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**Gender Role Attitudes and Women's Labor Market Participation:
Opting-Out and the Persistent Appeal of Housewifery ¹**

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Abstract

Using data from the 1972-2006 General Social Surveys (GSS) and an economic identity theory framework, this paper studies the impact of gender role attitudes as factors modulating the impact of economic fundamentals, such as education and income, on the evolution of female labor force participation (FLP) in the United States. The analysis accounts for non-linear time-period, life-cycle, and cohort effects, as well as a host of background variables, and uses a plausible instrumental variable strategy to correct for potential endogeneity problems associated with cognitive dissonance. Traditional gender role attitudes, whose secular decline bottomed out in the mid-1990s when the AIDS crisis peaked, are found to be the missing gender-specific factors that explain the differences in the concavity of time trends in male and female labor force participation, that remain after accounting for the usual factors. The analysis also shows that the “opting-out” phenomena is not driven by the experience of college-educated women.

Keywords: Gender role attitudes, opting out, female labor force participation, cohort effects, economic identity theory.

1. INTRODUCTION

Over the last century, the most significant change in the labor market has been the remarkable growth in women's participation in the labor force. From less than 5 percent at the turn of the 20th century, female labor force participation (FLP) grew to over 70 percent in the mid-1990s peaking at 72 percent in 2000, before it began to retreat back to 70 percent in 2004.² As argued by Goldin (2006), the evolution of aggregate trends in FLP only partially reflects the profound changes in the place or identity of women in society that accelerated in the second half of the 20th century.

The aggregate trends also mask a process with spurts (e.g. Rosie the Riveter) and consolidation or retrenchment (e.g. War Reconversion/G.I. Bill) that involves period-specific and cohort-specific changes, and more recently the life-cycle effects of population aging.³ Period-specific structural changes, such as the rise of the clerical sector in the early 20th century (Goldin, 1990; Costa, 2000) or technological progress in the household at mid-century (Greenwood, Seshardri and Yorukoglu, 2005), are part of the many explanations supporting the transformation of women's role. Goldin and Katz (2002) and Bailey (2006) have also provided compelling evidence of cohort effects due to innovation in contraception affecting changes in female educational attainment and labor market outcomes of cohorts born after the late 1940s.

With its focus on gender role attitudes, the present paper can be placed in the recent literature that has emphasized the role of social norms, beliefs, and attitudes in modulating the impact of economic fundamentals, such as education, wages, or income, on labor force participation and other outcomes over the last 30 years.⁴ It contributes to the study of the impact of gender role attitudes on FLP in several novel ways: first, by accounting for non-linear time-period, life-cycle, and cohort effects, as well as a host of background variables;

²The figures are for women aged 18 to 65 years. The 1900 figures are from Goldin (1990) and the more recent figures are computed from the March Current Population Survey (CPS) by the author. From 2004 to 2007, FLP continued to hover around 70 percent. Blau, Ferber and Winkler (2006) report that the participation rate of married women began to level off in the mid-1990s and declined somewhat in the late 1990s and early 2000s. As pointed out in Fortin (2005), the mid-1990s stabilization in FLP has occurred in many high-LFP countries, including Canada, Finland, Norway, Sweden, and the United Kingdom.

³See Goldin (1991) on the impact of World War II on the temporary rise in female employment.

⁴See Moffitt (2001).

second, by using a plausible instrumental variable strategy to dispel concerns about cognitive dissonance; and third, by corroborating the age-period-cohort specification and the absence of the reverse causality using longitudinal data. Surprisingly, I find that the post-1966 birth cohorts are more traditional than the baby-boom cohorts in their attitudes towards gender roles, in particular regarding the appeal of housewifery *per se*. This traditionalism regarding gender roles has more potent effects than concerns about the welfare of young children. In addition, most cohorts began to hold more traditional gender role attitudes starting in the mid 1990s, a time period corresponding to the peak of the AIDS crisis (CDC, 2006). I show that these traditional gender role attitudes account for the concave shape of FLP over the past 30 years or so. That is, gender role attitudes are found to be the missing gender-specific factors that explain the differences in the concavity of time trends in male and female labor force participation that remain after accounting for the usual factors.⁵

The stabilization or slight retreat of FLP has been characterized as “opting out” in the popular press (Belkin, 2003; Wallis, 2004; Story, 2005) and among sociologists (Cotter, Hermsen and Vanneman, 2007; Stone, 2007) who wonder whether we are witnessing “The End of the Gender Revolution” as an ideological movement.⁶ The “opting out” phenomena, conceived as the labor market withdrawal of college-educated women when they have children, has raised more skepticism among economists, given the continued increase in economic factors favoring women’s work, such as the sustained rise in female educational attainment and the continued relative growth of service sectors.⁷ Here, I find that this phenomena is not driven by the experience of college-educated women, nor is it driven primarily by concerns for children. Rather, it appears that the post-baby boom generations of women may be adopting the identity of “housewife” more readily than the baby-boom generations.

A number of recent papers have exploited cultural differences in gender role attitudes to

⁵These usual factors include not only educational attainment, the number of children, the presence of pre-school children, race, marital status, and divorce experience, but also whether the respondent’s mother ever worked, whether she lived in an intact family and her religious affiliation at age 16.

⁶Preston (1994) is an early economic study of women from the science and engineering professions exiting the labor force in the mid-1980s with very low probabilities of reentry.

⁷In debunking the “opting out” hypothesis, Boushey (2005) shows that women’s labor force participation has not fallen due the presence of children. Similarly, Goldin and Katz (2007) study the career and family lifecycles of three generations of Harvard graduates and find that the most recent graduates take less time off after having children.

show that they have some explanatory power towards women’s work decisions across ethnic groups in the United States (Fernandez and Fogli, 2005) and across countries (Fortin, 2005). Other sets of related papers have focused on the evolution of gender role attitudes across generations, finding a significant correlation between the attitudes of mothers and daughters and of mothers-in-law and their sons’ wives (Fernandez, Fogli, and Olivetti, 2004; Farré-Olalla and Vella, 2007). Fernandez (2007) and Fogli and Veldkamp(2007) have further described the evolution of changes in FLP over time as resulting from the dynamics of a learning model, where women’s heterogeneous beliefs about the relative payoffs of working in the home versus the market evolve endogenously over time through intergenerational transmission.

Gender role attitudes are also easily tied to the economic identity theory. In a series of influential papers, Akerlof and Kranton (2000, 2002, 2005) have proposed to incorporate one’s sense of self as an important element of the utility function. In this framework, a woman would decide not to participate in the labor market because of her belief that a “good” spouse and mother “should” stay home, support her husband, and take care of her children. Furthering that analysis, in a direction particularly relevant here, Bénabou and Tirole (2006) have introduced competing identities that are competing for time or resources in the future, such as a traditional identity and a modern identity, where investing in one can damage the other. The case of women’s dual roles or identities, as housewives and/or career women, is particularly interesting in that framework because key actions or decisions,—such as fertility and labor market participation decisions—, can be linked to these competing identities.⁸ This framework will provide a basis for an econometric specification that will include indicators of the saliency of the competing identities, as well as endowments and investments in these identities. The identity framework thus provides specific channels by which cultural trends towards more religious or conservative values may impact labor market decisions.

More precisely, this paper investigates the extent to which women’s attitudes toward traditional gender roles and egalitarian views have influenced their decisions about labor market participation. Using data from the 1972-2006 General Social Survey (GSS), the paper

⁸The depreciation of labor market experience (and implicitly of the identity of “career-women”) that comes from time investment in the home and family (taking the “mommy track”) has long been seen as the main obstacle to gender parity in wages. See Stone (2007) for personal accounts of such dilemmas.

starts with an analysis of the impact of time period, life-cycle, and cohort effects (using non-linear specifications) of women's labor market, fertility, and divorce decisions, and of their gender role attitudes. The analysis then turns to the evaluation of the impact of traditional and egalitarian attitudes on women's labor market participation decisions. Because gender role attitudes and labor market decisions are observed contemporaneously, this raises the concern that the estimated effects may be tainted by endogeneity problems associated with cognitive dissonance. An instrumental variable strategy that uses attitudes towards sexual relations and political views as instruments is shown to alleviate the concern.

Separate analyses for college-educated women and women with less than 4 years of college education show that the leveling-off of FLP is not driven by the experience of college-educated women. Falsification tests are conducted on men to show that traditional attitudes capture gender-specific factors rather than general cultural factors. Alternative explanations such as changes in divorce and in attitudes towards divorce laws are explored but their impacts on FLP are found to be dominated by traditional gender role attitudes. More generally, the effects are found to be remarkably robust to the inclusion of a wide array of controls for social, religious, and political conservatism, ethnic and health factors, and parental and spousal variables.

Additional data from National Longitudinal Survey of the High School Class of 1972 (NLS72), which follows the first post-Pill cohort (1954-55 birth cohorts), are used to provide a more thorough assessment of the measures of traditional vs. egalitarian identities. With this data set, it is also possible to investigate the impact of gender role attitudes observed when the respondents were about 25 years old (in 1979) on their labor outcomes when they were about 32 (in 1986) and thus provide an analysis untainted by the problem of reverse causality and by the possible misspecification of life-cycle and cohort effects.

The remainder of the paper is organized as follows. The next section presents the historical social setting and theoretical framework that provide the background for the analysis. Section 3 presents the data on gender roles attitudes and some descriptive evidence. The main results are presented in section 4, which also comprise the results from the instrumental variables strategy and the exploration of alternative hypotheses. Finally, I conclude in section 5.

2. COMPETING IDENTITIES: “CAREER WOMAN” VS. “HOUSEWIFE”

There has been a long tradition of collecting information about views on women’s roles in society and in the family. This information shows that there have been spectacular changes that took place over time and across cohorts in perceptions about women’s roles or identities. Traditional beliefs held that a woman’s place was in the home, where she was entrusted with the care of children and the support of relationships. The identity of women as “homemakers” or “housewives” is rooted in a long tradition going back to the industrial revolution (Goldin, 1990), when men became factory workers in growing cities and women’s work became increasingly confined to the home. The emergence of a married woman’s identity as a “career woman” is relatively recent. While women have long been engaged in the careers of nursing and teaching, historically most women took jobs while waiting for marriage or after having raised their children, rather than enter life-long careers.⁹

In this historical context, women’s labor market decisions are typically modeled using the neo-classical utility maximization over labor-leisure choices where their decisions can be summarized in terms of two fundamental parameters, her own-wage elasticity and the income (including her husband’s in the case of a married woman) elasticity. Retracing the evolution of these two parameters over the course of the twentieth century, Goldin (2006) notes that the rise in women’s educational attainment implied a sustained rise in the own-wage elasticity for much of the century, but the substitution effect began to reverse its upward trend in the 1980s.¹⁰ The income elasticity, on the other hand, which was large at the beginning of the century began a substantial decline at mid-century, such that by the 1990s it was more comparable to that of men.¹¹

When described in terms of changes across cohorts, the spectacular rise in FLP and the sharp decline in fertility in the latter half of the twentieth century can be seen almost as a discrete change that coincided with the behavior of cohorts who gained access to reliable family planning (Pill, IUD, abortion). Yet, the “Pill Revolution” happened in the same era

⁹Historically, many nurses and teachers practiced sexual abstinence by remaining unmarried or taking religious vows.

¹⁰Goldin also notes the importance of other demand factors such as the rise in part-time work in this increase.

¹¹See also Blau and Kahn (2005).

as many other changes, including the Civil Rights movement, the “Sexual Revolution”, and more importantly (and relevant here) the “Women’s Liberation Movement”, which aimed to liberate women from domesticity and open up labor market opportunities for them. In recent years however, “feminism” has begun to carry negative connotations and intensive mothering and housewifery (à la Martha Stewart) are on the rise.

One interpretation of the Women’s Liberation Movement is that it proposed to women this new identity of “career woman” equal to man in the workplace, capable of high achievement, and assuming her own identity by keeping her birth name. Goldin and Shim (2004) have indeed found that the fraction of college-educated women keeping their maiden name rose sharply in the 1970s and 1980s, then declined in the 1990s and early 2000s. Initially, this new identity was proposed as a polar alternative to the traditional identity of housewife: marriage was shunned and co-habitation or partnerships were preferred. Motherhood was either delayed or altogether ruled out.¹²

But for many women who were already assuming multiple identities as spouse, mother, cook, housekeeper, and caregiver to elderly parents, this proposition may have seemed simply like adding yet another role or identity to an already long list. In this view, women did not need to renounce their identity as housewife, but rather had to balance the competing identities, for example by adjusting the timing of births (the tempo of fertility) or by working part-time. Basically, it is unclear whether this proposed new identity was indeed adopted as an alternative, rather than a complementary, identity to the traditional identity of housewife by a larger proportion of women.

This paper investigates the relative importance of traditional gender roles versus egalitarian views with regards to women’s labor market decisions; it draws its theoretical underpinnings from the new economics of identity (Akerlof and Kranton, 2000, 2002, 2005; Bénabou and Tirole, 2002, 2006). In the economics of identity, the agents decisions are influenced by their beliefs about their identity or their sense of self. Here I retain some essential elements of the Bénabou and Tirole (2006) dynamic model of competing identities. In that model,

¹²Coslett (2005) finds that the promise of the “Women’s Liberation Movement” of “having it all”, both career and family, is out of reach for the majority of high achieving women: in her ExecuComp data only 43 percent of female executives vs. 85 percent of male executives achieve one marriage, zero divorces and at least one child.

the identity is represented by an asset-value pair $\{A, v\}$, whose components are multiplied in the evaluation of utility vA . The agents' actions impact utility by reinforcing the agents' identity-capital. The model involves three stages: period 0, the choice of identity; period 1, the investment period when there might be resource rivalry between identities; and period 2, reaping the rewards of identity.

The two competing types or identities are denoted $v = \{v_H, v_C\}$, where v_H would be the traditional identity of homemaker or housewife and v_C the new identity of "career woman".¹³ The woman starts with an initial endowment of each type of identity, A_0^H and A_0^C , that may come from the intergenerational transmission of gender role attitudes, religious beliefs, family, or ethnic background, many of which are observed. In period 0, she finds out about her endowment, self-assesses her identity type and takes some initial identity-specific actions, a_0^H and a_0^C incurring costs c_0^H and c_0^C . She may find a husband and have children, she may pursue higher education, or perhaps both. Investing in these identity-specific assets by taking some actions a_t^H and a_t^C will build up the identity-specific capital, A_t^H and A_t^C at rates r_t^H and r_t^C .¹⁴ There is some uncertainty z with respect to the success of these identity-enhancing investments.¹⁵ For example, a woman may or may not be accepted into her first choice of college major, she may or may not find a suitable marriage partner, she may or may not be able to bear children, her marriage may or may not work.

In period 1, the agent determines her actions by reference to an imperfect recall of her initial type \hat{v} , which is equal to v with probability λ , called the malleability coefficient, or by considering her actions from period 0. She also incorporates in her decisions the anticipated utility, $s_1 \hat{v} A_2$, of the identity-asset to be realized in period 2, where s_1 is a saliency parameter indicating the individual's belief about the contribution of the identity-asset A_2 to her welfare. For example, a woman may have completed a law degree in period 0 and may think of herself as a "career woman". She may anticipate the satisfaction of becoming a partner in her law firm in period 2 and therefore decide to accept some demanding assignments and

¹³There is a level of uncertainty about each individual's type, but the individual has some prior ρ about what kind of woman, career or housewife or a mix, she is: $\bar{v} \equiv \rho v_H + (1 - \rho)v_C$.

¹⁴The housewife-identity returns to the first child may be bigger than to subsequent children.

¹⁵An investment in the career identity at time $t = 1$ can succeed with probability z or not; this implies: $A_1^C = z(A_0^C + a_0^C r_0^C) + (1 - z)A_0^C$.

delay childbirth in period 1. On the other hand, she may be unsure about her identity as “law partner” and therefore, she may not derive sufficient anticipatory utility from the potential partnership and may choose to have a child rather than incur the time costs of the difficult assignment. The total intertemporal utility to be maximized is the expectation of the instantaneous consumption benefits of the actions taken and the utility payoffs of identity-choice, $U(v, A_0^H, a_0^H, A_0^C, a_0^C)$, plus a continuation value function, $V(v, \hat{v}, \bar{A}_1)$, of the identity payoffs: $W \equiv E[U + V]$.

When discussing the case of competing identities, Bénabou and Tirole (2006) refer, for example, to the experience of second generation immigrants who face identity conflicts between their “traditional” (parents’ home country) identity and the “modern” identity of the host country. They make some simplifying assumptions such that there are no possible “investment” actions in the traditional identity. Further, it is assumed that this traditional identity yields some uncertain rewards, yet its presence is found to lead to underinvestment in the “modern” identity.

Here, the agents can invest in the identities of both traditional housewife and of career woman, and it is unclear which identity yields the most uncertain rewards, given some uncertainty about marital dissolution (z^H) and potential negative feedback from the labor market (high z^C or low r^C). The framework is useful however to categorize the elements to be added to the neo-classical framework: the family background (religion at age 16, did the mother ever work, did they live in an intact family) will capture the respondent’s endowment of identities. Years of schooling, marital status, the presence of young children, and the number of children will capture the initial identity-investment. Opinions about gender role attitudes will capture the saliency of the competing identities.

I then investigate to what extent the women’s labor market decisions, in what would be the investment period, are influenced by their own agreement with the competing identities (their saliency), controlling for the previous period decisions. I consider the possibility that respondents’ opinions about gender role attitudes may be influenced by cognitive dissonance (Akerlof and Dickens, 1982), that is, the respondents may adjust their opinions to reflect consistency with their actions rather than base them on their deep-rooted beliefs.¹⁶ Thus I

¹⁶Note that the questions about gender role attitudes are phrased to appeal to beliefs about the

will appeal to an instrumental variable strategy with the GSS data and to past assessments of these attitudes with the NLS72.

3. MEASURING GENDER ROLE ATTITUDES AND DESCRIPTIVE EVIDENCE

3.1. Data and Gender Role Attitudes

Data on gender roles attitudes have been collected in many U.S. and international surveys over a long period of time. Sociologists have been especially interested in describing the changes in these attitudes around the era of the Womens Liberation Movement, from the 1960s into the late 1970s (e.g. Mason, Czajka, and Arber, 1976). For example, Thornton and Freedman (1979) report some interesting results from a panel study of attitudinal changes away from traditional gender roles towards more egalitarian roles from 1962 to 1977, among the 1923-1947 birth cohorts. These authors found some evidence that intersurvey experience affected attitudinal changes. As expected, additional education and paid employment were associated with the attitudinal change towards egalitarian attitudes, while additional births were correlated with retaining traditional attitudes. However, these life-cycle changes in characteristics accounted for little of the important shift in attitudes over that period. Nevertheless, these results reflect the importance of accounting for the type of identity-investment described above in assessing the impact of attitudes. Consistent with the competing identity framework above, I distinguish traditional attitudes and egalitarian attitudes as indicators of the saliency of the “housewife” and “career woman” identities, respectively.

The main data used in this paper are drawn from the 1972 to 2006 General Social Surveys conducted yearly (or bi-yearly) by the National Opinion Research Center. Each cross-section comprises 1372 to 2992 observations per year with a total of 23,435 females and 19,194 males between the ages of 18 and 65. I focus primarily on labor force participation as a dependent variable, where being a labor force participant is defined using the GSS variable WRKSTAT.¹⁷ Working decisions at the intensive margin, using the hours of work variables, are best studied when more detailed data about time use is available, as in Burda, Hammermesh and Weil

behavior of others, but this may not be sufficient to address this reasonable concern.

¹⁷The mean of the main variables are reported in Appendix Table A1 and a description of the variables used is provided in the data Appendix.

(2006) and Zaiceva and Zimmerman (2007).

There are a total of eight questions on gender role attitudes in the GSS, but they are not asked consistently in every survey; rather a subset of four questions asked for some years between 1977 to 2006 is used.¹⁸ This reduces the sample size that can be used to study the impact of gender role attitudes to less than 9000 females, called the “Attitude Sample”. Sampling weights are used to adjust for differences in sampling frame across years, especially in 2004 and 2006. The GSS data have been used extensively by other authors (e.g. Levine (1993), Harris and Firestone (1998), Fernandez (2007), and Fogli and Veldkamp(2007)) but usually for a subset of years.

The precise questions on gender role attitudes are listed in Panel A of Table 1, along with the average agreement with the statements by labor force status. Average agreement is computed as the average of all answers rescaled between 1 and 0, where 1 denotes strong agreement and 0 denotes strong disagreement. Answers scaled 1 to n were rescaled 1 to 0 using the formula $(n - k)/(n - 1)$ where n is the number of categories and k is the categorical integer. In the table, the numbers are multiplied by 100 to avoid the leading zeros, thus the average of randomly distributed answers should be 50. Two statements focus more precisely on the role of women in society (FEPOL) and in the family (FEFAM). Disagreement with the statement “Most men are better suited emotionally for politics than are most women” is understood to denote an egalitarian attitude. Agreement with the statement “It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family” is thought to denote traditional attitudes. As shown in Table 1, there are sizeable differences, of at least 10 points, between participating and non-participating women in egalitarian and traditional attitudes. In addition, statements on the impact of working outside the home on preschool children (FEPRESCH), and more generally on the relationship between mother and child (FECHLD) are used to enrich the measures.¹⁹

I will argue that these statements are as good measures of attitudes as the composites

¹⁸Four gender role attitudes questions asked in the early 1970s (FEWORK, FEHOME, FEPRES, FEHELP) were not asked in the 2000s. The largest common subset for which FEPOL, FEFAM, FEPRESCH and FECHLD are available, includes the years 1977, 1985, 1988-1994, 1996, 1998, 2000, 2002, 2004, and 2006.

¹⁹The correlation between FEPOL and FEFAM is -0.322; between FEPRESCH and FECHLD, it is -0.514. The correlation between TRAD and EGAL is -0.506.

constructed using, for example, the much richer list of ten questions from the NLS72, featured in Panel B of Table 1. Empirically, either set of measures have similar predictive power towards labor force participation.

3.2. Descriptive Evidence

Given the potential for sizeable cohort effects reported in other studies, it is important to consider these effects in any discussion of trends in FLP. However, because age corresponds to birth cohort plus time spanned, it is not possible to separate linear combinations of these effects. Fortunately, there are some important non-linearities in time period and life-cycle effects in labor force participation and other outcomes. Using a plausible non-linear specification, it is possible to identify these non-linear features.²⁰ While Heckman and Robb (1985) are generally correct in arguing that the linear dependencies between age, period and cohort may affect the identification of higher order terms, I will show that in the case at hand, the non-linear effect sought is robust to alternative specifications of the age and cohort effects.

As shown in Figure 1 which graphs the number of children by birth cohorts, I differentiate eight birth cohorts appealing to popular terminology (Greatest Generation, Baby Boomers, Generation X) to name these cohorts. The underlying assumption is that any cohort effect should be the same for individuals born within the years spanning the birth cohorts. For that reason, the commonly known baby boom cohort (1945-1966) is divided into three sub-cohorts (early, mid, and late boomers), following the important differences in FLP and educational attainment uncovered in Bailey (2006). I also curtail the span of the Greatest Generation to 1920. Preliminary inspection of the reduction in fertility stemming from having been of marriageable age during World War II showed that it affected only those born before 1921. I have incomplete life-cycle information for most of the cohorts, but I am able to follow some cohorts for close to a complete labor market life-cycle: I observe the 1946-53 birth cohorts from the age of 21 to 60. Changes in the number of children, featured in Figure 1, show a complete shift in behavior from the pre-1945 birth cohorts to the post-1945 birth cohorts,

²⁰For example, Beaudry and Green (2000) successfully use a non-linear specification to illustrate the deterioration in the age-earnings profile of Canadian men of younger cohorts by comparison with older cohorts.

with the distinctive feature that all cohorts in this second group seems to converge to a similar number of children.

Figures 2 to 5 display the changes over time and over the life-cycle for each of the eight cohorts, along with the changes for all cohorts in FLP, male labor force participation, traditional gender role attitudes, egalitarian attitudes, number of children, proportion of women ever divorced or separated, attitudes towards premarital sex, liberal political views, and church attendance.²¹ Many figures are stunning in showing that commonly stylized perceptions about time trends actually correspond to quite dramatic cohort shifts, while other series are dominated by life-cycle effects.

Panel A of Figure 2 shows that the leveling-off or slight decline in FLP for all cohorts (slim solid line) around 2002 is not solely due to the natural life-cycle decline among baby boom cohorts, but is also shared by the more recent birth cohorts (1966-75 and also 1976-86). As in Bailey (2006), Panel B of Figure 2 shows some striking differences across the three baby boom in FLP between the ages of 20 and 35, found to have been caused by age differences in accessibility to the “Pill”. The life-cycle pattern of FLP for all cohorts (slim solid line) shows an initial peak around 25 years of age, followed by a period of possible withdrawal from the workforce, and another peak around age 40. Note that consistent with an “opting out” hypothesis, mid-20s withdrawal from the labor market appears greater among the two youngest cohorts than among the late boomer generation. Figure 2 also shows that the general pattern of the two aggregate curves (FLP for all cohorts), especially the time-period trend, will be well-captured by quadratic functions.²² Illustrated in Panels C and D of Figure 2, male labor force participation appears even more dominated by life-cycle effects than FLP.

Panel A of Figure 3 displays the evolution over time of traditional gender role attitudes showing a sharp decline from the late 1970s to the mid 1990s, when it bottomed out and increased slightly thereafter. Panel C of Figure 3 displays a mirror-like evolution of egalitarian attitudes with a reversal of the upward trend beginning in the mid 1990s.²³ Important

²¹In the figures, the answers to attitudes questions are rescaled between 0 and 1. One-half should be seen as the mid-value. The figures display three year moving averages of the underlying data.

²²Estimation of quartics in time was found to give insignificant third and fourth order terms. The consequences of using more flexible models of life-cycle effects are explored below.

²³In the raw data, traditional attitudes bottom out in 1994 and egalitarian attitudes peak in 1994 among women. Among men (not shown) attitudes reach their extremum a year earlier.

differences across cohorts are also illustrated. There have been some single cohort analyses (Farré-Olalla and Vella, 2007) of the intergenerational transmission of gender role attitudes that have found a coefficient of transmission of a magnitude similar to the transmission of income. Here, there appear to be dramatic shifts in attitudes from the parents of the baby boomer cohort (1921-1935) to the baby boom cohorts themselves. Figure 4 illustrates the cohorts time-period and life-cycle trends for the attitudes toward premarital sex and the political views that will be used as instruments in the analysis. Interestingly, agreement with the idea that ‘premarital sex is wrong’ began to increase among 1959-65 and 1966-75 birth cohorts in the mid-1990s, who were in their 20’s and 30’s. The timing corresponds to the peak of the AIDS crisis (CDC, 2006). A similar decline in risky sexual behavior, as defined by Smith (1991), among these cohorts is shown in Appendix Figure A1.²⁴

Figure 5 illustrates in Panel A the stylized fact that in terms of rates of divorce (ever divorced), the three baby boom cohorts,—with the early baby boom cohort leading the way—, exhibit much higher rates than the older cohorts’. Perhaps surprisingly, they also exhibit somewhat higher rates than the more recent cohorts. Figure 5 also displays the same graphs for church attendance, a commonly used measure of religiosity (Glaeser and Sacerdote, 2007) studied here as an alternative explanation for the leveling-off of FLP. Note that increases in church attendance among the younger cohorts began to increase only in the 2000s.

I now turn to a more complete analysis of these trends. For ease of exposition, let’s begin the formal analysis with the following parsimonious model:

$$(1) \quad Y_{it} = \alpha_0 + \alpha_1 t + \alpha_2 t^2 + \alpha_3 Age_{it} + \alpha_4 Age_{it}^2 + \sum_{j=1}^8 \delta_j B_{ij} + \beta X_{it} + \epsilon_{it}$$

where Y_{it} is the outcome of individual i observed in year t , Age_{it} is the age of the individual and B_{it} is the birth cohort category to which the individual belongs (according to Figure 1) and where X_{it} denote some demographic variables. Table 2 also displays the results of specifications where the life-cycle profile is captured by a full set (minus 1) of age dummies

²⁴High risk sexual behavior, defined as having more than 5 or more sexual partners (PARTNERS) in the last 12 months or having sex with a pick-up partner (PIKUPSEX) or paying or being paid for sex (PAIDSEX) or having homosexual male sex (SEXSEX), began to decline substantially in the 1990’s for the these two cohorts (the younger cohort is not observed in the early 1990s).

and where the cohort effects are captured by a full set (minus 1) of birth cohort dummies. Since $B_{ij} = I\{\underline{d}_j < t - Age < \bar{d}_j\}$, the coefficients δ_j may capture some time or age effects when either the time or age variables are not included, as shown in columns (1) and (2) of Table 2. To simplify the interpretation, equation (1) is estimated as a Linear Probability Model, but the results from a Probit model show that magnitude and significance of the coefficients are very comparable.²⁵

Column (1) of Table 2 represents the parametric estimation corresponding to Panel A of Figure 2 and shows that, when age effects are omitted, the cohort effects capture some of the concave pattern of the life-cycle participation (age) effects. Column (2) represents the parametric estimation corresponding to Panel B of Figure 2 and shows that, when time effects are omitted, the cohort effects capture the linear trend in FLP over time. Columns (3) and (6) show that estimates of the time and age effects are almost identical whether cohort effects are included or not.²⁶ Column (4) shows that the time trends and cohort effects do not change much when the life-cycle profile is captured by a full set of age dummies. Column (5) shows that the quadratic term of the time trend does not change much when the life-cycle profile and the cohort effects are captured by a full set of dummies, confirming that the quadratic in the time period is robust to potential misspecification in the parsimonious specification (1). The cohort effects in columns (4), (6), and (7) are consistent with a small decrease in FLP among the two younger cohorts.

The estimated concave time trends from columns (1) to (9) imply yearly increases in FLP of 1.5 to 2 percentage points a year in the 1970s, declining to 1 to 1.5 percentage points in the 1980s, tapering off from 0.6 to 0.8 at the beginning of the 1990s, to zero around 2000 and becoming negative thereafter. By contrast, the concave time trend for male labor force participation in columns (9) and (10) imply yearly increases of less than 0.1 percentage points in the 1970s that turn negative in 1980s, and reach a negative 0.4 in the 2000s. These trends are illustrated in Panel A of Figure 6, which also shows the contribution of the life-cycle and cohort effects to the time trends in FLP. Thus another way to frame the main question of

²⁵Because of space considerations, these results are not presented here, but are available upon request.

²⁶Note that freeing up the time and age polynomials with a complete set of time and age dummies yields very similar point estimates for the cohort effects.

this paper is: what are the gender-specific factors that would make the trends in FLP more similar to those of male labor force participation? Columns (8) and (9) indicate the results of the analysis for the Attitude Sample and the sample of married women, respectively. They show that by comparison to all women in column (6), the time trends among married women are not significantly different, although they indicate more curvature.

Table 3 reports the results of a similar exercise, estimating equation (1) using as dependent variables women's agreement with traditional gender role attitudes, egalitarian attitudes, the number of children, and ever divorced. Odd columns display the results for the complete sample for which the data is available, while the even columns limit the analysis to the Attitude Sample. Interestingly, the time trends in gender role attitudes are found to be similar to the trends in FLP, with the opposite signs for traditional attitudes. There is a small linear life-cycle upward trend in traditional attitudes, but none in egalitarian attitudes. The cohort effects in gender role attitudes are consistent with more traditional attitudes and less egalitarian attitudes among younger cohorts than among the baby boomer generations.

The number of children in column (5) exhibits a negative linear time trend. There are some positive cohort effects for the younger cohorts by comparison with the baby boomer generations, perhaps as a result of less delay in childbearing, but that effect is, unsurprisingly, dwarfed by the one from the parents of the baby boomers. The time trend in having been ever been divorced in column (6) is very slightly concave, owing to the stabilization in the rate of ever divorced from the mid 1990s, shown in Figure 7. The cohort effects are consistent with higher divorce rates among the three baby boom cohorts.

4. IMPACT OF GENDER ROLE ATTITUDES

4.1. Main Results

The above descriptive evidence clearly shows that, accounting for life-cycle and cohort effects, the evolution of FLP over the past 30 years has peaked and begun a slight decline, a decline that is larger than the one found among men. At issue is whether the slight retreat in egalitarian gender role attitudes and the similar growth in traditional gender role attitudes,

which began in the mid 1990s, can be implicated in that leveling-off.²⁷ First, it is important to assess the extent to which the change in the FLP trend can be explained by changes in fundamental economic variables, such as wages and income. Wages are captured in reduced form as years of schooling and a quadratic in age, which is already included in the regression. In the regressions among married women, the logarithm of other family income, which comprises the husband’s income, is included. Following the economic identity framework laid out earlier, I also include the following as identity endowment variables: mother ever working, living in an intact family and religion dummies (9) at age 16; and include the following as identity-investment variables: years of schooling, dummies for married, ever divorced, the number of children, and the presence of pre-school children.²⁸

For the complete sample, this analysis starts in column (7) of Table 2, which adds the list of explanatory variables to equation (1). Considering the point estimates, the addition of these variables accounts for 25 percent of the change in the linear terms (from 0.023 to 0.017) and for 14 percent of the change in the quadratic terms (from -0.036 to -0.031), yet the point estimates are not statistically different from the ones in column (6) of Table 2. Column (1) of Table 4 reproduces this analysis for the Attitude Sample. Comparing the time trend terms to those of column (8) of Table 2, one finds that the economic fundamentals, the identity-endowment, and identity-asset variables account for 31 percent of the change in the linear terms (from 0.016 to 0.011) and for 25 percent of the change in the quadratic terms (from -0.024 to -0.018), although the differences in the point estimates are not statistically different. Thus the economic fundamentals, the identity-endowment, and identity-investment variables account for a sizeable share of the time trends in FLP, which still remain highly statistically significant.²⁹

²⁷While a leveling-off in FLP was mechanically expected, its timing and the level at which it would level off was not forecasted. Because I cannot cleanly identify the linear trend of the time-period quadratic, I will not be able to precisely pinpoint the turning point, which in any event appears to include a range rather than a single year in Figure 6.

²⁸The mean of the explanatory variables are given in appendix Table A1.

²⁹In the complete sample, the estimate of -0.031 (0.003) of the quadratic time trend from column (7) of Table 2 is statistically different from the comparable estimate for men (not shown) of -0.010 (0.003). In the Attitude Sample, given the relatively larger standard errors, the estimate of -0.018 (0.008) of the quadratic time trend from column (1) in Table 4 is not statistically different from the estimate of -0.011 (0.006) for men from column (1) in Table 6, but this does not remove the fact that the attitudes variables bring the point estimates closer.

The introduction of the gender role attitudes variables begins in column (2) of Table 4, which adds traditional attitudes as measured in Table 1, using both attitudes towards a man's and a woman's role in the household (FEFAM) and whether a preschool child is likely to suffer if his mother is working (FEPRSCH). At -0.246 (0.022), the impact of traditional attitudes is relatively large and very significant. It implies that the slight rise in average traditional attitudes from 0.373 in 1994 to 0.401 in 2006 would account for a 0.7 percentage point $[(0.401-0.373)*-0.246*100]$ decline in FLP. By comparison, the increase in years of schooling from 13.04 in 1994 to 13.12 in 2006 would have lead to an increase of 0.18 percentage points. Importantly, the introduction of traditional attitudes reduces the magnitude of quadratic term of the time trend from -0.018 to -0.011, rendering it insignificant and comparable in point estimate to that of men. The time trends corresponding to columns (1) and (4) of Table 4 are illustrated in Panel B of Figure 6, along with that of men.

Egalitarian attitudes, measured as the combination of attitudes towards women as emotionally suited for politics (FEPOL) and whether a working mother can be just as good a mother as a stay-at-home mom (FECHLD), are introduced in column (3). As expected their impact is positive and significant, with a magnitude of 0.134 (0.019), which is equal to a bit more than half of traditional attitudes. While egalitarian attitudes begin to bridge the gender difference in time trends, they do not go all the way as the combination of traditional and egalitarian attitudes does in column (4). Reflecting some degree of collinearity between the two variables, the magnitude of the impact of each variable is reduced but the impact of traditional attitudes dominates.

The "opting out" hypothesis has suggested that college educated women of recent cohorts would stay home in greater numbers than the boomer generation when they have children, perhaps out of concern for the welfare of their offspring, or perhaps because of the stresses of living in two-earner families or succeeding in the labor market. But in debunking the "opting out" hypothesis, Boushey (2005) find that in 2004, the impact of having children in the home on FLP fell in comparison to previous years.³⁰ Thus in column (5), I explore the notion that the welfare of the children might not be the main beliefs at play here.³¹ Indeed, when only

³⁰In regressions not shown, I also find that interactions between the presence of preschool children and the cohort dummies decrease for younger cohorts.

³¹Fogli and Veldkamp(2007) also emphasize the potentially deleterious effects on children of mothers

FEFAM and FEPOL are included in the regression, I find that the time trend coefficients are rendered insignificant as in column (4). Changes in attitudes towards the role of men and women in the household, consistent with an identity story, are sufficient to explain the gender differences in the time trends. Note also the introduction of gender role attitudes in columns (4) and (5) reduce the magnitude of the negative cohort effects for the 1966-75 and 1975-1986 birth cohorts, although these coefficients are never significant in the Attitude Sample.

Columns (6) and (7) reproduce the analysis of columns (1) and (4) for the sample of married women only. Here I also include the logarithm of other income, which is found to be negative and strongly significant. The inclusion of this additional fundamental economic variable does not help account for much of the change in the linear terms (from 0.020 to 0.016) or in the quadratic terms (from -0.035 to -0.033).³² That is, the rise of the husbands' income reduces their wives' labor force participation, but the effect is extremely small. This is consistent with the view of Blau, Ferber, and Winkler (2006) who speculate that part of the slowdown in married women's labor force participation is unlikely to be attributable to their husbands' better employment opportunities given that married women's labor supply has become less sensitive to their husbands' income in recent decades. For married women, the impact of traditional attitudes is even stronger than before and their inclusion in column (7) implies a substantial reduction in the linear (from 0.016 to 0.009) and quadratic terms (from -0.033 to -0.022).

4.2. Instrumental Variables and Additional Results

Stating that when gender role attitudes are accounted for, gender differences in the evolution of labor force participation over the past 30 years fade away may appear tautological. Perhaps the respondents' agreement with gender role attitudes is simply an afterthought to rationalize their actions; in other words, perhaps their responses are tailored to avoid cognitive dissonance problems. To address this very reasonable concern, I first employ an instrumental variable work.

³²The first figures in the comparison (corresponding to column (7) of Table 2) but estimated for married women in the attitude sample have not been shown earlier. The inclusion of the logarithm of the other income variable actually adds curvature in comparison to the inclusion of the same explanatory variables as in column (1), and it comes at a cost of 719 observations with missing values.

strategy where attitudes towards sexual relations and liberal political views are used as instruments. Second, I estimate the model with NLS72 data, where the respondents' gender role attitudes are measured many years before their labor force participation is observed.

The precise questions used in the GSS to elicit views about sexual morality and political views are:

“There’s been a lot of discussion about the way morals and attitudes about sex are changing in this country. If a man and woman have sex relations before marriage, do you think it is always wrong, almost always wrong, wrong only sometimes, or not wrong at all?” [VAR:PREMARSX]

“What if they are in their early teens, say 14 to 16 years old? In that case, do you think sex relations before marriage are always wrong, almost always wrong, wrong only sometimes, or not wrong at all?” [VAR:TEENSEX]

“We hear a lot of talk these days about liberals and conservatives. I’m going to show you a seven point scale on which the political views that people might hold are arranged from extremely liberal point 1 to extremely conservative point 7? Where would you place yourself on this scale?” [VAR:POLVIEWS]

The rationale behind the choice of instruments is that they should be correlated with gender role attitudes and should impact labor market decisions only through attitudes toward whether women should work outside the home or not. To the extent that the Women’s Liberation movement of the 1960s, that led to promotion of the new identity of “career woman”, was also associated with the Sexual Revolution, it is not too difficult to imagine that gender role attitudes and attitudes about sexual morality are correlated. In effect, it is a condition that is easily verified empirically below.

The second exclusion restriction can be seen as using sexual morality and political views to circumvent the cognitive dissonance issue. While a working mother may have difficulty agreeing with the statement that a preschool child may suffer when his mother is working because of cognitive dissonance issues, she would not face the same problem when asked about sexual morality or political views.³³ It also says that the channel through which conservative

³³In the case of single highly educated women below, I use attitudes towards teenage sex to avoid cognitive dissonance issues.

political views affect FLP is through gender role attitudes, that is, conservatives would argue that women’s main role or salient identity should be that of housewives. The use of two types of views allows me to perform some over-identification tests that go some distance towards alleviating concerns about endogeneity of the instruments.

The use of such values however points to another potential channel by which endogeneity problems could arise: the presence of correlated unobservables. But at the same time, they provide an opportunity to test whether gender role attitudes might not simply be capturing other general “cultural” trends in the United States. In the estimation of returns to education, concerns about unobserved ability inducing a case of omitted variable bias were confirmed when the introduction of measures of ability (such as AFTQ scores) substantially reduced the estimates of returns to education. I will show, in section 4.3, that similar concerns are not supported here: the inclusion of sexual views, political views, religious denominations and church attendance, ethnic ancestry, and health measures does not change the magnitude of the impact of traditional attitudes. While refuting the presence of unspecified correlated unobservables is not feasible in the present non-experimental context, the richness of the GSS data leads me to test a wide range of possible candidates, and I find the estimates of the coefficients of traditional attitudes to be remarkably robust.

The results of the instrumental variables strategy are presented in Table 5. Column (1) presents the results of the first stage of the 2SLS estimation strategy, where traditional attitudes are the endogenous variable and where views about premarital sex and politics are used as instruments. As anticipated, these views are strongly correlated with traditional attitudes with the expected signs. The value of F-Test on the instruments is also very strong at 386.6, confirming that these are not weak instruments. Columns (2) and (3) present the results of the 2SLS and LIML estimation. The instrumental variables estimate of the impact of traditional attitudes at -0.231 (0.070) is very close to -0.246 (0.022), reported in column (2) of Table 4, and the estimates of the time trends are identical. Column (4) reports the first-stage results, where egalitarian attitudes represent the endogenous variable and where views about teenage sex and politics are used as instruments.³⁴ Again, the estimates and

³⁴Views about teenage sex were first asked in 1987, so this reduces the number of observation in columns (5)-(7). These views are found to be more strongly correlated with egalitarian attitudes than

F-test reveal that the instruments are strong. However, in the case of egalitarian attitudes, the results of 2SLS and LIML estimation in columns (5) and (6) show a much larger and less precisely estimated IV coefficient of 0.270 (0.111) compared to the estimate of 0.134 (0.019) from column (3) Table 4, usually a sign of a less successful instrumentation. Further, rather than accounting for the time trend in FLP, the estimation strategy results in both stronger linear and quadratic terms. In both cases, the instruments pass the overidentification test with flying colors. Additional evidence about the exogeneity of the instruments is presented in section 4.3. In summary, the instrumental variable strategy confirms the inference from Table 4 that traditional gender role attitudes is the more important gender-specific variable that accounts for trends in FLP.

In order to further address the “opting out” hypothesis, in Tables 6 and 7, I perform the analysis for sub-samples of women with less than a four-year college-education and with college-educated women, respectively. Among women with less than college, the estimates of columns (2)-(6) of Table 6 are very similar to those of columns (1), (4), (6), and (7) of Table 4 and columns (4) and (7) are similar to column (2) in Table 5. Incorporating gender role attitudes in the regression drives the quadratic time trend terms to zero in the sample of all women with less than a college education, and reduces it by a third in the sample of married women with less than a college education. This shows that the leveling-off of FLP is not driven by the experience of college-educated women.

Table 7 considers the experience of college-educated women, distinguishing married and single (never married, divorced, separated, or widowed) women. For married college-educated women, the negative effects of traditional gender role attitudes are still significant and quite large in columns (3) and (4) of Table 7. For single women, they are not, but it is for these women that the positive impact of having a mother that ever worked is strongest and statistically significant. These sub-samples of college-educated women are quite small (about 1000 women), thus, the statistical significance of the quadratic time trend terms is lost. Yet, in terms of point estimates, incorporating gender role attitudes in columns (3) and (4) of Table 7 still reduces the quadratic time trend terms by one-third in the sample of married women. This effect is not found among single college-educated women, whose labor force the more general attitudes toward premarital sex.

behavior is similar to that of men.

To reinforce the notion that traditional attitudes are capturing gender-specific factors rather than general cultural factors, the above analysis is reproduced using the sample of men. Columns (1), (2), and (3) of Table 8 reproduces for men the results of columns (1), (4) and (2) of Table 4. In contrast to women, the linear time trend in male labor force participation is very small and generally not statistically significant, while the quadratic term is three times smaller than among women and less significant. Importantly, the magnitude of the trends remains unaffected by the introduction of the gender role attitudes, entered directly (columns (2) and (3)) or instrumented (columns (5) and (6)). Although generally small and not statistically significant, the impact of gender role attitudes is unsurprisingly opposite in sign to that of women. Men that believe that the man should be “the achiever outside the home” would be more likely to participate in the labor market.

To further dispel the issue of endogeneity of gender role attitudes arising from cognitive dissonance problems, as well as from more general issues of reverse causality, I appeal to a longitudinal survey where the questions about gender role attitudes are asked 5 years before the labor market decisions are observed. The NLS72 interviewed students in their senior year in high school in the spring of 1972, with follow-up surveys conducted in 1973, 1974, 1976, 1979, and finally, in 1986. Because it selects respondents attending grade 12 and thus ignores students who dropped out earlier, this sample is not fully nationally representative.³⁵ The sample also contains only one birth cohort with most students being born in 1954 or 1955, and therefore there is no need to correct for potential cohort or life-cycle effects.³⁶ The gender role attitudes variables are made from a richer composite of five questions each. Education is available in terms of highest degree completed, rather than years of schooling.

Table 9 reports the results of regressions using the NLS72 sample, similar to those presented in Table 4. The striking comparison between the first two rows of Table 9 and the third and fourth row of Table 4 is how close the coefficients of gender role attitudes on FLP

³⁵However, Krueger and Dale (2002) argue that it is representative for college graduates. Because of a lower proportion of less-than-high-school-educated women, the average FLP in this sample is a little higher than in the GSS.

³⁶See Fortin (forthcoming, 2009) for more details on this data set. In that paper, these data were used to show that gender differences in non-cognitive factors, especially the importance of money/work, have a modest but significant role in accounting for the gender wage gap.

are. Focusing on column (4), the coefficient of traditional attitudes is equal to -0.278 (0.037) in the NLS72, and was -0.219 (0.024) in the GSS; the coefficient of egalitarian attitudes is equal to 0.049 (0.044) in the NLS72, and was 0.051 (0.021) in the GSS. The impact of the presence of preschoolers is similar: -0.100 (0.013) in the NLS72 vs. -0.139 (0.014) in the GSS. For married women in column (6) [column (7) of Table 4], the coefficients of the log husband's income are also very similar -0.091 (0.013) in the NLS72 vs. -0.078 (0.009) in the GSS.

Overall, both the results from the instrumental variables strategy and from the strategy that uses past attitudes about the saliency of gender roles to infer current actions show that the results are not sensitive to possible endogeneity issues or misspecification of the life-cycle and cohort effects.

4.3. Alternative Explanations and Robustness Checks

In Table 10, I explore alternative explanations commonly offered in the literature to account for trends in FLP, presenting both the impact of these variables by themselves, and in conjunction with gender role attitudes. Increases in divorce rates are often offered as an explanation for the increase in FLP over the last part of the twentieth century. As reported in Table 4, having ever been divorced does indeed have a positive impact on FLP when traditional attitudes are not included in the regression (that is, in columns (1), (3), and (5)). However, when traditional attitudes are included, the magnitude of the coefficient is reduced and the statistical significance goes away. This suggests a link between gender role attitudes and marital dissolution. Becker (1991) had indeed argued that traditional gender roles were conducive to marital stability and childbearing. Yet Kaufman (2000), who studied the links between family formation and dissolution and gender role attitudes, did not find significant differences in marital dissolution between traditional-leaning women and egalitarian women.³⁷

Another difficulty with the divorce explanation is given in Table 3, which shows that unlike the trends in gender role attitudes, once life-cycle and cohort effects are accounted for, the time trends in divorce rate, although significant are of relatively small magnitude.

³⁷Kaufman used the longitudinal data from the 1987/88 and 1992/94 waves of the National Survey of Families and Households and found significant differences for men: egalitarian men were less likely to divorce than traditional men.

As illustrated in Panels A and B of Figure 5, which displays the proportion of women ever divorced by birth cohorts, higher rates are mainly concentrated among baby boom cohorts. It is possible that the mismatch of egalitarian women with traditional men were more frequent for these generations. Indeed, in the NLS72 which interviewed only women from the mid-baby boom cohort, the coefficient of being ever divorced [0.060 (0.016), column (4), Table 9] is larger, although not significantly so, than in the GSS [0.023 (0.012), column (4), Table 4]. Further, the magnitude of the impact of ever divorced in Table 9 is not much changed by the inclusion of gender role attitudes.

In any event, beliefs about whether divorce laws should make divorce easier or more difficult are included in column (1) and (2) of Table 10.³⁸ These are found to be statistically and negatively associated with labor force participation, while increasing the magnitude of the ever divorced coefficients. The inclusion of this variable reduces the magnitude of the quadratic time trends further when gender role attitudes are also included (column (2)), but by itself, it does very little.

The impact of liberal political views and of attitudes toward premarital sex are studied in columns (3) and (5) of Table 10, respectively. While they are found to be significantly associated with FLP, their inclusion in the regression does not help capture the time trend in FLP. When gender role attitudes are added in columns (4) and (6), the time trend coefficients become insignificant and the coefficients of liberal political views and of attitudes toward premarital sex are effectively reduced to zero, confirming that their impact of FLP operates through gender role attitudes and that they are thus valid instruments.

The United States is often viewed as singular among industrialized countries with its high and increasing level of religiosity. Given that as shown by Guiso, Sapienzad, and Zingales (2006), increased religiosity is often associated with more traditional views toward gender roles, it provides an interesting alternative hypothesis to the recent stabilization in FLP. Religious denominations are regrouped into 10 categories: Baptist, Methodist, Lutheran, Presbyterian, Catholic, other Christian, Jewish, Muslim, other Eastern, and undeclared.³⁹

³⁸The GSS variable DIVLAW captures the answers (easier, more difficult, or stay the same) to the question “Should divorce in this country be easier or more difficult to obtain than it is now?”; answers were recoded 1, 0, and 1/2.

³⁹The current religious denominations are coded from the variables RELIG and DENOM

Religion at age 16 is already included in the regressions from Table 4 onwards. For example, in the regression corresponding to column (4) of Table 4, where undeclared was the omitted category, Lutheran, followed by Baptist and then Catholic, had the larger, more significant positive coefficients. When current religion is added in column (7) of Table 10, only being Baptist remains weakly positively significant, being currently Muslim has a large and significant negative coefficient, and adhering to an Eastern religion has a large and positive coefficient. However, when gender role attitudes are added in column (8), only the Eastern coefficient remains significant, probably capturing the ethnic origin of the respondent.

Following Glaeser and Sacerdote (2007), I introduce Church attendance in column (7) as an indicator of the strength of religious beliefs, and find a counterintuitive positive sign of attending religious service on FLP, although only it is statistically significant when gender role attitudes are included.⁴⁰ This positive sign on church attendance may derive from the positive correlation between church attendance and education found in individual regressions by Glaeser and Sacerdote (2001), who argue that it is explained by the positive correlation between sociability and religion. In both columns (7) and (8), the introduction of the religious denomination variables and church attendance does not capture or alter the time trend coefficients.⁴¹ As shown in panel C of Figure 5, the reversal in the long term decline in religious attendance happened in the late 1990s and does coincide with leveling-off of FLP, rather its impact on FLP appears to operate through traditional gender role attitudes.

Many recent papers (e.g. Fernandez and Fogli (2005), Zaiceva and Zimmerman (2007)) have used ethnic origin to account for culturally driven differences in FLP among immigrant populations. Here I use the question ETHNIC on main ethnic ancestry from the GSS, which comprises 42 categories, along with an immigrant dummy to investigate this issue in columns (9) and (10) of Table 8. None of the ethnic ancestry dummies are found to be significant and thus the previous results are unaffected by the inclusion of these variables.

Another recent disturbing trend in the United States is the increase in morbid obesity,

⁴⁰Like these authors, I used the variable ATTEND, recoded like the other categorical variables. I also followed Shermat (2000) in testing the impact of biblical inerrancy (using the variable BIBLE), that is, whether the Bible is the word of God and always true, but it did not come out as significant.

⁴¹Comparing the positive and significant coefficient of church attendance in column (8) with the near zero coefficient of political views and views on sexual relations in columns (4) and (6) is another element to reinforce the validity of these last two variables as instruments.

which has been shown to decrease women’s employment outcomes more than that of men (Cawley, 2004; Wada and Tekin, 2007). Questions about respondents’ weight were asked only in 2004, so I use self-reported health as a proxy for this trend.⁴² While the coefficient of the health variable in columns (11) and (12) is positive, sizeable, and significant, its inclusion does not alter the time trend coefficients.

5. CONCLUSION

This paper provides compelling evidence that beliefs about gender roles are an essential element of the analysis of the evolution of FLP over the latter part of the twentieth century, as argued by others (Fernandez, 2007). The theoretical underpinnings of the findings are rooted in economic identity theory, which argues that saliency of identities is an important factor in the agents’ decisions (Bénabou and Tirole, 2007). The empirical analysis of pooled cross-sectional data from the 1972-2006 GSS shows that traditional gender role attitudes are the missing gender-specific factors that make gender differences in the evolution of labor force participation fade away. Using an instrumental variable strategy that uses sexual morality and political views as instruments, these findings are shown not to be marred by issues of cognitive dissonance. The potential problem of reverse causality is further resolved by using longitudinal data where attitudes are observed prior to the labor market decisions.

Traditional gender role attitudes, whose secular decline bottomed out in the mid-1990s when the AIDS crisis peaked (CDC, 2006), are found to explain the recent leveling-off in FLP, while general cultural trends towards more conservative social, religious and political views do not. Ethnographic accounts of the “opting out” movement (Stone and Lovejoy, 2004; Stone, 2007) suggest that these attitudes may incorporate some of the negative feedback from the workplace that make it difficult for women to reconcile the double identities of homemaker and “career woman”.

While this paper solves one puzzle, it raises a number of questions regarding the formation and the evolution of gender role attitudes. There has been some interesting empirical work

⁴²When equation (1) is estimated using HEALTH (excellent, good, fair, poor) as the dependent variable, the time trends show a slight concave shape and some negative coefficients for the two younger cohorts.

on the intergenerational transmission of gender role attitudes (Farré-Olalla and Vella, 2007), which is echoed here in the positive impact of mother working on FLP, although this effect is not very strong. The present paper illustrates (Figure 3b and 3d) the dramatic cohort shifts in gender role attitudes, from the pre-World War II cohorts to the baby boom cohorts, which confirm the importance of the “Pill Revolution” as highlighted by Goldin and Katz (2002). However, this paper also finds (Figures 3a and 3c) a more recent retreat of egalitarian views and a bottoming out of the longer term decline in traditional gender role attitudes occurring in the mid-1990s, especially among recent cohorts. The fact that this trend is stronger among recent cohorts suggests that it may be worth investigating as an unforeseen consequence of the AIDS crisis. The religious revival, which picked up in the 2000s (Figure 5c) among these cohorts, could turn out to be a consequence rather than an explanation of this trend towards traditional family values, possibly buttressed by the AIDS crisis.⁴³

Finally, whether gender role attitudes have important impacts on other outcomes besides FLP is another interesting area of research. For example, the fall in fertility rates that started in the 1960s with the massive entry of women into the labor market seems to have bottomed out in many European countries, as well as in the United States.⁴⁴

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⁴³Historically, religious values have been invoked to sustain sexual abstinence.

⁴⁴Bongaart (2002) reports that in 1999 fertility increased in Belgium, Denmark, Finland, France, Greece, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, and Switzerland, but that the increases are small. He concludes, however, that it is unlikely that fertility will climb back to the replacement level.

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DATA APPENDIX

The means of the main variables used in this study are reported in Table A1. The following describes precisely which variables from the two data surveys are used. Unless otherwise noted the variables from the NLS72 are from the fifth follow-up (1986), when most respondents were 32 years of age. The main dependent variable (FLP) is constructed from the GSS variable WRKSTAT and from the NLS72 variables FI3A, FI3F, FI3H and FI3I. In the GSS, labor force participants are those currently working full-time or part-time, temporarily absent from work, unemployed, laid off or looking for work. In the NLS72, individuals on active duty in the armed forces are also included among labor force participants. The construction of the attitudes variables is described in the main text and in Table 1. The education variable is the years (from 0 to 20) of schooling variable EDUC in the GSS. In the NLS72, the education variable is available as a categorical variable constructed from the SCHOOL variable in the base questionnaire, updated with variables FQ2 and FQ3B from the first follow-up, variable TQ49A from the third follow-up, variables FT66 and FT67 from the fourth follow-up, and variable FI29 from the fifth follow-up.

In the GSS, the marital status variables are constructed using the variable MARITAL and DIVORCE, which asked currently married and widowed individuals whether they were ever divorced. In the NLS72, the married variable are constructed using the variable MARSTAT and the ever divorced variable using information on how up to the three marriages ended, variables FI40F and FI40G, FI41F and FI41G, FI42F and FI42G. Given respondents are about 32 years of age, no one actually had a third marriage fail. In the GSS, the number of children is from the variable CHILDS, which includes all children ever born alive and is capped at 8. In the NLS72, the corresponding variable is CHILDREN and is capped at seven. The presence of pre-school children is recoded from the variable BABIES in the GSS, which count the number of family members under 6 year olds and the variable FI90AA in the NLS72, which asks about pre-school children. In the GSS, the variable “mother ever worked” is constructed using the variables MAWRSLF, MAWORK, MAWKBABY, MAWKBORN, MAWK16, MAWKGRW and where affirmative answers to any of these questions is coded as a “YES”. In the NSL72, this variable is coded, from the base survey, as the negative of the response, “BQ25C=4” which corresponds to the mother being a homemaker, which may be more closely related to the above concept of identity. “Living in an intact family” is coded from the response “FAMILY16=1” in the GSS and from FI101B and FI101D in the NLS72.

The variable “white” is from the variable RACE in the GSS and RACE86 in the NLS72. In the GSS, the religion at age 16 is constructed using the variables RELIG16 to obtain the broad categories, and DENOM16 to further differentiate the specific denominations, as shown

in Table A1. Only the first type broad categories is available from the base survey variable BQ92 in the NLS72. In the GSS, the log of other income is computed as the logarithm of REALINC (real family income) minus REALRINC (real respondent's income) set to zero if missing because of non-labor force participation. In the NLS72, it is the log of husbands's income, FI111C85+FI111H85+FI111L85, which adds spousal wages and business income, unemployment compensation and scholarships, when these variables are not missing.

Table 1. Women's Average Agreement with Gender Role Attitudes by Labor Force Participation

Variable Name		Non-LFP	LFP	Δ
	A: General Social Survey 1977-2006			
	Do you agree or disagree with this statement?			
FEPOL	Tell me if you agree or disagree with this statement: Most men are better suited emotionally for politics than are most women. (reverse)	67	77.3	-10.3
	Now I'm going to read several more statements. As I read each one, please tell me whether you strongly agree, agree, disagree, or strongly disagree with it. For example, here is the statement:			
FECHLD	A. A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.	58.4	69.2	-10.8
FEPRESCH	C. A preschool child is likely to suffer if his or her mother works	50.3	41.1	9.2
FEFAM	D. It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family.	47.9	35.7	12.2
EGAL	Composite of (FEPOL+FECHLD)	62.3	73.0	-10.7
TRAD	Composite of (FEFAM+FEPRESCH)	49.1	38.5	10.6
Variable Name		Non-LFP in 1986	LFP in 1986	Δ
	B: National Longitudinal Survey of 1972			
	How do you feel about the following statements? Strongly agree, agree, disagree, or strongly disagree. (asked in 1979)			
FT196A	a. A working mother of pre-school children can be just as good a mother as the woman who doesn't work	57.5	68.8	-11.3
FT196B	b. It is usually better for everyone involved if the man is the acheiver outside the home and the woman takes care of the home and family	46.7	35.0	11.7
FT196C	c. Young men should be encouraged to take jobs that are usuall filled by women (nursing, secretarial, work. etc.)	46.0	48.0	-2.0
FT196D	d. Most women are just not interested in having big and important jobs	32.0	30.6	1.4
FT196E	e. Many qualified women can't get good jobs; men with the same skills have much less trouble	58.2	60.5	-2.3
FT196F	f. Most women are happiest when they are making a home and caring for children	44.6	37.9	6.7
FT196G	g. High schools counselors should urge young women to train for jobs which are now held mainly by men	54.3	56.9	-2.6
FT196H	h. It is more important for a wife to help her husband than to have a career herself	45.0	36.3	8.7
FT196I	i. Schools teach women to want the less important jobs (reverse)	41.3	43.1	-1.8
FT196J	j. Men should be given first chance at most jobs because they have the primary responsibility for providing for a family	37.0	30.0	7.0
EGAL	Composite of (FT196A+FT196C+FT196E+FT196G+FT196I)	51.5	55.5	-4.0
TRAD	Composite of (FT196B+FT196D+FT196F+FT196H+FT196J)	40.4	20.5	19.9

Note: Respondents are women aged 18 to 65 in the GSS. Answers scaled 1 to n (strongly agree, agree, disagree, or strongly disagree) are rescaled between 100 and 0, using the formula $100*(n-k)/(n-1)$ where n is the number of categories and k is the categorical integer.

Table 2. Trends in Labor Force Participation, GSS 1972-2006

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All Women						Attitude Sample	Married Women	All Men			
Mean LFP	0.64						0.692	0.589	0.879			
Time (1972=1)	0.016*** (0.001)		0.022*** (0.001)	0.023*** (0.002)		0.023*** (0.002)	0.017*** (0.002)	0.016*** (0.003)	0.024*** (0.002)	0.002 (0.001)	0.002 (0.001)	
Time ² /100	-0.026*** (0.004)		-0.037*** (0.003)	-0.037*** (0.003)	-0.038*** (0.003)	-0.036*** (0.004)	-0.031*** (0.003)	-0.024*** (0.007)	-0.039*** (0.004)	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)
Age		0.042*** (0.002)	0.038*** (0.002)	Full set of age dummies (65 omit.)	Full set of age dummies (65 omit.)	0.035*** (0.002)	0.043*** (0.002)	0.035*** (0.004)	0.047*** (0.003)	0.057*** (0.002)	Full set of age dummies (65 omit.)	Full set of age dummies (65 omit.)
Age ² /100		-0.046*** (0.002)	-0.051*** (0.002)			-0.048*** (0.002)***	-0.056*** (0.002)***	-0.048*** (0.004)	-0.060*** (0.003)	-0.072*** (0.002)		
Birth Cohort (1953-1958 omitted)												
<=1920	-0.240*** (0.020)	-0.348*** (0.021)		0.056 (0.047)	Full set of birth cohort dummies (1988 birth omitted)	0.057 (0.052)	0.041 (0.045)	-0.026 (0.084)	0.015 (0.062)	0.023 (0.034)	0.032 (0.034)	Full set of birth cohort dummies (1988 birth omitted)
1921-35	-0.166*** (0.014)	-0.269*** (0.015)		-0.038 (0.032)		-0.015 (0.035)	-0.010 (0.031)	-0.037 (0.052)	-0.042 (0.042)	-0.017 (0.023)	-0.020 (0.023)	
1936-45	-0.088*** (0.012)	-0.160*** (0.013)		-0.027 (0.020)		-0.021 (0.022)	-0.016 (0.019)	0.006 (0.032)	-0.039 (0.026)	-0.005 (0.015)	-0.003 (0.015)	
1946-52	-0.006 (0.011)	-0.046*** (0.011)		0.007 (0.013)		0.016 (0.014)	0.006 (0.012)	0.037 (0.021)*	0.008 (0.017)	0.013 (0.010)	0.011 (0.010)	
1959-65	-0.008 (0.012)	0.032*** (0.012)		-0.018 (0.013)		-0.025* (0.014)	-0.014 (0.013)	0.000 (0.020)	-0.021 (0.018)	0.029*** (0.010)	0.022** (0.010)	
1966-75	-0.050*** (0.013)	0.047*** (0.013)		-0.058*** (0.020)		-0.072*** (0.021)	-0.042** (0.019)	-0.051* (0.031)	-0.059** (0.027)	0.028** (0.014)	0.009 (0.014)	
1975-86	-0.102*** (0.019)	0.088*** (0.019)		-0.097*** (0.031)		-0.091*** (0.034)	-0.051* (0.030)	-0.074 (0.050)	-0.023 (0.045)	0.048** (0.022)	0.022 (0.022)	
Observations	23435	23435	23435	23435	23435	23435	23346	8915	13110	19194	19194	19194
R-squared	0.056	0.069	0.074	0.085	0.089	0.077	0.147	0.06	0.091	0.123	0.123	0.148

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Column (7) also includes years of schooling, number of children, dummies for white, married, ever divorced, preschooler present, mother everworking, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 3. Trends in Attitudes, Number of Children and Divorce, GSS 1972-2006

Dependent Variable	(1) Traditional Attitudes	(2) Egalitarian Attitudes	(3) Egalitarian Attitudes	(4)	(5) Number of Children	(6) Ever Divorced
Mean Dependent Variable	0.418	0.413	0.694	0.710	2.01	0.271
Time (1972=1)	-0.020*** (0.002)	-0.020*** (0.002)	0.023*** (0.002)	0.024*** (0.003)	-0.023*** (0.007)	0.008*** (0.001)
Time ² /100	0.033*** (0.004)	0.034*** (0.004)	-0.037*** (0.005)	-0.039*** (0.005)	0.011 (0.012)	-0.008*** (0.003)
Age	0.005*** (0.002)	0.005*** (0.002)	-0.004 (0.002)	-0.001 (0.003)	0.237*** (0.007)	0.033*** (0.002)
Age ² /100	0.000 (0.002)	0.000 (0.002)	-0.001 (0.003)	-0.004 (0.003)	-0.226*** (0.008)	-0.034*** (0.002)
Birth Cohort (1953-1958 omitted)						
<=1920	0.024 (0.044)	0.032 (0.046)	-0.031 (0.058)	-0.036 (0.060)	0.033 (0.197)	-0.056 (0.043)
1921-35	0.007 (0.044)	0.012 (0.030)	-0.024 (0.037)	-0.03 (0.037)	0.830*** (0.131)	-0.072** (0.029)
1936-45	-0.003 (0.018)	-0.005 (0.018)	0.013 (0.022)	0.009 (0.022)	0.572*** (0.076)	0.001 (0.018)
1946-52	-0.012 (0.011)	-0.006 (0.012)	0.012 (0.014)	0.001 (0.014)	-0.022 (0.043)	0.033*** (0.016)
1959-65	0.033*** (0.011)	0.035*** (0.011)	-0.045*** (0.013)	-0.047*** (0.013)	0.083* (0.043)	-0.035*** (0.013)
1966-75	0.050*** (0.017)	0.052*** (0.017)	-0.083*** (0.021)	-0.075*** (0.021)	0.261*** (0.071)	-0.109*** (0.018)
1975-86	0.082*** (0.027)	0.085*** (0.029)	-0.128*** (0.034)	-0.114*** (0.034)	0.407*** (0.113)	-0.150 (0.028)
Observations	9825	8915	11610	8915	23378	23435
R-squared	0.077	0.072	0.091	0.062	0.269	0.08

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Traditional and egalitarian attitudes are defined in Table 1.

Table 4. Impact of Gender Role Attitudes on FLP – Linear Probability Model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All Women				Married Women		
Mean LFP	0.692				0.655		
Time (1972=1)	0.011*** (0.001)	0.007* (0.004)	0.008** (0.004)	0.006 (0.004)	0.006 (0.004)	0.016*** (0.003)	0.009* (0.005)
Time ² /100	-0.018*** (0.008)	-0.011 (0.008)	-0.014* (0.008)	-0.010 (0.008)	-0.010 (0.008)	-0.033*** (0.011)	-0.022** (0.010)
Traditional attitudes (FEFAM in col. 5)		-0.246*** (0.022)		-0.219*** (0.024)	-0.174*** (0.020)		-0.297*** (0.032)
Egalitarian attitudes (FEPOLin col. 5)			0.134*** (0.019)	0.051** (0.021)	-0.005 (0.013)		0.048 (0.030)
Years of Schooling	0.023*** (0.002)	0.020*** (0.002)	0.021*** (0.002)	0.019*** (0.002)	0.020*** (0.002)	0.029*** (0.003)	0.024*** (0.003)
Married	-0.084*** (0.011)	-0.077** (0.011)	-0.078*** (0.011)	-0.076*** (0.011)	-0.075*** (0.011)		
Ever divorced	0.025** (0.012)	0.019 (0.011)	0.022* (0.011)	0.018 (0.012)	0.023* (0.012)	0.014 (0.018)	0.006 (0.018)
Presence of Pre-school children	-0.137*** (0.014)	-0.140*** (0.014)	-0.136*** (0.014)	-0.139*** (0.014)	-0.136*** (0.014)	-0.173*** (0.019)	-0.174*** (0.019)
Mother ever worked	0.027** (0.011)	0.018* (0.011)	0.027** (0.011)	0.018 (0.011)	0.019* (0.011)	0.018 (0.016)	0.009 (0.011)
Log of other income						-0.080*** (0.009)	-0.078*** (0.009)
Birth Cohort (1953-1958 omitted)							
<=1920	-0.019 (0.090)	-0.014 (0.090)	-0.014 (0.091)	-0.012 (0.090)	-0.054 (0.092)	-0.100 (0.125)	-0.093 (0.124)
1921-35	-0.013 (0.058)	-0.015 (0.058)	-0.009 (0.058)	-0.013 (0.058)	-0.040 (0.059)	-0.053 (0.082)	-0.056 (0.081)
1936-45	0.012 (0.035)	0.008 (0.035)	0.011 (0.035)	0.008 (0.035)	-0.003 (0.036)	-0.024 (0.050)	-0.035 (0.050)
1946-52	0.023 (0.021)	0.022 (0.021)	0.024 (0.021)	0.022 (0.021)	0.021 (0.021)	-0.002 (0.029)	-0.007 (0.029)
1959-65	0.011 (0.021)	0.020 (0.021)	0.017 (0.021)	0.020 (0.021)	0.025 (0.021)	-0.015 (0.029)	-0.008 (0.029)
1966-75	-0.028 (0.034)	-0.016 (0.033)	-0.019 (0.033)	-0.014 (0.033)	-0.005 (0.034)	-0.036 (0.048)	-0.016 (0.047)
1975-86	-0.058 (0.056)	-0.039 (0.055)	-0.043 (0.056)	-0.035 (0.055)	-0.024 (0.057)	-0.052 (0.088)	-0.026 (0.087)
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8915	8915	8915	8915	8915	3967	3967
R-squared	0.056	0.145	0.136	0.146	0.138	0.158	0.183

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. All columns also include number of children, dummies for white, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 5. Impact of Gender Role Attitudes on FLP – Instrumental Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Econometric Specification	First-Stage	2SLS	LIML	First-Stage	2SLS	LIML
Dependent Variable:	Traditional	FLP	FLP	Egalitarian	FLP	FLP
	Attitudes			Attitudes		
Time	-0.017*** (0.002)	0.007* (0.004)	0.007* (0.004)	0.027*** (0.004)	0.028*** (0.008)	0.028*** (0.008)
Time ² /10	0.030*** (0.003)	-0.011 (0.007)	-0.011 (0.007)	-0.045*** (0.008)	-0.051*** (0.014)	-0.051*** (0.014)
Traditional Attitudes		-0.231*** (0.070)	-0.231*** (0.070)			
Egalitarian Attitudes					0.270** (0.111)	0.270** (0.111)
Liberal Political Views	-0.137*** (0.011)			0.175*** (0.011)		
Premarital Sex Wrong	0.131*** (0.006)					
Teenage Sex Wrong				-0.063*** (0.012)		
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8915	8915	8915	7581	7581	7581
R-squared	0.17	0.14	0.14		0.13	0.13
F-Test on Instruments/ Anderson canon corr.	386.6	744.6	744.6	111.4	220.7	220.7
Sargan/ Anderson-Rudin		0.001	0.001		0.276	0.276
Overid : p-value		0.9795	0.9795		0.5991	0.5991

Note: Standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Also included in the regressions are years of schooling, number of children, dummies for white, married, ever divorced, preschooler present, mother everworking, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 6. Impact of Gender Role Attitudes on FLP – Less than College

Econometric Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	LPM	LPM	LPM	2SLS	LPM	LPM	2SLS	
	All Women				Married Women			
	Attitude Sample							
Mean LFP	0.603	0.657				0.622		
Time	0.015*** (0.002)	0.010** (0.004)	0.005 (0.004)	0.005 (0.004)	0.016*** (0.006)	0.010* (0.005)	0.010 (0.006)	
Time ² /10	-0.024*** (0.004)	-0.015* (0.009)	-0.005 (0.009)	-0.005 (0.008)	-0.031** (0.012)	-0.020 (0.012)	-0.020 (0.012)	
Traditional Attitudes			-0.223*** (0.029)	-0.267*** (0.087)		-0.290*** (0.042)	-0.331*** (0.113)	
Egalitarian Attitudes			0.044** (0.024)			0.040 (0.034)		
Years of Schooling	0.026*** (0.002)	0.028*** (0.004)	0.024*** (0.004)	0.025*** (0.003)	0.037*** (0.006)	0.032*** (0.006)	0.032*** (0.005)	
Married	-0.092*** (0.008)	-0.084*** (0.013)	-0.076** (0.013)	-0.076*** (0.013)				
Ever divorced	0.032*** (0.009)	0.024* (0.014)	0.017 (0.011)	0.017 (0.013)	0.012 (0.021)	0.004 (0.021)	0.003 (0.020)	
Presence of Pre-school children	-0.150*** (0.102)	-0.130*** (0.016)	-0.133*** (0.016)	-0.133*** (0.014)	-0.169*** (0.024)	-0.172*** (0.023)	-0.173*** (0.022)	
Mother ever worked	0.026*** (0.002)	0.016 (0.013)	0.007 (0.013)	0.007 (0.012)	0.012 (0.019)	0.002 (0.019)	0.003 (0.019)	
Log of other income					-0.077*** (0.011)	-0.073*** (0.011)	-0.073*** (0.011)	
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Cohort Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Observations	18480	6750	6750	6750	2960	2960	2960	
R-squared	0.133	0.154	0.155	0.128	0.148	0.170	0.170	
F-Test on Instruments				521.15			298.2	
Sargan/ Anderson-Rudin				0.164			0.822	
Overid : p-value				0.6859			0.3645	

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Also included in the regressions are number of children, dummies for white, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 7. Impact of Gender Role Attitudes on FLP – College Graduates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Econometric Specification	LPM	LPM	LPM	2SLS	LPM	LPM	2SLS
	All Women	Attitude Sample					
		Married Women			Single Women		
Mean LFP	0.789	0.759			0.889		
Time	0.013*** (0.004)	0.006 (0.011)	0.003 (0.011)	0.003 (0.011)	0.008 (0.013)	0.003 (0.012)	0.000 (0.015)
Time ² /10	-0.029*** (0.008)	-0.024 (0.021)	-0.017 (0.020)	-0.017 (0.020)	-0.007 (0.024)	-0.005 (0.023)	-0.007 (0.019)
Traditional Attitudes			-0.353*** (0.065)	-0.431** (0.206)		0.022 (0.056)	0.037 (0.150)
Egalitarian Attitudes			0.074 (0.062)			0.064 (0.066)	
Years of Schooling	0.019*** (0.005)	0.017 (0.010)	0.003 (0.010)	0.003 (0.012)	0.004 (0.008)	0.004 (0.008)	0.008 (0.010)
Married	-0.090*** (0.019)						
Ever divorced	0.020 (0.016)	0.027 (0.029)	0.022 (0.036)	0.021 (0.036)	-0.028 (0.027)	-0.029 (0.027)	-0.022 (0.025)
Presence of Pre-school children	-0.157*** (0.019)	-0.179*** (0.033)	-0.173*** (0.032)	-0.175*** (0.020)	-0.056 (0.051)	-0.058 (0.051)	-0.058 (0.039)
Mother ever worked	0.044** (0.014)	0.027 (0.029)	0.022 (0.036)	0.022 (0.029)	0.078*** (0.028)	0.077*** (0.028)	0.092*** (0.025)
Log of other income		-0.092*** (0.016)	-0.090*** (0.016)	-0.090*** (0.015)			
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4829	1006	1006	1006	1001	1001	1001
R-squared	0.106	0.158	0.202	0.200	0.151	0.153	0.135
F-Test on Instruments				71.77			80.97
Sargan/ Anderson-Rudin				0.031			0.007
Overid : p-value				0.8604			0.9349

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Also included in the regressions are number of children, dummies for white, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 8. Impact of Gender Role Attitudes on Male Labor Force Participation

Econometric Specification	(1)	(2)	(3)	(4)	(5)	(6)
	LPM	LPM	LPM	First-Stage	2SLS	LIML
Dependent Variable:	Male Labor Force Participation	Male Labor Force Participation	Male Labor Force Participation	Traditional Attitudes	Male Labor Force Participation	Male Labor Force Participation
Time	0.004 (0.003)	0.005 (0.003)	0.005 (0.003)	-0.016*** (0.002)	0.006** (0.003)	0.006** (0.003)
Time ² /10	-0.011* (0.006)	-0.012** (0.006)	-0.012** (0.006)	0.029*** (0.003)	-0.014** (0.005)	-0.014** (0.005)
Traditional Attitudes		0.029 (0.021)	0.040** (0.018)		0.093 (0.062)	0.093 (0.062)
Egalitarian Attitudes		-0.019 (0.016)				
Liberal Political Views				-0.112*** (0.011)		
Premarital Sex Wrong				0.123*** (0.006)		
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7374	7374	7374	7374	7374	7374
R-squared	0.154	0.155	0.155	0.191	0.153	0.153
F-Test on Instruments				288.97	559.25	559.25
Sargan/ Anderson-Rudin					0.43	0.43
Overid : p-value					0.5121	0.5121

Note: Standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. Also included in the regressions are years of schooling, number of children, dummies for white, married, ever divorced, preschooler present, mother everworking, living in an intact family, dummies (9) for religion at age 16, and region dummies (8).

Table 9. Impact of Gender Role Attitudes on FLP – NLS72

	(1)	(2)	(3)	(4)	(5)	(6)
	All Women				Married Women	
Mean LFP in 1986 at age 32		0.728			0.695	
Traditional attitudes in 1979 ^a		-0.294*** (0.034)		-0.278*** (0.037)		-0.260*** (0.058)
Egalitarian attitudes in 1979 ^a			0.173*** (0.045)	0.049 (0.044)		0.088 (0.062)
Education (HS Omitted)						
Less than HS	-0.180* (0.109)	-0.180* (0.108)	-0.199* (0.109)	-0.186* (0.108)	-0.217 (0.174)	-0.226 (0.181)
Trade	0.003 (0.019)	0.003 (0.018)	0.001 (0.019)	0.003 (0.018)	0.003 (0.030)	-0.008 (0.029)
Some College	0.029* (0.015)	0.015 (0.015)	0.023 (0.015)	0.014 (0.015)	0.033 (0.024)	0.020 (0.024)
College	0.016 (0.015)	-0.012 (0.018)	0.006 (0.018)	-0.013 (0.018)	0.027 (0.026)	0.001 (0.026)
Post-Graduate	0.057** (0.027)	0.017 (0.027)	0.041 (0.027)	0.015 (0.027)	0.086*** (0.033)	0.046 (0.034)
Married	-0.060*** (0.020)	-0.060*** (0.020)	-0.064*** (0.019)	-0.069*** (0.020)		
Ever divorced	0.074*** (0.016)	0.074*** (0.016)	0.067*** (0.016)	0.060*** (0.016)	0.054*** (0.021)	0.040* (0.021)
Number of children	-0.071*** (0.006)	-0.061*** (0.006)	-0.069*** (0.006)	-0.061*** (0.006)	-0.077*** (0.009)	-0.066*** (0.009)
Presence of pre-school children	-0.097*** (0.013)	-0.100*** (0.013)	-0.096*** (0.013)	-0.100*** (0.013)	-0.102*** (0.020)	-0.105*** (0.019)
Mother ever worked	0.014 (0.012)	0.012 (0.012)	0.013 (0.012)	0.012 (0.012)	0.025 (0.018)	0.022 (0.018)
Log of husband's income					-0.089*** (0.013)	-0.091*** (0.013)
Other demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5460	5460	5460	5460	3469	3469
R-squared	0.104	0.115	0.116	0.116	0.113	0.112

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. All columns also include dummies for white, living in an intact family and dummies (6) for religion while growing up and region dummies (3).

^a As defined in Table 1.

Table 10. Impact of Alternative Explanations on FLP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time (1972=1)	0.010** (0.001)	0.005 (0.004)	0.011*** (0.004)	0.006 (0.004)	0.011*** (0.004)	0.006 (0.004)	0.011*** (0.004)	0.006 (0.004)	0.012*** (0.004)	0.007* (0.004)	0.011** (0.004)	0.006 (0.004)
Time ² /100	-0.016** (0.008)	-0.007 (0.008)	-0.018** (0.008)	-0.010 (0.008)	-0.018** (0.008)	-0.010 (0.008)	-0.019** (0.008)	-0.010 (0.008)	-0.021** (0.008)	-0.013 (0.008)	-0.018* (0.009)	-0.011 (0.009)
Traditional attitudes		-0.226*** (0.025)		-0.220*** (0.024)		-0.221*** (0.025)		-0.220*** (0.025)		-0.241*** (0.027)		-0.234*** (0.030)
Egalitarian attitudes		0.058** (0.022)		0.051** (0.022)		0.051** (0.022)		0.053** (0.022)		0.043* (0.024)		0.024 (0.027)
Ever divorced	0.034*** (0.012)	0.028** (0.012)	0.024** (0.012)	0.018 (0.012)	0.022* (0.012)	0.018 (0.012)	0.026** (0.012)	0.020* (0.012)	0.019 (0.012)	0.010 (0.013)	0.031** (0.015)	0.025* (0.015)
Divorce should be easier	-0.027** (0.013)	-0.045*** (0.013)										
Liberal Political Views			0.045* (0.023)	-0.007 (0.024)								
Premarital Sex Wrong					-0.035*** (0.013)	0.005 (0.024)						
Church Attendance							0.021 (0.017)	0.049*** (0.017)				
Current religion	No	No	No	No	No	No	Yes	Yes	No	No	No	No
Ethnic ancestry	No	No	No	No	No	No	No	No	Yes	Yes	No	No
Healthy	No	No	No	No	No	No	No	No	No	No	0.187*** (0.026)	0.186*** (0.026)
Quadratic in Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8554	8554	8915	8915	8915	8915	8822	8822	7058	7058	5518	5518
R-squared	0.1307	0.1466	0.1313	0.146	0.1313	0.146	0.133	0.149	0.135	0.152	0.149	0.164

Note: Robust standard errors are in parentheses. Significance at 1% level denoted by ***, at 5% level denoted by **, at 10% level denoted by *. All columns also include years of schooling, number of children, dummies for white, married, preschooler present, mother everworking, living in an intact family and dummies (9) for religion at age 16, and region dummies (8). Current religion is captured with 9 dummies and ethnic ancestry with 41 dummies.

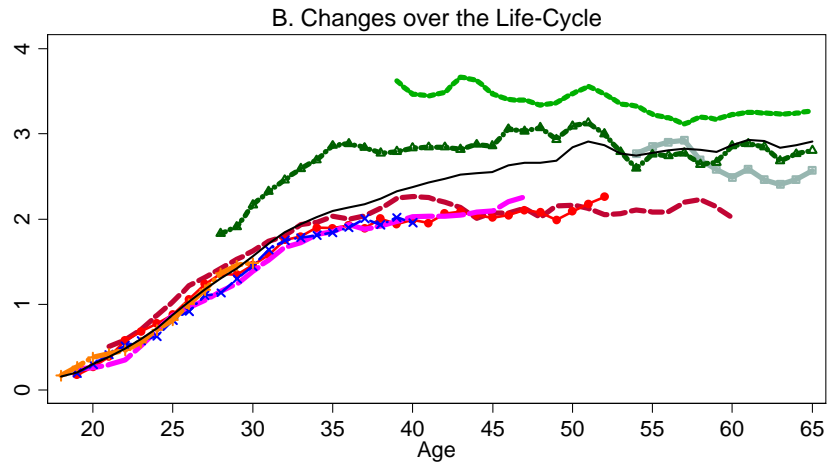
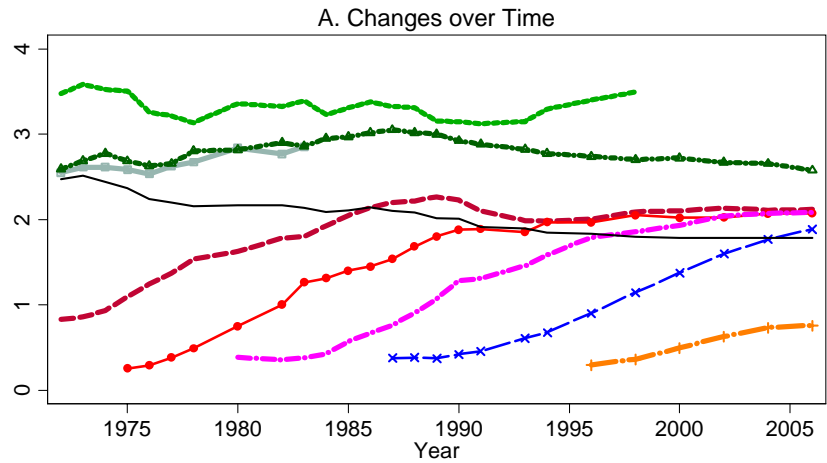
Appendix

Table A1. Means of Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)
	GSS			NLS72		
	All Women	Married Women	All Men	All Women	Married Women	
	Attitude Sample		Attitude Sample			
Labor Force Participation	0.640	0.692	0.655	0.881	0.728	0.696
Traditional attitudes	0.418	0.413	0.436	0.481	0.363	0.366
Egalitarian attitudes	0.694	0.710	0.685	0.632	0.540	0.536
Age	39.660	39.555	41.780	39.322	32.153	32.148
Education:						
Less than HS					0.003	0.003
Trade					0.142	0.139
Some College					0.305	0.302
College					0.195	0.201
Post-Graduate					0.062	0.065
Years of schooling	12.846	13.246	13.286	13.398		
Married	0.629	0.602	1.000	0.605	0.839	1.000
Ever divorced	0.271	0.290	0.216	0.249	0.325	0.195
Pre-schooler present	0.236	0.231	0.272	0.184	0.479	0.529
Number of children	2.014	1.904	2.234	1.625	1.677	1.765
Mother ever worked	0.570	0.630	0.613	0.629	0.640	0.635
Living in intact family	0.697	0.707	0.751	0.738	0.706	0.727
White	0.799	0.801	0.860	0.829	0.864	0.880
Religion at age 16						
Baptist	0.221	0.228	0.194	0.207		
Methodist	0.101	0.098	0.086	0.095		
Lutheran	0.062	0.066	0.072	0.068	0.410	0.418
Presbyterian	0.038	0.042	0.044	0.043		
Catholic	0.154	0.161	0.215	0.161	0.288	0.288
Other Christian	0.282	0.309	0.269	0.313	0.147	0.145
Jewish	0.018	0.019	0.022	0.022	0.018	0.017
Muslim	0.002	0.003	0.001	0.022		
other Eastern	0.003	0.003	0.002	0.004	0.033	0.028
Log of other income			10.052			10.043
Observations (maximum number)	23435	8915	4686	7374	5460	4520

Note: In the GSS, the Attitude Sample include only observations in the years where the four attitudes questions of Table1 were asked (see footnote 18). In the NLS72, the first type of religion is Protestant. In the NLS72, all variables except the attitudes and the religion at age 16 are for 1986, when most respondents were 32 year olds.

Figure 1. Number of Children by Birth Cohorts

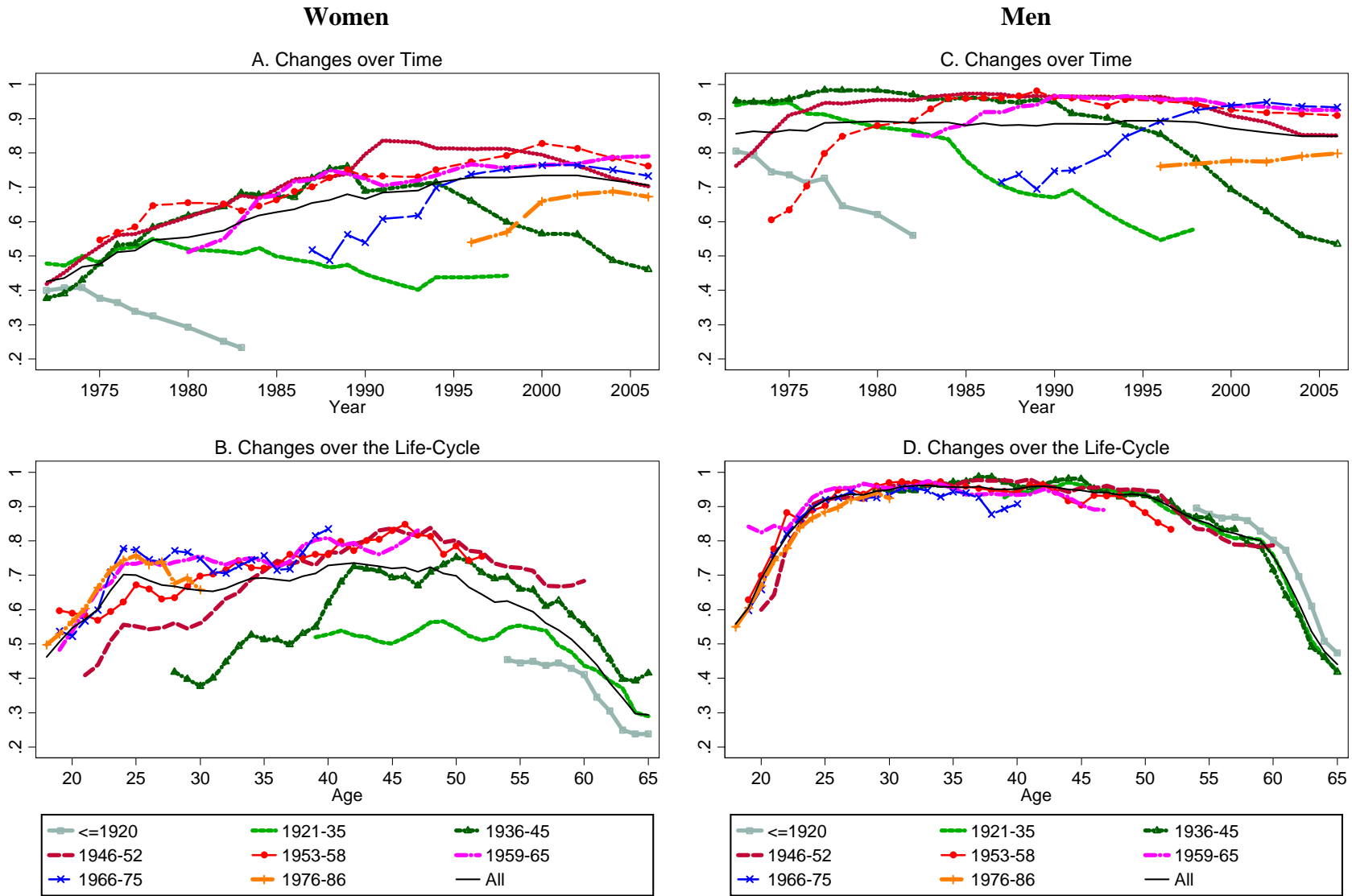


Birth Cohorts:

- ≤1920 Greatest Generation
- 1921-35 Parent of Baby-Boomers
- .-●-.- 1936-45 Parents of Gen-X
- .-●-.- 1946-52 Early Baby-Boomers
- 1953-58 Mid Baby-Boomers
- .-●-.- 1959-65 Late Baby-Boomers
- x-x- 1966-75 Gen-X
- +--+ 1976-86 Children of Baby-Boomers
- All

Note: 3-year moving averages of CHILDS based on 23,378 observations from the GSS 1972-2006, exclude respondents 65 years of age and older.

Figure 2. Labor Force Participation by Birth Cohorts

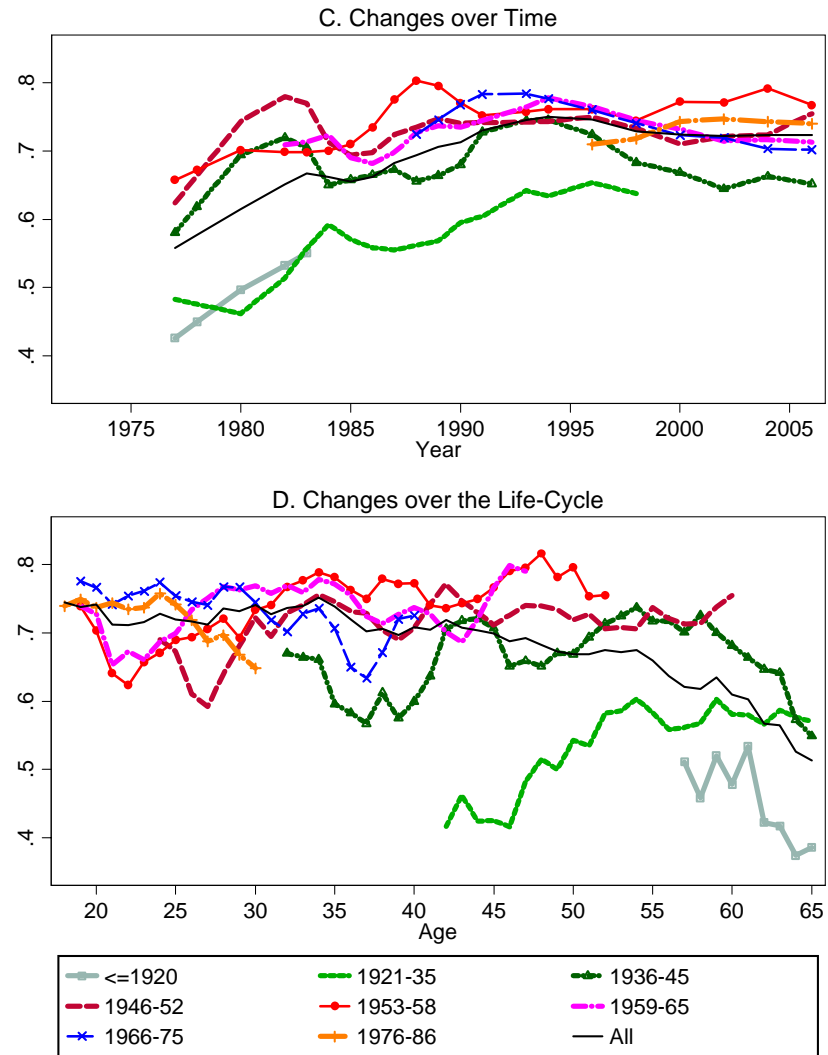
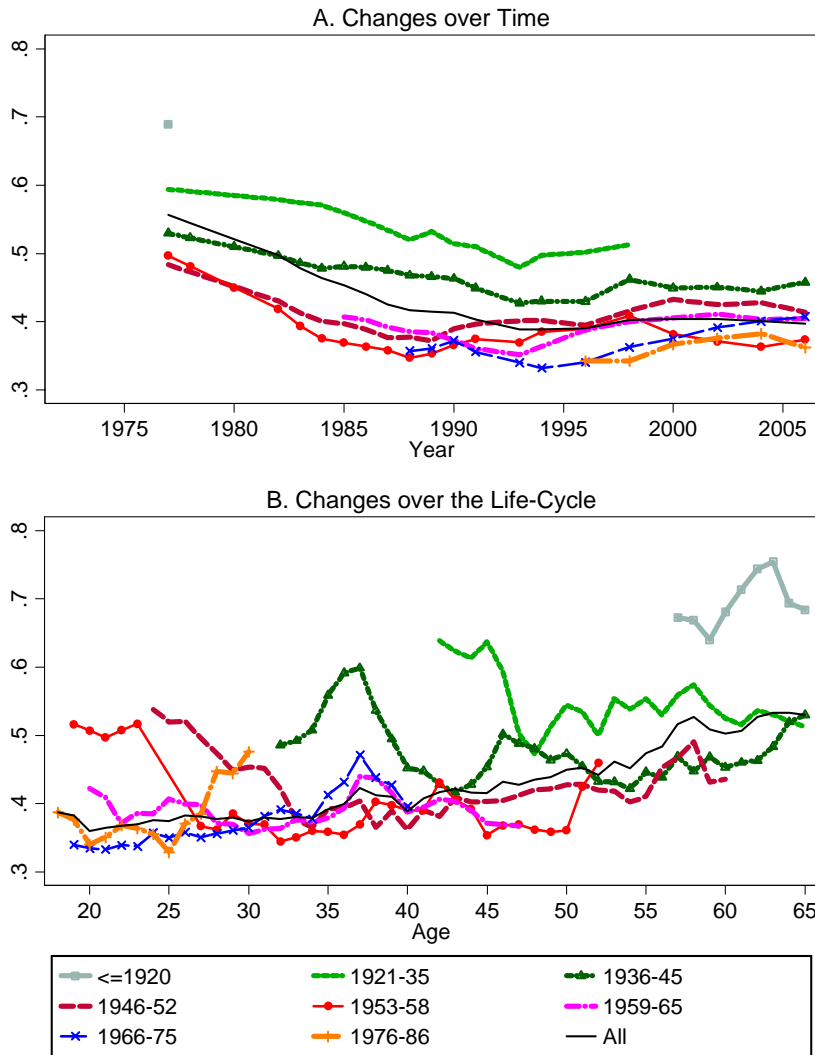


Note: 3-year moving averages of WRKSTAT recoded based on 23,435 observations (women) and 19,194 observations (men) from the GSS 1972-2006, excludes respondents 65 years of age and older.

Figure 3. Gender Role Attitudes of Women by Birth Cohorts

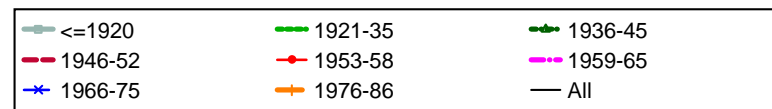
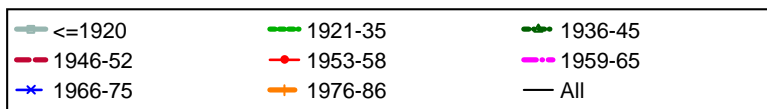
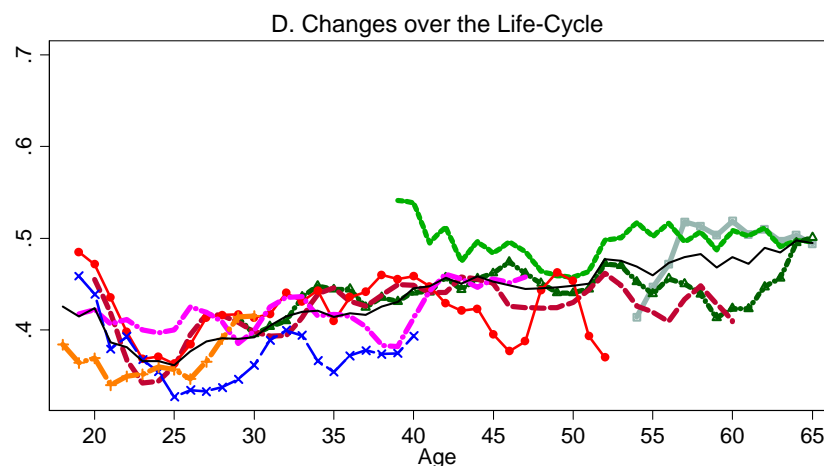
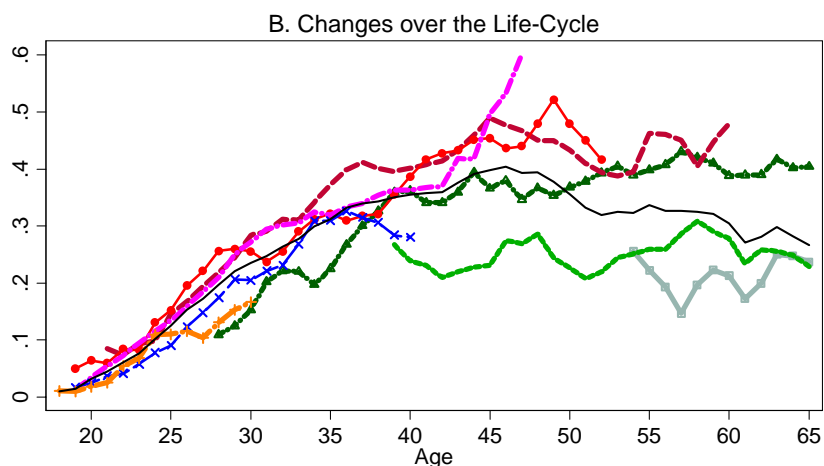
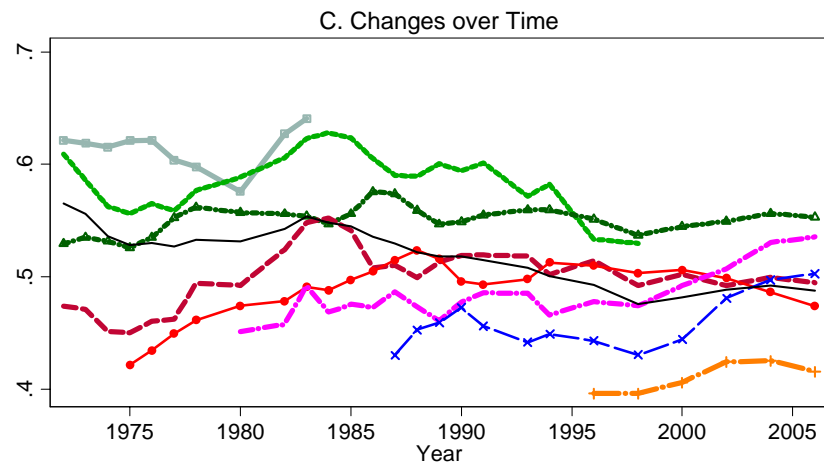
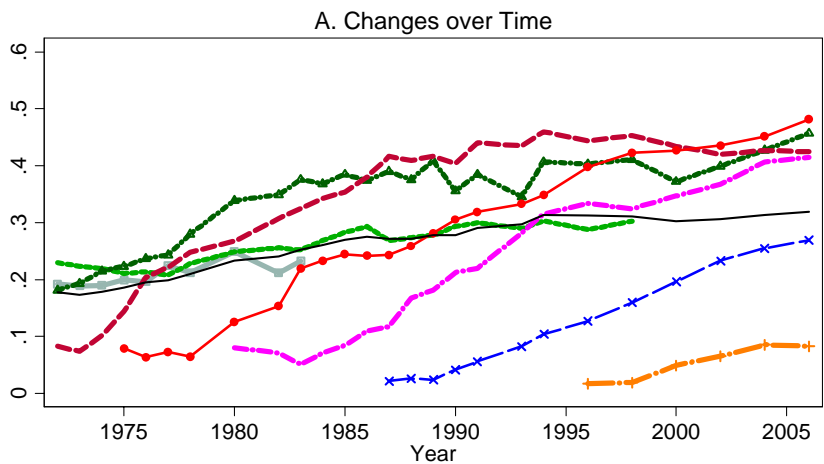
Traditional Views

Egalitarian Views



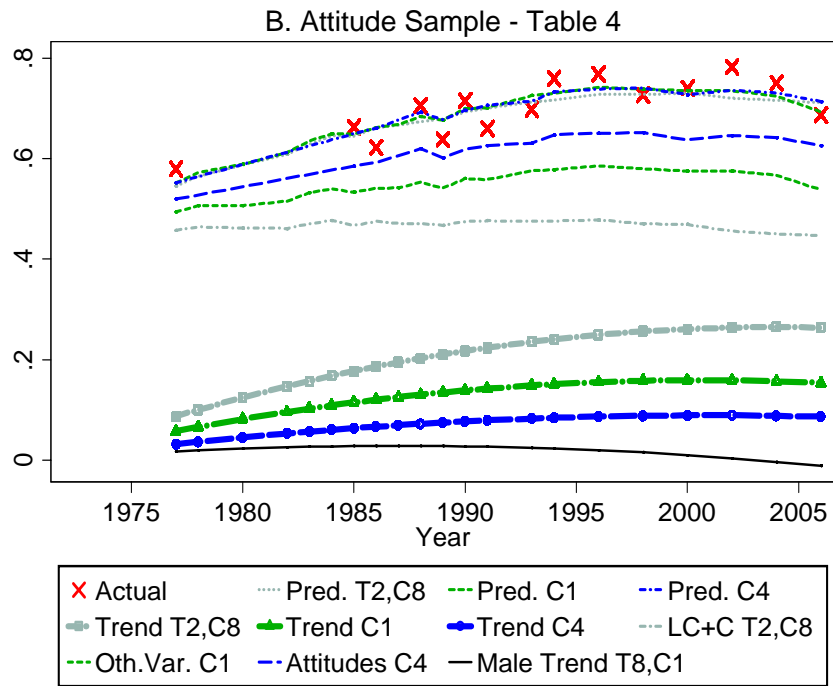
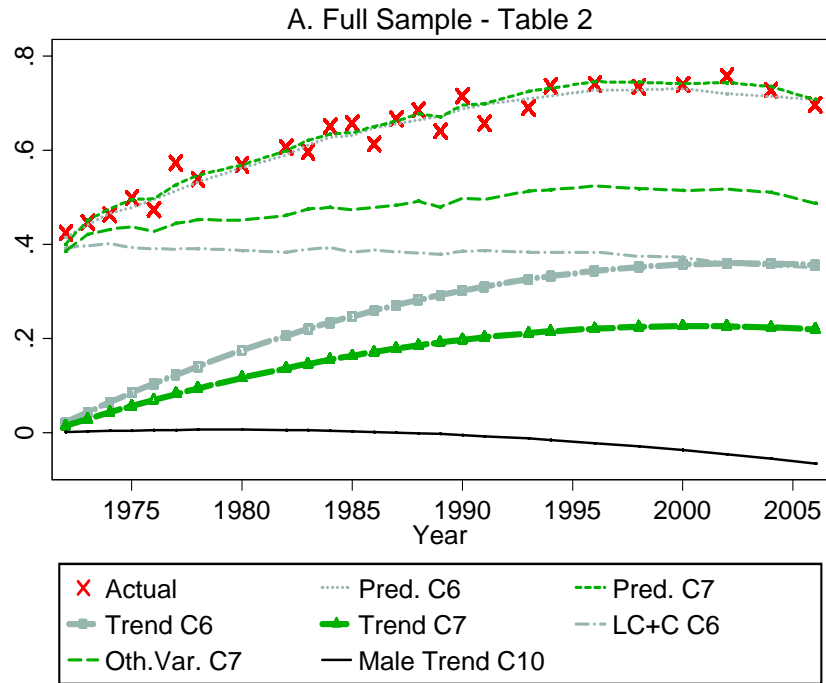
Note: 3-year moving averages of TRAD based on 9,825 observations and of EGAL based on 11,610 observations, as defined in Table 1, from the GSS 1977-2006, excludes respondents 65 years of age and older. For smoothness, values in missing years have been interpolated.

Figure 5. Alternative Explanations – Women by Birth Cohorts
Ever Divorced or Separated **Church Attendance**



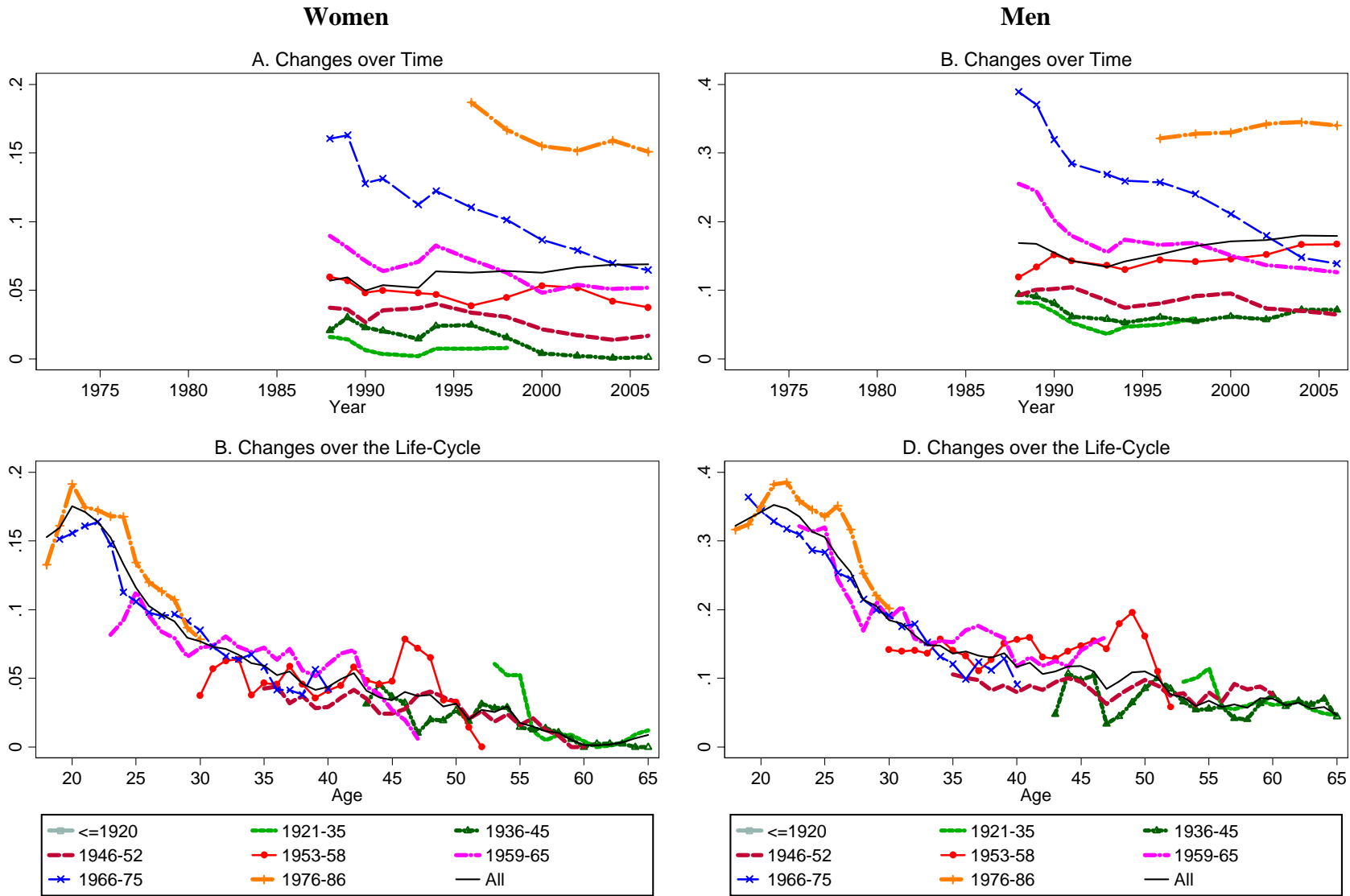
Note: 3-year moving averages of MARITAL and DIVORCE recoded based on 23,432 observations and of ATTEND recoded based on 23,128 observations from the GSS 1972-2006, excludes respondents 65 years of age and older.

Figure 6. Yearly Averages of Actual and Predicted FLP



Appendix

Figure A1. Risky Sexual Behavior by Birth Cohorts



Note: 3-year moving averages of PARTNERS, PIKUPSEX, PAIDSEX and SEXSEX recoded based on 10,982 women and 8,881 men from the GSS 1988-2006, excludes respondents 65 years of age and older. Having 0 or 1 sexual partners over the last 12 months is coded as low risk (0), having being 2 and 4 partners is coded as medium risk (0.5) and having 5 or more partners, or having sex with a pick-up, paid or paying partner or homosexual male sex is high risk (1).