Gender Ideology and Fertility Trends in the United States: Evidence from the National Longitudinal Survey of Youth 1979

Thomas Anderson
University of Pennsylvania

While high levels of gender equity strongly correlate with moderately high levels of fertility among developed countries, contradictory empirical evidence has caused a debate whether the relationship between low gender equity and low fertility holds within these societies. This paper adds a fresh perspective to the existing research on the relationship between gender equity and fertility among individuals within societies by means of a new methodological approach using longitudinal data on fertility and gender equity that span four decades. Much of the recent attention on the fertility-gender equity relationship has been heavily European focused. Within the United States, few studies have systematically analyzed individuals' attitudes on gender equity and their associations with fertility outcomes. Of those that have, their evidence remains inconclusive at best. Using data from the NLSY 1979, this paper fills in the gaps in the literature on fertility and gender equity in the United States by analyzing whether gender equity attitudes are predictive of completed family size (children ever born) and birth progressions. Lastly, this study is unique in that it examines whether differences in the gender equity-fertility relationship exist between males and females. I find that both men and women with progressive views on gender equity have lower fertility than their traditional counterparts, though these results were stronger, more consistent, and more significant across models for women.

Introduction

Over the latter half of the 20th century, fertility across Europe, the English-Speaking countries, and East Asia fell below the replacement rate of 2.1 children per woman. While these very low period fertility rates have since risen in a number of countries over the past decade (Goldstein et al. 2009), a return to replacement level cohort fertility in most developed countries appears unlikely (Lesthaeghe 2010; Pritchett and Viarengo 2013). The long-term social, economic, and political implications of low fertility are far reaching, affecting labor markets, the fiscal sustainability of social programs, marital and family relationships, demand for immigration, and a variety of population aging related issues (Pritchett and Viarengo 2013). Given these consequences, considerable research attention has been given to the drivers of low fertility.

Theoretical frameworks seeking to explain variation in fertility levels across and

within populations are abundant. Drawing on a variety of disciplines, including economics, sociology, anthropology, and psychology, these theories provide different causal explanations of low fertility (see Caldwell and Shindlmeyr 2003). They also, more often than not, complement each other, leading some scholars to advocate that researchers take a more holistic and conjectural approach to understanding low fertility (Johnson-Hanks et al. 2011).

Among the "toolkit" of compelling theories explaining low fertility variation is *gender equity theory*. Though its roots stem from the early work of Sorrentino (1990), Chesnais (1996), and Mason (1995), gender equity theory was formally articulated by McDonald at the turn of the 21st century (McDonald 2000). McDonald argued that low fertility resulted from an incoherence of gender equity levels in individually oriented social institutions and family oriented social institutions. In other words, in contexts where women are at equal footing with men in educational and labor market opportunities, but face an inequitable and overtaxing home environment, the combination of work and family is difficult, and as a result, may cause some women to postpone or forego finding a permanent partner or establishing a family in order to pursue their career aspirations. Conversely, high levels of gender equity in both family and individually oriented institutions facilitate the combination of work and family, leading to higher levels of fertility on a country level.

In recent years, a string of empirical analyses has sought to shed light on McDonald's theory. While these analyses use different indicators of gender equity (e.g., global gender indices, labor force participation rates, gender attitudes, and the division of household labor), they all reach the conclusion that, on a country level, high gender

equity is associated with moderately high levels of fertility whereas low levels of gender equity correlate with very low fertility (Myrskyla et al. 2011; Myrskyla et al. 2012; Brinton and Lee 2010; Anderson and Kohler 2013). As a result, some scholars have gone so far as to suggest public policy measures to increase gender equity (e.g., Olah 2011; Toulemon 2011).

While high levels of gender equity strongly correlate with moderately high levels of fertility *among* developed countries, contradictory empirical evidence has caused a debate whether the relationship between low gender equity and low fertility holds *within* these societies. For example, investigating this question using data on egalitarian attitudes in eight European countries, Puur et al. 2008 found that more egalitarian attitudes held by men are linked with higher fertility. Yet looking at the same countries (in addition to several others), but using different methods of analysis, Westoff and Higgins (2009) came to the opposite conclusion—that is, male egalitarian attitudes are associated with lower fertility. A more detailed review of this literature is covered in the Background section.

This paper adds a fresh perspective to the existing research on the relationship between gender equity and fertility among individuals *within* societies by means of a new methodological approach using longitudinal data on fertility and attitudes on gender equity that span four decades. Much of the recent attention on the fertility-gender equity relationship has been heavily European focused (e.g., Westoff and Higgins 2009; Philipov 2008; Miettinen 2011; Goldsheider et al. 2010). Within the United States, few studies have systematically analyzed individuals' attitudes on gender equity and their associations with fertility outcomes. Of those that have, their evidence remains

inconclusive at best. For example, Torr and Short (2004) analyze whether gender

ideology is associated with the progression to a second birth, but ignore first and third

birth transitions and fail to link early life-gender attitudes with later-life completed family

size. Kaufman (2000) examines whether gender attitudes are associated with fertility

desires and intentions, yet, presumably due to data limitations, does not investigate

whether these desires or intentions are predictive of actual fertility outcomes.

Nonetheless, Kaufman's results indicate that compared to traditional women, egalitarian

women are less likely to intend to have a child while for men, the opposite is true

(Kaufman 2000).

Using data from the NLSY 1979, this paper fills in the gaps in the literature on

fertility and gender equity in the United States by analyzing whether gender equity

attitudes (hereinafter referred to as "gender ideologies") are predictive of completed

family size (children ever born), and birth progressions from childless to first, first to

second, and second to third.   This study is unique in that it examines whether differences

in the gender equity-fertility relationship exist between males and females. While

attitudes do not necessarily reflect "family-oriented gender equity" (such as the division

of household labor), behavioral change regarding gender roles is often grounded in

attitudes that signify the internalization of role responsibility (Perry-Jenkins and Crouter

1990; Kaufman 2000). Additionally, a great many studies looking at the effects of

gender ideology on the division of household labor find that both men and women's

gender ideology is highly associated with the division of household labor (Davis and

Greenstein 2009; Cunningham 2005; Hochschild and Machung 1989; Bianchi et al. 2000;

Kroska 2004; Hu and Kamo 2007; Lavee and Katz 2002; Brayfield 1992; Nordenmark

and Nyman 2003; Kan 2008).

The paper is structured as follows. I first examine the changes in gender ideologies in the United States over the second half of the 20th century. Following David and Greenstein (2009, p. 89) I define gender ideology as "the underlying concept of an individual's level of support for a division of paid work and family responsibilities that is based on the notion of separate spheres". As the authors note, there are several nuanced alternatives in the literature, including "gender role attitudes", "attitudes about gender", "gender-related attitudes", and "gender egalitarianism". Drawing on a set of questions pertaining to gender norms and attitudes asked in the National Longitudinal Survey of Youth in 1979, 1982, 1987, and 2004, respondents' gender ideologies are classified using latent class analysis for each of the respective years. These classes are used to assess attitudinal change over the latter half of the 20th century. While descriptive, these analyses provide insight into temporal changes in gender ideologies in the US. Moreover, these gender ideology classes serve as the key independent variable in the subsequent analyses.

Using the three gender ideology classes, I explore the relationship between gender ideologies and lifetime fertility (children ever born) as well as between gender ideology and birth transitions (or parity progressions). Analyzing both lifetime fertility and parity progressions in this study leads us to develop more nuanced insights into the relationships between fertility and gender ideology. On one hand, the analysis using lifetime fertility gives us the ability to clearly state fertility differentials in terms of children per woman between individuals of different gender ideologies. On the other hand, the analysis using parity progressions as the dependent variable sheds light on the relative odds of

progressing to having a first, second, and third+ birth, and whether these differences are statistically significant. Moreover, gender ideologies are fluid and not static over the life course; examining the relationship between parity progression and gender ideology has the added advantage of allowing for time ordering (whereas lifetime fertility does not).

Background

The United States has witnessed a transformation in gender norms over the last half-century, giving rise to impressive trends toward more egalitarian behaviors and attitudes. Within the realm of the division of household labor, for example, household work for women had been nearly cut in half between 1965 and 2000, but had doubled for men during this period (Bianchi et al. 2000; see also, Thornton 1989; Kaufman 2000). Using five large-scale social surveys, Thornton and Young-DeMarco (2001) show that the trend toward egalitarian attitudes regarding gender equity in the household and female labor force participation changed substantially from the 1960s well into the 1990s. This pattern holds true for both men and women, mothers and their children, and among both high school students and the population as a whole (Thornton and Young-DeMarco 2001). More recent literature suggests that similar attitudinal and behavioral change toward egalitarianism has occurred throughout the 2000s (Bianchi et al. 2006).

The changing tides of gender norms have been of interest to demographers because of the presumed relationship between gender equity and fertility. Yet opposing theoretical frameworks in the literature make it difficult to anticipate whether egalitarian gender attitudes would correlate positively or negatively with fertility for men and women. For example, more egalitarian gender attitudes among women may boost fertility if it translates into greater flexibility for the mother and a reduced work-childrearing

conflict for spouses (Goldscheider and Waite 1991; Puur et al. 2008). However, traditional ideologies among women may be associated with an expectation to have large families, or conversely, egalitarian women may be expected to have either "no families" or "new families" (Miettinen et al. 2010; Goldscheider and Waite 1991). Following the classical Beckerian perspective (e.g., Becker 1991), if traditional women specialize in the household while men specialize in market work, it is likely that the opportunity costs of having and rearing children would be lower among traditional women than egalitarian women, leading to higher fertility.

For men, an egalitarian gender ideology could result in fewer children, as egalitarian men likely invest more time and energy in their kids, thus increasing the costs of children (Bernhardt and Goldscheider 2006). On the other hand, with men sharing more household and childbearing responsibilities, it may well be that egalitarian men "appreciate the benefits of becoming fathers", making them more likely to want to become fathers than traditional men (Bernhardt and Goldscheider 2006, p. 21). Egalitarian men may also have more children than traditional men if their contribution in the household alleviates the "double burden" of childrearing and working for their spouses (Miettinen et al. 2011).

The empirical evidence on the relationship between gender ideology and fertility relationship is as conflicting as its theoretical underpinnings. On one hand, numerous within country and cross-national studies have found positive associations between traditional gender ideologies and fertility and/or fertility intentions. For example, using the Gender and Generations Survey (GGS), Speder and Kaitany (2009) show that traditional gender ideologies significantly correlate with having a second and third child

for both men and women. Westoff and Higgins (2009) use the European/World Values Survey and find that in all eight selected European countries analyzed, men's egalitarian attitudes were negatively associated with fertility.

On the other hand, a set of other studies find that egalitarian gender ideology correlates with *higher* fertility (and that traditional gender ideology correlates with *lower* fertility). For instance, Puur et al. (2008) found that men with egalitarian attitudes had higher desired and actual fertility than men with more traditional attitudes. And Tazi-Preve et al. (2004) show that in Finland, a traditional division of labor was associated with a lower probability to want another baby while the inverse was the case for egalitarian couples.

Still other studies yield mixed results by sex, such as Philipov's (2008) study on 11 European countries, which found that for women, "modern attitudes" were associated with lower intentions to become parents while for men, the opposite was true in several countries; Miettinen et al. (2011), who report that egalitarian and traditional attitudes among Finnish men increase expected fertility, while for women the impact of gender ideology is ambiguous; and Lappegård et al. (2012), who using the GSS for eight European countries, find negative associations between fertility intentions and egalitarian attitudes towards gender roles in the public sphere and mothers' role in the family, yet a positive relationship between father's role in the family and childbearing intentions.

The conflicting evidence on the relationship between gender ideology and fertility may arise from differences in how gender ideology variables are operationalized or in the methodological approach taken (Miettinen 2011; Goldscheider et al. 2010). Moreover, individuals' gender ideologies likely interact with a country's economic and political

structure, as well as the country's "overall tenor of the gender system", resulting in differential effects on fertility outcomes across different settings (Westoff and Higgins 2009, p. 72).

The aforementioned literature has focused almost entirely within the European context. As highlighted, few studies have looked at the relationship between fertility and gender ideology in the United States. Among these, gender ideology has not been found to be a significant predictor of having a second child (Torr and Short 2004), yet it has been found to correlate positively with birth intentions for men and negatively for women (Kaufman 2000).

To the author's knowledge, this is the first study to systematically examine whether gender ideology is associated with completed family size, and progressions from childless to first birth, and from second birth to third birth in the United States.

Data

For my analyses, I use the National Longitudinal Survey of Youth 1979, a national probability sample sponsored by the Bureau of Labor Statistics. With an initial sample size of 12,686 individuals aged 14-22 in 1979, the NLSY79 is one of the richest longitudinal datasets in the United States that follows individuals throughout their reproductive years. I examine only individuals who remain in the survey until 2006 (N=7,654), as all respondents were above age 40 in this year and further childbearing among these respondents is rare (Morgan and Rackin 2010). Two subsamples, including the military sample (N=1,079) and the economically disadvantaged, nonblack/non-Hispanic sample (N=1,643) were no longer eligible for interview after 1990. Thus, about

77% of the individuals interviewed in 1979 who were eligible for re-interview in 2006 are retained in the analyzed sample.

In each analysis, men and women are analyzed separately in order to compare the associations between gender ideology and fertility between the sexes. Despite previous concerns about severe underreporting of male births in major surveys, a recent analysis suggests that nine-tenths of early births to men in the NLSY went reported (Joyner et al. 2012). One should keep this bias in mind for any interpretation of results in this article. Table 1 highlights key characteristics about the sample used in this paper.

Table 1: Background characteristics of sample

Background Characteristics	
	Percent %
Sex	
Male	48.8
Female	51.2
Race	
Hispanic	19.5
Black	31.1
NH-White	49.4
Both Parents Immigrants (% Yes)	7.7
Education	
Less than High School	10.5
High School	43.4
Some College	24.3
College+	21.8
Lifetime Poverty	
Zero	55.7
One	21.3
Two	10.4
Three	5.8
Four+	6.7
Region (2006)	
Northeast	15.5
North Central	23.4
South	41.6
West	19.4
Non-Response	1.0
Marriage	
Never Married	17.7
Married	57.2
Separated	5.3
Divorced	18.5
Widowed	1.4
N	7,654

Source: NLSY 1979.

Methods

First, to construct a gender ideology variable, latent class analysis is performed on a set of eight categorical variables related to attitudes on the division of household labor, female labor force participation, and the position of women in the domestic sphere. These attitudinal questions on gender ideology have been shown in the literature to be both reliable and valid measures (David and Greenstein 2009). The eight questions, displayed in Table 2, were asked in 1979, 1982, 1987, and 2004.

Table 2: Attitudinal questions on gender roles asked in 1979, 1982, 1987 and 2004.

Question	Abbreviation	Responses
"A woman's place is in the home, not in the office or shop."	Place in Home	1-Strongly Agree, 2-Agree, 3-Disagree, 4-Strongly Disagree
"A wife who carries out her full family responsibilities doesn't have time for outside employment."	No Time Employment	1-Strongly Agree, 2-Agree, 3-Disagree, 4-Strongly Disagree
"A working wife feels more useful than one who doesn't hold a job."	Useful	1-Strongly Disagree, 2-Disagree 3-Agree 4-Strongly Agree
"The employment of wives leads to more juvenile delinquency."	Delinquency	1-Strongly Agree, 2-Agree, 3-Disagree, 4-Strongly Disagree
"Employment of both parents is necessary to keep up with the high cost of living."	Inflation	1-Strongly Disagree, 2-Disagree 3-Agree 4-Strongly Agree
"It is much better for everyone concerned if the man is the achiever outside the home and the woman takes care of the home and family."	Traditional Best	1-Strongly Agree, 2-Agree, 3-Disagree, 4-Strongly Disagree
"Women are much happier if they stay at home and take care of their children."	Happier	1-Strongly Agree, 2-Agree, 3-Disagree, 4-Strongly Disagree
"Men should share the work around the house with women, such as doing dishes, cleaning, and so forth."	Men Share	1-Strongly Disagree, 2-Disagree 3-Agree 4-Strongly Agree

Source: NLSY 1979. *Note:* Response choices have been recoded from their original form so that all response options correspond with a similar gender ideology.

Latent class analysis (LCA) serves as a powerful tool that makes the interpretation of related categorical variables straight-forward and applicable in empirical models (Linzer and Lewis 2011). The classes from the LCA are derived by categorizing

respondents into different gender ideologies based on their responses to the eight gender-related questions. The number of classes used is chosen based on a combination of theoretical justifications and parsimony measures. The estimation technique yields two important sets of results: the item response probabilities conditional on class membership and the estimated class membership proportions.

To produce these results, let π_{jrk} represent the probability that class r produces the kth outcome on the jth variable, and let p_r represent the mixing proportions that provide the weights of the weighted sum of the cross-classification tables. After choosing the number of classes, p_r and π_{jrk} are estimated by maximizing a log likelihood function using the expectation maximization (EM) algorithm (Dempster, Laird, and Rubin, 1977). The posterior probability that each individual belongs to each class using Bayes formula is then estimated. For the analysis I use the poLCA package in R (Linzer and Lewis 2011).

After running the analysis, individuals were grouped into three gender ideology classes and one class for "missing". Given the response probabilities conditional on each class (see Appendix 1), one could conclude that class 3 members hold more traditional views on gender equity, female labor force participation, and gender roles while class 4 members hold more progressive (or "egalitarian") views on these matters.[1] Class 1 members lie somewhere in the middle of the class 3 and class 4. For the purpose of simplicity, we refer to **class 3 membership as "traditional", class 4 membership as "progressive", and class 1 membership as "median"**. Class 2 is reserved for individuals who were coded either "missing", "refused to answer", "I don't know" or "question not asked". Class 2 represents a very small proportion of total class membership (about 3%) and thus does not pose any serious statistical issues in the

---

[1] I use the terms "egalitarian" and "progressive" interchangeably.

analyses. Similar models were run using three, five, and six classes; however, the Bayesian information criterion and Akaike information criterion fluctuated little between these models, and the theoretically intuitive option of four classes (three gender ideology classes and one missing class) was chosen. The choice of three gender ideology classes also reflects common practice in the literature on gender ideology and fertility (e.g., Lappegard et al. 2012).

It should be noted that the latent class analysis treated each respondent at each of the four time points as independent (N= 30,616). Thus, with eight questions and five possible responses to each question, the final possible combinations of responses in the analysis were well over 1,000,000.

After computing three distinct gender ideology classes, I examine the relationship between lifetime fertility (children ever born) and gender ideology. There is no prevailing methodological convention in the literature on how to treat the dependent variable (children ever born) in this analysis. Some studies employ OLS for its easy-to-interpret properties (e.g., Ainsworth et al. 1996; Bollen et al. 2002), while others (e.g., Nguyen-Dinh 1997; Verwimp and Van Bavel 2005) use Poisson or negative binomial regressions because "children ever born" is a count variable. Given the distribution of the data, as well as the fact that the mean (1.99) and variance (variance=2.13) are roughly equal—a precondition for the Poisson distribution, I run and base my discussion off of Poisson regression analyses. For a robustness check, I run the same model using OLS and report the results in Appendix 3.

The nature of the research question asked in this section—whether gender ideology of an individual affects his or her completed family size—gives rise to an

obvious modeling challenge; namely, how to account for gender ideology, a time-varying independent variable, in a model with completed fertility, a time-invariant outcome. To circumvent this issue, I perform two analyses: one to capture the effect of early life gender ideology on completed fertility, and another to capture the effect of "gender ideology transitions" on fertility.

The first analysis estimates a Poisson regression using the 1979 gender ideology variable, allowing us to view the association between early-life gender ideology and completed family size.

For the second analysis, I create a new variable by concatenating respondents' gender ideology in 1979, 1987 and 2004, yielding 27 distinct "gender ideology trajectories".[2] For example, individuals falling into the traditional class for all three waves (1979, 1987, and 2004) would be coded *trad→trad→trad*; *trad→median→prog* would include respondents who belonged in the traditional class in 1979 but switched to the median class in 1987 and then again to the progressive class in 2004; and *trad→med→med* would be for those who transitioned from traditional in 1979 to median in 1987 and remained in the median category. I exclude the 1982 category for several reasons: 1) the least class membership changed between 1979 and 1982, and 2) concatenating all four years would yield an overwhelming number of reference categories (81 "gender ideology trajectories"). The gender ideology trajectory reference category in the analyses is "consistently traditional" individuals (i.e., *trad→trad→trad*). Only statistically significant gender ideology trajectories are reported; for full output, see Appendix 3.

---

[2] I drop all individuals who fall in the "missing" class for at least one of these time-points, yielding slightly smaller sample sizes than in the first analysis.

Significant socioeconomic, racial, marital, educational, and to a lesser extent, geographic variation in fertility levels exists in the United States (Yang and Morgan 2003; Fosler et al. 1990). While the purpose of this study is not to examine the impact of these variables on fertility outcomes, it is important to control for these possible confounders. Two variables are used to control for socioeconomic status, *lifetime poverty*, a dummy variable measuring the number of occasions respondents reported living in poverty from 1979 to 2006 (zero-reference, one, two, three, four or more), and a dummy variable for *education* (Less than High School, High School Completed-reference, Some College, College or higher). *Region of residence in 2006*[3] (Northeast-reference, North Central, South, West), *race* (Hispanic, Black, Non-Hispanic/Non-Black-reference)*, marital status in 2006* (never married, married-reference, separated, divorced, widowed), and *immigrant status* (1 if parents were born outside of the US, 0 if not) are included to control for regional, racial, marital, and immigrant fertility variation. Year of birth is also controlled for in the model to capture any fertility variation by cohort year, although this is not anticipated given the fact that cohort fertility in the United States changed very little from 1957-1965 (Myrsykla et al. 2012). Lastly, on theoretical grounds that egalitarian men and women could differ in their fertility, I run separate models by sex.

To test whether gender ideologies are associated birth progressions, discrete time-survival models are run for each of the three birth transitions (childless to first birth, first birth to second birth, and second birth to third birth). The data were set up using event history techniques in order to overcome several limitations involved with traditional

---

[3] Because region is a time-varying covariate, I run separate models with region of residence in 1979 and 1987. These models yield almost identical results.

logistic regression. Among these limitations include the inability to control for time-varying covariates, including our key independent variable—gender ideology. Because some of our respondents changed their gender ideology over the various waves, it is important to capture whether those ideologies affected the likelihood of having a birth during the same time interval. Other covariates, including region of residence, marital status, and education also may have varied for individuals throughout the survey.

Like in the analyses with children ever born as the dependent variable, a number of control variables are implemented to hold constant possible confounders. To control for socioeconomic status and educational attainment, *total family income* (continuous variables) and *education* (Less than High School, High School-reference, Some College, College or higher) are included in the models (note: lifetime poverty is not measured). *Region* (Northeast-reference, North Central, South, West), *race* (Hispanic, Black, Non-Hispanic/Non-Black-reference)**,** *marital status* (never married-reference, married, separated, divorced, widowed), and *immigrant status* (1 if both parents were born outside of the US, 0 if not) are retained in the model, though I allow marital status and region to vary.

Results

As the LCA results below indicate, in 1979, about 19% of individuals in the sample belonged to the "progressive" class, 30% to the "traditional" class, and 50% to the median. By 2004, these numbers had largely reversed; that is, the median retained nearly half of the individuals while the progressive class nearly doubled to around 31% and the traditional class halved to around 15%. As Table 9 in Appendix 2 suggests, these changes have been driven predominantly by period effects; nonetheless, it is worth noting

that there are weak cohort effects, with the more recent cohorts displaying slightly less

traditionalism than older cohorts.

Table 3: LCA Results: Gender ideology class membership by survey year

	1979	1982	1987	2004
Traditional	32.0%	21.5%	14.8%	15.1%
Median	48.5%	51.8%	50.2%	47.4%
Progressive	19.3%	24.3%	30.3%	31.4%
Missing	0.2%	2.4%	4.8%	6.2%

Stratifying the gender ideology classes by sex (Figure 1) indicates that the declines in "traditional" class membership have been driven by both men and women identifying less with traditional gender attitudes; by 2004, roughly an equal proportion of women belonged in this class as men. The "progressive" classes for both men and women experienced similar absolute increases over time, with the most change occurring between 1979 and 1987. While the sample size as a whole became more progressive in their attitudes toward gender equity, there remains a large gender gap between men and women.[4]

Figure 1: Traditional and progressive classes, by sex
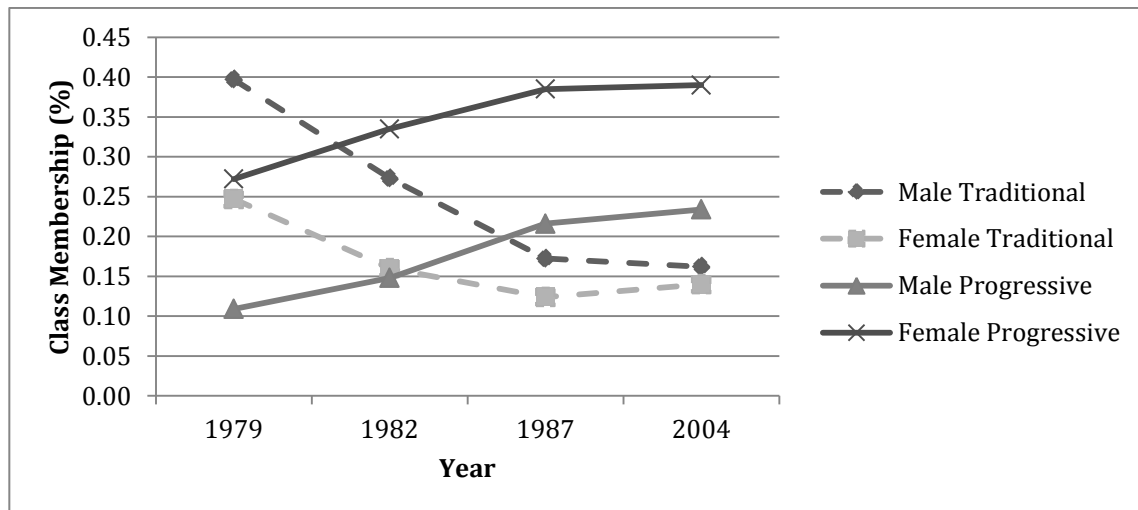
Source: Author's own calculation from attitudinal data from NLSY 1979. *Note:* Class 1 individuals ("Median") not shown.

The LCA results corroborate the large literature documenting that individuals have adopted more progressive (or "egalitarian") gender attitudes over the latter half of the 20th century (Bianchi et al. 2000; Thornton 1989; Kaufman 2000; Thornton and Young-DeMarco 2001).

---

[4] For a breakdown of gender ideology class membership by sex, race, and region, see Appendix 2.

The results for the first analysis looking at the association between early-life gender ideology and completed fertility, illustrated in Table 4, finds that progressive women in 1979 have slightly smaller family sizes (about 10%) than traditional women. The model suggests no significant differences between traditional women and "median" women (using the 1979 gender variable); nor does completed fertility for traditional (1979) men and their progressive or median counterparts for that same year appear to differ.

The Poisson regression results for the second analysis, displayed in Table 5, indicate that gender ideology is significantly associated with fertility outcomes. The evidence is much stronger for women, for whom many variants of "progressive" and "median" gender ideology trajectories are associated with much lower fertility compared to "traditional" gender ideology. Specifically, compared with consistently traditional women (*trad→trad→trad*), consistently progressive women have a 25% smaller family size. Controlling for all other covariates, consistently median women had a 13% smaller family size than their consistently traditional counterparts. For men, consistently progressive males had much lower fertility than their traditional counterparts (around 20% lower completed fertility). The only other statistically significant gender ideology trajectory for men was *trad-->med-->med* (i.e., became less traditional over time).

The results from the OLS (shown in Appendix 3) replicate the Poisson results, yielding nearly all coefficients in the same direction as the Poisson regressions as well as near-identical significance levels for the coefficients.

It is worth noting that socioeconomic status, race, and marital status all yielded significant results. As expected, controlling for all other variables, low socioeconomic

status, being Hispanic and Black, and low educational attainment are associated with greater fertility for both men and women. Immigrant status and year born did not yield significant coefficients, and region was only weakly significant for females.

Table 4: Poisson regression results: Completed family size on 1979 gender ideology and other covariates

	Female (N=3885)			Male (N=3691)		
	Coeff.	Sig.	S.E.	Coeff.	Sig.	S.E.
Gender Ideology (ref. = Traditional)						
Median	-0.03		0.03	-0.01		0.03
Missing	-0.41		0.33	-0.34		0.25
Progressive	-0.09	**	0.03	-0.06		0.04
Race (ref. = NH-White)						
Hispanic	0.12	***	0.03	0.25	***	0.04
Black	0.13	***	0.03	0.30	***	0.03
Lifetime Poverty (ref. = Zero)						
One	0.09	**	0.03	0.04		0.03
Two	0.26	***	0.04	0.20	***	0.04
Three	0.34	***	0.05	0.28	***	0.06
Four+	0.61	***	0.04	0.25	***	0.06
Educational Attainment (ref. = High School)						
Less than High School	0.12	**	0.04	0.01		0.04
Some college	-0.03		0.03	-0.06		0.03
College	-0.19	***	0.03	-0.12	**	0.03
Region (ref. = Northeast)						
North Central	0.12	**	0.04	0.05		0.04
South	-0.05		0.03	-0.07		0.04
West	0.05		0.04	0.00		0.04
Marital Status (ref. = Married)						
Never Married	-0.64	***	0.04	-0.93	***	0.04
Separated	-0.11	*	0.04	-0.06		0.06
Divorced	-0.17	***	0.03	-0.17	***	0.03
Widowed	-0.24	**	0.08	-0.42	**	0.15
Immigrant Parents	0.04		0.05	0.04		0.05
Constant	0.79	***	0.08	0.67	***	0.08

Source: NLSY 1979. *Note:* Cohort coefficients were small and insignificant and thus not reported.
*p<.05; **p<.01; ***p<.001

Table 5: Poisson regression results: Completed family size on gender ideology trajectories and other covariates

	Female (N=3599)			Male (N=3208)		
	Coeff.	Sig.	S.E.	Coeff.	Sig.	S.E.

Gender Ideology						
(ref. = trad-->trad-->trad)						
med-->med-->med	-0.14	*	0.07	-0.07		0.06
med-->med-->prog	-0.16	*	0.07	-0.09		0.07
med-->prog-->med	-0.27	**	0.08	-0.09		0.08
med-->prog-->trad	-0.02		0.11	0.12		0.13
med-->prog-->prog	-0.18	*	0.07	-0.13		0.08
trad-->med-->med	-0.10		0.07	-0.13	*	0.06
prog-->med-->med	-0.19	*	0.08	-0.17		0.11
prog-->prog-->med	-0.18	*	0.09	0.04		0.11
prog-->prog-->prog	-0.30	***	0.07	-0.19	*	0.10
Race (ref. = NH-White)						
Hispanic	0.13	***	0.04	0.24	***	0.04
Black	0.14	***	0.03	0.31	***	0.03
Lifetime Poverty (ref. = Zero)						
One	0.10	**	0.03	0.06		0.03
Two	0.25	***	0.04	0.22	***	0.05
Three	0.33	***	0.05	0.33	***	0.06
Four+	0.62	***	0.04	0.33	***	0.07
Educational Attainment						
(ref. = High School)						
Less than High School	0.10	*	0.04	-0.01		0.04
Some college	-0.02		0.03	-0.05		0.03
College	-0.17	***	0.03	-0.11	**	0.04
Region (ref. = North East)						
North Central	0.12	**	0.04	0.05		0.04
South	-0.05		0.04	-0.07		0.04
West	0.05		0.04	0.00		0.04
Marital Status (ref. = Married)						
Never Married	-0.65	***	0.04	-0.91	***	0.05
Separated	-0.10	*	0.05	-0.06		0.06
Divorced	-0.18	***	0.03	-0.13	***	0.04
Widowed	-0.27	**	0.08	-0.47	**	0.17
Immigrant Parents	0.01		0.05	0.05		0.05
Constant	0.87	***	0.10	0.70	***	0.10

Source: NLSY 1979. *Note:* Only statistically significant gender ideology trajectories for at least one sex reported in output. Cohort coefficients were small and insignificant and thus not reported. For full output, see Appendix X.
*p<.05; **p<.01; ***p<.001

After estimating the second analysis (Table 5), predicted values for children ever

born were estimated for each individual based on their gender ideology trajectory and

controlling for all covariates. The completed fertility averages for each gender ideology

trajectory representing more than 1% of the sample for men and women are found in

graphical form in Appendix 3.

Figure 2 below illustrates average fertility levels for groups of varying levels of

"progressiveness". "Consistently Progressive" refers to individuals who belonged to the

progressive class in 1979, 1987, and 2004 (e.g., *prog-->prog-->prog*). "Two

Progressive" denotes a group of individuals who fall into any gender ideology trajectories

with exactly two progressive categories (e.g., *prog-->med-->prog*, *med-->prog-->prog*,

etc.). "One Progressive" is constituted of individuals in a gender ideology trajectory of

only one progressive class (e.g., *prog-->med-->med*, *med-->prog-->med*, etc.).

Individuals who never belonged to a progressive class (e.g., *med-->med-->med*; *trad--*
>trad-->med, etc.) are classified "Never Progressive".

Figure 2 shows steep gradients for both men and women by progressiveness. For

women, statistically significant fertility levels between all four groups exist, with

"consistently progressive" individuals having an average of 1.59 children—well below

the replacement rate of 2.05—and "never progressive" females having an average of

nearly 2.2. For men, fertility ranges from 1.88 for "consistently progressive" males to 2.3

children for "never progressive" males.

Male and Female Completed Fertility
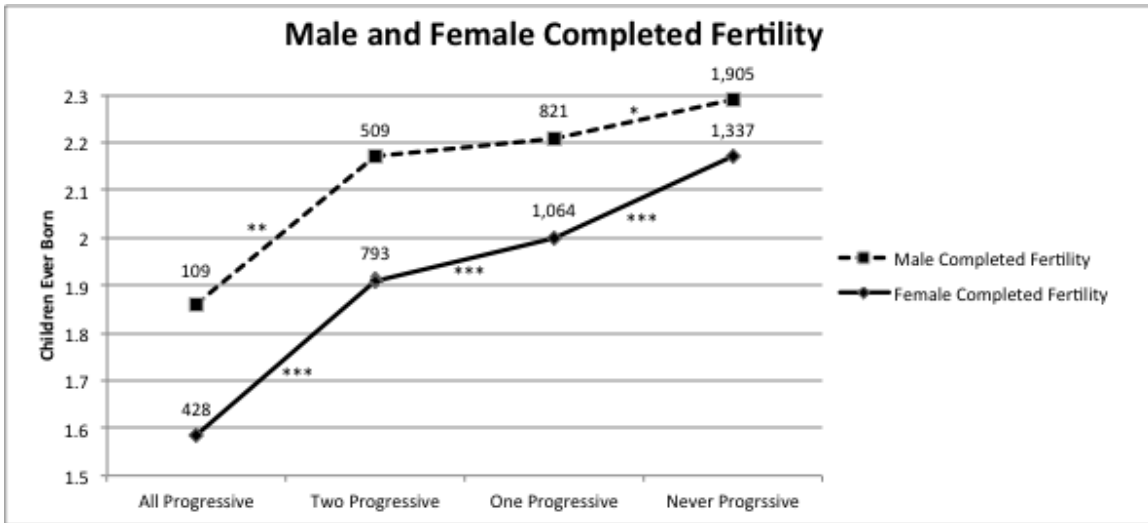
Source: Author's own calculations from NLSY 1979. *Notes*: Number of individuals belonging to each group above each point. Stars represent significance levels between two groups. "All Progressive" refers to individuals who belonged to progressive class in 1979, 1987, and 2004 (e.g., *prog-->prog-->prog*); "Two Progressive" denotes a group of individuals in gender ideology trajectories with exactly two progressive categories (e.g., *prog-->med-->prog*, *med-->prog-->prog*, etc.); "One Progressive" classifies individuals in a gender ideology trajectory of only one progressive class (e.g., *prog-->med-->med*, *med-->prog-->med*, etc.); and "Never Progressive" includes individuals who never belonged to progressive class (e.g., *med-->med-->med*; *trad-->trad-->med,* etc.).
*p<.05; **p<.01; ***p<.001

The output for the third analysis, which analyzes the relationship between three birth transitions and gender ideology, is found in Tables 6 and 7 (for males and females, respectively).

Table 6: Male birth progressions estimated using survival analysis techniques

	Male Birth Progressions		
	Childless to First	**First to Second**	**Second to Third**
Start	1.07*	1.24***	1.33***
	(.016)	(.015)	(.024)
Year Born	0.99	1.1***	1.07***
	(.016)	(.014)	(.02)
Gender Ideology (ref. = Traditional)			
Median	.89	.96	.86
	(.068)	(.07)	(.08)
Missing/Unknown	.4148	.46	.18
	(.31)	(.26)	(.19)
Progressive	0.76**	1	.9
	(.08)	(.09)	(.10)
Race (ref. = NH-White)			
Hispanic	1.6***	1.03	1.66***
	(.16)	(.09)	(.18)
Black	2.8***	1.18**	2***
	(.23)	(.08)	(.17)
Region (ref = North East)			
North Central	1	.98	1.2
	(.10)	(.08)	(.11)
South	0.93	.96	.82
	(.09)	(.08)	(.09)
West	1.07	1.2	1.1
	(.15)	(.1)	(.13)
Marital Status (ref. = Never Married)			
Married	11.83***	2.69***	2.85***
	(.96)	(.18)	(.24)
Separated	7.93***	1.94***	3.25***
	(1.49)	(.36)	(.65)
Divorced	3.86***	1.32	3.55***
	(.68)	(.21)	(.59)
Widowed	1.4	1.1	2.71
	(1.52)	(.92)	(2.36)
Education (ref. = High School)			
Less than HS	1.48*	1.66***	1.16
	(.23)	(.24)	(.3)
Some College	0.99	1.75***	1.59
	(.18)	(.26)	(.38)
College+	1.94***	2.66***	2.38
	(.26)	(.33)	(.49)
Income	1***	1	1
	(2.13e-06)	(1.47e-06)	(1.94e-06)

Immigrant Status	0.85	1.22	1.15
	(.12)	(.13)	(.16)

Table 7: Female birth progressions estimated using survival analysis techniques

	Female Birth Progressions		
	Childless to First	**First to Second**	**Second to Third**
Start	.99	1.09***	1.19***
	(.011)	(.013)	(.017)
Year Born	1.01	1.1***	1.09***
	(.013)	(.013)	(.017)
Gender Ideology (ref. = Traditional)			
Median	.89	.95	.72***
	(.061)	(.07)	(.06)
Missing/Unknown	1.07	.1.13	2.06
	(.57)	(.56)	(1.05)
Progressive	0.71***	.9	.61***
	(.05)	(.07)	(.06)
Race (ref. = NH-White)			
Hispanic	1.5***	1.1	1.63***
	(.12)	(.08)	(.16)
Black	2.4***	1.2**	1.96***
	(.16)	(.07)	(.16)
Region (ref = North East)			
North Central	1.15	1.11	1.2
	(.10)	(.08)	(.12)
South	0.93	.93	.81*
	(.09)	(.07)	(.08)
West	1.08	1	.89
	(.10)	(.08)	(.10)
Marital Status (ref. = Never Married)			
Married	7.57***	2.66***	3.16***
	(.50)	(.16)	(.25)
Separated	4.42***	1.53**	2.22***
	(.57)	(.21)	(.36)
Divorced	2.79***	1.51**	2.58***
	(.37)	(.18)	(.37)
Widowed	2.85*	.81	1.28
	(1.48)	(.46)	(.81)
Education (ref. = High School)			
Less than HS	1.02	1.61***	.94
	(.23)	(.17)	(.18)
Some College	0.56***	1.32**	1.09
	(.18)	(.16)	(.20)
College+	1	2.23***	1.955
	(.1)	(.22)	(.29)
Income	1***	1	1
	(1.83e-06)	(1.48e-06)	(1.97e-06)

Immigrant Status	0.75*	1.22	1.11
	(.08)	(.11)	(.14)

The results, illustrated in Tables 6 and 7, suggest that, controlling for socioeconomic, regional, and demographic variables, gender ideologies are associated with the transitions from childlessness to first birth and from second birth to third birth for women. Compared to women holding a "progressive" gender ideology, females with a "traditional" gender ideology had 1.41 higher odds of having a first birth. No statistical difference between traditional and "median" women existed for this first transition. Furthermore, the model suggests that among women who already had one child, gender ideology did not influence a woman's probability of having a second child. Yet for women who had two children, gender ideology was found to be an important predictor of going on to have a third birth. Specifically, compared to women with "progressive" and "median" ideologies, women with a traditional gender ideology had 1.64 and 1.72 higher odds, respectively, of transitioning from second birth to third birth.

For men, the statistical evidence that gender ideology influences birth progressions is scant. Among the three transition models, the only statistically significant ideology coefficient was that of progressive childless men, who had a .76 lower odds of ever having a child compared to traditionally-thinking men. In other words, men with a traditional gender ideology had 1.35 higher odds of having a first birth than men with a progressive gender ideology.

These results mirror Torr and Short's findings that gender ideology does not influence the probability for individuals to have a second birth. The stigma against single-child families may explain why this is the case: individuals who have one child,

regardless of their gender ideology, likely felt pressure to give that child a sibling.

Conclusions

This paper contributes to the literature in a number of ways. First, it takes a new methodological approach using a rich longitudinal dataset to confirm previous findings in the literature on attitudinal change regarding gender norms in the United States over the latter half of the 20th century.

The second umbrella finding is that gender ideology is highly correlated with fertility outcomes in the United States; both men and women with progressive views on gender equity have lower fertility than respondents with traditional views, though these conclusions were stronger, more consistent, and more significant across models for women. Progressions from childless to first birth, and from second to third birth were significantly associated with gender ideology for women, with progressive female respondents having much lower odds of making these transitions than their traditional counterparts. For men, with the exception of progressive men having lower odds of having a first birth than traditional men, there was little evidence that gender ideology is associated with the propensity to have a second or third birth.

A number of limitations to this study should be highlighted. First, while a strong theoretical justification can be made as to why gender ideology would influence fertility behavior, having a child could plausibly cause one to change his or her gender ideology. Using the 1979 gender ideology variable in the first analysis (i.e., Table 4) lends credence to the argument that gender ideology does indeed influence completed fertility, as the majority of the sample (above 95%) had never given birth in this year. Nonetheless,

examining the effect of having a birth on gender ideology, and more broadly, elucidating the correlates of gender ideology change, could provide insight into whether bidirectional causation exists in the gender ideology-fertility relationship.

Another limitation is that this study omits variables related to childcare support and labor force participation. It is likely that individuals—especially progressive women—with strong support networks, financial access to childcare, and flexible work arrangements have higher fertility than individuals without these work-family balance facilitators.

The third limitation of this study is that, because we do not have data on respondents' spouses, we are examining individuals "in a vacuum", outside of their spousal context. There is likely an interaction effect between the gender ideologies of spouses such that mismatched ideologies (i.e., traditional husband and progressive wife) would likely result in much different fertility outcomes than matched ideologies (i.e., both traditional husband and wife).

Future research would benefit from considering these three limitations. Furthermore, integrating more recent data with younger birth cohorts may indicate whether the relationships elucidated in this paper change across temporal contexts. As the individuals of the NLSY spin-off datasets (the "NLSY Children and Young Adults" and the "NLSY 1997") reach the end of their childbearing years, replications of this study would provide insight as to whether differential fertility outcomes by gender ideology are fixed and persistent over time.

References

Ainsworth, M., Beegle, K., & Nyamete, A. (1996). The impact of women's schooling on fertility and contraceptive use: A study of fourteen Sub-Saharan African countries. *The World Bank Economic Review, 10*(1), 85-122.

Anderson, T., & Kohler, H. (2013). Education fever and the East Asian fertility puzzle: A case study of low fertility in South Korea. *Asian Population Studies, 9*(2), 196-215.

Becker, G. S. (1991). A treatise on the family (Rev. ed.). Cambridge, MA.

Bernhardt, E., & Goldscheider, F. (2006). Gender equality, parenthood attitudes, and first births in Sweden. *Vienna Yearbook of Population Research,* 19-39.

Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces, 79*(1), 191-228.

Bianchi, S. M., Robinson, J. P., & Milkie, M. A. (2007). *Changing rhythms of American family life.* Russell Sage Foundation.

Bollen, K. A., Glanville, J. L., & Stecklov, G. (2002). Economic status proxies in studies of fertility in developing countries: Does the measure matter? *Population Studies, 56*(1), 81-96.

Brayfield, A. A. (1992). Employment resources and housework in Canada. Journal of Marriage and the Family. 54(1), 19-30

Brinton, M., & Lee, D. J. (2010). *Lowest-low fertility: A theory of normative rigidity and economic context..* Unpublished manuscript. http://paa2010.princeton.edu/papers/101791

Brodmann, S., Esping-Andersen, G., & Güell, M. (2007). When fertility is bargained: Second births in denmark and spain. *European Sociological Review, 23*(5), 599-613.

Caldwell, J. C., & Schindlmayr, T. (2003). Explanations of the fertility crisis in modern societies: A search for commonalities. *Population Studies, 57*(3), 241-263.

Chesnais, J. C. (1996). Fertility, family, and social policy in contemporary Western Europe. Population and Development Review, 729-739.

Cunningham, M. (2007). Influences of women's employment on the gendered division of household labor over the life course evidence from a 31-year panel study. *Journal of Family Issues, 28*(3), 422-444.

Davis, S. N., & Greenstein, T. N. (2009). Gender ideology: Components, predictors, and consequences. *Annual Review of Sociology, 35*, 87-105.

De Laat, J., & Sanz, A. S. (2006). *Working women, men's home time and lowest-low fertility* Institute for Social and Economic Research, University of Essex.

Dempster, A. P., & Laird, N. M. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society, 39*(1), 1-38.

Fosler, R. S., Alonso, W., Meyer, J. A., & Kern, R. (1990). *Demographic Change and the Amerrican Future.* University of Pittsburgh Press.

Goldscheider, F. K., & Waite, L. J. (1991). *New families, no families?: The transformation of the American Home.* Univ of California Press.

Goldscheider, F., Oláh, L. S., & Puur, A. (2010). Reconciling studies of men's gender attitudes and fertility: Response to Westoff and Higgins. *Demographic Research, 22*

Goldstein, J. R., Sobotka, T., & Jasilioniene, A. (2009). The end of "Lowest-Low" fertility? *Population and Development Review, 35*(4), 663-699.

Hochschild, A. R., & Machung, A. (1989). *The second shift: Working parents and the revolution at home.* New York: Viking.

Hu, C., & Kamo, Y. (2007). The division of household labor in Taiwan. *Journal of Comparative Family Studies,* 105-124.

Johnson-Hanks, J., Bachrach, C., Morgan, S. P., Kohler, H., Hoelter, L., King, R., & Smock, P. (2011). Understanding family change and variation: Structure, conjuncture, and action. *Manuscript Submitted for Publication.*

Kan, M. Y. (2008). Does gender trump money? Housework hours of husbands and wives in Britain. *Work, Employment & Society, 22*(1), 45-66.

Kaufman, G. (2000). Do gender role attitudes matter? family formation and dissolution among traditional and egalitarian men and women. *Journal of Family Issues, 21*(1), 128-144.

Kroska, A. (2004). Divisions of domestic work revising and expanding the theoretical explanations. *Journal of Family Issues, 25*(7), 890-922.

Lappegård, T., Neyer, G., & Vignole, D. (2012). *Gender ideology and fertility intentions across Europe.* Unpublished manuscript. http://paa2012.princeton.edu/papers/120914

Lavee, Y., & Katz, R. (2002). Divison of labor, perceived fairness, and marital quality: The effect of gender ideology. *Journal of Marriage and Family, 64*(1), 27-39.

Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review, 36*(2), 211-251.

Linzer, D. A., & Lewis, J. B. (2011). poLCA: An R package for polytomous variable latent class analysis. *Journal of Statistical Software, 42*(10), 1-29.

Mason, K. O. (1995). *Gender and demographic change: What do we know?* (p. 31). Liege (Belgium): International Union for the Scientific Study of Population.

McDonald, P. (2000). Gender equity in theories of fertility transition. *Population and Development Review, 26*(3), 427-439.

Miettinen, A., Basten, S., & Rotkirch, A. (2011). Gender equality and fertility intentions revisited: Evidence from finland. *Demographic Research, 24.*

Morgan, S. P., & Rackin, H. (2010). The correspondence between fertility intentions and behavior in the united states. *Population and Development Review, 36*(1), 91-118.

Myrskylä, M., Goldstein, J. R., & Cheng, Y. A. (2013). New cohort fertility forecasts for the developed world: Rises, falls, and reversals. *Population and Development Review, 39*(1), 31-56.

Myrskylä, M., Kohler, H., & Billari, F. (2011). High development and fertility: Fertility at older reproductive ages and gender equality explain the positive link. PSC Working Paper. http://repository.upenn.edu/cgi/viewcontent.cgi?article=1029&context=psc_working_papers

Nguyen-Dinh, H. (1997). A socioeconomic analysis of the determinants of fertility: The case of vietnam. *Journal of Population Economics, 10*(3), 251-271.

Nordenmark, M., & Nyman, C. (2003). Fair or unfair? perceived fairness of household division of labour and gender equality among women and men the Swedish case. *European Journal of Women's Studies, 10*(2), 181-209.

Oláh, L. S. (2011). Should governments in Europe be more aggressive in pushing for gender equality to raise fertility? the second" YES". *Demographic Research, 24*

Perry-Jenkins, M., Repetti, R. L., & Crouter, A. C. (2000). Work and family in the 1990s. *Journal of Marriage and Family, 62*(4), 981-998.

Philipov, D. (2008). Family-related gender attitudes. *People, population change and policies* (pp. 153-174) Springer.

Pritchett, L., & Viarengo, M. (2013). Why demographic suicide? The puzzles of European fertility. *Population and Development Review, 38*(s1), 55-71.

Puur, A., Oláh, L. S., Tazi-Preve, M. I., & Dorbritz, J. (2008). Men's childbearing desires and views of the male role in europe at the dawn of the 21st century. *Demographic Research, 19*

Sorrentino, C. (1990). Changing Family in International Perspective, The. Monthly Lab. Rev., 113, 41.

Spéder, Z., & Kapitány, B. (2009). *Ideational factors and parenthood: A gender-and parity specific analysis in a post-communist society* Demographic Research Institute, Hungarian Central Statistical Office.

Tazi-Preve, I. M., Bichlbauer, D., & Goujon, A. (2004). Gender trouble and its impact on fertility intentions. *Ybtest, 40*, 5-24.

Thai, T. Q., & Myrskylä, M. (2012). *Rainfall Shocks, Parental Behavior and Breastfeeding: Evidence from Rural Vietnam,*

Thornton, A. (1989). Changing attitudes toward family issues in the united states. *Journal of Marriage and the Family, ,* 873-893.

Thornton, A., & Young-DeMarco, L. (2001). Four decades of trends in attitudes toward family issues in the united states: The 1960s through the 1990s. *Journal of Marriage and Family, 63*(4), 1009-1037.

Torr, B. M., & Short, S. E. (2004). Second births and the second shift: A research note on gender equity and fertility. *Population and Development Review, 30*(1), 109-130.

Toulemon, L. (2011). Should governments in europe be more aggressive in pushing for gender equality to raise fertility? the first" YES". *Demographic Research, 24*

Verwimp, P., & Van Bavel, J. (2005). Child survival and fertility of refugees in rwanda. *European Journal of Population/Revue Européenne De Démographie, 21*(2-3), 271-290.

Westoff, C. F., & Higgins, J. A. (2009). Relationships between men's gender attitudes and fertility: Response to puur, et al.'s "Men's childbearing desires and views of the male role in europe at the dawn of the 21st century", demographic research 19: 1883–1912. *Demographic Research, 21*

Yang, Y., & Morgan, S. P. (2003). How big are educational and racial fertility differentials in the US?. *Biodemography and Social Biology, 50*(3-4), 167-187.

Appendix 1: Latent Class Analysis Output: Class Membership and Conditional Probability

Figure 3: Class membership
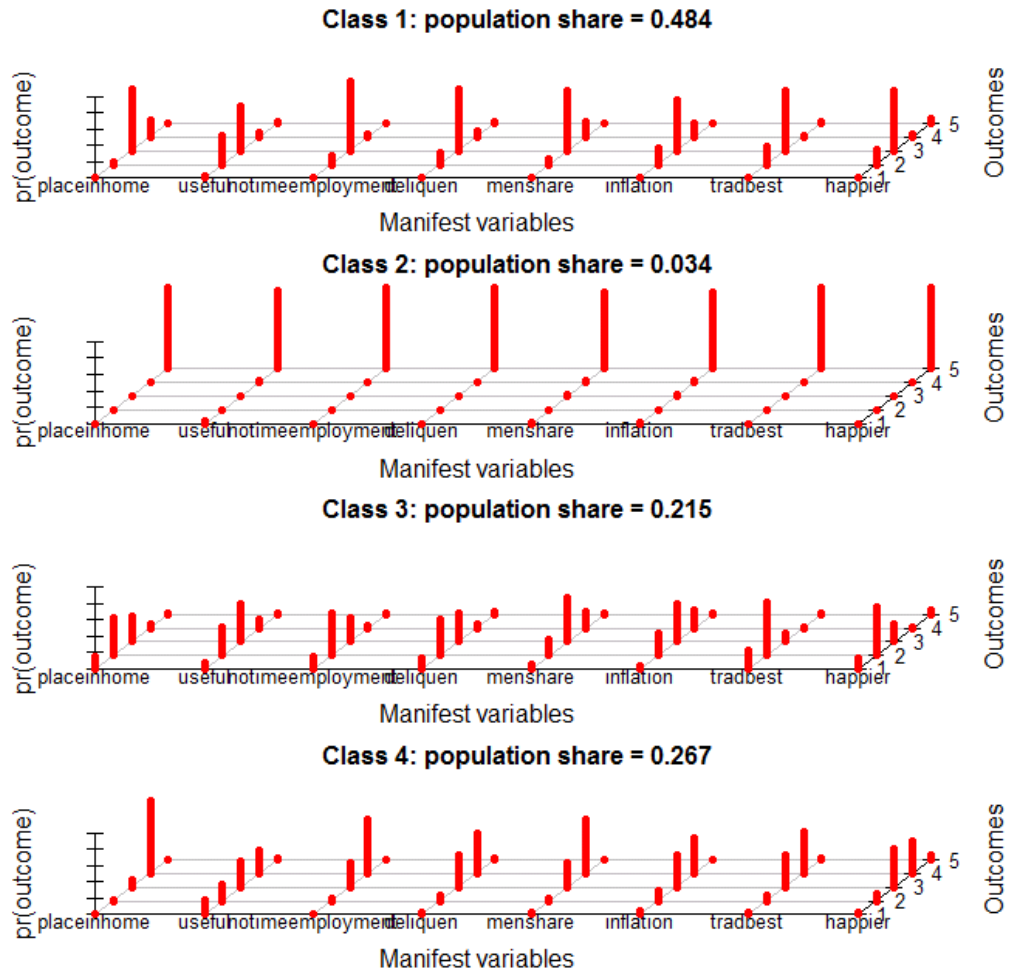
Source: Author's own calculation from attitudinal data from NLSY 1979.

Response Probabilities Conditional on Class Membership

Place in Home

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0017	0.0355	0.7585	0.1982	0.0061
class 2	0.001	0.0029	0.0085	0.001	0.9867
class 3	0.1491	0.455	0.3191	0.0576	0.0191
class 4	0.0066	0.0035	0.0891	0.8939	0.0069

Useful

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0238	0.3526	0.5515	0.0567	0.0155
class 2	0.0247	0	0.0042	0.0195	0.9516
class 3	0.0715	0.343	0.4657	0.0972	0.0226
class 4	0.1816	0.2061	0.3087	0.2876	0.016

No Time Employment

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0017	0.1066	0.8511	0.0331	0.0076
class 2	0	0.0049	0.0038	0	0.9913
class 3	0.1495	0.5196	0.2886	0.0265	0.0158
class 4	0.0145	0.0317	0.2889	0.655	0.0099

Deliquency

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0051	0.1487	0.7534	0.0703	0.0226
class 2	0.0009	0.0008	0.006	0	0.9924
class 3	0.1264	0.4382	0.3478	0.0557	0.0319
class 4	0.0158	0.0731	0.3923	0.5	0.0188

Men share

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0066	0.0731	0.7297	0.1889	0.0017
class 2	0.0164	0.001	0.0168	0.0271	0.9387
class 3	0.0574	0.1993	0.545	0.1919	0.0063
class 4	0.0198	0.0195	0.2937	0.6655	0.0016

Inflation

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0107	0.192	0.6162	0.1738	0.0074
class 2	0.0193	0.002	0.016	0.0232	0.9395
class 3	0.0404	0.2592	0.4708	0.2182	0.0114
class 4	0.0451	0.1237	0.3865	0.4393	0.0054

Traditional Best

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0043	0.2127	0.7389	0.0255	0.0187
class 2	0	0.0048	0.0026	0	0.9927
class 3	0.2297	0.6432	0.0987	0.012	0.0164
class 4	0.0182	0.0667	0.3846	0.5153	0.0151

$happier

	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)
class 1	0.0041	0.1864	0.7278	0.0307	0.051
class 2	0	0.0027	0.0007	0.0019	0.9947
class 3	0.1308	0.5874	0.2192	0.0173	0.0453
class 4	0.0176	0.0813	0.4635	0.3871	0.0506

Estimated class population shares

	0.4844	0.034	0.2145	0.2671

Predicted class membership (by modal posterior)

	0.4946	0.034	0.2083	0.2631

number of observations: 30616

number of estimated parameters: 131

residual degrees of freedom: 30485

maximum log-likelihood: -250341

AIC(4):	500943.2	
BIC(4):	502034.3	
$G^2(4)$:	47050.37	(Likelihood ratio/deviance statistic)
$X^2(4)$:	7921584	(Chi-square goodness of fit)

Appendix 2: Gender Ideology Changes by Sex, Race, and Region

Figure 4: Progressive class membership by sex and race
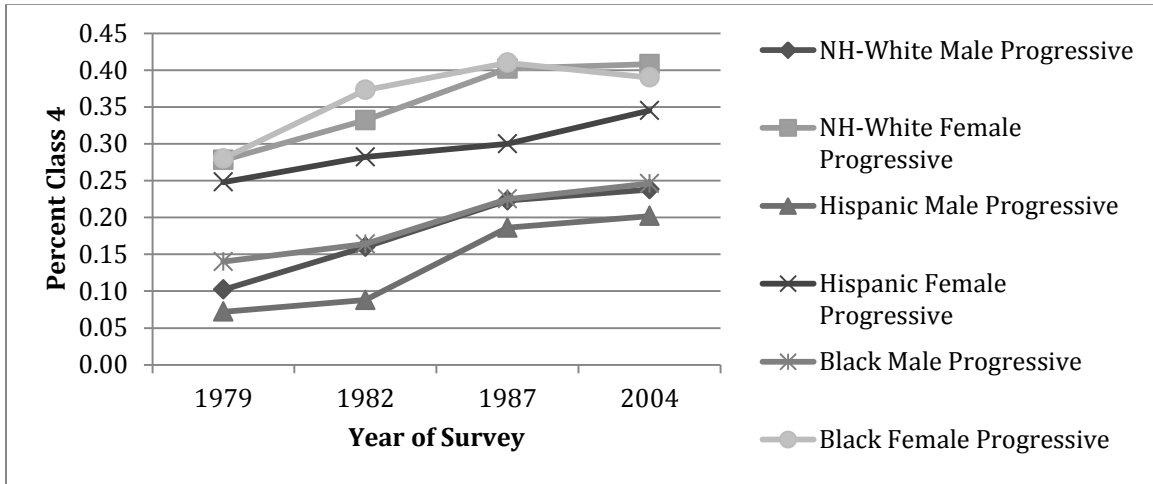
Source: Author's own calculation from attitudinal data from NLSY 1979. *Note:* Class 1 individuals ("Median") not shown.

Figure 5: Traditional class membership by sex and race

Source: Author's own calculation from attitudinal data from NLSY 1979. *Note:* Class 1 individuals ("Median") not shown.

Table 9: Gender ideology class membership by period and cohort

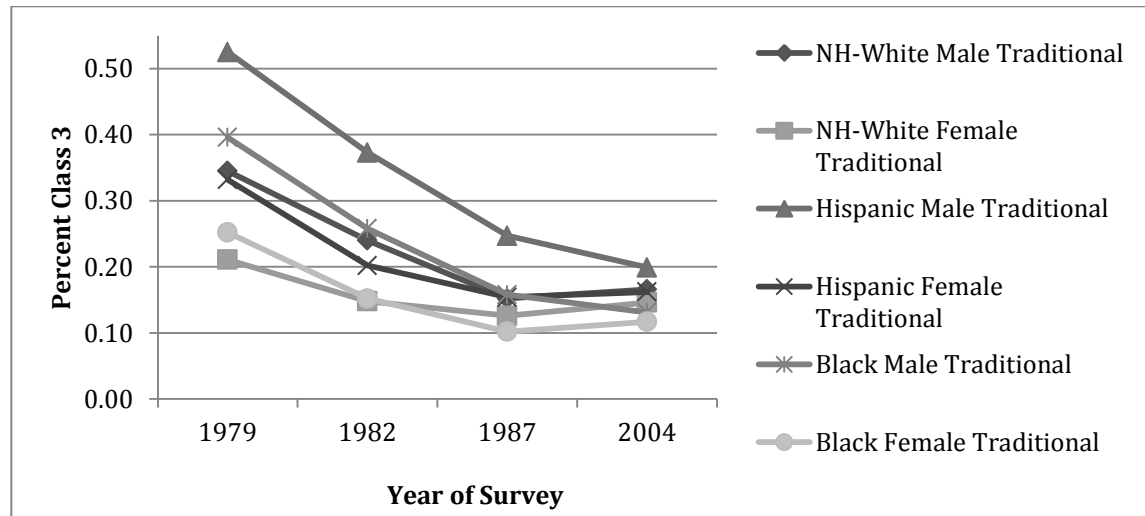| Median	1979	1982	1987	2004	79-04 % Change
1957	0.50	0.53	0.47	0.46	-0.075
1958	0.52	0.51	0.51	0.50	-0.023
1959	0.51	0.49	0.50	0.49	-0.037
1960	0.53	0.51	0.47	0.48	-0.102
1961	0.50	0.51	0.48	0.47	-0.054
1962	0.46	0.53	0.51	0.45	-0.023
1963	0.46	0.51	0.52	0.45	-0.014
1964	0.47	0.53	0.52	0.49	0.038
1965	0.42	0.55	0.52	0.47	0.096
Traditional	**1979**	**1982**	**1987**	**2004**	**79-04 % Change**
1957	0.30	0.22	0.19	0.17	-0.446
1958	0.28	0.21	0.15	0.17	-0.406
1959	0.28	0.20	0.14	0.14	-0.509
1960	0.30	0.23	0.19	0.16	-0.458
1961	0.32	0.20	0.16	0.17	-0.468
1962	0.31	0.19	0.13	0.15	-0.530
1963	0.34	0.23	0.13	0.15	-0.567
1964	0.35	0.23	0.13	0.13	-0.643
1965	0.39	0.24	0.14	0.15	-0.622
Progressive	**1979**	**1982**	**1987**	**2004**	**79-04 % Change**
1957	0.19	0.22	0.26	0.31	0.611
1958	0.20	0.25	0.28	0.28	0.355
1959	0.20	0.27	0.31	0.31	0.500
1960	0.17	0.23	0.28	0.29	0.713
1961	0.18	0.26	0.30	0.30	0.679
1962	0.23	0.26	0.32	0.34	0.498
1963	0.20	0.24	0.31	0.33	0.662
1964	0.17	0.22	0.31	0.33	0.885
1965	0.18	0.19	0.31	0.33	0.815

Source: NLSY 1979

Figures 6, 7, and 8 map out individual gender trajectories by class membership beginning with individuals in 1979 in class 1 (median), class 3 (traditional), and class 4 (progressive), respectively. What stands out from these Figures is the fluidity with which individuals change classes. In fact, if one were to look at the change in class membership between 1987 and 2004 from the aggregated figures in Table 3, one would

likely conclude that individuals' gender ideology between these years did not change during this time period. Yet tracking individual class membership change, as Figures 6-8 do, we see that while population averages changed little, there was substantial heterogeneous movement between classes. Between 1979-1987, the flow was largely from traditional to median/progressive; from 1987 to 2004, ideologies changed, though the flows went from traditional to median to progressive as much as they did from progressive to median to traditional.

Figure 6: Gender ideology trajectories, median (Class 1) in 1979
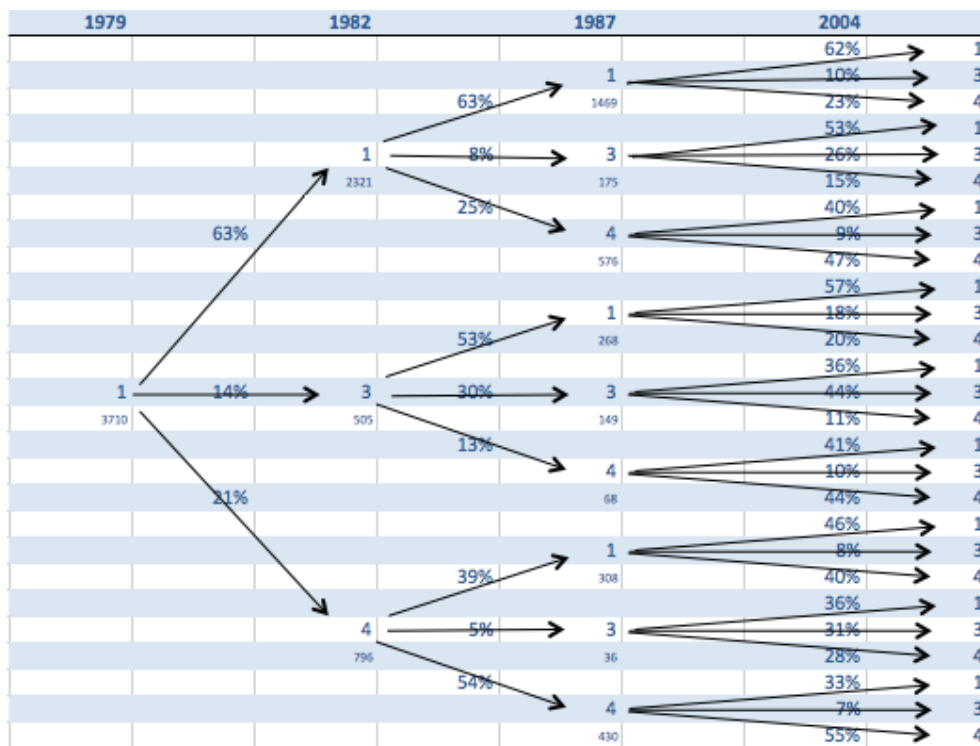
Source: Author's own calculation from attitudinal data from NLSY 1979.

Figure 7: Gender ideology trajectories, traditional (Class 3) in 1979
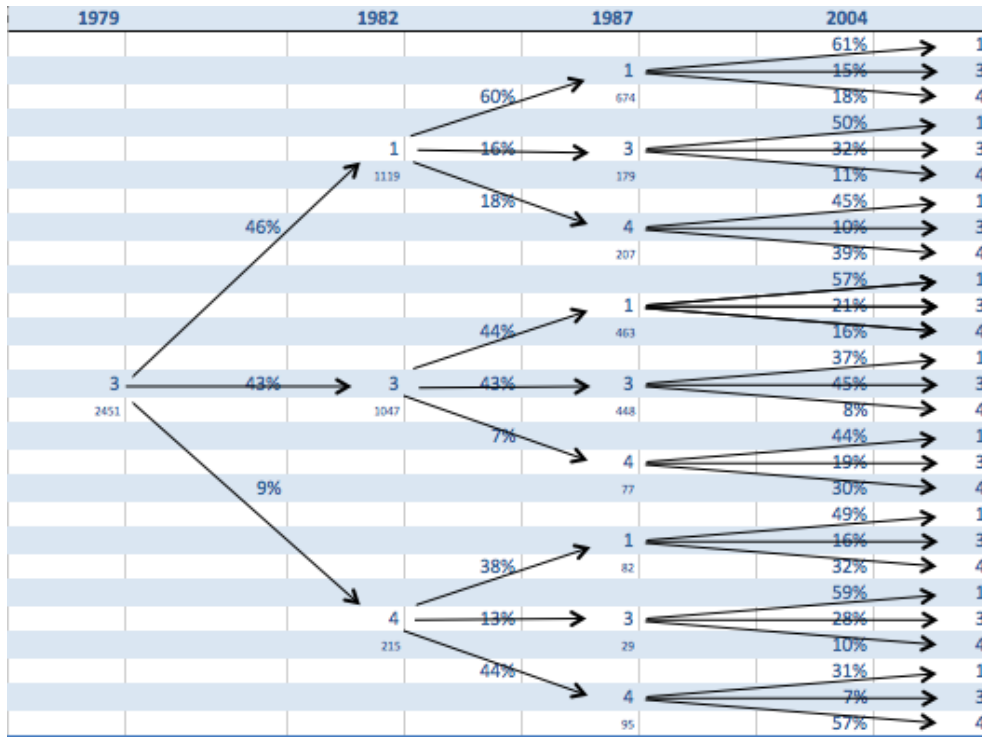
Source: Author's own calculation from attitudinal data from NLSY 1979.

Figure 8: Gender ideology trajectories, progressive (Class 4) in 1979
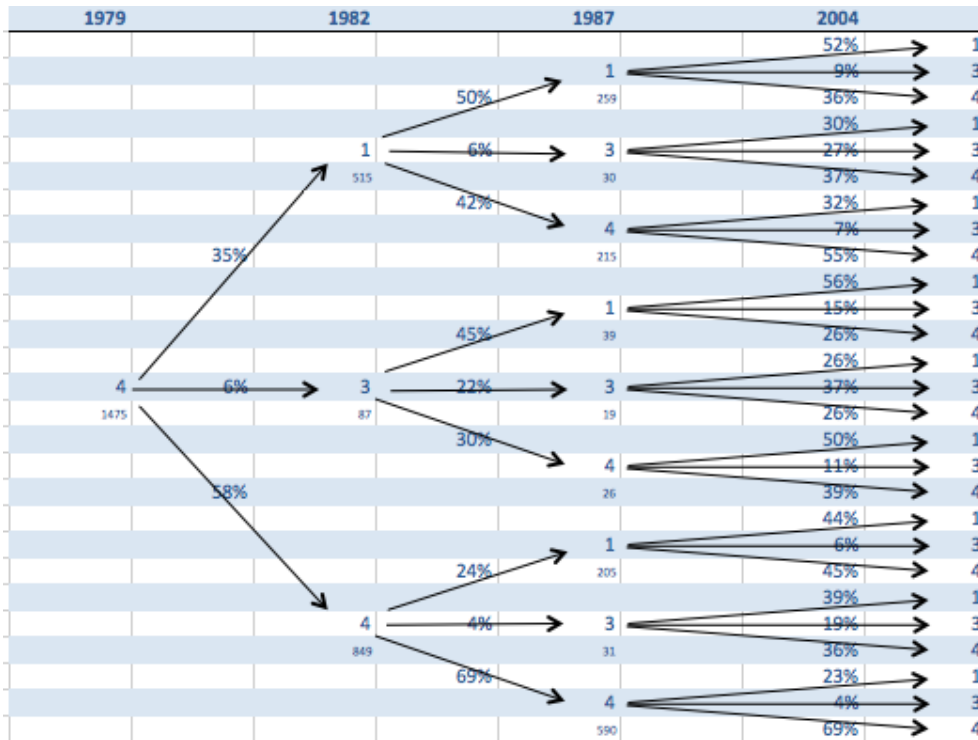
Source: Author's own calculation from attitudinal data from NLSY 1979.

Figure 9: % Male Progressive (Top Left), % Male Traditional (Bottom Left), % Female Progressive (Top Right), % Female Traditional (Bottom Right)
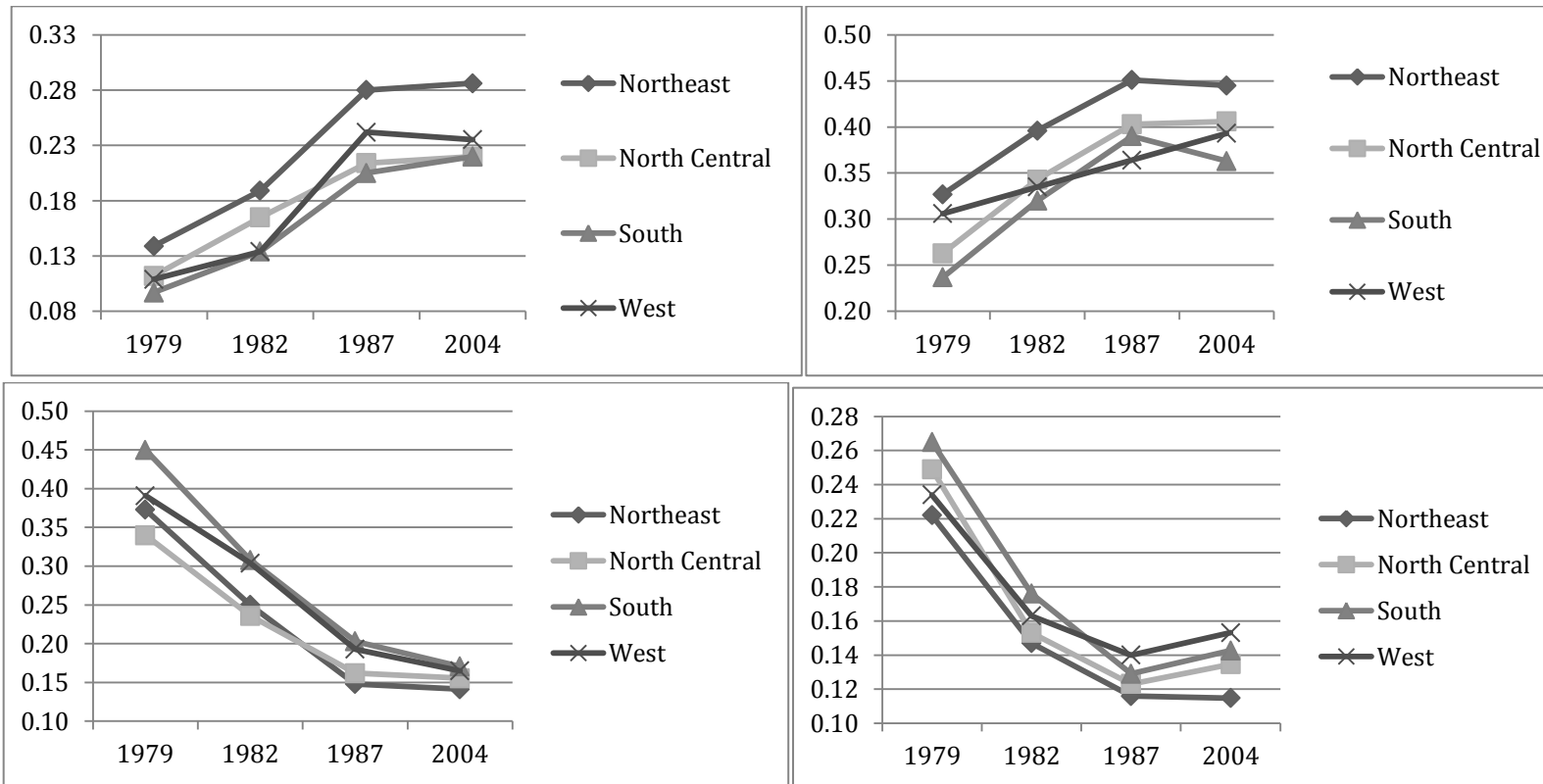
Source: Author's own calculation from attitudinal data from NLSY 1979. Note: Class 1 individuals ("Median") not shown.

Figure 10: Percent Change Between 1979-2004 for Progressive (Left) and Traditional (Right) Class Membership
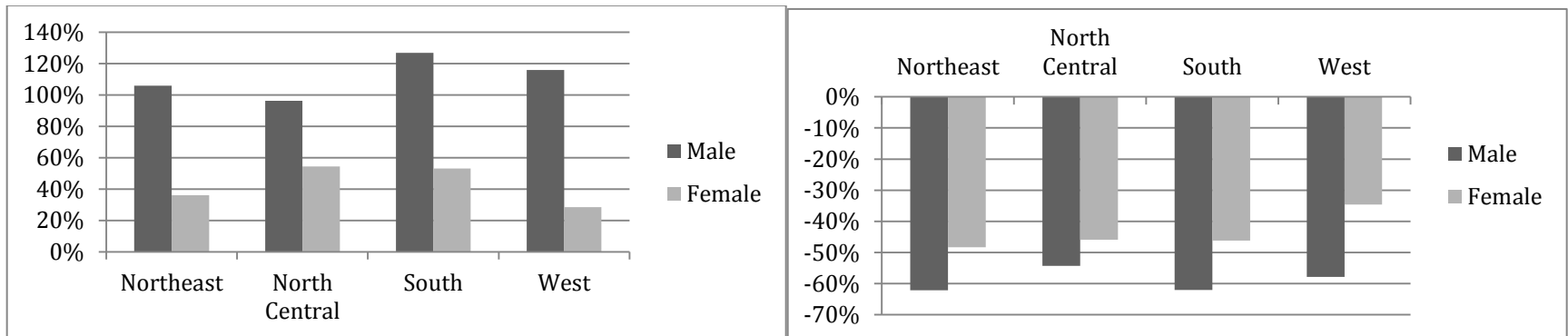
Source: Author's own calculation from attitudinal data from NLSY 1979. Note: Class 1 individuals ("Median") not shown.

Appendix 3: Additional Regression Output

Table 10: Poisson regression: Children ever born on all gender ideologies and other covariates

	Female (N=3599)			Male (N=3208)		
	Coeff.	Sig.	S.E.	Coeff.	S.E.	Sig.
Gender Ideology						
med-->med-->med	-0.14	***	0.07	-0.07		0.06
med-->med-->trad	-0.08		0.09	0.15		0.08
med-->med-->prog	-0.15	*	0.07	-0.09		0.07
med-->trad-->med	0.00		0.09	0.08		0.09
med-->trad-->trad	0.07		0.10	0.20		0.10
med-->trad-->prog	0.00		0.12	-0.08		0.16
med-->prog-->med	-0.27	**	0.08	-0.09		0.08
med-->prog-->trad	-0.02		0.11	0.13		0.13
med-->prog-->prog	-0.17	*	0.07	-0.13		0.08
trad-->med-->med	-0.10		0.07	-0.13	*	0.06
trad-->med-->trad	-0.19	*	0.10	0.00		0.08
trad-->med-->prog	-0.11		0.09	0.01		0.09
trad-->trad-->med	-0.05		0.09	0.03		0.07
trad-->trad-->prog	-0.07		0.13	0.11		0.13
trad-->prog-->med	-0.19		0.10	0.04		0.10
trad-->prog-->trad	-0.17		0.16	0.05		0.16
trad-->prog-->prog	-0.13		0.09	-0.11		0.10
prog-->med-->med	-0.18	*	0.08	-0.17		0.11
prog-->med-->trad	-0.10		0.14	0.23		0.18
prog-->med-->prog	-0.14		0.09	-0.04		0.11
prog-->trad-->med	0.03		0.20	-0.39		0.23
prog-->trad-->trad	0.19		0.16	0.12		0.28
prog-->trad-->prog	-0.21		0.19	0.23		0.24
prog-->prog-->med	-0.18	*	0.09	0.04		0.11
prog-->prog-->trad	0.05		0.14	0.21		0.20
prog-->prog-->prog	-0.29	***	0.07	-0.19	*	0.10
Cohort						
1958	-0.05		0.08	0.03		0.09
1959	-0.04		0.08	-0.01		0.09
1960	-0.07		0.08	0.00		0.09
1961	-0.09		0.08	-0.01		0.09
1962	-0.07		0.08	-0.02		0.09
1963	-0.07		0.08	0.07		0.09
1964	-0.07		0.08	-0.02		0.09
1965	-0.12		0.09	-0.04		0.09
Race						
Hispanic	0.13	***	0.04	0.24	***	0.04
Black	0.13	***	0.03	0.31	***	0.03

Lifetime Poverty

	Coef.	Sig.	SE	Coef.	Sig.	SE
One	0.11	**	0.03	0.06		0.03
Two	0.26	***	0.04	0.22	***	0.05
Three	0.33	***	0.05	0.33	***	0.06
Four	0.50	***	0.05	0.32	***	0.08
Five	0.66	***	0.06	0.37	**	0.14
Six	0.94	***	0.08	0.28		0.36
Educational Attainment						
Less than HS	0.09	*	0.04	-0.01		0.04
Some college	-0.01		0.03	-0.05		0.03
College	-0.17	***	0.03	-0.11	**	0.04
Region						
North Central	0.12	**	0.04	0.05		0.04
South	-0.05		0.04	-0.07		0.04
West	0.05		0.04	0.00		0.04
Marital Status						
Never Married	-0.66	***	0.04	-0.91	***	0.05
Separated	-0.10	*	0.05	-0.06		0.06
Divorced	-0.18	***	0.03	-0.13	***	0.04
Widowed	-0.26	**	0.08	-0.48	**	0.17
Immigrant Parents	0.02		0.05	0.05		0.88
Constant	0.86	***	0.10	0.70	***	0.10

Source: NLSY 1979.
*p<.05; **p<.01; ***p<.001

OLS Output

Table 11: OLS regression results: Children ever born on 1979 gender ideology and other covariates

	Female (N=3885)			Male (N=3691)		
	Coeff.	Sig.	S.E.	Coeff.	Sig.	S.E.
Gender Ideology						
Median	-0.07		0.05	-0.01		0.03
Missing	-0.67		0.48	-0.34		0.25
Traditional	-0.19	**	0.06	-0.06		0.04
Cohort						
1958	-0.13		0.15	0.07		0.08
1959	-0.11		0.15	0.02		0.08
1960	-0.16		0.15	-0.01		0.08
1961	-0.21		0.15	-0.01		0.08
1962	-0.21		0.15	-0.01		0.08
1963	-0.20		0.15	0.06		0.08
1964	-0.20		0.15	-0.01		0.08
1965	-0.26		0.15	-0.03		0.08
Race						
Hispanic	0.28	***	0.06	0.25	***	0.04
Black	0.26	***	0.05	0.30	***	0.03
Lifetime Poverty						
One	0.18	**	0.05	0.04		0.03
Two	0.54	***	0.07	0.20	***	0.04
Three	0.72	***	0.09	0.28	***	0.06
Four+	1.43	***	0.08	0.25	***	0.06
Educational Attainment						
Less than HS	0.32	***	0.08	0.01		0.04
Some college	-0.06		0.05	-0.06		0.03
College	-0.32	***	0.06	-0.12	***	0.03
Region						
North Central	0.24	***	0.07	0.05		0.04
South	-0.10		0.06	-0.07		0.04
West	0.10		0.07	0.00		0.04
Marital Status						
Never Married	-1.20	***	0.06	-0.93	***	0.04
Separated	-0.18	*	0.09	-0.06		0.06
Divorced	-0.35	***	0.05	-0.17	***	0.03
Widowed	-0.48	**	0.15	-0.42	**	0.15
Immigrant Parents	0.11		0.09	0.04		0.05
Constant	2.22	***	0.15	0.67	***	0.08

Source: NLSY 1979.
*p<.05; **p<.01; ***p<.001

**Table 12: OLS regression results: Children ever born on gender ideology trajectories and other covariates**

	Female (N=3599)			Male (N=3208)		
	Coeff.	Sig.	S.E.	Coeff.	Sig.	S.E.
Gender Ideology						
med-->med-->med	-0.34	*	0.15	-0.14		0.13
med-->med-->trad	-0.19		0.18	0.28		0.18
med-->med-->prog	-0.34	*	0.16	-0.18		0.14
med-->trad-->med	-0.01		0.22	0.18		0.19
med-->trad-->trad	0.15		0.26	0.44		0.25
med-->trad-->prog	0.02		0.26	-0.17		0.29
med-->prog-->med	-0.57	***	0.16	-0.19		0.15
med-->prog-->trad	-0.09		0.22	0.27		0.29
med-->prog-->prog	-0.40	**	0.15	-0.22		0.15
trad-->med-->med	-0.25		0.16	-0.24		0.13
trad-->med-->trad	-0.45	*	0.20	0.00		0.18
trad-->med-->prog	-0.26		0.18	0.03		0.16
trad-->trad-->med	-0.09		0.23	0.06		0.16
trad-->trad-->prog	-0.17		0.31	0.17		0.29
trad-->prog-->med	-0.42		0.19	0.10		0.20
trad-->prog-->trad	-0.43		0.32	0.13		0.47
trad-->prog-->prog	-0.33		0.20	-0.18		0.20
prog-->med-->med	-0.45	**	0.17	-0.33		0.19
prog-->med-->trad	-0.25		0.23	0.46		0.46
prog-->med-->prog	-0.34		0.18	-0.09		0.20
prog-->trad-->med	0.01		0.29	-0.71	**	0.25
prog-->trad-->trad	0.43		0.38	0.20		0.51
prog-->trad-->prog	-0.47		0.30	0.44		0.39
prog-->prog-->med	-0.43	*	0.17	0.08		0.20
prog-->prog-->trad	0.06		0.23	0.35		0.57
prog-->prog-->prog	-0.59	***	0.15	-0.35	*	0.17
Cohort						
1958	-0.10		0.15	0.09		0.18
1959	-0.08		0.15	-0.01		0.18
1960	-0.13		0.15	0.02		0.18
1961	-0.18		0.15	0.00		0.18
1962	-0.15		0.15	-0.03		0.17
1963	-0.14		0.15	0.16		0.18
1964	-0.15		0.15	-0.02		0.17
1965	-0.20		0.16	-0.06		0.18
Race						
Hispanic	0.31	***	0.06	0.46	***	0.04
Black	0.26	***	0.06	0.58	***	0.03
Lifetime Poverty						
One	0.20	***	0.05	0.12	*	0.06

Two	0.52	***	0.08	0.41	***	0.10
Three	0.70	***	0.10	0.69	***	0.16
Four	1.10	***	0.15	0.59	**	0.21
Five	1.57	***	0.17	0.70		0.39
Six	2.38	***	0.34	0.31		0.47
Educational Attainment						
Less than HS	0.25	*	0.11	-0.03		0.09
Some college	-0.02		0.05	-0.11		0.06
College	-0.28	***	0.05	-0.20	**	0.06
Region						
North Central	0.24	**	0.07	0.10		0.08
South	-0.09		0.06	-0.14		0.08
West	0.10		0.08	0.01		0.09
Marital Status						
Never Married	-1.22	***	0.06	-1.44	***	0.07
Separated	-0.14		0.10	-0.04		0.15
Divorced	-0.35	***	0.06	-0.26	***	0.07
Widowed	-0.51	**	0.15	-0.86	**	0.30
Immigrant Parents	0.05		0.09	0.10		0.11
Constant	2.41	***	0.21	2.04	***	0.21

Source: NLSY 1979.
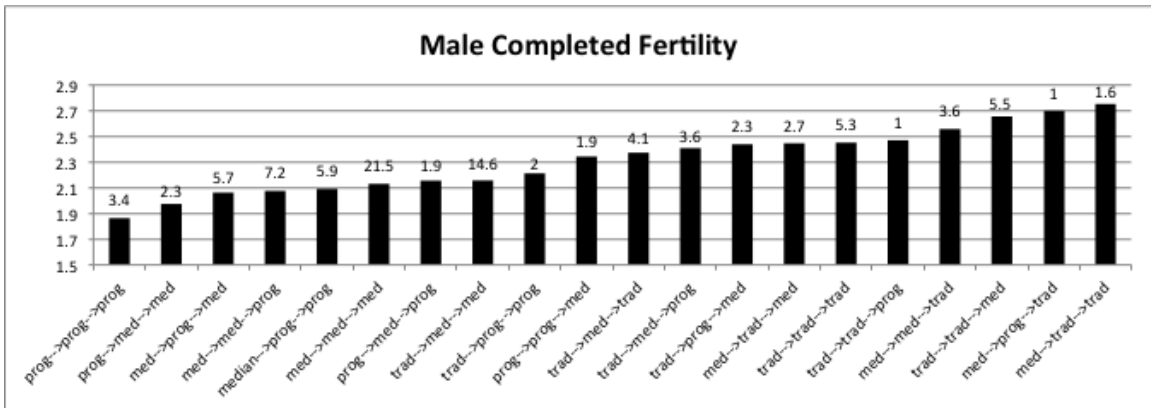*p<.05; **p<.01; ***p<.001

Figure 11: Female completed fertility by gender ideology trajectory after controlling for socioeconomic, regional, and demographic variables
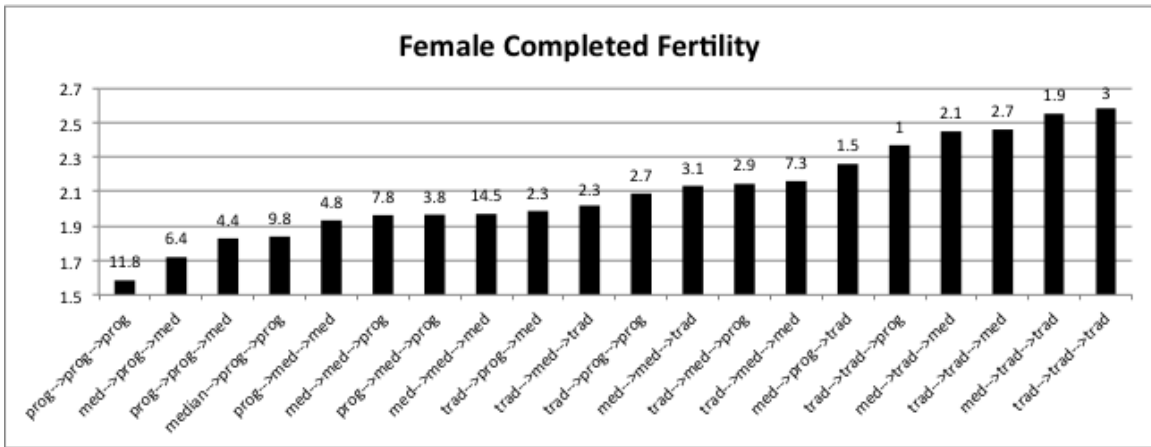
Source: Author's own calculations using data from the NLSY 1979. *Note*: Percentage of sample size for each trajectory is displayed above bars. Only sample sizes of 1% or greater shown.

Figure 12: Male completed fertility averages by gender ideology trajectory after controlling for socioeconomic, regional, and demographic variables

Source: Author's own calculations using data from the NLSY 1979. *Note*: Percentage of sample size for each trajectory is displayed above bars. Only sample sizes of 1% or greater shown.