likely to marry due to the EITC expansion and lower welfare generosity, while mid-earning married parents are less likely to divorce and high-earning married parents are more likely to divorce due to the EITC expansion.

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JEL codes: J12, H24, H53, D10

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1 Introduction

The tax and transfer systems in the United States create an intricate web of family structure incentives: transfer programs for the needy often discourage marriage, while the tax system discourages marriage for some and encourages marriage for others. Substantial public debate about the role of family structure incentives in the tax and transfer systems demonstrates a public desire to encourage marriage, and recent changes to the Earned Income Tax Credit (EITC) and earlier changes to the cash welfare system seek to reduce marriage disincentives. While the same individuals may be eligible for various tax credits and transfer programs depending on whether they marry, much of the literature has dealt separately with either one or the other. I take advantage of policy variations in both tax and transfer programs in the 1990s to estimate how individuals respond to the family structure incentives they face from the tax and transfer systems.

Previous quasi-experimental studies find weak evidence, at best, that individuals respond to family structure incentives contained in the U.S. tax and transfer systems, but the most convincing studies find that there are generally small effects of the marriage tax penalty/subsidy on the probability of marrying, and little to no effect on the probability of divorcing.[1] Many studies in this literature rely on repeated cross sections of data, which blurs the marriage and divorce response margin. For example, if a cross-section shows an increase in the probability of being married it could result either from more people marrying or from fewer divorcing. In essence, the issue is that marriage entry and exit are not necessarily symmetric.

I use the National Longitudinal Survey of Youth 1979 to construct panels of risk samples, which include only individuals who were eligible to marry (because they were unmarried) or divorce (because they were married), respectively. My estimation strategy compares marriage and divorce outcomes of parents to those of childless adults between

1. To name a few, Alm and Whittington (1995a) estimate that the elasticity of marrying with respect to the tax cost of marriage is -0.012, Eissa and Hoynes (2003) estimate the elasticity of being married with respect to the tax cost of marriage to be -0.004, and Michelmore (2015) finds that a $1,000 increase in the EITC cost of marriage decreases the probability of marrying by 1.1 percentage points (8.5%).

1991–1998, a time period characterized by a dramatic increase in the EITC and substantial welfare reform for families with children compared to those without.[2] My estimates also differentiate between individuals with low, average, and high scores on the Armed Forces Qualification Test (AFQT) in order to estimate the family structure effects of the tax and transfer systems at different points in the potential earnings distribution. Many other studies of the EITC use education, instead of AFQT scores, to circumvent endogeneity issues associated with using reported earnings to isolate likely welfare and EITC recipients (Eissa and Liebman 1996; Schoeni and Blank 2000; Meyer and Rosenbaum 2001; Eissa and Hoynes 2003, 2004; Michelmore 2015), but my spline function approach using AFQT scores accomplishes the same task while providing greater identifying power for heterogeneous effects.[3]

While the EITC expansion occurred at the national level, welfare parameters are set by each state and therefore changed differentially across states and time. I use the maximum attainable monthly welfare payment for a family of three as my main measure of potential welfare gains or losses due to family structure changes. I also control for other state-level tax and transfer program characteristics described by Meyer and Rosenbaum (2001) and others, such as whether and when a state applied for a major welfare waiver, instituted any welfare time limits, first terminated a case under a new welfare waiver, or introduced a state EITC. Variation in welfare eligibility and benefit levels across states and time identify the effect of transfer system generosity on the probability of marrying or divorcing separately from the effect of the EITC.

Among single parents with low AFQT scores, who are likely eligible for both the EITC and welfare, I find that the 1993–1996 EITC increased the probability of marrying between 1997–1998 (one to two years after the expansion was complete) by 5.2 percentage points (47.7%) for each standard deviation reduction in AFQT. I also estimate that a $100 decrease

2. I use the term "divorcing" to refer to either a separation or a divorce, which is conventional in the literature. As noted by Whittington and Alm (1997), who study the effect of income taxes on divorce between 1969–1989, it is relatively easy to be able to file under single status or as "head-of-household" if one is separated.

3. The concern is that changes to EITC and welfare program parameters cause individuals to manipulate their earnings and, thus, their statuses as eligible or non-eligible individuals.

in the monthly welfare payment increases the probability of marrying by 0.4 percentage points (4.5%) among single mothers in this group, but this evidence is not strong. I find no divorce effects of the tax and transfer system among parents with low AFQT scores.

Among married parents with average AFQT scores, who are likely just ineligible for the EITC and welfare, I find that the EITC expansion decreased the probability of divorcing in 1994 by 6.0 percentage points (78.9%) for each standard deviation reduction in AFQT score. I find opposite effects among married parents with high AFQT scores, where my estimates show that the EITC expansion increased the probability of divorcing between 1997–1998 by 10.7 percentage points (175.4%) for each standard deviation reduction in AFQT score. Both of these findings are consistent with increased marriage incentives for lower earners and increased divorce incentives for higher earners. I find no evidence that welfare generosity affects divorce decisions among married mothers who would likely be eligible for welfare benefits upon divorce.

Finally, I examine the robustness of my findings by comparing my results to those using a sample of repeated cross sections, comparing my results to those using education instead of AFQT score, and using a continuous variable for EITC generosity. I also estimate the model separately for men and women, where I find some suggestive evidence of differential family structure patterns between mothers and fathers that imply stronger marriage incentives from the EITC among single fathers and stronger divorce incentives from the EITC among married mothers.

Overall, my findings suggest that recent EITC expansions, such as lengthening the plateau range for married families, may have important effects in terms of encouraging marriage among low-earning families. However, these policies likely affect single and married taxpayers differently, creating asymmetric responses for marriage and divorce flows along the income distribution.

The remainder of the paper is organized as follows. Section 2 discusses the relevant literature, Section 3 discusses policy background and theoretical motivation, and Section

4 discusses the data. Section 5 presents the empirical strategy and Section 6 presents the main results along with some alternative specifications. Finally, Section 7 concludes.

2 Relevant Literature

Studies concerning marriage and divorce responses to the tax and transfer systems have often focused on the role of either taxes or transfers without considering their interactions. For example, Alm and Whittington (1995a, 1995b), Whittington and Alm (1997), Ellwood (2000), Dickert-Conlin and Houser (2002), Eissa and Hoynes (2003), Herbst (2011), Fisher (2013), Michelmore (2015), and Bastian (2018) focus on the role of taxes, while Schoeni and Blank (2000), Bitler et al. (2004), and Teitler et al. (2009) consider the role of transfers.[4] These authors' findings also point to the possibility of differential effects of taxation upon beginning, rather than ending, a marriage, further motivating my consideration of marriage and divorce flows. In addition, past studies of the effects of the EITC frequently limit or separate the data by education level to differentiate between families who are likely eligible or ineligible for the EITC or welfare (Eissa and Liebman 1996; Schoeni and Blank 2000; Meyer and Rosenbaum 2001; Eissa and Hoynes 2003, 2004; Michelmore 2015; Bastian 2018) or use cross-sectional stocks of marriages (Alm and Whittington 1995b; Ellwood 2000; Schoeni and Blank 2000; Fisher 2013). In this paper, I build upon past research by jointly considering taxes and transfers in family structure decisions, using AFQT scores, instead of eduction, to estimate responses at different points of the potential earnings distribution, and using longitudinal data to study transitions into and out of marriages as opposed to cross-sectional stocks.[5]

Dickert-Conlin (1999) and Light and Omori (2008) also use longitudinal data to estimate the effects of both the tax and transfer systems on family structure. Using women from the

4. Alm and Whittington (1995a, 1995b), Whittington and Alm (1997), and Eissa and Hoynes (2003) all use variation from the full tax code (including the EITC), but conduct their studies outside the context of the 1993–1996 EITC expansion and welfare reform. They find generally small elasticities with respect to the tax cost of marriage, and, as I find below, estimate stronger responses to taxation when considering marriage or divorce flows than when considering marriage stocks.

5. Longitudinal analysis allows for differential responses upon beginning or ending a marriage (Eissa and Hoynes 2000).

1990 Survey of Income and Program Participation (SIPP), Dickert-Conlin (1999) finds that tax penalties for marriage increase the probability of divorce, but that transfer penalty effects are not statistically different from zero: the marginal effect of a $1,000 increase in the tax penalty at the mean is 0.41–0.83 percentage points (15.2–30.7%).[6] The SIPP, however, contains a very short panel, and allows Dickert-Conlin to use only a short time window for analysis spanning 1990–1991. In this paper, I use the NLSY79's longer panel to observe individuals for, on average, five years during a time period of substantial change to both the tax and transfer systems.

Light and Omori (2008) also use the NLSY79 and estimate a three stage model of cohabitation and marriage. They find that increasing welfare generosity decreases the probability of marrying for a representative white woman, and the size of their estimate is similar to mine.[7] However, they use variation in state income taxation between 1974–2004, whereas I focus specifically on the federal 1993–1996 EITC expansion and welfare reform.[8] It is, perhaps, not surprising that Light and Omori (2008) do not find significant effects of the state income tax penalty on the probability of marrying given that past researchers have found small family structure effects as a result of federal taxation.

Other researchers, such as Brien, Lillard, and Stern (2006), Sheran (2007), Gemici and Laufer (2014), and Low et al. (2018) estimate structural models of family formation and conduct counterfactual analyses that alter the costs or benefits of marriage. My quasi-experimental approach imposes fewer assumptions on the structure of flows in and out of marriage.

Recent research on the EITC has focused on the EITC's additional effects, including its

6. The mean tax penalty is actually a $498 subsidy. The baseline probability of divorce is 2.7%.

7. Light and Omori (2008) only report the mean and standard deviation of their AFDC/TANF payment variable. I roughly calculate the 90$^{\text{th}}$ percentile to be $mean + SD \times 1.282 = 475.44 + 177.39 \times 1.282 = 702.85$, which assumes a normal distribution. Thus, I calculate that an increase in the maximum attainable monthly AFDC/TANF payment for a family of four from the mean to the 90$^{\text{th}}$ percentile is roughly an increase of $227.41. This equates roughly to claiming that a $100 increase in welfare generosity causes a 0.49 percentage point (10%) decrease in the probability of transitioning from being single to being married.

8. The model of Light and Omori (2008) differs from mine in a number of other ways. First, it is an ordered, three stage model in which the first stage considers transitions from being single to either cohabiting or being married, the second stage considers transitions from cohabitation to either being single or being married, and the third stage considers transitions from being married to being single. My model would constitute only their first and third stages. In addition, an individual remains in their sample from 1979 through the end of her first union, whereas an individual exits my sample after the first observation of a family structure change. Finally, my sample only includes 1991–1998, whereas theirs spans 1979–2004.

usefulness as a poverty-reduction tool and its effects on the distribution of earnings (Hoynes and Patel 2015; Jones and Michelmore 2018) and its effects on children's outcomes (Dahl and Lochner 2012; Hoynes, Miller, and Simon 2015; Bastian and Michelmore 2016). In general, researchers conclude that the EITC is effective at reducing poverty among low-earning families and that the additional family income from the EITC is beneficial to children in those families along numerous dimensions. Aside from additional outcomes, other researchers have examined whether taxpayers' understanding (or lack thereof) of the EITC structure and its incentives contributes to estimates of the EITC's impacts. Chetty and Saez (2013) find experimental evidence that explaining the incentives of the EITC had negligible impacts on an individual's EITC the following tax year. Chetty, Friedman, and Saez (2013) use a quasi-experimental approach and find that maximizing one's EITC amount by bunching at the first EITC kink point can be partially explained by knowledge diffusion from EITC-knowledgable taxpayers to others.

3 Policy Background and Theoretical Predictions

Both the 1993–1996 EITC expansion and the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), which replaced the Aid to Families with Dependent Children (AFDC) program with Temporary Assistance for Needy Families (TANF), sought to encourage work, discourage welfare receipt, and encourage marriage among low-earning families.[9] As in Becker (1973, 1974), I model individuals as choosing to marry if the utility from being married is greater than the utility from being single, and analogously for divorce. Since AFDC/TANF is generally collected by single parents, an increase in AFDC/TANF generosity should unambiguously make being single more attractive. However, the incentive effects of the EITC are ambiguous.

9. The Omnibus Budget Reconciliation Act of 1993, which expanded the EITC, also instituted other tax code changes such as introducing higher statutory marginal tax rates of 36% and 39.6% and increased tax rates under the alternative minimum tax. I do not differentiate between these other individual aspects of the act.

3.1 The Earned Income Tax Credit

Unlike other tax credits, the federal EITC is refundable, meaning that even if the individual's tax liability is zero he will still receive the full amount of his credit from the government. Figure 1 displays the EITC schedules for 1996 as an example of its structure. The amount of a family's credit increases at a constant rate with each additional dollar of earned income in the phase-in range, remains constant in the plateau range, and decreases at a constant rate in the phase-out range until earnings are too high for the family to receive any credit.[10]

Over the first 10 years, the EITC experienced some modest expansions. Since then, three major policies have affected the EITC: the Tax Reform Act of 1986, the 1990 Omnibus Budget Reconciliation Act, and the 1993 Omnibus Budget Reconciliation Act.[11] The changes contained in the 1993 act were phased in over the next three years. Table 1 displays the EITC parameters for the sample years I use in this paper. By 1998, the maximum EITC increased by $837 (58%) for families with one child and $2,245 (149%) for families with two or more children, relative to 1993. This expansion constituted the most dramatic federal EITC expansion to date (Nichols and Rothstein 2015). In addition, six states had implemented state EITCs by 1991, for which I account in my analysis.

Marriage incentives created by the EITC vary dramatically between individuals and may even differ between individuals who are considering marrying each other. Figure 2 presents six potential situations an individual could face when considering marriage, which differ by the individual's number of children, the potential spouse's number of children, and the potential spouse's earnings. The figures display the difference between the individual's EITC while married and while single along a range of their own possible earnings, with

10. Tax filers can receive their EITC payment in one of two ways: they may elect to receive their credit as a part of their paycheck throughout the year or as a lump sum after filing their taxes. The option to receive one's credit in installments has been allowed since 1979, but very few tax filers choose this method of recipiency and instead receive their credit as a lump sum (United States General Accounting Office 1992; Romich and Weisner 2000). I ignore this aspect of the EITC because it is unlikely to influence family structure responses.

11. The 1986 act indexed the EITC to inflation and modestly increased generosity, the 1990 act split the credit to differentiate between families with one and two or more children, and the 1993 act instituted a small EITC for childless families and greatly expanded the maximum credit for families with children. The 1990 Omnibus Budget Reconciliation Act also instituted an additional credit for families with children younger than one year old, which was repealed in the 1993 Omnibus Budget Reconciliation Act (U.S. Congress 2004, 1990).

positive values indicating an increase in EITC, and thus a stronger incentive to marry.[12] I derive these incentives from the EITC schedules in Table 1, and assume that a low-earning potential individual earns $5,000 per year.[13]

The EITC creates marriage disincentives in some situations, such as Figures 2a, 2d, and 2f, and marriage incentives in others.[14] The EITC gain through marriage can be as high as $1,500–$2,200, as in Figures 2b, 2c, and 2e, and the EITC loss through marriage can be as low as $700–$900, as in Figures 2d and 2f.

However, the EITC difference, whether initially positive or negative, tends to shift in favor of marriage between 1992 and 1998. Conditional on earnings, Figure 2 shows that individuals' EITC differences increased as much as $500–$1,500 during this time period. Therefore, I expect to find that the EITC expansion increased the probability of marrying among parents with low AFQT scores, who are likely eligible for the EITC and AFDC/TANF, relative to childless adults, and that this effect is larger compared to parents with high AFQT scores, who are likely ineligible for these programs.

3.2 Aid to Families with Dependent Children and Temporary Assistance for Needy Families

The AFDC program was, and largely still is, targeted at single mothers, although in 1961 the program began to provide support to two-parent families in which the principal earner became unemployed.[15] AFDC generosity varies among states and over time because the states set their own benefit levels (Moffitt 2003).[16] In addition, the benefit take-away rate as a function of earnings is generally quite high, and did not vary greatly across states under

12. Note that these graphs are from an individual's perspective, meaning they compare the family's EITC while married to the individual's EITC while single. This perspective is comparable to the perspective I use throughout the empirical strategy, and does not consider cohabitation.

13. Earning $5,000 per year during this time frame is roughly the equivalent of working part time at the minimum wage.

14. Figures 2a and 2d are situations in which the individual would not move up to a more generous EITC schedule through marriage because he already lives with the family's only EITC-eligible child. Figure 2f displays large sections of marriage disincentives in 1992 and 1994, even though a second EITC-eligible child joins the family via marriage, because the one- and two-child EITC schedules were very similar.

15. Although the AFDC Unemployed Parent (AFDC-UP) program was created in 1961, states were not required to implement it until 1988.

16. In 1991, for instance, the maximum AFDC payment for a one-parent family with two children in Mississippi was $120 per month, whereas the maximum payment in California was $694 per month.

AFDC.

TANF replaced AFDC as a result of Personal Responsibility and Work Opportunity Reconciliation Act of 1996, and drastically altered the welfare environment. New TANF policies, some of which were left up to state choice, included lifetime limits for welfare receipt, work requirements, eligibility for two-parent families, and non-cash forms for benefits. My primary measure of AFDC/TANF generosity is the maximum monthly payment available in each state, but I also control for other aspects of states' AFDC/TANF programs, such as whether and when a state applied for a major welfare waiver, instituted any welfare time limits, and first terminated a case under a new welfare waiver.

Overall, the transfer system primarily creates marriage disincentives because the benefit levels for a single-parent family are higher than those for a two-parent family, if such benefits are available at all. Combining changes to the EITC in Figure 2 with welfare reform further strengthens overall marriage incentives in the 1990s. To illustrate this, Figure 3 displays the change in the marriage penalty/subsidy from 1992 to 1994, 1996, and 1998 due to changes in real AFDC/TANF benefit levels and the EITC, with positive values indicating an increase in the marriage subsidy (or, equivalently, a decrease in the marriage penalty).[17] In these graphs I use the average family AFDC/TANF payment for the given year as the measure of welfare, and I assume that an individual loses all AFDC/TANF benefits upon marriage.[18] Conditional on earnings, by 1998, individuals' annual gains from EITC and AFDC/TANF had increased $700–$2,700 relative to 1992.

Based on Figure 3, I expect to find that lower AFDC/TANF generosity increases the probability of marrying among mothers with low AFQT scores, relative to others.

3.3 Other Policy Changes

In addition to changes to the EITC and AFDC/TANF, there were two Medicaid expansions in 1989 and 1990 that required states to offer Medicaid coverage to pregnant women and to

17. As an example, the 1994 to 1992 difference plots $(EITC_{married,1994} - EITC_{single,1994} - welfare_{1994}) - (EITC_{married,1992} - EITC_{single,1992} - welfare_{1992})$ for each situation.

18. I also ignore other changes resulting from PRWORA that tightened eligibility for benefits

children in low-income families. These expansions would also have introduced marriage incentives among a similar sample of people as those affected by the 1993–1996 EITC expansion. The 1989 expansion came into effect in April 1990, and so should not introduce much (if any) bias to my estimates because my sample period begins in 1991. The 1990 expansion came into effect in July 1991, and so may introduce a small amount of bias due to the policy change. I re-estimate my model using only years 1992–1998, so that the 1990 Medicaid expansion would have been in effect for the entire sample period, and find qualitatively and quantitatively similar results. Thus, I find little evidence of bias in my estimated effects of the 1993–1996 EITC expansion due to the preceding Medicaid expansion.[19]

4 Data

I use panel data from the National Longitudinal Survey of Youth 1979 (NLSY79) to estimate the marriage and divorce effects of the EITC and AFDC/TANF changes that occurred in the 1990s. The NLSY79 allows me to observe individuals over a long time period, to separate individuals based on past marital status, to examine marriage and divorce flows, and to use scores from the Armed Forces Qualification Test (AFQT) to separate likely low-earners from likely high-earners.

4.1 The NLSY79 Risk Samples

The data come from the 1991–1998 waves of the NLSY79, which offer longer panels than the Survey of Income and Program Participation and a larger sample of the relevant age cohort than the Panel Study of Income Dynamics.[20] I observe individuals in my samples for five years, on average. Through 1994 the NLSY79 surveyed individuals each year, but

19. Card and Shore-Sheppard (2004) estimate the effects of each of these Medicaid expansions on numerous health insurance outcomes, and conclude that the "overall effect of the Medicaid expansions was substantially limited by low takeup rates among the newly eligible children." This conclusion also suggests little effect of the Medicaid expansion on family structure decisions in my context.

20. I begin my analysis in 1991 due to the timing of the policy variation. I use the restricted geocode data in order to link individuals with their state of residence, which is necessary in order to use variation in AFDC/TANF generosity between states and over time. I also limit the sample to observations with reported annual earnings less than $1,000,000.

afterward the survey became biennial. Respondents are between 27–34 years old at the beginning of the sample, and are between 33–41 years old by the end.

The marriage and divorce risk samples include only individuals who are eligible to be married and eligible to be divorced, respectively. Individuals are included in the marriage sample if they are unmarried that year or in their first year of marriage.[21] Subsequent observations of these individuals in their second years of marriage and beyond are excluded from the marriage sample, but the individual re-enters the marriage sample if he divorces.[22] I define the divorce sample analogously. Note that some individuals appear intermittently in the data, some appear regularly and then leave, and some remain in the survey for the entire duration, creating an unbalanced panel of 4,500 individuals with 16,474 observations for the full marriage risk sample and 5,640 individuals with 23,335 observations for the full divorce risk sample.

The risk samples ensure that the observations I use to estimate the tax and transfer system effects are for those individuals who can respond to the policies by changing marital status in the specified ways. Previous cross-sectional studies, which often cannot distinguish between previously married or unmarried individuals, combine individuals who were able to respond the policy by marrying or by divorcing with those who were not, therefore blurring the marriage and divorce response margins and biasing the estimated effects of the tax and transfer systems toward zero, which I illustrate later.

4.2 AFQT Z-Scores

My empirical strategy distinguishes between individuals who are likely eligible for the EITC and AFDC/TANF from those who are not, but a primary endogeneity concern is that individuals may manipulate their earnings in order to become eligible for, or earn a

21. The NLSY79 collects information on the beginning and ending dates of first, second, and third marriages. Therefore, although the survey became biennial in 1994, it is possible to differentiate between marriages that occurred in 1995 (a non-survey year) from those that occurred in 1996 (the next survey year). I do not make this distinction in the empirical strategy because other necessary covariates are missing in non-survey years, such as number of children and state of residence, which determine whether AFDC/TANF is available to the individual and, if so, how much.

22. There are instances in which an individual is married in one wave, divorced in the following wave, and married again in the next wave. In this case, the individual would be included in the divorce sample for all three of those observations. There are 157 (0.7%) such occurrences within the divorce sample. There are 104 (0.6%) analogous occurrences within the marriage sample.

higher amount of assistance from, the EITC or AFDC/TANF. To circumvent this issue, much of the literature uses completed education to separate likely EITC and AFDC/TANF eligible individuals from others. The NLSY79 allows me to extend this common practice by, instead, using a spline function in Armed Forces Qualification Test (AFQT) z-score to differentiate individuals with different potential earnings.[23] AFQT z-scores are unique to these data and offer greater variation and more estimating power than using education in a similar manner. I convert AFQT percentile scores to a z-score by assuming a standard normal distribution of AFQT scores and computing AFQT z-score$= \Phi^{-1}$(AFQT percentile), where $\Phi^{-1}(\cdot)$ is the inverse of the standard normal cumulative distribution function.[24][25]

An individual with a low AFQT z-score likely has low annual earnings as well, which makes him more likely to be eligible for the EITC and AFDC/TANF. Figure 5 displays the positive relationship between average annual earnings and AFQT z-score bins for the marriage and divorce risk samples, along with their 95% confidence intervals. Although the relationship is not overwhelmingly strong, individuals with z-scores less than 0, on average, appear to have earnings lower than approximately $26,000 and therefore fall in the EITC eligibility range. In general, the lines of best fit displayed in Figure 5a (the marriage sample) appear largely linear up to a z-score of 0, with a possible difference in the relationship for individuals with z-scores between 0 and 1 or z-scores above 1. Therefore, I place notches in the spline function at z-scores of 0 and 1, to allow for differential effects of the 1993–1996 EITC expansion along the AFQT distribution.

23. AFQT scores are a portion of the larger Armed Services Vocational Aptitude Battery (ASVAB) administered to the majority of the respondents of the NLSY79. The AFQT combines arithmetic reasoning, word knowledge, paragraph comprehension, and numeric operations scores into a single measure. Because the ASVAB tests were unincentivized, performance on these tests may measure both cognitive and non-cognitive attributes, both of which predict earnings and further motivates my use of AFQT z-scores to separate likely low-earners from likely high-earners.

24. In practice I use the negative of the individual's AFQT z-score, so that a higher variable value is associated with a higher likelihood of treatment due to a lower AFQT z-score.

25. This approach is common in the literature using AFQT scores from the NLSY79. For example, Neal and Johnson (1996) adjusts AFQT scores in the NLSY79 in a similar manner.

4.3 AFDC/TANF Generosity

I extend much of the past literature in this field by incorporating both tax and transfer incentives for marriage and divorce. My primary measure of AFDC/TANF generosity in the individual's state is the maximum attainable monthly AFDC/TANF payment for a family of three.[26] In order to more accurately reflect an individual's potential gain or loss, I interact the maximum attainable monthly AFDC/TANF payment with the individual's z-score, an indicator equal to one if the individual has at least one child this period, and an indicator variable equal to one if the individual is female.[27] This last interaction reflects the fact that AFDC/TANF is largely targeted at single mothers. I also control for other state-level tax and transfer program characteristics described by Meyer and Rosenbaum (2001) and others, such as whether and when a state applied for a major welfare waiver, instituted any welfare time limits, first terminated a case under a new welfare waiver, or introduced a state EITC. Variation in welfare eligibility and benefit levels across states and time identify the effect of transfer system generosity on the probability of marrying or divorcing separately from the effect of the EITC.

4.4 Dynamic Selection

Because the sample ages in unison and is not replenished, there is a concern that over time the sample of individuals who are eligible to marry will become biased toward individuals who will never marry due to some unobservable factor. In addition, most transitions into marriage occur in the mid- to late-20s, and so extending the sample period to include older individuals may bias the analysis due to negative duration dependence.[28] In this case, the sample of unmarried individuals becomes increasingly negatively selected over

26. Bitler et al. (2004), Meyer and Rosenbaum (2001), and others also use the maximum attainable monthly AFDC/TANF payment to estimate the effect of the transfer system.

27. In specifications that use only women this definition is similar to the difference-in-differences specification with the added interaction of the individual's AFQT z-score instead of the spline function. In specifications that use only men the regression fails. Therefore, I remove the interaction with the female indicator variable in specifications that use only women or only men. In alternative specifications I utilize two other AFDC/TANF eligibility definitions; one based on predicted earnings and the other omitting the female interaction in all specifications. These results are available upon request.

28. Figure 4 displays the hazard rate of new marriages by age among women who were 27–43 years old in 1990, calculated from the 1990 June Current Population Survey. The declining hazard rate at higher ages is another reason I omit survey years beyond 1998 in order to exclude the right-most tail of the age distribution in Figure 4.

time and we would expect the estimated effects of the 1993–1996 EITC expansion and AFDC/TANF generosity to be biased toward zero in later years.[29] Analogous dynamic selection is also possible in the divorce risk sample. These dynamic selection issues are important considerations, and I therefore limit the sample period and consider only marital transitions between 1991–1998 in order to alleviate, but not completely eliminate, this concern. Although determining the direction and extent of dynamic selection is not feasible in my current framework, I present a simple theoretical model in the online appendix to demonstrate that dynamic selection can lead to a sample that is increasingly unlikely to leave its current state.

4.5 Summary Statistics

Columns 1–3 of Table 2 present the summary statistics for individuals whose first observation places them in the marriage sample in 1991.[30] Notably, the marriage risk sample is slightly younger, more likely to be black, and more likely to be male than individuals initially in the divorce risk sample. Predictably, individuals with lower AFQT z-scores are also more likely to have exactly a high school education or less. The average individual in the marriage risk sample is 30 years old, and 28% of them have at least one child, and so are eligible for a generous EITC.

Columns 4–6 of Table 2 presents the summary statistics for individuals whose first observation places them in the divorce sample in 1991. The divorce risk sample, which is slightly older, otherwise exhibits trends that are similar to those of the marriage risk sample. As in the marriage sample, individuals with lower AFQT z-scores are more likely to have exactly a high school education or less and be black or hispanic than are individuals with higher z-scores. 70% of individuals in the divorce sample have at least one child, and are slightly more likely to have more children than individuals in the marriage risk

29. This is just one possible example of dynamic selection, as any dynamic selection within the samples may work in the opposite direction.

30. These statistics do not include individuals who enter the marriage sample via divorce. Including individuals who enter the marriage sample via divorce may result in individuals being included twice or individuals being included in both the marriage and divorce sample summary statistics. The summary statistics in Table 2 are not fully representative of the panel because they only appear once.

sample.[31]

4.6 Investigating the Parallel Trends Assumption

Finally, the identification assumption throughout is that marriage and divorce decisions of individuals with and without children would have evolved similarly in the absence of the EITC expansion and welfare reform. To investigate this assumption, I use the marriage and birth histories of women surveyed in the 1995 June Current Population Survey to create a panel back to 1987 in order to examine the parallel trends assumption before the EITC expansions in 1990 and 1993–1996. The June CPS is helpful because it offers a substantially larger sample than the NLSY79, although the birth and marital histories are collected only for women. I restrict the sample of women to the same birth cohorts in the NLSY79 and estimate Equation 1 using education indicator variables instead of the AFQT variables. I plot in Figure 6 the coefficient estimates and 95% confidence intervals of the triple interactions, $EduGroup_i \times Year_t \times HasChild_{it}$. The coefficient estimates in the pre-policy years (1987–1993) are not statistically different from zero, with the exception of the 1992 coefficient among individuals with less than a high school education in the divorce sample, but this coefficient is barely statistically significant at the 95% level. Overall, this event study approach provides some evidence that the parallel trends assumption holds in both the marriage and divorce samples. Note, however, that precision of these estimates is an issue, especially in the marriage sample.

In Figure 7, I use the panel of women from the 1995 June CPS to plot the overall rate of new marriages and divorces in each risk sample between individuals with and without children. The trends in new marriages and divorces appear mostly parallel, providing further supporting evidence in favor of the parallel trend assumption in both samples. Note, however, that the downward trend in new marriage rates, which likely reflects the aging of these cohorts, may be slightly steeper among women with children than among women

31. This aspect of the divorce sample is likely due to the fact that being married and having children are correlated, and is unlikely due to age. The average individual in the divorce sample is 0.4 years older than the average individual in the marriage sample, yet 70% of the divorce sample has at least one child whereas only 28% of the marriage sample has at least one child.

without children.

5 Empirical Strategy

My goal is to estimate the effects of the EITC and AFDC/TANF on the probability of marrying or divorcing using policy changes that occurred in the 1990s. I use a difference-in-differences approach comparing parents to childless individuals before and after the policies, meaning that I focus on those individuals in Figures 2–3, panels d–f, in which a single parent with one child considers marriage.

Expanding upon the general method of Eissa and Liebman (1996), I use a spline function in AFQT z-score to estimate heterogeneous effects of the EITC expansion along the AFQT (and resulting earnings) distribution. I use the individual's AFQT z-score, rather than reported earnings, to avoid the endogeneity concern that individuals may manipulate their earnings in order to become eligible for, or earn a higher amount of assistance from, the EITC or AFDC/TANF. Finally, I use the state's maximum attainable monthly AFDC/TANF payment to measure the effects of changes in the transfer system, while controlling for other state-level tax and transfer program characteristics. All models are linear probability models due to the large number of fixed effects.

Recall that the NLSY79 becomes biennial in 1994. Thus, I can observe behavioral responses in 1994, 1996, and 1998 only, compared to the pre-policy years of 1991, 1992, and 1993. In light of this, I estimate the following equation:

$$\begin{aligned} Married_{it} = {} & \beta_0 + \beta_1 f(\text{AFQT Z-Score}_i) \times HasChild_{it} \times PostYear_t \\ & + \beta_2 \text{AFQT Z-Score}_i \times HasChild_{it} \times Female_i \times maxAFDC_{it} \\ & + \beta_3 Z_{it} + \beta_4 X_{it} + \varepsilon_{it} \end{aligned} \tag{1}$$

The specification also includes (denoted by the vector Z_{it}) the $f(\text{AFQT Z-Score}_i)$, $HasChild_{it}$, and year fixed effect variables entered individually along with pairwise interactions between each of them. $Married_{it}$ is an indicator for being married in year t, $f(\text{AFQT Z-Score}_i)$

is a linear spline function in AFQT z-score with notches at z-scores of 0 and 1, $HasChild_{it}$ is an indicator of having at least one EITC-eligible child in the previous period, and $PostYear_t$ is a vector of indicator variables for the post-EITC expansions years 1994, 1996, and 1998. $maxAFDC_{it}$ is the maximum attainable monthly AFDC/TANF payment for a family of three (measured in hundreds of dollars) in the individual's state in year t. X_{it} is a vector of other covariates in year t that likely influence marriage decisions, including age group, education level group, race, gender, state fixed effects, and current, one-period, and two-period lagged number of children.[32] I also control for other state-level tax and transfer program characteristics described by Meyer and Rosenbaum (2001) and others, such as whether and when a state applied for a major welfare waiver, instituted any welfare time limits, first terminated a case under a new welfare waiver, or introduced a state EITC.

The spline function in AFQT, $f(\text{AFQT Z-Score}_i)$, flexibly allows parents to have differential responses to the EITC expansion along the AFQT distribution. The coefficients of interest are the vector β_1, which measures the effect of the 1993–1996 EITC expansion in 1994, 1996, and 1998, as well as β_2, which measures the effect of AFDC/TANF generosity in the individual's state.

The equations I estimate for the divorce sample are analogous to equation 1, where the dependent variable is, instead, equal to one if the individual reports being either divorced or separated within the last year, which is conventional in this literature. In addition, I include the number of years the individual has been married as an additional regressor in these models.[33]

Note that my empirical strategy does not distinguish between differing sources of incentives originating from the 1993–1996 EITC expansion nor AFDC/TANF reform. Specifically, both of these policies strengthened labor supply incentives among low-earning fam-

32. I use age group and educational level dummies instead of the standard measure of age, age squared, or years of education due to possible non-linear effects on marital outcomes. Age groups begin with 28–31 years old and advance in three year groups up to 40 years old or older (27 years old or younger is the omitted category). Education groups are less than high school, high school degree, and some college (college degree or more is the omitted category). I include one- and two-period lags of the number of children because family structure decisions may take time to manifest in the data. Herbst (2011) lags his main EITC variable by two years for this reason.

33. Including the number of years married as an explanatory variable implies dynamic selection in the sample. This means that individuals who are married for longer are more likely to stay married. To the extent that dynamic selection effects are different between individuals with different AFQT percentile scores, the results will be biased.

ilies. Ellwood (2000) provides an illustrative example concerning the EITC. If a married couple with two earners faces a marriage disincentive due to the EITC then they may be better off divorcing. However, expanding the EITC increases the family's income and creates labor supply disincentives for the secondary earner if the family falls in the phase-out range of the schedule. The secondary earner may specialize more in household production, which could benefit the family overall and counteract the divorce incentive. My empirical strategy does not differentiate between a mechanism such as in Ellwood's (2000) example from any other possible mechanism.

Assuming a mother may only receive AFDC/TANF if she is single, then I expect the effect of AFDC/TANF generosity on the probability of marrying to be negative. On the other hand, I expect the effect of the 1993–1996 EITC expansion on the probability of marrying to be positive among low earners. This prediction is based on Figure 3, which shows that the combined incentives from the EITC and AFDC shifted in favor of marriage over time. I expect the opposite-signed effects on the probability of divorcing.

6 Results

I use panel data from the National Longitudinal Survey of Youth 1979 (NLSY79) to estimate the marriage and divorce effects of the EITC and AFDC/TANF changes that occurred in the 1990s. I compare marriage and divorce outcomes of parents to those of childless adults using a difference-in-differences strategy that also allows for heterogenous effects among individuals with low, average, and high scores on the Armed Forces Qualification Test (AFQT). This approach circumvents the endogeneity concern that individuals may manipulate their earnings in order to alter their statuses as treated or non-treated individuals and allows me to estimate the family structure effects of the tax and transfer systems at different points in the potential earnings distribution.

My estimates point to asymmetric marriage and divorce responses along the potential earnings distribution. I find that single parents with the lowest z-scores are more likely to

marry after the EITC expansion. I also find that married parents with mid-range z-scores are less likely to divorce, while married parents with the highest z-scores are more likely to divorce as a result of the 1993–1996 EITC expansion. Finally, I find some evidence that declines in AFDC/TANF generosity increase the likelihood of marriage.

6.1 Main Results

Table 3 presents my main results. I find that the EITC expansion increased the probability that low-AFQT score single parents marry in 1997–1998 (1–2 years after the expansion ended) by 5.2 percentage points (47.7%) for each standard deviation reduction in AFQT. Using a back-of-the-envelope calculation, this estimate suggests that a $500 increase in EITC causes a 1.2–3.4 percentage point (11.0–31.2%) increase in the probability that low-AFQT single parents marry. Although imprecise in earlier years, the marriage effect among this subgroup grows over time, providing some evidence that the effects of taxes on the decision to marry may manifest years after marriage incentives have strengthened. This finding is consistent with the theoretical predictions in Section 3, which show potentially substantial gains in EITC amount through marriage among low-earning single parents. I do not find evidence of divorce responses among low-AFQT single parents.

I find opposite divorce effects among average- and high-AFQT married parents. I estimate that the EITC expansion decreased the probability that average-AFQT married parents divorce by 6.0 percentage points (139.5%) for each standard deviation reduction in AFQT. Using a back-of-the-envelope calculation, this estimate suggests that a $500 increase in EITC causes a 2.5–5.7 percentage point (62.8–132.6%) decrease in the probability that average-AFQT married parents divorce. A standard deviation reduction in AFQT in this range is likely the difference between being eligible or ineligible for the EITC, which may lead to the large point estimate. The marriage effect among this AFQT subgroup is positive in 1994, and drops to near 0 in subsequent years, suggesting that average-AFQT single parents faced stronger marriage incentives in addition to married parents' weaker divorce

incentives. These findings are also consistent with the theoretical predictions in Section 3: likely mid-earners divorce less frequently due to the substantial EITC expansion because it provided them with additional income as the base of the credit schedule grew. This is sometimes referred to as the "stabilization effect," where additional family income stabilizes a marriage that may otherwise have been close to separating (Bitler et al. 2004). I do not find evidence of marriage responses among average-AFQT married parents.

In contrast, I estimate that the EITC expansion increased the probability that high-AFQT married parents divorce by 10.7 percentage points (175.4%) for each standard deviation reduction in AFQT. Using a back-of-the-envelope calculation, this estimate suggests that a $500 increase in EITC causes a 2.3–7.0 percentage point (37.7–114.8%) increase in the probability that high-AFQT married parents divorce. These parents are likely ineligible for the EITC, but may stand to gain a larger EITC following a divorce due to the expansion. It is also unsurprising that the timing of this effect is delayed, since ineligible married parents would not have faced these incentives from the EITC until late in the expansion period when the credit's base was largest. Note that, although many estimates are imprecise, the effects of the EITC expansion among all subgroups are often the same sign when comparing the marriage and divorce responses, suggesting asymmetric marriage and divorce responses to family structure incentives in the tax system. I do not find evidence of marriage responses among high-AFQT married parents.

Lastly, I find some evidence of a negative effect of AFDC/TANF generosity on the probability of marrying. After controlling for other contemporaneous welfare changes, including whether and when a state applied for a major welfare waiver, instituted any welfare time limits, or first terminated a case under a new welfare waiver, the estimate reveals that a $100 decrease in the maximum monthly attainable AFDC/TANF payment for a family of three increases the probability of marrying by 0.4 percentage points (4.5%) among single mothers who are the most likely to be eligible for AFDC/TANF benefits, relative to oth-

ers.[34] This estimate is statistically significant at the 90% confidence level. The coefficient estimates on the other welfare reform controls are imprecise, but including these controls aids in identifying the effect of AFDC/TANF generosity separately from other welfare reform characteristics.

6.2 Comparing Risk Samples to Cross-Sections

My main analysis uses longitudinal risk samples to examine flows into and out of marriages. Cross-sections, on the other hand, blur the marriage and divorce response margins by, for example, pooling together those who can respond by marrying and those who can respond by remaining married, making it unclear along which margin individuals respond. This limitation also biases the estimated effect of the tax and transfer systems toward zero due, for instance, to already married individuals appearing to not respond to the policy.

I use the NLSY79 to create repeated cross-section samples in order to compare my empirical estimates with a similar repeated cross-section sample where the estimates are interpreted as the effects of the policies on the probability of being married or being divorced.[35] Table 4 displays the results, and demonstrates that the cross-section samples generally display muted effects of the 1993–1996 EITC expansion on the probability of being married or divorced compared to the risk sample estimates. Some coefficient estimates using cross-sections, however, are larger in absolute value, which may occur because an individual needs to pass through marriage in order to divorce, meaning that a cross-section sample that shows an increase in the probability of being married should also show a decrease in the probability of being divorced. This balancing out is evident among the cross-section estimates in Table 4, blurs the line between the marriage and divorce response margins, and highlights another weakness of using cross-section data to analyze family structure

34. This is a $1,200 decrease in the maximum annual attainable AFDC/TANF payment for a family of three.

35. Each cross-section sample uses all observations from both the marriage and divorce risk samples. Note that the total number of observations in the cross-section samples will not be equal to the simple sum of observations in the risk samples because a newly married individual is included in both the marriage and divorce risk sample. The dependent variable in the marriage regressions is an indicator equal to 1 if the individual is married, and the dependent variable in the divorce regressions is an indicator equal to 1 if the individual is divorced or separated.

transitions.

6.3 Alternative Specifications

I examine three alternative specifications and samples. First, I compare my original estimates to those using a vector of education group indicators instead of a spline function in AFQT score and find that the education specification corroborates my main findings, but the coefficient estimates are not as precise. Second, I directly estimate the linear effect of EITC generosity on marriage and divorce, and obtain estimates that are comparable in magnitude to my back-of-the-envelope calculations using my main results. Finally, I estimate my main model separately for men and women and find, again, that these estimates corroborate my main results and also point to possible differences in how male and female parents respond to family structure incentives.

Table 5 compares my main results using a spline function in AFQT score to a specification that uses a vector of education group indicators instead, which is a common approach to isolate likely EITC eligible individuals in other studies (Eissa and Liebman 1996; Schoeni and Blank 2000; Meyer and Rosenbaum 2001; Eissa and Hoynes 2003, 2004; Michelmore 2015; Bastian 2018).[36] The estimates using education corroborate my original estimates, revealing that the EITC expansion increased the probability that single parents with less than a high school degree marry and that reductions in AFDC/TANF generosity increased the probability that single mothers with less than a high school degree marry.[37] The coefficients are most precise using the full sample, which compares education groups to the omitted group of "college degree or more," but using highly educated individuals as a control group for high school drop outs may violate the parallel trends assumption needed for identification and, therefore, reduces the reliability of the estimates using education group indicators.

36. I also replace the AFQT z-score interaction in the AFDC/TANF generosity measure with an indicator variable equal to one if the individual has less than a high school degree. In the full specification, the omitted education group is "college degree or more," and in the two subsequen sample restrictions the omitted group becomes "some college" and "exactly high school degree," respectively.

37. The coefficient estimates of the other AFDC/TANF characteristics are similar to my main results and remain statistically insignificant.

Table 6 presents estimates of an alternative specification in which the effect of the maximum EITC available each year on the one-child schedule ($MaxEITC_t$) is assumed to be linear.[38] I find that a $1,000 increase in the maximum EITC payment increases the probability that low-AFQT single parents marry by 4.5 percentage point (51.1%) for each standard deviation reduction in AFQT. These estimates are all comparable in magnitude to my back-of-the-envelope calculation using my main estimates in Table 3, although many of them less precise. I also estimate that a $100 decrease in AFDC/TANF generosity increases the probability that low-AFQT single mothers marry by 0.5 percentage points (5.7%).[39] These point estimates provide additional insight into the magnitude and effect of the EITC expansion and welfare reform, although this method may ignore much of the key variation in how the EITC creates differing incentives across the budget constraint.[40]

Finally, Table 7 presents estimates of my main model separately for men and women. Much of the previous literature focuses on women because tax and transfer programs are often targeted at single mothers, but I would expect to see similar marriage responses among men who are most likely to marry such women. Although the point estimates differ somewhat, they also corroborate my original findings. In addition, marriage responses appear to be smaller among women and larger among men, while the opposite is true for divorce responses, which may result from the types of spouses that single mothers and fathers choose.[41] In order to gain a better understanding of who single parents marry, Table 8 reports some summary statistics of single parents who marry. On average, the number of children is higher after single fathers marry, which can occur either due to marrying a single mother or by having a new child, both of which create a greater incentive to marry from the EITC. On the other hand, women are more likely to retain custody of their children upon divorce, creating a stronger divorce incentive from the EITC than it would for men. These

38. Note that this specification does not allow for gradual effects of the EITC expansion.

39. The coefficient estimates of the other AFDC/TANF characteristics are similar to my main results and remain statistically insignificant.

40. Specifically, the maximum EITC available each year may not be the best measure of an individual's actual or potential EITC because the plateau range of the EITC schedule is narrow and most EITC recipients do not fall within the plateau range.

41. The coefficient estimates of the other AFDC/TANF characteristics exhibit similar patterns and remain statistically insignificant at conventional levels.

patterns in the marriage and divorce samples may help explain why point estimates differ between men and women.

7 Conclusion

Although much of the literature on the EITC and AFDC/TANF focuses on labor supply responses, family structure changes offer other avenues through which an individual can respond to and benefit from the programs. Regardless of the marriage or divorce margin, the EITC encourages marriage among very low earning couples, but discourages marriage for others, while traditional welfare unambiguously discourages marriage. I use panel data from the National Longitudinal Survey of Youth 1979 (NLSY79) to estimate the marriage and divorce effects of the EITC and AFDC/TANF changes that occurred in the 1990s by comparing marriage and divorce outcomes of parents to those of childless adults using a difference-in-differences strategy that also allows for heterogenous effects among individuals with low, average, and high scores on the Armed Forces Qualification Test (AFQT). This approach circumvents the endogeneity concern that individuals may manipulate their earnings in order to alter their statuses as treated or non-treated individuals, and allows me to estimate the family structure effects of the tax and transfer systems at different points in the potential earnings distribution.

I conclude that individuals do respond to the family structure incentives created by the EITC and AFDC/TANF, and that the response to the 1993–1996 EITC expansion, in particular, was substantial. The main results show that the EITC expansion increased the probability that low-AFQT score single parents marry in 1997–1998 (1–2 years after the expansion ended) by 5.2 percentage points (47.7%) for each standard deviation reduction in AFQT. After controlling for other contemporaneous welfare changes, I also find that a $100 decrease in the maximum monthly attainable AFDC/TANF payment for a family of three increases the probability of marrying by 0.4 percentage points (4.5%) among single mothers who are the most likely to be eligible for AFDC/TANF benefits, relative to others.

I also find that the EITC expansion decreased the probability that average-AFQT married parents divorce by 6.0 percentage points (139.5%) for each standard deviation reduction in AFQT, but increased the probability that high-AFQT married parents divorce by 10.7 percentage points (175.4%) for each standard deviation reduction in AFQT. I find no evidence of an effect of AFDC/TANF generosity on the probability of divorcing.

Finally, I show that using a cross-section sample instead of a risk sample mutes the estimated marriage and divorce effects of the EITC expansion using a difference-in-differences approach because it groups together individuals who are both able and unable to respond the policy. Cross-section estimates that show an increase in the probability of being married should also show a decrease in the probability of being divorced, creating ambiguity as to which margin of behavior changes as a result of the policy. I also compare my main estimates to those using education indicators instead of AFQT score, estimate the linear effect of EITC generosity, and estimate my model separately for men and women. All of these alternative specifications corroborate my main results, but many are less precise.

Although the transfer system largely discourages marriage, the tax system can either encourage or discourage marriage. The interaction is important because individuals who are eligible for one program are often eligible for others, and thus face oftentimes conflicting incentives. The marriage and divorce effects of these programs are likely asymmetric along the income distribution, and should be considered carefully in future work.

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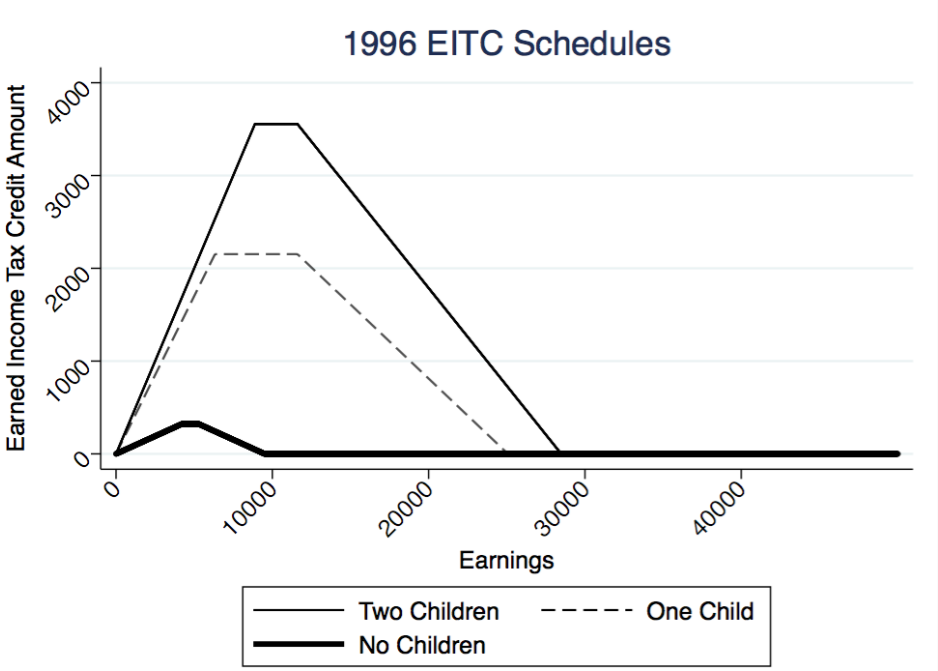
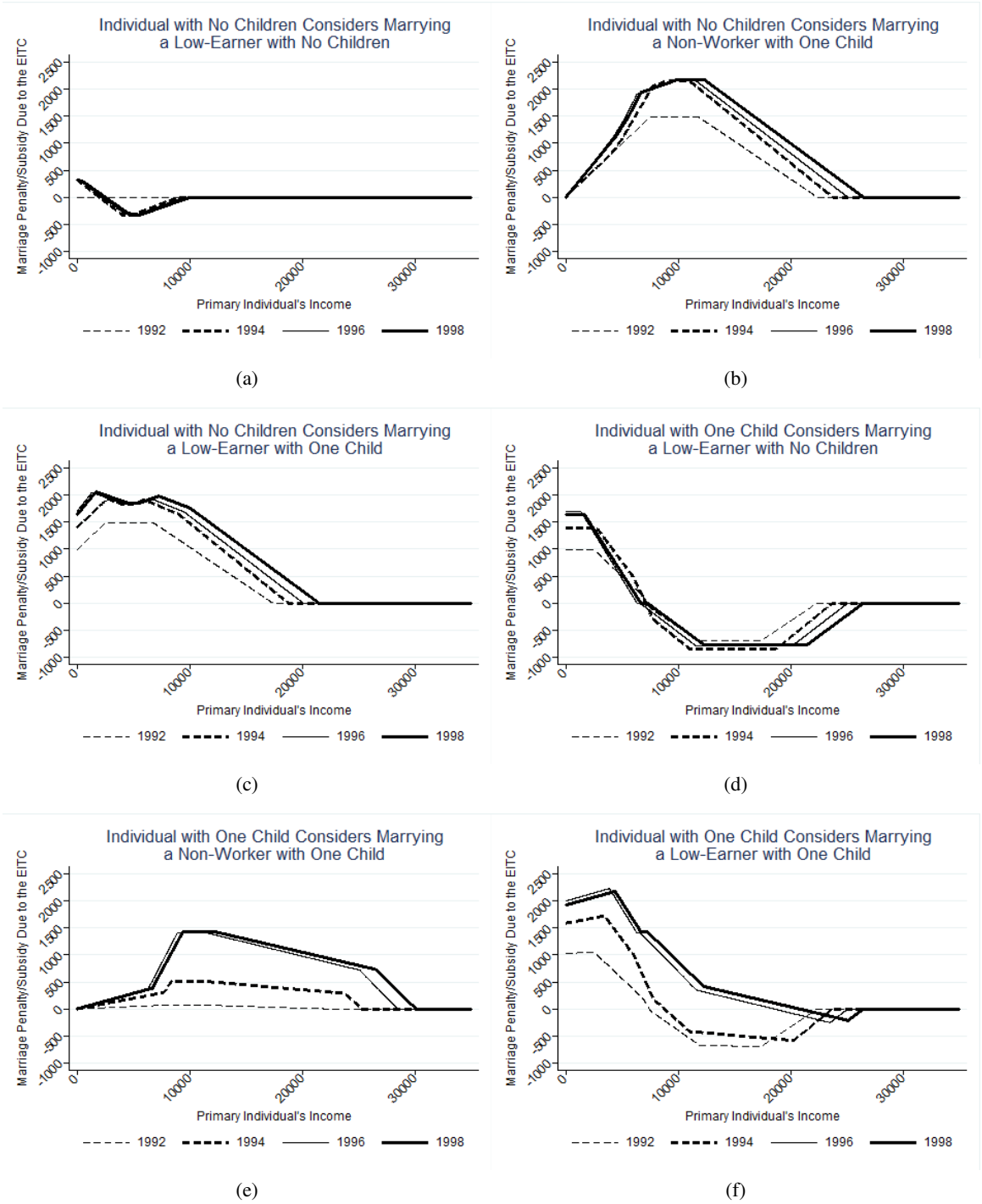
Figure 1: 1996 EITC Schedules



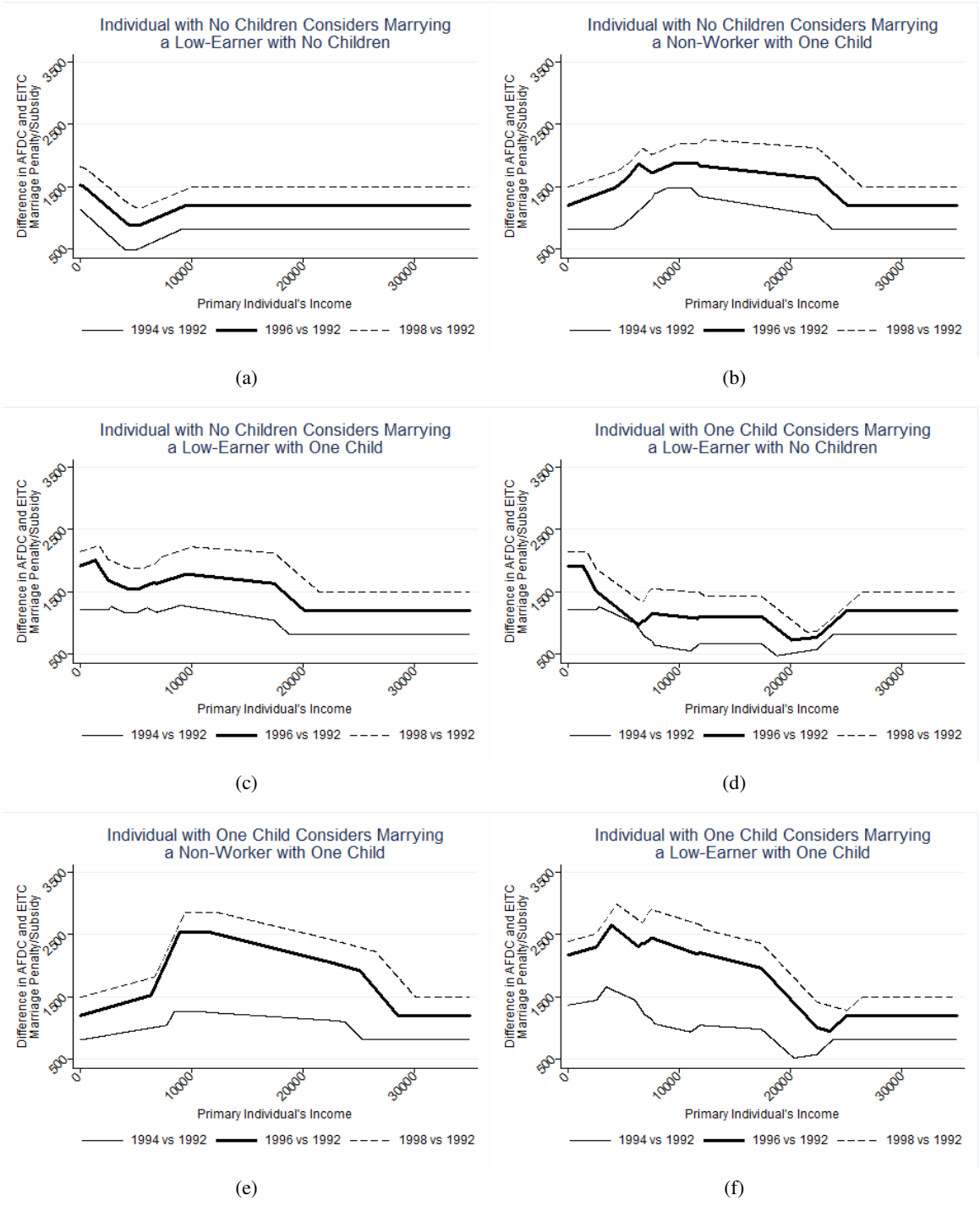
Notes: The data come from the EITC parameters presented in Table 1 and are taken from the U.S. Congress Joint Committee on Taxation's 2004 Green Book. All dollar values have been converted to real values using 1996 as the base year.

Figure 2: Difference Between EITC Under Marriage and EITC Under Single Status



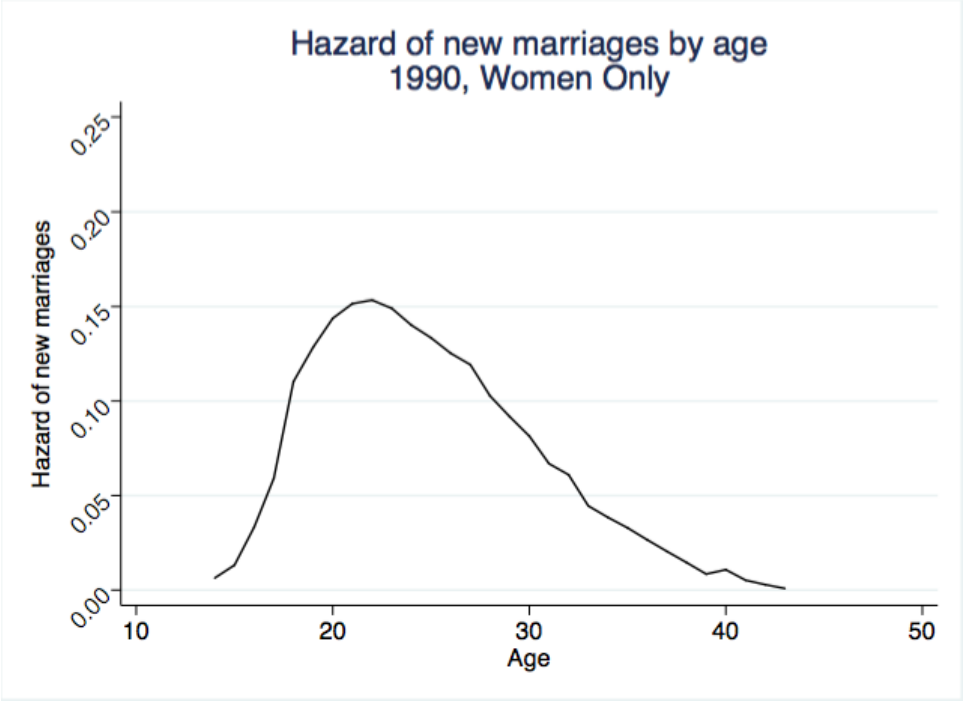
Notes: The data come from the EITC parameters presented in Table 1 and are taken from the U.S. Congress Joint Committee on Taxation's 2004 Green Book. All dollar values have been converted to real values using 1996 as the base year. As an example, the 1994 difference plots $(EITC_{married,1994} - EITC_{single,1994})$ for each situation. A "low-earner" is assumed to earn $5,000 per year. These situations are meant to be representative of the incentives faced by low-income individuals. Some situations result in zero effects, such as when an individual with no children considers marrying a non-worker with no children or when an individual with one child considers marrying a non-worker with no children.

Figure 3: Difference Between AFDC and EITC While Married and AFDC and EITC Under While Single



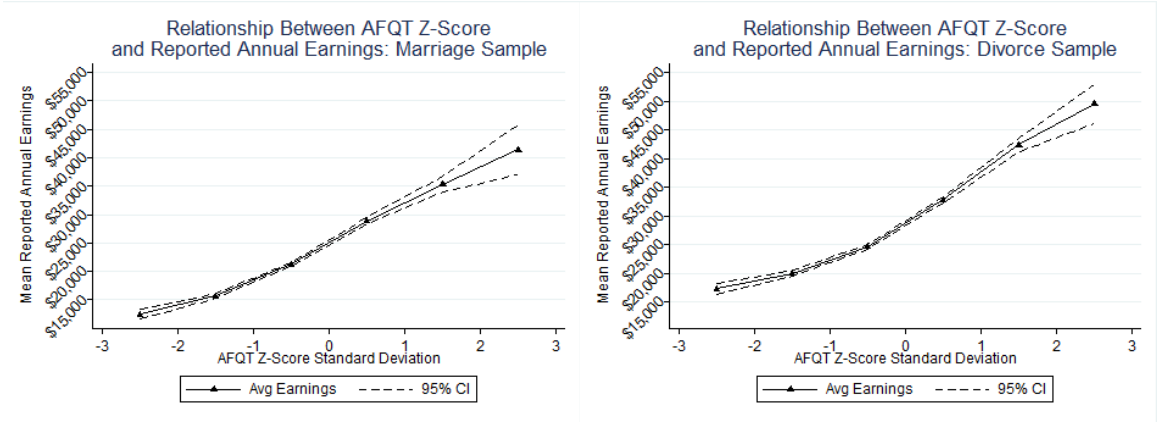
Notes: The data come from the EITC parameters presented in Table 1 and taken from the U.S. Congress Joint Committee on Taxation's 2004 Green Book. All dollar values have been converted to real values using 1996 as the base year. As an example, the 1994 to 1992 difference plots $(EITC_{married,1994} - EITC_{single,1994} - AFDC_{1994}) - (EITC_{married,1992} - EITC_{single,1992} - AFDC_{1992})$ for each situation. A "low-earner" is assumed to earn $5,000 per year. These situations are meant to be representative of the incentives faced by low-income individuals. Some situations result in zero effects, such as when an individual with no children considers marrying a non-worker with no children or when an individual with one child considers marrying a non-worker with no children.

Figure 4: Hazard of New Marriages By Age Among Women Ages 27–43 in 1990



Notes: The data come from the June 1990 Current Population Survey and represent the author's own calculations.

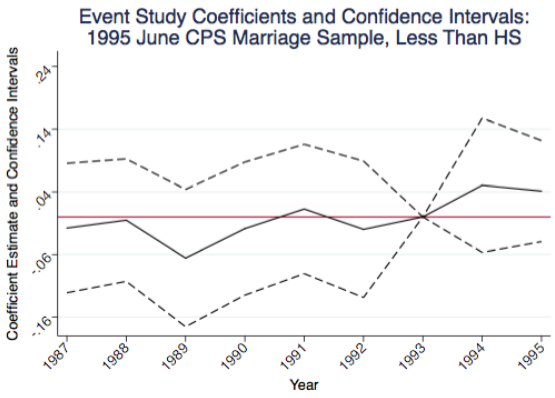
Figure 5: The Relationship Between AFQT Z-Score and Average Annual Earnings



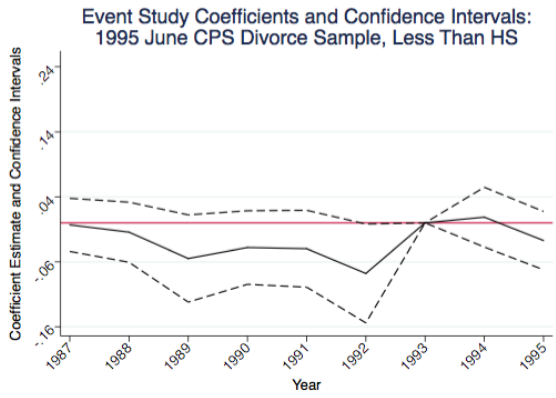
(a) (b)

Notes: The data come from the 1991–1998 waves of the NLSY79. The y-axis displays the average annual earnings of individuals in the marriage and divorce risk samples within a one standard deviation bin. The x-axis displays their AFQT z-score bin.

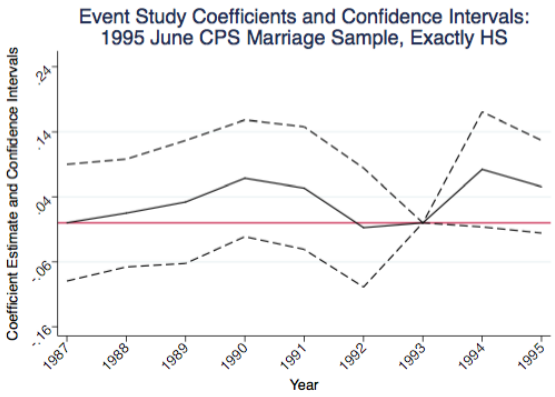
Figure 6: Event Study Coefficients and Confidence Intervals: 1995 June CPS



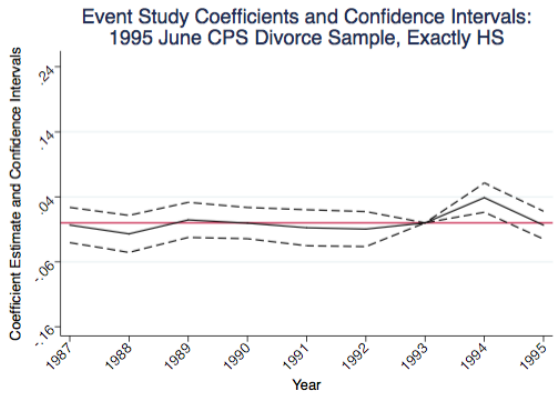
(a) Marriage Sample: 1995 June CPS



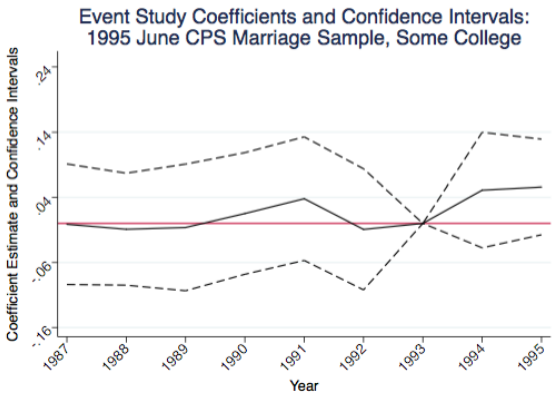
(b) Divorce Sample: 1995 June CPS



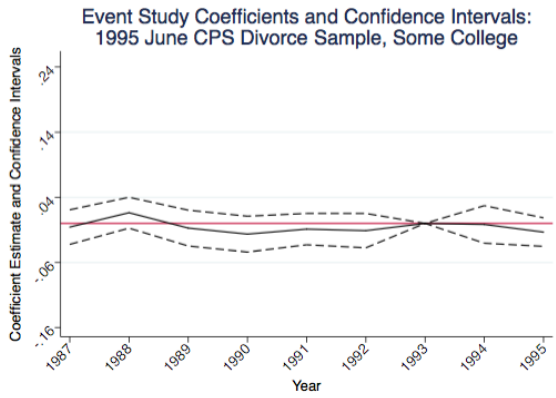
(c) Marriage Sample: 1995 June CPS



(d) Divorce Sample: 1995 June CPS



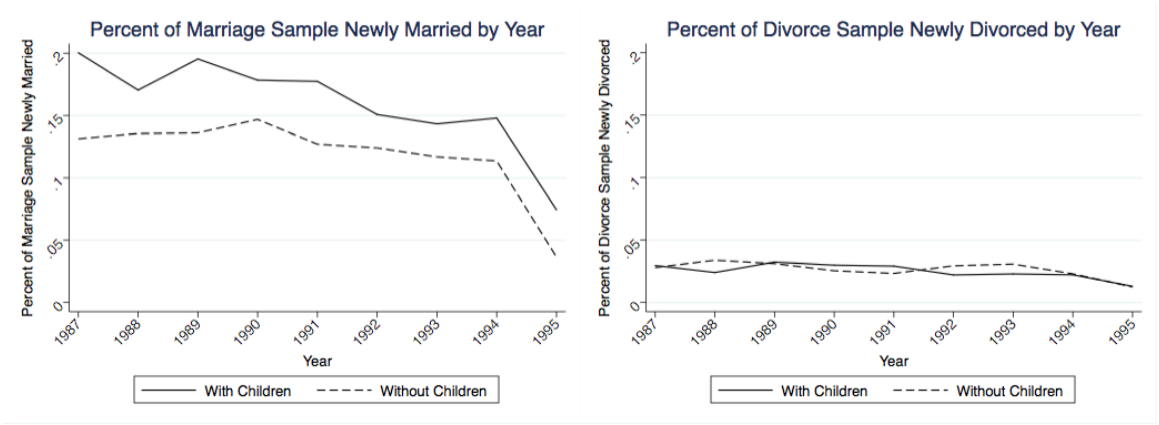
(e) Marriage Sample: 1995 June CPS



(f) Divorce Sample: 1995 June CPS

Notes: The data come from the 1995 June Current Population Survey, which collects marital and birth histories of women. Each panel plots the coefficient estimates and 95% confidence intervals of the $EduGroup_i \times Year_t \times HasChild_{it}$ variable from the specification of Equation 1 that uses education group indicator variables instead of the AFQT z-score variables.

Figure 7: Family Structure Changes in the Marriage and Divorce Samples: 1995 June CPS



(a) 1995 June CPS Marriage Sample

(b) 1995 June CPS Divorce Sample

Notes: The data come from the June 1995 Current Population Survey, which collects marital and birth histories of women. Panels a and b plot the percent of new marriages and divorces occurring in the marriage and divorce risk samples, respectively.

Table 1: EITC Parameters

Calendar Year	Phase-In Rate (%)	Min Income For Max Credit	Max Credit	Phase-Out Rate (%)	Phase-Out Range	
					Beginning Income	Ending Income
1991						
One child	16.7	7,140	1,192	11.93	11,250	21,250
Two children	17.3	7,140	1,235	12.36	11,250	21,250
1992						
One child	17.6	7,520	1,324	12.57	11,840	22,370
Two children	18.4	7,520	1,384	13.14	11,840	22,370
1993						
One child	18.5	7,750	1,434	13.21	12,200	23,050
Two children	19.5	7,750	1,511	13.93	12,200	23,050
1994						
No children	7.65	4,000	306	7.65	5,000	9,000
One child	26.3	7,750	2,038	15.98	11,000	23,755
Two children	30	8,425	2,528	17.68	11,000	25,296
1995						
No children	7.65	4,100	314	7.65	5,130	9,230
One child	34	6,160	2,094	15.98	11,290	24,396
Two children	36	8,640	3,110	20.22	11,290	26,673
1996						
No children	7.65	4,220	323	7.65	5,280	9,500
One child	34	6,330	2,152	15.98	11,610	25,078
Two children	40	8,890	3,556	21.06	11,610	28,495
1997						
No children	7.65	4,340	332	7.65	5,430	9,770
One child	34	6,500	2,210	15.98	11,930	25,750
Two children	40	9,140	3,656	21.06	11,930	29,290
1998						
No children	7.65	4,460	341	7.65	5,570	10,030
One child	34	6,680	2,271	15.98	12,260	26,473
Two children	40	9,390	3,756	21.06	12,260	30,095

Notes: The data come from the U.S. Congress Joint Committee on Taxation's 2004 Green Book.

Table 2: Initial Summary Statistics

	Marriage sample			Divorce Sample		
	Mean (SD)	Min	Max	Mean (SD)	Min	Max
Age	30.62 (2.63)	27	41	31.02 (2.62)	27	41
Any Children	0.28 (0.45)	0	1	0.70 (0.46)	0	1
Conditional Number of Children	1.89 (0.99)	1	8	1.99 (0.96)	1	8
AFQT Z-Score	-0.39 (1.00)	-3.20	3.13	-0.15 (0.97)	-3.11	3.17
Maximum AFDC/TANF for Family of Three[a]	382.54 (170.88)	120	950	386.90 (170.00)	120	923
Any Welfare Time Limit Introduced	0.03 (0.16)	0	1	0.03 (0.17)	0	1
Any Case Termination due to waivers	0.02 (0.13)	0	1	0.01 (0.12)	0	1
State Applied for Major Welfare Waiver	0.04 (0.20)	0	1	0.04 (0.20)	0	1
State EITC	0.06 (0.24)	0	1	0.07 (0.25)	0	1
	Frequency	Avg. AFQT Z-Score in Group		Frequency	Avg. AFQT Z-Score in Group	
Education						
Less than HS	22.94%	-1.14		17.34%	-1.04	
HS Degree	34.88%	-0.60		39.27%	-0.36	
Some College	22.38%	-0.14		22.14%	0.06	
College Degree	12.05%	0.49		12.93%	0.68	
More than College	7.75%	0.58		8.32%	0.76	
Gender						
Male	54.86%	-0.39		48.87%	-0.15	
Female	45.14%	-0.38		51.13%	-0.15	
Race						
Hispanic	17.72%	-0.56		20.12%	-0.59	
Black	39.10%	-0.90		19.66%	-0.72	
Other	43.18%	0.15		60.23%	0.18	
Number of Individuals	3,939			4,762		

Notes: The data come from the National Longitudinal Survey of Youth 1979. The statistics are for individuals who are included in the indicated sample in the first year they are observed. The statistics do not include individuals who enter the marriage sample via divorce or who enter the divorce sample via marriage. Hence, these summary statistics may not be representative of the full panel of individuals in the marriage and divorce samples. Naturally, individuals who enter the marriage sample via divorce will alter the composition of the sample, and analogously for individuals who enter the divorce sample via marriage.
a: These summary statistics are only among women with children.

Table 3: All Individuals: Effects of the EITC and AFDC/TANF on Marriage and Divorce

	Outcome: Married		Outcome: Divorced	
	Mean of dependent variable		Mean of dependent variable	
HasChild × 1994×				
1(AFQT Z-Score ≤ 0)	0.076	-0.004	0.043	0.022
		(0.023)		(0.019)
1(0 < AFQT Z-Score ≤ 1)		0.058		-0.060**
		(0.062)		(0.029)
1(1 < AFQT Z-Score)		0.169		0.038
		(0.117)		(0.041)
HasChild × 1994		0.027		-0.031*
		(0.025)		(0.018)
HasChild × 1996×				
1(AFQT Z-Score ≤ 0)	0.111	0.028	0.061	0.017
		(0.024)		(0.023)
1(0 < AFQT Z-Score ≤ 1)		-0.008		0.005
		(0.066)		(0.035)
1(1 < AFQT Z-Score)		-0.019		-0.022
		(0.109)		(0.036)
HasChild × 1996		-0.004		-0.017
		(0.027)		(0.021)
HasChild × 1998×				
1(AFQT Z-Score ≤ 0)	0.109	0.052**	0.061	0.029
		(0.026)		(0.024)
1(0 < AFQT Z-Score ≤ 1)		-0.008		-0.061*
		(0.066)		(0.037)
1(1 < AFQT Z-Score)		0.037		0.107**
		(0.089)		(0.050)
HasChild × 1998		-0.007		-0.015
		(0.027)		(0.022)
Maximum AFDC/TANF for Family of Three	0.088	-0.004*	0.048	0.000
		(0.002)		(0.001)
Any Welfare Time Limit Introduced		-0.010		0.001
		(0.012)		(0.008)
Any Case Termination due to waivers		-0.010		-0.006
		(0.012)		(0.007)
State Applied for Major Welfare Waiver		0.011		0.009
		(0.010)		(0.006)
State EITC		0.019		0.015
		(0.018)		(0.012)
Observations		16,474		23,335
Individuals		4,500		5,640
R^2		0.058		0.103

Notes: Standard errors are in parentheses and are clustered at the individual level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998. The dependent variable is equal to one if the individual is married (divorced) and zero if he is not. The definitions of AFDC eligibility and *TreatChild* are explained in the text. Other control variables included in all regressions, but whose coefficients are not reported, are dummies for educational level group, dummies for age group, race, gender, current, one-period, and two-period lagged number of children, state dummies, year dummies, and pairwise interactions of the treatment variables and year dummies. An individual is included in the marriage sample if he is not currently married, but is included in his first year of marriage. An individual is included in the divorce sample if he is currently married, but is included in the first year of divorce. If an individual marries and divorces during the sample, he re-enters the marriage sample.

Table 4: Comparing Risk Samples to Cross-Section Samples: Effects of the EITC and AFDC/TANF on Marriage and Divorce

	Outcome: Married				Outcome: Divorced			
	Mean of dependent variable				Mean of dependent variable			
	Risk sample	Cross-section	Risk sample	Cross-section	Risk sample	Cross-section	Risk sample	Cross-section
HasChild × 1994×								
1(AFQT Z-Score ≤ 0)	0.076	0.592	-0.004	-0.018	0.043	0.148	0.022	-0.001
			(0.023)	(0.018)			(0.019)	(0.016)
1(0 < AFQT Z-Score ≤ 1)			0.058	0.026			-0.060**	-0.023
			(0.062)	(0.033)			(0.029)	(0.026)
1(1 < AFQT Z-Score)			0.169	0.035			0.038	0.004
			(0.117)	(0.051)			(0.041)	(0.033)
HasChild × 1994			0.027	0.009			-0.031*	-0.035**
			(0.025)	(0.019)			(0.018)	(0.015)
HasChild × 1996×								
1(AFQT Z-Score ≤ 0)	0.111	0.604	0.028	-0.003	0.061	0.162	0.017	0.011
			(0.024)	(0.021)			(0.023)	(0.018)
1(0 < AFQT Z-Score ≤ 1)			-0.008	-0.036			0.005	0.025
			(0.066)	(0.040)			(0.035)	(0.031)
1(1 < AFQT Z-Score)			-0.019	0.099*			-0.022	-0.027
			(0.109)	(0.056)			(0.036)	(0.040)
HasChild × 1996			-0.004	-0.031			-0.017	-0.029
			(0.027)	(0.022)			(0.021)	(0.018)
HasChild × 1998×								
1(AFQT Z-Score ≤ 0)	0.109	0.618	0.052**	-0.002	0.061	0.175	0.029	0.014
			(0.026)	(0.025)			(0.024)	(0.021)
1(0 < AFQT Z-Score ≤ 1)			-0.008	-0.017			-0.061*	-0.014
			(0.066)	(0.046)			(0.037)	(0.036)
1(1 < AFQT Z-Score)			0.037	-0.017			0.107**	0.011
			(0.089)	(0.062)			(0.050)	(0.046)
HasChild × 1998			-0.007	-0.035			-0.015	-0.057***
			(0.027)	(0.025)			(0.022)	(0.021)
Maximum AFDC/TANF for	0.088	0.586	-0.004*	-0.012***	0.048	0.145	0.000	0.002
Family of Three			(0.002)	(0.002)			(0.001)	(0.002)
Any Welfare Time Limit			-0.010	-0.010			0.001	0.009
Introduced			(0.012)	(0.011)			(0.008)	(0.009)
Any Case Termination			-0.010	-0.006			-0.006	0.002
Due to Waivers			(0.012)	(0.011)			(0.007)	(0.009)
State Applied for Major			0.011	0.001			0.009	0.005
Welfare Waiver			(0.010)	(0.009)			(0.006)	(0.008)
State EITC			0.019	-0.001			0.015	0.012
			(0.018)	(0.016)			(0.012)	(0.013)
Observations			16,474	37,903			23,335	37,903
Individuals			4,500				5,640	
R^2			0.058	0.285			0.103	0.065

Notes: Standard errors are in parentheses and are clustered at the individual level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998. The dependent variable is equal to one if the individual is married (divorced) and zero if he is not. The definitions of AFDC eligibility and *TreatChild* are explained in the text. Other control variables included in all regressions, but whose coefficients are not reported, are dummies for educational level group, dummies for age group, race, gender, current, one-period, and two-period lagged number of children, state dummies, year dummies, and pairwise interactions of the treatment variables and year dummies. An individual is included in the marriage sample if he is not currently married, but is included in his first year of marriage. An individual is included in the divorce sample if he is currently married, but is included in the first year of divorce. If an individual marries and divorces during the sample, he re-enters the marriage sample.

Table 5: Comparing the Use of AFQT and Education Groups as Methods for Differentiating Likely Low- and High-Earning Families

	Outcome: Married					Outcome: Divorced				
	Mean of dependent variable	Full risk sample		Edu $\leq$ some college risk sample	Edu $\leq$ exactly HS risk sample	Mean of dependent variable	Full risk sample		Edu $\leq$ some college risk sample	Edu $\leq$ exactly HS risk sample
		AFQT	Education				AFQT	Education		
$HasChild \times 1994 \times$										
$LessThanHS$	0.076	-0.004	0.010	-0.014	-0.054*	0.043	0.022	-0.014	-0.033	-0.028
		(0.023)	(0.051)	(0.032)	(0.030)		(0.019)	(0.036)	(0.039)	(0.037)
$ExactlyHS$		0.058	0.067	0.041			-0.060**	0.013	-0.005	
		(0.062)	(0.050)	(0.031)			(0.029)	(0.019)	(0.025)	
$SomeCollege$		0.169	0.025				0.038	0.017		
		(0.117)	(0.052)				(0.041)	(0.023)		
$HasChild \times 1994$		0.027	-0.016	0.012	0.043*		-0.031*	-0.016	-0.000	0.001
		(0.025)	(0.047)	(0.025)	(0.023)		(0.018)	(0.013)	(0.021)	(0.019)
$HasChild \times 1996 \times$										
$LessThanHS$	0.111	0.028	0.104*	0.039	0.045	0.061	0.017	0.068**	0.049	0.115***
		(0.024)	(0.053)	(0.038)	(0.034)		(0.023)	(0.029)	(0.034)	(0.034)
$ExactlyHS$		-0.008	0.052	-0.006			0.005	-0.047*	-0.066**	
		(0.066)	(0.050)	(0.034)			(0.035)	(0.025)	(0.030)	
$SomeCollege$		-0.019	0.060				-0.022	0.020		
		(0.109)	(0.053)				(0.036)	(0.025)		
$HasChild \times 1996$		-0.004	-0.041	0.023	0.006		-0.017	-0.008	0.007	-0.054**
		(0.027)	(0.047)	(0.028)	(0.023)		(0.021)	(0.015)	(0.023)	(0.023)
$HasChild \times 1998 \times$										
$LessThanHS$	0.109	0.052**	0.100**	0.039	0.065*	0.061	0.029	-0.010	-0.034	-0.038
		(0.026)	(0.050)	(0.040)	(0.037)		(0.024)	(0.039)	(0.043)	(0.041)
$ExactlyHS$		-0.008	0.037	-0.022			-0.061*	0.025	0.002	
		(0.066)	(0.046)	(0.036)			(0.037)	(0.024)	(0.029)	
$SomeCollege$		0.037	0.059				0.107**	0.024		
		(0.089)	(0.049)				(0.050)	(0.027)		
$HasChild \times 1998$		-0.007	-0.026	0.036	0.001		-0.015	-0.011	0.010	0.019
		(0.027)	(0.041)	(0.029)	(0.025)		(0.022)	(0.016)	(0.024)	(0.021)
Maximum AFDC/TANF for Family of Three	0.088	-0.004*	-0.014***	-0.014***	-0.015***	0.048	0.000	0.001	0.002	0.001
		(0.002)	(0.004)	(0.004)	(0.004)		(0.001)	(0.002)	(0.002)	(0.003)
Any Welfare Time Limit Introduced		-0.010	-0.012	-0.014	-0.016		0.001	-0.000	0.002	-0.001
		(0.012)	(0.012)	(0.012)	(0.015)		(0.008)	(0.007)	(0.009)	(0.011)
Any Case Termination Due to Waivers		-0.010	-0.010	-0.006	-0.013		-0.006	-0.007	-0.008	-0.006
		(0.012)	(0.012)	(0.013)	(0.015)		(0.007)	(0.007)	(0.008)	(0.010)
State Applied for Major Welfare Waiver		0.011	0.010	0.001	0.013		0.009	0.008	0.008	0.014
		(0.010)	(0.009)	(0.010)	(0.012)		(0.006)	(0.006)	(0.007)	(0.008)
State EITC		0.019	0.016	0.010	0.032		0.015	0.013	0.008	0.029
		(0.018)	(0.017)	(0.018)	(0.023)		(0.012)	(0.011)	(0.013)	(0.019)
Observations		16,474	17,165	13,790	9,669		23,335	24,404	18,602	13,022
Individuals		4,500	4,710	3,880	2,816		5,640	5,931	4,674	3,361
R^2		0.058	0.059	0.058	0.065		0.103	0.104	0.115	0.125

Notes: Standard errors are in parentheses and are clustered at the individual level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998. The dependent variable is equal to one if the individual is married (divorced) and zero if he is not. Columns labeled "AFQT" estimate models following Equation 1, and columns labeled "Education" replace the AFQT variable with a vector of education level indicator variables. The definitions of AFDC eligibility and *TreatChild* are explained in the text. Other control variables included in all regressions, but whose coefficients are not reported, are dummies for educational level group, dummies for age group, race, gender, current, one-period, and two-period lagged number of children, state dummies, year dummies, and pairwise interactions of the treatment variables and year dummies. An individual is included in the marriage sample if he is not currently married, but is included in his first year of marriage. An individual is included in the divorce sample if he is currently married, but is included in the first year of divorce. If an individual marries and divorces during the sample, he re-enters the marriage sample.

Table 6: The Effects of Taxes and Transfers: Using EITC Generosity as a Continuous Variable

	Outcome: Married		Outcome: Divorced	
	Mean of dependent variable		Mean of dependent variable	
$HasChild \times MaxEITC_t \times$ (AFQT Z-Score$_i \leq 0$)	0.088	0.045**	0.048	0.022
		(0.020)		(0.018)
$HasChild \times MaxEITC_t \times$ ($0 <$ AFQT Z-Score$_i \leq 1$)		-0.011		-0.022
		(0.054)		(0.028)
$HasChild \times MaxEITC_t \times$ ($1 <$ AFQT Z-Score$_i$)		0.017		0.029
		(0.084)		(0.035)
$HasChild \times MaxEITC_t$		-0.000		-0.000
		(0.000)		(0.000)
Maximum AFDC/TANF for Family of Three		-0.005**		0.001
		(0.002)		(0.001)
Any Welfare Time Limit Introduced		-0.011		0.001
		(0.012)		(0.007)
Any Case Termination Due to Waivers		-0.010		-0.006
		(0.012)		(0.007)
State Applied for Major Welfare Waiver		0.012		0.009
		(0.010)		(0.006)
State EITC		0.018		0.015
		(0.018)		(0.012)
Observations		16,474		23,335
Individuals		4,500		5,640
R^2		0.055		0.097

Notes: Standard errors are in parentheses and are clustered at the individual level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998. The dependent variable is equal to one if the individual is married (divorced) and zero if he is not. The definitions of AFDC eligibility and *TreatChild* are explained in the text. Other control variables included in all regressions, but whose coefficients are not reported, are dummies for educational level group, dummies for age group, race, current and one-period lagged number of children, state dummies, year dummies, and pairwise interactions of the treatment variables and year dummies. An individual is included in the marriage sample if he is not currently married, but is included in his first year of marriage. An individual is included in the divorce sample if he is currently married, but is included in the first year of divorce. If an individual marries and divorces during the sample, he re-enters the marriage sample.

Table 7: Men and Women Separately: Effects of the EITC and AFDC/TANF on Marriage and Divorce

	Outcome: Married				Outcome: Divorced			
	Women only		Men only		Women only		Men only	
	Mean of dependent variable		Mean of dependent variable		Mean of dependent variable		Mean of dependent variable	
HasChild × 1994×								
1(AFQT Z-Score ≤ 0)	0.075	0.001	0.076	0.023	0.046	0.045*	0.041	0.007
		(0.033)		(0.046)		(0.027)		(0.024)
1(0 < AFQT Z-Score ≤ 1)		0.011		0.059		-0.088**		-0.036
		(0.077)		(0.127)		(0.041)		(0.040)
1(1 < AFQT Z-Score)		0.143		0.308		0.006		0.047
		(0.119)		(0.344)		(0.054)		(0.056)
HasChild × 1994		0.006		0.007		-0.041		-0.022
		(0.034)		(0.051)		(0.026)		(0.025)
HasChild × 1996×								
1(AFQT Z-Score ≤ 0)	0.119	0.016	0.104	0.037	0.068	-0.042	0.054	0.048*
		(0.039)		(0.039)		(0.043)		(0.026)
1(0 < AFQT Z-Score ≤ 1)		-0.007		0.022		0.011		-0.002
		(0.087)		(0.136)		(0.051)		(0.047)
1(1 < AFQT Z-Score)		0.007		-0.100		-0.011		-0.026
		(0.118)		(0.282)		(0.059)		(0.044)
HasChild × 1996		0.016		-0.075*		0.004		-0.030
		(0.038)		(0.045)		(0.032)		(0.027)
HasChild × 1998×								
1(AFQT Z-Score ≤ 0)	0.107	0.025	0.111	0.072	0.062	0.040	0.060	0.023
		(0.041)		(0.051)		(0.034)		(0.032)
1(0 < AFQT Z-Score ≤ 1)		-0.089		0.106		-0.096*		-0.041
		(0.089)		(0.127)		(0.050)		(0.052)
1(1 < AFQT Z-Score)		0.026		0.174		0.168**		0.054
		(0.104)		(0.240)		(0.082)		(0.057)
HasChild × 1998		-0.030		-0.007		-0.009		-0.019
		(0.038)		(0.056)		(0.031)		(0.031)
Maximum AFDC/TANF for	0.090	0.004	0.086	-0.002	0.051	-0.004*	0.046	0.000
Family of Three		(0.004)		(0.005)		(0.002)		(0.002)
Any Welfare Time Limit		0.005		-0.024		0.000		-0.000
Introduced		(0.018)		(0.016)		(0.011)		(0.010)
Any Case Termination		0.008		-0.026*		-0.011		-0.001
Due to Waivers		(0.019)		(0.015)		(0.010)		(0.009)
State Applied for Major		-0.003		0.024*		0.013		0.006
Welfare Waiver		(0.015)		(0.013)		(0.009)		(0.008)
State EITC		0.004		0.026		0.030*		-0.002
		(0.030)		(0.023)		(0.017)		(0.015)
Observations		7,577		8,897		11,293		12,042
Individuals		2,108		2,392		2,868		2,772
R^2		0.045		0.090		0.041		0.195

Notes: Standard errors are in parentheses and are clustered at the individual level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998. The dependent variable is equal to one if the individual is married (divorced) and zero if he is not. The definitions of AFDC eligibility and *TreatChild* are explained in the text. Other control variables included in all regressions, but whose coefficients are not reported, are dummies for educational level group, dummies for age group, race, current, one-period, and two-period lagged number of children, state dummies, year dummies, and pairwise interactions of the treatment variables and year dummies. An individual is included in the marriage sample if he is not currently married, but is included in his first year of marriage. An individual is included in the divorce sample if he is currently married, but is included in the first year of divorce. If an individual marries and divorces during the sample, he re-enters the marriage sample.

Table 8: Summary Statistics of Men and Women who Change Family Structure

Variable	Mean
Men who marry	
# of children (current period)	1.918
# of children (last period)	1.630
Age of youngest child (current period)	4.972
Age of youngest child (last period)	4.822
Women who marry	
# of children (current period)	1.971
# of children (last period)	1.824
Age of youngest child (current period)	7.824
Age of youngest child (last period)	7.433
Men who divorce	
# of children (current period)	0.639
# of children (last period)	2.103
Women who divorce	
# of children (current period)	1.968
# of children (last period)	2.169

Notes: The data come from the National Longitudinal Survey of Youth 1979 and cover survey years 1991 through 1998.

A Appendix: Theoretical Model of Dynamic Selection

The model considers a single individual who has a "propensity to marry" (θ) that is randomly drawn from a uniform distribution between $[0,1]$.[42] Each period an unmarried individual is randomly matched with a potential partner and receives a match quality shock (ε), where $\varepsilon \sim$ i.i.d. $N(0,1)$. When deciding whether to marry, the individual compares his utility while single (U^s) to his utility while married ($U^m + \varepsilon$). If $U^m + \varepsilon > U^s$ then he marries, and if $U^m + \varepsilon < U^s$ then he remains single. I assume that U^s is strictly decreasing in θ and that U^m is strictly increasing in θ. In other words, utility of being single decreases as one's propensity to marry increases, and utility of being married increases as one's propensity to marry increases. I illustrate this relationship as well as a hypothetical increase in marriage incentives in Figure A1.

These assumptions imply that there is some threshold level of $\hat{\theta}$, where individuals with $\theta > \hat{\theta}$ will marry and individuals with $\theta < \hat{\theta}$ will remain single, but the i.i.d. match quality shock will provide some heterogeneity in the decision. Specifically:

$$\begin{aligned} Pr[marry] = & \quad Pr[U^m + \varepsilon > U^s] \\ = & \quad Pr[\varepsilon > -(U^m - U^s)] \\ = & \quad 1 - \Phi(-(U^m - U^s)) \end{aligned}$$

Without any change in marriage incentives, the differential probability of marrying along the distribution of θ will skew the sample of unmarried individuals over time to contain relatively more individuals with low levels of θ. I illustrate this effect in Figure A2, which displays the density of θ within the unmarried population over time. In Period 0 everyone is unmarried, so the distribution of θ is the uniform distribution. Each period the random match quality shock causes more people with higher values of θ to marry than it does people with lower values of θ, creating a sample that, over time, will contain a larger proportion of individuals with low levels of θ even without any changes in marriage

42. θ could also be described as a "desire to marry" or a "desire to start a family."

incentives.

An increase in marriage incentives will shift the U^m line up to $U^{m'}$ and create a new threshold level of theta ($\hat{\theta}'$). Combined with the already existing trend of the sample, this change in marriage incentives will exacerbate the issue of dynamic selection due to an even larger probability of marrying among individuals with higher levels of θ. Therefore, the distribution skews even more heavily to the left as marriage incentives increase.

This dynamic selection into single status creates important implications for the sample of unmarried individuals in my empirical analysis and may introduce bias to the estimates in later years. If this dynamic selection story is true then we would expect to see decreases in the probability of marrying in later sample years due to the policy. This is because the sample of unmarried individuals in later years contains relatively more individuals with low levels of θ relative to the sample of unmarried individuals in earlier years. The policy encouraged marginal individuals to marry, leaving behind a population of unmarried individuals who are less likely to marry compared to the earlier sample.

Figure A1: Illustrated Theoretical Model

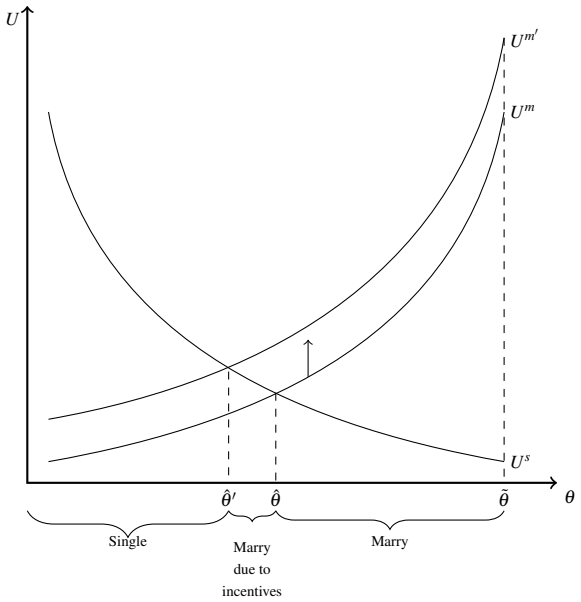


Figure A2: Distribution of Theta Over Time