Beyond the Stalled Gender Revolution: Historical and Cohort Dynamics in Gender Attitudes from 1977 to 2016[*]

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Abstract: It remains unclear to what extent shifts in gender attitudes are products of changes in micro-level characteristics, macro-level social transformations, or net cohort and period transitions. We test these questions on 20 waves of data from the General Social Survey, 1977–2016 (N = 45,125). Compositional change in individual characteristics accounts for almost 78 percent of the cohort variation in gender attitudes, but only 32 percent of the historical transformations. Macro dynamics are responsible for an additional 60 percent of the historical change in gender attitudes. Two structural forces are associated with historical transitions in American gender attitudes: gender equality in the labor force and the rise of men's overwork. Each of these factors accounts for a significant proportion of the period variation in gender attitudes in our analysis, and the rise of men's overwork appears to account for the puzzle of the "stalled revolution" in the 1990s and its "restart" in the mid-2000s. The conservative swing in 1994–2004 correlates with the rise of overwork, as the proportion of men who overwork soared during this period when traditional gender roles were reinforced.

After two decades of rising gender egalitarianism in the United States, gender attitudes stagnated and then reversed direction in the 1990s (Cotter, Hermsen, and Vanneman 2011; Thornton and Young-DeMarco 2001), only exceeding pre-slump levels after 2010. This attitudinal pattern was broad based, influencing all ethnicities, birth cohorts, social classes, genders, and political orientations (Cotter, Hermsen, and Vanneman 2011, 2014). The mid-1990s and early 2000s represent a "lost decade" in the gender attitudes revolution, with contemporary gender egalitarianism much lower than it would have been had it continued its previous upward trend. Recent research has been unable to explain this stalled

revolution with any structural or demographic transformations, instead offering a cultural explanation involving the rise of a "separate but equal" gender scheme (Cotter, Hermsen, and Vanneman 2011). Similarly, research has been unable to account for the recent rebound in egalitarian attitudes, asserting that some broad-based period effects must be at work: "the fact that the restart takes place within generations at approximately the same time suggests that something may have happened—we just don't yet know what" (Cotter, Hermsen, and Vanneman 2014).

Our study expands the debate on this puzzle by evaluating three structural influences on historical dynamics in gender attitudes, including the mid-1990s conservative turn, with a model that estimates both micro- and macro-level influences simultaneously. Our research builds on the rich literature on micro- level influences on gender attitudes, such as education, employment, proximity to working women, and the presence of children in the household (Brewster and Padavic 2000; Brooks and Bolzendahl 2004; Cotter, Hermsen, and Vanneman 2011; Mason and Lu 1988; Tallichet and Willits 1986; Thornton and Young-DeMarco 2001). These studies also analyze cohort compositional changes, suggesting that gender ideologies change in accordance with individuals' immediate interests. However, these studies have not considered historical changes in social conditions that impact the entire population simultaneously, such as transformations in the labor market or economic climate. Our study seeks to fill this gap by analyzing both micro- and macro-level influences to consider how structural changes may have impacted individuals directly in their experiences and indirectly through exposure to the larger social environment.

We analyze three structural forces that may account for historical variations in gender attitudes: stagnating progress toward women's equality in the labor force, economic prosperity, and the rise of overwork. First, the steady rise of women's labor force participation and decline in the gender pay gap stalled in the early 1990s, which may have contributed to the subsequent decline in gender egalitarianism; halting progress toward labor force equality may have led people to devalue women's paid employment and adopt traditional notions of men's and women's "separate spheres." Second, economic growth may reduce pressures for paid maternal employment in the context of high childcare costs (Han and Waldfogel 2001) and strong cultural expectations around motherhood (Hays 1998). Norms around family devotion may become more salient during prosperous periods, when women can afford to "indulge" in traditional gender roles. Finally, the rise of overwork among professional men, which peaked in the early 1990s, may contribute to the attitudinal reversal. The rise of overwork reinforced traditional divisions of household labor, which may have led Americans to readopt traditional attitudes about male breadwinners and female caretakers (Cha and Weeden 2014).

We test the influence of these factors on historical dynamics in gender attitudes using 20 waves of the General Social Survey (GSS) from 1977 to 2016 (N = 45,125), supplemented by year-level data from the Current Population Survey (CPS) and World Bank. We estimate the net effects of these historical influences using cross-classified age-period-cohort models. This approach isolates the influence of macro-structural forces from the

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demographic processes of cohort replacement and aging, as well as population-level changes in individual characteristics. After controlling for demographic predictors, we add macro-structural measures of labor force gender equality, GDP growth rate, and the percent of men overworking in sequential models. For each structural variable, we analyze both the coefficients and the percentage of explained variance to better understand the relationship between macro-social processes and attitudinal change.

DEMOGRAPHIC INFLUENCES ON GENDER ATTITUDES

Previous research explains historical changes in gender attitudes by macro-level processes of cohort replacement and period effects (Brewster and Padavic 2000; Brooks and Bolzendahl 2004; Farley 1996; Mason and Lu 1988; Rindfuss, Brewster, and Kavee 1996; Thornton, Alwin, and Camburn 1983; Wilkie 1993). Birth cohorts encounter different social, economic, and political events during their formative years (Mannheim 1952; Ryder 1965), so their attitudes reflect their unique socialization. Cohort differences in gender attitudes may also arise through compositional differences in demographic characteristics; individuals' experiences in schools, families, and the labor market mold their perceptions about women's rights and status. At the aggregate, cohort-based attitudinal transformations unfold through a "demographic metabolism," as newer cohorts replace older ones and usher in social change (Davis and Greenstein 2009; Ryder 1965). In the United States, cohort replacement has been significant in the shift toward more gender egalitarianism, liberal family beliefs, and permissive sexual outlooks (Bolzendahl and Myers 2004; Brewster and Padavic 2000; Mason and Lu 1988).

Period effects on attitudes arise from historical events or social changes that influence the entire population simultaneously (Brewster and Padavic 2000; Mason and Lu 1988). Period effects were implicit in the egalitarian shift from 1977 to 1985, which has been attributed to women's influx into the labor force (Mason and Lu 1988). Period effects can also manifest through changes in individual predictors over time. For example, period effects can vary by gender: the change in American men's gender attitudes after the 1970s was slower than the change in women's attitudes (Ciabattari 2001).

Micro-Level Predictors of Gender Attitudes

Much of the attitudinal differences across birth cohorts and historical periods are explained by compositional differences in micro-level characteristics, such as education, family structure, employment, and religious and political views. Education has the strongest effect on gender attitudes, with college-educated women reporting the highest levels of egalitarianism (Mason, Czajka, and Arber 1976; Spitze and Huber 1980; Thornton and Freedman 1979; Thornton, Alwin, and Camburn 1983). The increase in college-educated women over time, especially among younger cohorts, creates more egalitarianism at the aggregate. Also, the rise of nontraditional family arrangements helps account for the attitudinal shift

(Lichter and Qian 2005). Some evidence suggests that married people hold less egalitarian attitudes than those who are divorced or separated (Moore and Vanneman 2003).

Women's labor force participation has a liberalizing effect on both women's and men's gender attitudes. Working women tend to report more egalitarian attitudes (Cassidy and Warren 1996; Wilcox and Jelen 1991), perhaps because employment can increase confidence and financial autonomy. Religious and political views are also correlated with gender attitudes. Followers of fundamentalist and evangelical religions are less likely to endorse egalitarian beliefs (Bolzendahl and Brooks 2005; Hoffmann and Miller 1997; Moore and Vanneman 2003; Peek, Lowe, and Williams 1991). Conservative orientations toward civil liberties, civil rights, and sexual tolerance are also associated with reduced egalitarianism (Brooks and Bolzendahl 2004; Cotter, Hermsen, and Vanneman 2011). Individual-level characteristics like these explain much of the cohort differences and some of the period effects on gender attitudes (Brewster and Padavic 2000; Brooks and Bolzendahl 2004), yet they have been unable to account for the 1990s "stalled revolution" (Cotter, Hermsen, and Vanneman 2011, 2014).

HISTORICAL DYNAMICS OF GENDER ATTITUDES

Broad historical transformations impact the entire population, including those who directly experience the changes but also those who are proximate to them. Three historical transformations may have contributed to changing gender attitudes: structural equality in the labor force, economic growth, and the rise of overwork. Historical trends in these forces coincide with the 1990s dip in gender egalitarianism and may thus help explain the "stalled revolution."

Structural Equality in the Labor Force

Women's labor force participation rose steadily after the 1960s and stagnated in the late 1980s and early 1990s, preceding a similar change in gender attitudes (US Bureau of Labor Statistics 2013). Prior research also links women's employment and a shrinking pay gap to gender egalitarianism (Baxter and Kane 1995; Bolzendahl and Myers 2004; Fortin 2005). Women's employment fosters egalitarianism not only in women (Cunningham 2008), but also in their husbands, children, and friends (Fan and Marini 2000; Powell and Steelman 1982; Smith 1985; Smith-Lovin and Tickamayer 1978). As the share of women in the labor force increased over recent decades, women's families and coworkers began to accept their employment as normative (Bolzendahl and Myers 2004). Although Cotter, Hermsen, and Vanneman (2011) found that women's labor force participation did not explain the 1990s decline in egalitarianism, they considered individual women's paid employment and thus may have missed population-level effects of female labor force participation.

The gender pay gap may help explain historical dynamics in egalitarian attitudes. The pay gap declined steeply in the 1970s and 1980s, slowed dramatically in the 1990s, and

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stabilized at the beginning of the twenty-first century (Blau and Kahn 2006; Cha and Weeden 2014; England 2010). As a symbol of women's relative status in the workplace, the "slowing convergence" of the pay gap in the 1990s may have reinforced the notion of an upper limit on workplace gender equality. The persistent pay gap may have downgraded people's assessments of the value of women's work and their suitability for paid employment. Our study seeks to determine whether there is a historical association between labor force gender equality and egalitarianism, and whether stalled progress in the labor market shaped the conservative attitudinal turn.

> *Structural Equality Hypothesis A: Greater gender equality in the labor market is associated with more egalitarian gender attitudes.*

> *Structural Equality Hypothesis B: Stagnating progress toward gender equality in the labor market in the mid-1990s to mid-2000s is associated with a contemporaneous decline in gender egalitarianism.*

Economic Growth

Fluctuating economic contexts may shift families' choices about the division of household labor, and their gender attitudes may realign with these economic calculations. When married fathers' incomes increase, their wives tend to reduce their working hours and devote more time to caregiving (Kimmel and Connelly 2007). Rising childcare costs (Han and Waldfogel 2001; Kimmel and Connelly 2007) and cultural expectations around "intensive mothering" (Hays 1998) have also led many women to work less and spend more time caregiving. Periods of relative affluence may reduce economic pressures for women's paid employment while strengthening cultural pressures for women to embrace domestic roles, regardless of their personal circumstances. As women feel less pressure to work outside the home, they may endorse more traditional views about women's domestic roles.

Previous research shows that women's gender attitudes tend to vary by employment status (Crompton and Lyonette 2005), and employment changes can prompt women to alter their conceptions of what it means to be a good mother (Johnston and Swanson 2006). Even women who work consistently outside the home may experience attitudinal changes along with shifting economic pressures. During the late 1990s economic boom, younger female executives were more likely to embrace the idea of family devotion than their older counterparts (Blair-Loy 2001). Cultural norms about family devotion and motherhood that constrain women's choices about work and family may become more salient during prosperous periods when families can "afford" to let women "indulge" in traditional gender roles. Cross-national research shows that gender essentialism and gendered career choices are associated with economic affluence despite a rising global tide of gender equality with rising GDP (Inglehart and Norris 2003). People in high-GDP countries are less supportive of maternal employment than those in lower-GDP countries (Shu and Meagher 2017). Women in more affluent societies also specialize in "female"-typed professions or fields

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at higher rates and show greater devotion to maternal roles than women in less wealthy countries (Cech 2013; Charles and Bradley 2009; Charles and Grusky 2004). Our analysis examines whether historical fluctuations in economic prosperity are associated with shifting gender attitudes. The early 1990s represent a period of relative prosperity, which may have triggered the conservative attitudinal turn.

> *Wealth Indulgence Hypothesis A: During prosperous economic times, gender attitudes are less egalitarian.*

> *Wealth Indulgence Hypothesis B: Relative economic prosperity in the mid-1990s to mid-2000s is associated with a decline in gender egalitarianism.*

Overwork

Long working hours have become increasingly common for American men in recent decades. Between 1979 and 2000, the proportion of men working long hours (50 or more hours per week) rose from 21 to 27 percent (Jacobs and Gerson 2005). The rise of overwork has been concentrated in the top share of salaried and professional workers (Cha 2010; Kuhn and Lozano 2008) and reflects both macro-level trends in the organization of work and shifting norms around the "ideal worker" (Williams 2000). Recent macroeconomic forces have stratified the labor market, with employers scaling back their permanent labor force and hiring more part-time and contingent laborers (Fligstein and Shin 2004; Kalleberg 2011). This "new economy" of increasingly global operations, outsourcing, and technological advances has allowed employers to expect employees to be constantly available to clients and supervisors (Presser 2005; Rubin and Brody 2005). Many employees work long hours to signal their commitment and increase their chances for promotion (Blair-Loy 2003; Epstein et al. 1999; Hochschild 1997).

Although norms of "overwork" in the "new economy" may appear gender neutral, they reinforce traditional gender roles. Men are much more likely than women to work long hours due to women's larger share of unpaid domestic labor (Cha and Weeden 2014); female partners' unpaid household labor bears the brunt of men's overwork (Hochschild 1997; Ridgeway 2011). Women, and especially mothers, in professional occupations find it much more difficult than men to extend their working hours and are thus less successful in the workplace (Cahusac and Kanji 2014; Cha 2013; Rutherford 2001). Organizational norms around overworking have led more women to exit the labor force and return to the "separate spheres" division of household labor (Cha 2010). The cultural norm of "intensive mothering," which requires constant parental involvement in children's activities (Hays 1998), strengthens the gendered consequences of overwork (Cha 2010).

Overwork thus serves as a mechanism for "patriarchal closure" (Rutherford 2001) by reinforcing gendered assumptions about the "ideal worker" (Acker 1990; Williams 2000). "Ideal workers" are expected to devote themselves to an organization's needs, a seemingly gender-neutral expectation that, in practice, is best fulfilled by men who have female

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partners taking on unpaid domestic responsibilities. Overwork may be a relatively new organizational norm, but it reinforces the traditional, gender-essentialist ideology of men as breadwinners and women as caretakers (Cha 2013). The timing of rising overwork in the 1990s and its slight decline in the 2000s preceded the dip and subsequent rebound in gender egalitarianism. Norms around overwork may have led Americans to believe that true gender equality is unattainable because women are often constrained from rising to the expectations of an ideal worker who overworks.

> *Overwork Hypothesis A: During times when more men work long hours, gender attitudes are less egalitarian.*

> *Overwork Hypothesis B: The rise of overwork among men in the period between the mid-1990s and mid-2000s is associated with less gender egalitarianism.*

DATA, MEASURES, AND MODEL

We use data from 20 waves of the General Social Survey from 1977 to 2016 (Smith, Hout, and Marsden 2017). Following previous research (Cotter, Hermsen, and Vanneman 2011), we examine four questions about gender roles that were asked in 1977, 1985–1986, and 1988–2016. We also use a dataset on female labor force participation, the gender gap in median earnings, GDP growth rate, and the percent of men overworking at year level for each of the 20 survey years. These measures come from the World Bank (2017) and the Current Population Survey (Flood et al. 2015).

Gender Attitude Measures

We use four survey questions on gender attitudes that have been used in previous studies (Brewster and Padavic 2000; Cotter, Hermsen, and Vanneman 2011; Mason and Lu 1988). The four items ask if respondents agree or disagree with the following statements: "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work"; "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"; "A preschool child is likely to suffer if his or her mother works"; and "Most men are better suited emotionally for politics than are most women." We construct a scale with these four items[1] using the means of the standardized scores (Cronbach's $\alpha = 0.70$), identical to

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[1]Three of the four measures represent attitudes about women combining the roles of mother and worker, based on the notion of separate spheres (Davis and Greenstein 2009). These are often called indicators of "gender essentialism" that gauge attitudes about "horizontal" differentiation. The last measure assesses support for women's equal rights and social status. This measure of "male primacy" evaluates "vertical" gender distinctions. To validate our usage of a single attitudinal measure, we replicated our analysis on separate models for gender essentialism and male primacy. The results did not diverge substantially from our original analysis. (See appendix A in the online supplement.)

Cotter, Hermsen, and Vanneman (2011). The GSS contains an additional four questions about gender roles, but they stopped appearing on surveys after 1998 and thus fail to capture recent attitudinal trends.

Cohorts

We divide the sample into five generations according to prior research on the distinctive life experiences of age groups in the United States (Pew Research Center 2010; Strauss and Howe 1991). The Greatest Generation (also the G.I. Generation) was born in 1901–1927 and came of age during the Great Depression, with many serving in World War II. The Silent Generation was born in 1927–1945. They are generally recognized as the children of the Great Depression, and their label refers to their conformist reputation (Pew Research Center 2010). Baby Boomers were born after World War II in 1946–1964, earning their name from the high birth rates of the time. They are associated with a rejection or redefinition of traditional values (Jones 1980). Generation X was born in 1965–1980 and was once called the Baby Bust. The Millennial Generation was born after 1980 and was the first generation to come of age in the new millennium (Pew Research Center 2010).

Since each generation is associated with a span of 25 years or more, we further classify them into 15 cohort groups, each containing approximately five years. There are three cohorts of the Greatest Generation: I 1900–1909, II 1910–1918, and III 1919–1927; three cohorts of the Silent Generation: I 1928–1933, II 1934–1939, and III 1940–1945; three cohorts of the Baby Boomers: I 1946–1951, II 1952–1958, and III 1959–1964; three cohorts of Generation X: I 1965–1969, II 1970–1974, and III 1975–1980; and three cohorts of the Millennial Generation: I 1981–1987, II 1988–1993, and III 1994–1998. Demographic research commonly creates cohorts by mechanically dividing samples into five-year intervals, which may separate people who share similar life experiences (Yang 2008). Instead, we divide the cohorts around historical events that likely created distinctive experiences during respondents' formative years.

Demographic Controls

We include demographic variables that have been linked to gender attitudes in previous research (Cotter, Hermsen, and Vanneman 2011; Mason and Lu 1988). We include respondents' gender, age, and a quadratic age term. Educational attainment is included for respondents, their spouses, and parents. If the respondent is married, a dichotomous variable indicates whether the wife (the female respondent or the spouse of a male respondent) has more years of education; all other cases are 0, again like Cotter, Hermsen, and Vanneman (2011).

Race is represented by three variables for Black, Asian, and Hispanic (reference = White). Marital and parental status are represented as three variables: married with no children, not married with children, and not married with no children (reference = married

with children). The number of young children (0–6 years old), preteens (6–12 years old), and teenagers (13–17 years old) in the household are also included.

We include employment measures for female respondents and the spouses of male respondents. A dichotomous variable captures women's full-time employment (men and all other women are 0). The managerial-professional status of both men and women are included as dummy variables (professional or managerial = 1, all others = 0). We estimate family income as the logged constant dollar midpoints from the categories represented in the GSS data.

Religious affiliation is measured by seven dichotomous variables (Steensland et al. 2000), and the frequency of church attendance is an ordinal measure. Self-reports of political ideology are measured as a seven-point scale, with -3 indicating extreme liberalism, 0 indicating moderate views, and 3 indicating extreme conservatism. We also use a measure of liberal rights ideology to assess the relationship between gender attitudes and broader ideological changes. Following Brooks and Bolzendahl (2004) and Cotter, Hermsen, and Vanneman (2011), we construct a scale using standardized measures of attitudes on civil rights, civil liberties, and sexual tolerance (Cronbach's $\alpha = 0.91$). The scale includes 18 items measuring attitudes about which rights should be afforded to atheists, racists, communists, militarists, and homosexuals, as well as the morality of sex education, premarital sex, and homosexuality.[2]

Several variables are structurally missing in the sample. Unmarried respondents have no spousal data, and respondents who had no mother or father at age 16 are missing data for parental education. Following Cotter, Hermsen, and Vanneman (2011), we code structurally missing data as 0. Spousal variables are marked 0 for unmarried respondents. Mother's and father's education are marked 0 for respondents who were determined by GSS to have no mother or father (or female or male parental figure) at age 16, and we mark these with a dummy variable. (Dummy indicators are not necessary for structurally missing spousal data because marital status is already included.) We address the remaining missing data with multiple imputation by chained equations (White, Royston, and Wood 2011). After correcting for structurally missingness, only three predictors have more than 10 percent missing: family income (10.9 percent), political conservatism (10.4 percent), and father's education (10.2 percent). Our imputation models use all variables in the analytic model, and we delete imputed values of the outcome (Von Hippel 2007). We create 10 imputed datasets for analysis in HLM 7.0 and pool the estimates using Rubin's (1987) combination rules. We present combined results from these 10 imputed datasets in our tables.

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[2]The liberal rights ideology scale created by Brooks and Bolzendahl (2004) also includes racial attitudes. Like Cotter, Hermsen, and Vanneman (2011), we exclude this measure because it has not appeared on the GSS since 2000.

Year-Level Data

Three variables measure historical dynamics in each survey year. Each measure is lagged by one year (measure is from the previous year) to allow the effect to take place.[3] The index for gender equality in the labor force uses two items: women's labor force participation (the percent of women in the civilian non-institutional population aged 16 years and over in the labor force) and the gender pay gap (the ratio of women's to men's median annual earnings among full-time, year-round workers). Both measures come from the Current Population Survey (CPS). We use factor analysis to create a labor force gender equality index with these two items (Cronbach's $\alpha = 0.86$). The annual GDP growth rate comes from the World Bank (2017). Finally, men's overwork comes from the Current Population Survey (Flood et al. 2015). This measure represents the percent of employed men aged 16 years and older who usually worked 50 or more hours per week in the previous year.[4] To estimate if overwork has a curvilinear relationship with gender attitudes, we also include a quadratic term.[5]

Multilevel Cross-Classified Age-Period-Cohort Models

The cross-sectional GSS data include individuals nested within cells that are created by the cross-classification of birth cohort and survey year. Table 1 displays this data structure. The 45,125 respondents are nested within 15 cohorts and 20 survey years. We formulate a series of multilevel cross-classified models with random cohort and period effects (hereafter called APC models). These models allow us to simultaneously estimate the effects of age, period, and cohort on gender attitudes (Yang 2008; Yang and Land 2006, 2008). After estimating a series of models with individual- and macro-level variables, we gauge changes in the variance and random cohort and period effects. Therefore, we ascertain which variables account for the period and cohort dynamics by reducing the size of the random effects. Because we delineate birth cohort in meaningful ways, use survey years to capture historical dynamics, and do not attempt to find "solutions" to the period and cohort effects, these estimates are not undermined by the concerns over APC models (Luo 2013; Luo and Hodges 2016).

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[3]We also estimated the models using measures lagged by two years in case the effects take longer to manifest. The results are virtually identical to those with measures lagged by one year.

[4]We also used average working hours in our analyses, and the results are highly similar. Because average working hours do not reflect the true magnitude of overwork, as a simultaneous increase in those working shorter hours could offset an increase in overwork (Jacobs and Gerson 2005), we prefer using the percentage of men working more than 50 hours as the measure of overwork. We also included women's overwork in our analysis, but unlike men's working hours, women's working hours are not associated with gender attitudes. This supports previous findings that husbands' long working hours (but not wives') predict married respondents' exits from the labor force (Cha 2010). We do not include women's overwork in our presentation.

[5]We estimated quadratic terms for the other structural variables in separate models; none were significant.

Table 1: Cross-Classified by Birth Cohort and Survey Year of the GSS (1977-2016)(N = 45,125)

Birth Cohort (J)	Survey Year (K)																				Total
	1977	1985	1986	1988	1989	1990	1991	1993	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016	Total
The Greatest Generation I, 1900-09	178	100	91	61	55	51	43	29	49	32	12	0	0	0	0	0	0	0	0	0	701
The Greatest Generation II, 1910-18	180	145	127	139	115	118	114	98	159	103	101	102	60	33	40	0	0	0	0	0	1,634
The Greatest Generation III, 1919-27	239	203	182	177	177	144	153	157	262	205	209	185	155	115	173	77	70	47	38	22	2,990
The Silent Generation I, 1928-33	145	113	93	97	97	90	105	98	171	157	157	146	166	114	193	90	73	62	61	68	2,296
The Silent Generation II, 1934-39	160	137	108	91	131	87	97	115	214	182	166	166	178	168	256	111	88	100	132	127	2,814
The Silent Generation III, 1940-45	188	138	156	134	149	119	126	140	300	261	225	192	194	231	328	141	162	128	150	143	3,605
Baby Boomers I, 1946-51	207	192	191	199	186	170	189	203	368	346	304	296	286	271	446	195	205	191	217	257	4,919
Baby Boomers II, 1952-58	223	264	266	223	250	250	268	291	474	465	430	453	371	408	638	286	255	223	338	367	6,743
Baby Boomers III, 1959-64	3	186	189	215	208	174	203	202	468	424	438	387	324	365	573	243	223	222	301	344	5,692
Generation X I, 1965-69	0	49	60	138	134	128	148	157	298	312	306	294	311	270	467	171	191	163	189	239	4,025
Generation X II, 1970-74	0	0	0	3	31	41	68	106	187	293	275	268	270	287	461	208	171	192	228	219	3,308
Generation X III, 1975-80	0	0	0	0	0	0	0	5	36	118	205	269	335	328	479	203	228	228	279	278	2,991
Millennials I, 1981-87	0	0	0	0	0	0	0	0	0	0	0	51	101	213	419	223	263	243	331	368	2,212
Millennials II, 1988-93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	65	112	158	208	282	844
Millennials III, 1994-98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	57	143	212
Year Total	1,523	1,527	1,463	1,477	1,533	1,372	1,514	1,601	2,986	2,898	2,828	2,809	2,751	2,803	4,492	2,013	2,041	1,969	2,529	2,857	44,986

The model has two components: the "within-cell" and "between-cell." The "within-cell," or individual model, can be expressed as the following:

$$Y_{ijk} = \pi_{0jk} + \pi_{1jk}Age_{ijk} + \sum \pi_{mjk}GenRace_{ijk} + \sum \pi_{pjk}Structure_{ijk}$$
$$+ \sum \pi_{qjk}FLP_{ijk} + \sum \pi_{sjk}Ideo_{ijk} + \varepsilon_{ijk} \tag{1}$$

where Y_{ijk} is the gender attitude score for individual i in birth cohort j and survey year k, π_{0jk} is the intercept, and π_{1jk}, π_{mjk}, π_{pjk}, π_{qjk}, and π_{sjk} are coefficients for individual-level predictors: age, gender and race, social structure (education, parental education, family structure, family income, and religious affiliation and attendance), female labor force participation (full-time employment and occupation), and ideology (political conservatism and liberal rights ideology). ε_{ijk} represents the individual-level residual.

Individual attitudes vary by cohort and historical period. We specify the "between-cell" model as random effects. The intercept π_{0jk} in equation (1) is expressed as:

$$\pi_{0jk} = \theta_0 + \sigma_0 + \lambda_0 \tag{2}$$

where θ_0 is the model intercept, and σ_0 and λ_0 are residuals or random effects of cohort and survey year, respectively.

In additional models, we add labor force equality, GDP growth rate, and men's overwork to the between-cell model to reduce the survey year residual λ_0. The year-level measures are centered around the grand mean.

$$\pi_{0jk} = \theta_0 + \theta_{01}Equality + \theta_{02}GDP + \theta_{03}MWork + \sigma_0 + \lambda_0 \tag{3}$$

All other regression coefficients in equation (1) are expressed as:

$$\pi_{pjk} = \theta_p \tag{4}$$

where $p = 1, 2, \ldots$, and θ_p is the coefficient for each individual-level variable. We estimate these models using HLM 7.0 (Raudenbush and Bryk 2002).

ANALYSIS

Our analysis proceeds in three steps. We first graph patterns in gender attitudes by period, generation/cohort, and age. Then we estimate APC models to unravel the influence of age, period, cohort, and micro- and macro-level variables on gender attitudes. Finally, we graph changes in the period and cohort random effects to illustrate the correlations between the three structural variables and unexplained period effects.

Generation and Period Variations in Gender Attitudes

The trajectory of gender attitudes shows both period- and cohort-related changes. The left panel of Figure 1 shows that gender egalitarianism peaks in the mid-1990s, declines until 2000 (2006 for Generation X), and then rebounds. This stagnation of gender egalitarianism is universal across all generations. The two youngest generations (X and Millennials) do not continue the liberal generational trend, registering similar attitudes as the Boomers; given that they are decades younger than the Boomers, this suggests that they likely have more conservative attitudes than the Boomers. Because people tend to become more traditional as they age, it is possible that the two youngest generations will be less egalitarian than the Boomers in older age, as an upward period effect as large as that of the 1970s and 1980s is unlikely.

Generation and Age Variations in Gender Attitudes

Attitudinal changes can also result from the aging process. The right panel in Figure 1 illustrates that gender attitudes change little with age, except for two generations whose attitudes experience upward movement in their twenties for the Boomers and late thirties for the Silent Generation. Although the two youngest generations start with more egalitarian attitudes than the Boomers in their teens and early twenties, all three generations are at the same level because the Boomers' attitudes liberalize sharply in their twenties. The size of the gaps between the three older generations is consistent over time. The absence of visible change with age should not be interpreted as minimal age-based change; rather, an upward historical pattern can cancel out a downward life-course pattern. Since descriptive analyses cannot disentangle the joint effects of aging, period, and cohort, we need to use statistical models to unravel these influences.

Variations in Gender Attitudes by Macro-Level Predictors

Figure 2 displays historical trends in gender attitudes and the three macro-level predictors: gender equality in the labor force, GDP growth rate, and men's overwork. Labor force gender equality rises steadily from the late 1970s to 2000, then reverses direction. Gender attitudes track very closely with labor force equality until the mid-1990s, after which the trend lines follow an inverse course. The second panel suggests a moderately negative relationship between GDP growth and gender attitudes over time. The GDP growth rate mostly declines over the period of rising egalitarianism from 1977 to the mid-1990s, rises during the conservative gender attitude downturn, and falls again (with some rebounds) as gender egalitarianism rises after the early 2000s. The third panel suggests an inverse relationship between men's overwork and gender attitudes during and after the conservative downturn; men's overwork increases substantially during the mid-1990s to early 2000s and then reverses direction around the same time when egalitarianism begins to rise.
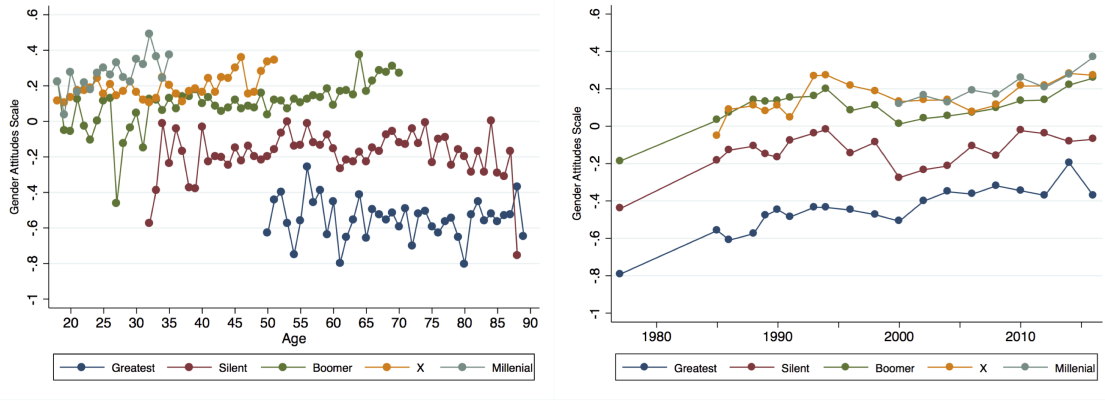
Figure 1: Change in the Gender Attitudes Scale with Survey Year and Age, by Generations (Greatest Generation 1900–1927, Silent Generation 1928–1945, Baby Boomers 1946–1964, Generation X 1965–1980, and Millennials 1981–)

Cohort and Period Effects in Cross-Classified APC Models

A series of multilevel cross-classified APC models estimate the effects of cohort, period, age, and micro- and macro-level predictors of gender attitudes in Table 2. In model A, we include cohort and period as random effects at column and row level, respectively, and age at the individual level. Model B adds gender, race, marital and parental status, education, religious affiliation, and men's employment. Model C adds individual-level measures of women's labor force participation. Model D adds political ideology. Models E through G add three macro-level predictors: gender equality in the labor force (model E), GDP growth rate (model F), and men's overwork (model G).

Age is negatively associated with gender egalitarianism in model A. The variance components indicate that most attitudinal variation (92.7 percent) occurs at the individual level, with period and cohort accounting for just 4.2 percent and 3.1 percent, respectively. Model B adds social structural variables and explains 12 percent of the individual-level variance, 24.2 percent of period-level variance, and 53 percent of the cohort-level variance. The addition of women's labor force participation measures in model C explains 13.3 percent, 24.1 percent, and 58 percent of the individual-, period-, and cohort-level variance, respectively. Ideological measures in model D push the percentage of explainedfor variance to 31.6 percent in period and 77.5 percent in cohort. Thus, a great majority of the cohort variance results from cohorts' different locations in the social structure, patterns of women's labor force participation, and ideological orientations. Historical changes in these population-level characteristics explain a smaller share of attitudinal changes, accounting for less than a third (31.6 percent) of the period effects.
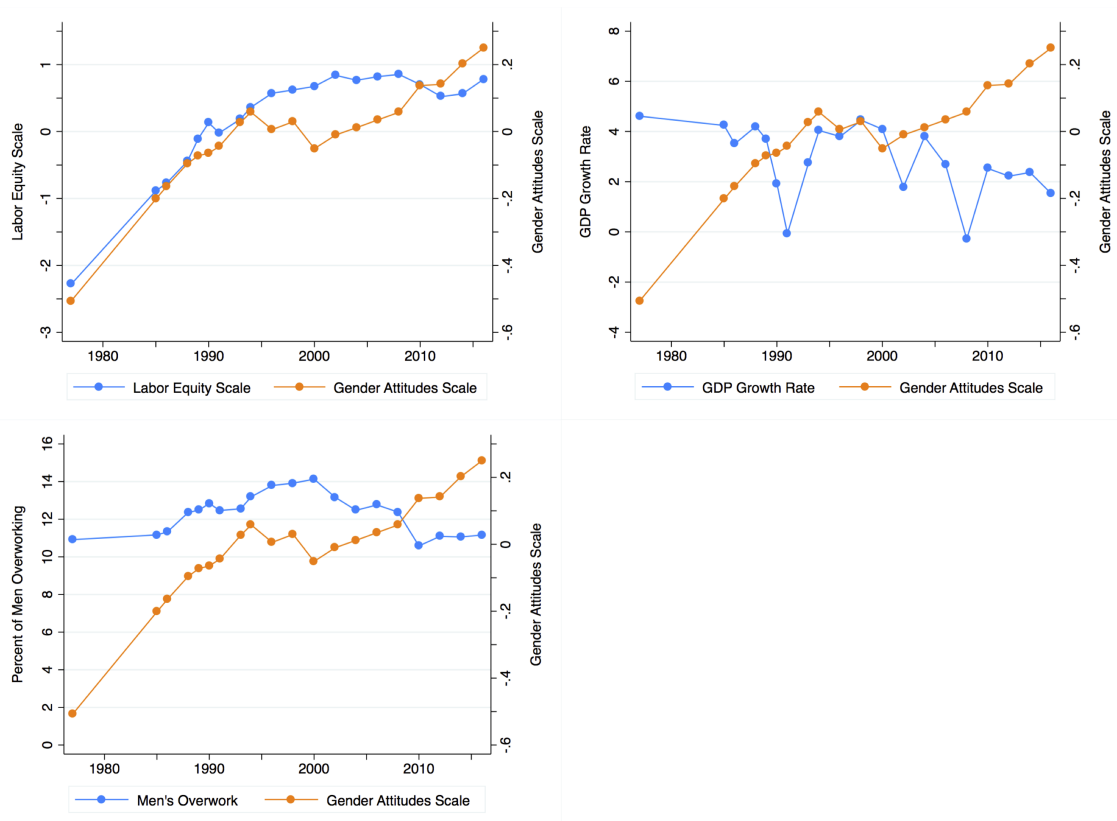
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Figure 2: Historical Changes in Gender Attitudes by Labor Force Gender Equality, GDP Growth, and Men's Overwork

Models E through G add macro-level predictors, which account for increasing percentages of the period-level variance. In model E, the addition of labor force gender equality accounts for 75.4 percent of the period-level variance, an increase of 44 percent. Labor force gender equality is positively associated with gender attitudes ($p < 0.001$). This is consistent with Structural Equality Hypothesis A that progress toward gender equality in the labor force is associated with egalitarian gender attitudes.

Model F adds GDP growth rate, which is not significant at $p < 0.05$. This does not support Wealth Indulgence Hypothesis A that times of economic prosperity are periods of reduced gender egalitarianism.

Table 2: Coefficients for Multilevel Cross-Classified Models of Gender Role Attitudes, with Cohort and Survey Year as Random Effects (the General Social Survey 1977-2016)

	Model A Coef.	Model A S.E.	Model B Coef.	Model B S.E.	Model C Coef.	Model C S.E.	Model D Coef.	Model D S.E.	Model E Coef.	Model E S.E.	Model F Coef.	Model F S.E.	Model G Coef.	Model G S.E.
Intercept	0.266 ***	0.07	-0.535 ***	0.08	-0.351 ***	0.08	-0.210 **	0.07	-0.197 **	0.07	-0.196 **	0.07	-0.187 **	0.07
Year-Level Variables														
Labor Force Gender Equality									0.108 ***	0.02	0.094 ***	0.02	0.146 ***	0.02
GDP Growth Rate											-0.011	0.01	0.004	0.01
Men's Overwork													0.411 *	0.19
Men's Overwork*Men's Overwork													-0.019 **	0.01
Individual-Level Variables														
Age	-0.007 ***	0.00	-0.005 **	0.00	-0.009 ***	0.00	-0.008 ***	0.00	-0.008 ***	0.00	-0.008 ***	0.00	-0.009 ***	0.00
(Age*Age)/100	-0.001	0.00	-0.001	0.00	-0.001 *	0.00	0.003 **	0.00	0.004 **	0.00	0.004 **	0.00	0.004 **	0.00
Male			-0.240 ***	0.01	-0.196 ***	0.01	-0.191 ***	0.01	-0.191 ***	0.01	-0.191 ***	0.01	-0.191 ***	0.01
Race														
Non-Hispanic White †														
Non-Hispanic Black			0.053 **	0.02	0.045 **	0.02	0.042 **	0.02	0.041 **	0.02	0.041 **	0.02	0.041 **	0.02
Asian			-0.254 ***	0.03	-0.252 ***	0.03	-0.223 ***	0.03	-0.224 ***	0.03	-0.224 ***	0.03	-0.224 ***	0.03
Hispanic			-0.102 ***	0.02	-0.103 ***	0.02	-0.111 ***	0.02	-0.112 ***	0.02	-0.112 ***	0.02	-0.114 ***	0.02
Marital and Parental Status														
Married with Children †														
Married with No Children			-0.081 ***	0.02	-0.072 **	0.02	-0.066 ***	0.02	-0.066 ***	0.02	-0.066 ***	0.02	-0.066 ***	0.02
Not Married with Children			0.119 ***	0.02	0.150 **	0.02	0.111 ***	0.02	0.111 ***	0.02	0.111 ***	0.02	0.111 ***	0.02
Not Married with No Children			-0.019	0.02	0.028	0.02	0.004	0.02	0.003	0.02	0.003	0.02	0.003	0.02
Number of Children in Household														
Below 6 Years Old			-0.058 ***	0.01	-0.042 ***	0.01	-0.031 ***	0.01	-0.031 ***	0.01	-0.031 ***	0.01	-0.031 ***	0.01
6-12 Years Old			-0.038 ***	0.01	-0.030 ***	0.01	-0.023 **	0.01	-0.023 **	0.01	-0.023 **	0.01	-0.023 **	0.01
13-17 Years Old			-0.043 ***	0.01	-0.040 ***	0.01	-0.030 **	0.01	-0.030 **	0.01	-0.030 **	0.01	-0.030 **	0.01
Education			0.035 ***	0.00	0.030 ***	0.00	0.020 ***	0.00	0.020 ***	0.00	0.020 ***	0.00	0.020 ***	0.00
Wife Has More Education			0.072 ***	0.01	0.055 ***	0.01	0.050 ***	0.01	0.050 ***	0.01	0.050 ***	0.01	0.050 ***	0.01
Mother's Education			0.011 ***	0.00	0.011 ***	0.00	0.009 ***	0.00	0.009 ***	0.00	0.009 ***	0.00	0.009 ***	0.00
Father's Education			0.002	0.00	0.002	0.00	0.001	0.00	0.001	0.00	0.001	0.00	0.001	0.00
Religious Affiliation														
Mainline Protestant †														
Evangelical			-0.150 ***	0.01	-0.148 ***	0.01	-0.079 ***	0.01	-0.079 ***	0.01	-0.079 ***	0.01	-0.079 ***	0.01
Baptist			0.009	0.02	0.009	0.02	0.008	0.02	0.008	0.02	0.008	0.02	0.008	0.02
Catholic			-0.008	0.01	-0.005	0.01	-0.022 *	0.01	-0.022 *	0.01	-0.022 *	0.01	-0.022 *	0.01
Jewish			0.087 ***	0.03	0.094 ***	0.03	0.021	0.03	0.021	0.03	0.021	0.03	0.021	0.03
Other Faith			-0.136 ***	0.02	-0.124 ***	0.02	-0.110 ***	0.02	-0.110 ***	0.02	-0.110 ***	0.02	-0.110 ***	0.02
Nonaffiliated			0.007	0.01	0.010	0.01	-0.024 *	0.01	-0.024 *	0.01	-0.024 *	0.01	-0.025 *	0.01
Religious Attendance			-0.032 ***	0.00	-0.032 ***	0.00	-0.014 ***	0.00	-0.014 ***	0.00	-0.014 ***	0.00	-0.014 ***	0.00
Family Income (Logged Constant Dollars)			0.048 ***	0.00	0.029 ***	0.00	0.021 ***	0.00	0.021 ***	0.00	0.021 ***	0.00	0.021 ***	0.00
Man is Manager/Professional			0.003	0.01	0.023 *	0.01	0.020 *	0.01	0.020 *	0.01	0.020 *	0.01	0.020 *	0.01
Man's Working Hours			-0.001 ***	0.00	-0.000 *	0.00	-0.000	0.00	-0.000	0.00	-0.000	0.00	-0.000	0.00
Woman's Working Hours					0.003 ***	0.00	0.002 ***	0.00	0.002 ***	0.00	0.002 ***	0.00	0.002 ***	0.00
Woman Working Full-Time					0.067 ***	0.02	0.067 ***	0.02	0.067 ***	0.02	0.067 ***	0.02	0.067 ***	0.02
Woman is Manager/Professional					0.051 ***	0.01	0.044 ***	0.01	0.044 ***	0.01	0.044 ***	0.01	0.043 ***	0.01
Liberal Rights Ideology							0.205 ***	0.01	0.205 ***	0.01	0.205 ***	0.01	0.205 ***	0.01
Political Conservatism							-0.066 ***	0.00	-0.066 ***	0.00	-0.066 ***	0.00	-0.066 ***	0.00
Missing Data Controls														
Mother's Education Missing			0.125 ***	0.02	0.124 ***	0.02	0.100 ***	0.02	0.099 ***	0.02	0.099 ***	0.02	0.098 ***	0.02
Father's Education Missing			0.065 ***	0.02	0.065 ***	0.02	0.047 **	0.01	0.047 **	0.01	0.047 **	0.01	0.047 **	0.01

For Model A: Prop. Variance of Total. For Models B-G: Prop. Variance Accounted for Relative to Model A.

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Period	0.042	0.242	0.241	0.316	0.754	0.768	0.915
Cohort	0.031	0.530	0.580	0.775	0.804	0.804	0.813
Individual	0.927	0.120	0.133	0.190	0.189	0.189	0.189
Total	1.000	0.138	0.151	0.213	0.232	0.233	0.240
Deviance	60383.9	56647.2	56225.2	54243.1	54222.8	54221.7	54203.3

* P < .05 (two-tailed test), ** P < .01 (two-tailed test), and *** p < .001 (two-tailed test).

The addition of men's overwork (as a linear and quadratic term) in model G increases the explained period-level variance to 91.5 percent, an additional 14.7 percent over previous models. Both the linear and quadratic terms for overwork are significant, showing that overwork has a curvilinear relationship with gender attitudes. When the percent of men overworking is low, overwork has a flat to weakly positive relationship, primarily due to the positive change in gender attitudes in 2014 and 2016. When men's overwork exceeds 12 percent, however, the relationship is negative and becomes exponentially more negative as overwork increases. This is consistent with our Overwork Hypothesis A that when greater numbers of men overwork, gender attitudes are more traditional. Furthermore, it suggests a threshold effect for overwork: when the percent of overworking men exceeds 12 percent, gender attitudes trend rapidly in a less egalitarian direction.

We test an additional model with measures of women's overwork at each of the survey years to see if women's overwork shows a similar macro-level effect. Alternatively, the macro-level effect of men's overwork could be explained by corresponding changes in women's overwork. However, results do not support either of these possibilities. In a model with both men's and women's aggregate overwork, men's overwork remains significant while women's overwork is not. (These results are available by request.) Changes in men's overwork, not women's, help explain historical patterns in Americans' gender attitudes. This aligns with previous findings that husbands' overwork (but not wives') predicts married respondents' exits from the labor force (Cha 2010).

Figures 3 and 4 display the cohort and period random effects from models A–G. These figures are based on a single scale, so we can evaluate changes in variance size by the height of the bars. Graphs on the left are cohort effects, while those on the right are period effects. In model A, the first eight cohorts display a successive pattern of rising gender egalitarianism, growing from large negative effects to large positive effects, but these positive effects decline among the youngest Boomers and become smaller in each of the younger cohorts. Model B, with gender, race, and men's employment and familial measures included, reduces these cohort effects substantially, but the general pattern of moving from negative to positive effects among the older cohorts and declining to negative effects among the youngest cohort persists. In models C and D, cohort effects are further diminished, with only 22.5 percent of remaining between-cohort variance unexplained.
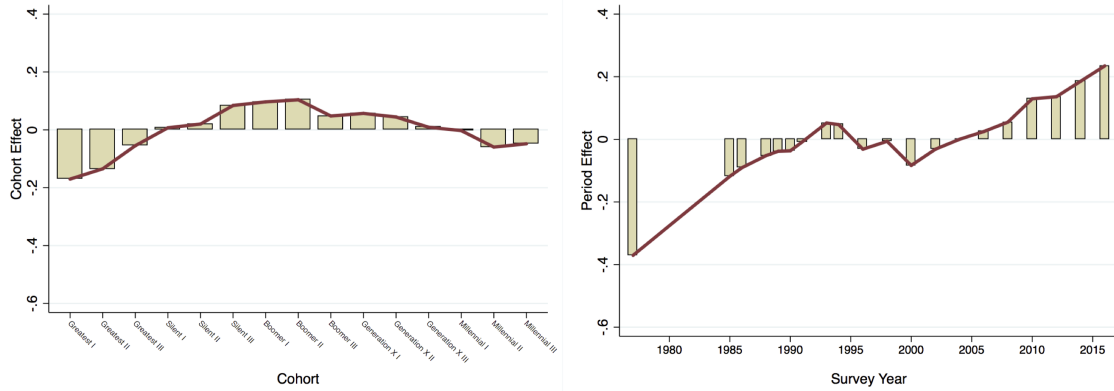
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Model A: Cohort, Survey Year, and Age
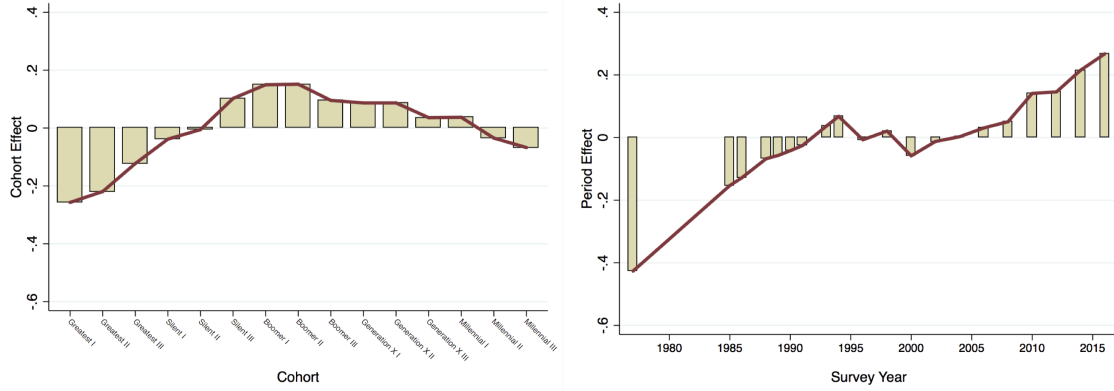
Model B: Model A + Social Structure (explaining 53% in cohort variance and 24% in period variance)
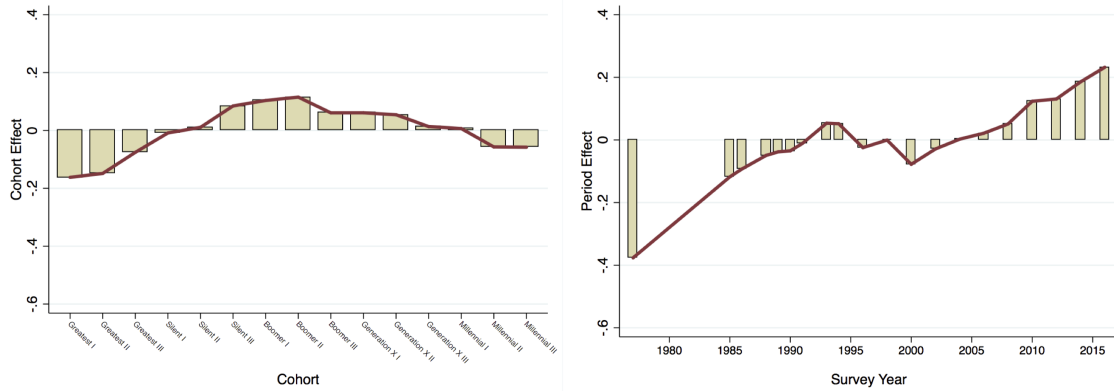
Model C: Model B + Female Labor Force Participation (explaining 58% in cohort variance and 24% in period variance)

Model D: Model C + Ideology (explaining 78% in cohort variance and 32% in period variance)
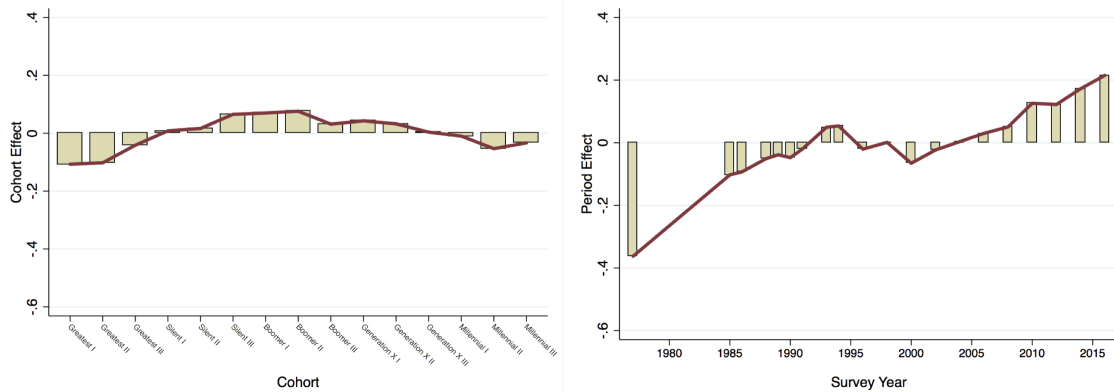
Figure 3: Cohort and Period Effects Estimated by Four APC Models with the Percentage of Accounted-for Variance in Cohort and Period Effects

The reduction in period variance is less dramatic. In the right column of model A, gender attitudes follow a liberal trend and peak in 1993–1994, decline until 2000, and then rebound. With additional demographic variables included in models B and C, the same pattern persists. In model D, where 31.6 percent of the variance in the period is accounted for, the net period effects again follow this pattern.

The remaining period effect is largely associated with macro-historical changes. Figure 4 shows the reduction in period variance after considering labor force gender equality, GDP growth, and men's overwork. Adding labor force gender equality in model E accounts for an additional 43.8 percent of the period variance. The top graph shows that labor force gender equality accounts for most of the period variations prior to the 1990s, affirming our Structural Equality Hypothesis A that gender equality in the labor force leads to rising gender egalitarianism. However, the decade of 1994–2004 has gender attitudes too conservative to be congruent with conditions of labor force gender equality, and gender egalitarianism rises in 2010–2014 despite stagnating gender equality in the labor force. This offers little support for Structural Equality Hypothesis B, that the mid-1990s conservative turn in gender egalitarianism is associated with stagnating labor force gender equality. The timing is not right.

Model F adds GDP growth rate, which reduces an additional 1.4 percent of period-level variance. GDP growth rates reduce some of the negative period effect in 1994–2004 and the positive period effect in 2010–2016, but the coefficient is not statistically significant. This is inconsistent with our wealth indulgence hypothesis A, that high economic growth is associated with less gender egalitarianism. Sizeable variance in the period effects remains. Model G incorporates men's overwork and accounts for a large share (92 percent) of the period-level variance. The reduction is so dramatic that only around 8 percent of period variation remains unaccounted for. This lends support for Wealth Indulgence Hypothesis A, that gender attitudes are less liberal when more men overwork. In particular, the negative period effects in 1994–2004 are drastically reduced from the previous model, indicating the strong explanatory power of men's overwork on this negative period effect. This lends convincing support for Overwork Hypothesis B, that during the decade of 1994–2004, gender attitudes were less egalitarian when more men overworked. The enlargement and contraction in men's overwork preceded the decline and later rebound of gender egalitarianism, fitting a perfect time-order requirement.

Figure 5 illustrates historical patterns in labor force gender equality, GDP growth, and men's overwork after controlling for individual characteristics. The left graph in panel A shows that both labor force gender equality and gender egalitarianism grow at a similar pace in the late 1970s, 1980s, and early 1990s. Then gender attitudes plummet while gender equality in the labor force continues to grow (although at a slower pace) until 2000[6] when labor force equality deteriorates gradually but continuously. Although labor
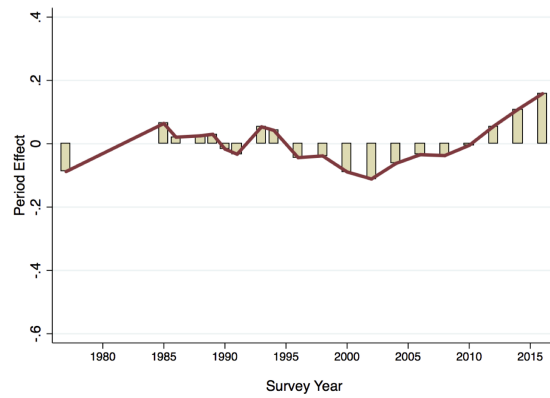
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[6]It is marked as 2001 in the graph as we lagged the variable using the measure from previous year, which is 2000.

Model E: Model D + Labor Force Gender Equality (explaining 75% in period variance
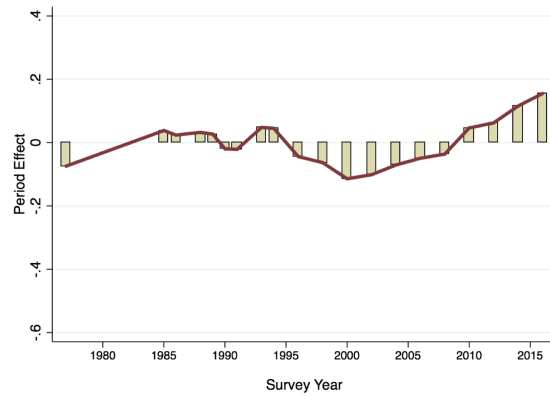
Model F: Model E + GDP Growth Rate (explaining 77% in period variance)

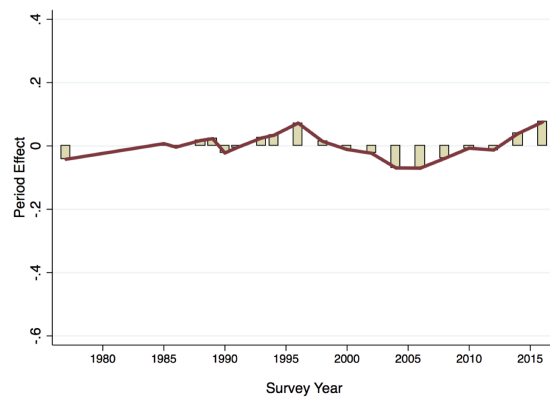Model G: Model F + Men's Overwork (explaining 92% in period variance

Figure 4: Reduction to Period Variance by Macro-level Predictors: Labor Force Gender Equality, GDP Growth Rate, and Men's Overwork

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force gender equality appears to move in sync with gender attitudes for two decades and accounts for a large portion of the historical variation, it cannot explain the decline in egalitarian attitudes from 1994 to 2000 or the rise since 2000. The right graph in panel A demonstrates that labor force gender equality and period effects in gender attitudes are strongly connected, with an R^2 of 0.64, and all the survey years are closely distributed around the regression line. These results affirm Structural Equality Hypothesis A but not B: during 1977–2016, there is an overall positive correlation between labor force gender equality and gender egalitarianism, but this factor cannot drive the mid-1990s decline in gender egalitarianism; the stagnation of labor force gender equality trails the attitudinal downturn rather than leading it.

Panel B shows the relationship between GDP growth and net historical changes in gender attitudes, controlling for individual characteristics and labor force gender equality. The left figure shows that GDP growth and gender attitudes change hand-in-hand in two ways. First, the dip in gender attitudes in the later 1990s correlates with a contemporaneous rise in the GDP growth rate. Second, the rise in gender egalitarianism since 2000 appears to be synchronized with a decline in GDP growth, despite a recovery from the 2008 financial crisis. The growth rates in the 2010s are still relatively low for the period studied, and they do not shift attitudes toward a conservative direction. The graph on the right shows a negative association, with years of higher GDP growth rates being less egalitarian. The R^2 of this relationship is small at 0.035 and is not statistically significant. These results show no support for either Wealth Indulgence Hypotheses A or B. There is no significant association between GDP growth and gender egalitarianism; strong economic growth during the mid-1990s is not correlated with the contemporaneous decline in gender egalitarianism.

Panel C shows the correlation between men's overwork and gender attitudes, net other predictors. The left graph shows a close relationship between cyclical changes in the percent of men overworking and the remaining variance in historical gender attitudes. A sharp rise in men's overwork precedes a decline in gender egalitarianism starting in 1994. As men's overwork peaks in 2000 and slowly declines over the next decade, gender attitudes follow an inverse trajectory. The inverse relationship between men's overwork and gender attitudes appears to end around 2010, when reduction in men's overwork stagnates around 11 percent and started to rebound while gender egalitarianism continues to rise. The right graph shows two segments of change in men's overwork and gender attitudes. The first is a small, positive linear correlation at the lower end of overwork, largely driven by the egalitarian attitudes in 2014 and 2016. The second is a large, negative quadratic correlation between men's overwork and gender attitudes beyond the lower-middle level of overwork, with the R^2 at 0.451. The results lend support for both Overwork Hypotheses A and B: there is a net historical association between men's overwork and declining gender egalitarianism, and the mid-1990s "stalled revolution" is associated with the rise of men's overwork in this period.

Panel A: Historical Pattern in Labor Force Gender Equality and Gender Attitudes
(Period effects from Model D, controlled for individual characteristics)

Panel B: Historical Pattern in GDP Growth Rate and Gender Attitudes
(Period effects from Model E, controlled for individual characteristics and labor force gender equality)

Panel C: Historical Pattern in Men's Overwork and Gender Attitudes
(Period effects from Model F, controlled for individual characteristics, labor force gender equality, and GDP Growth)
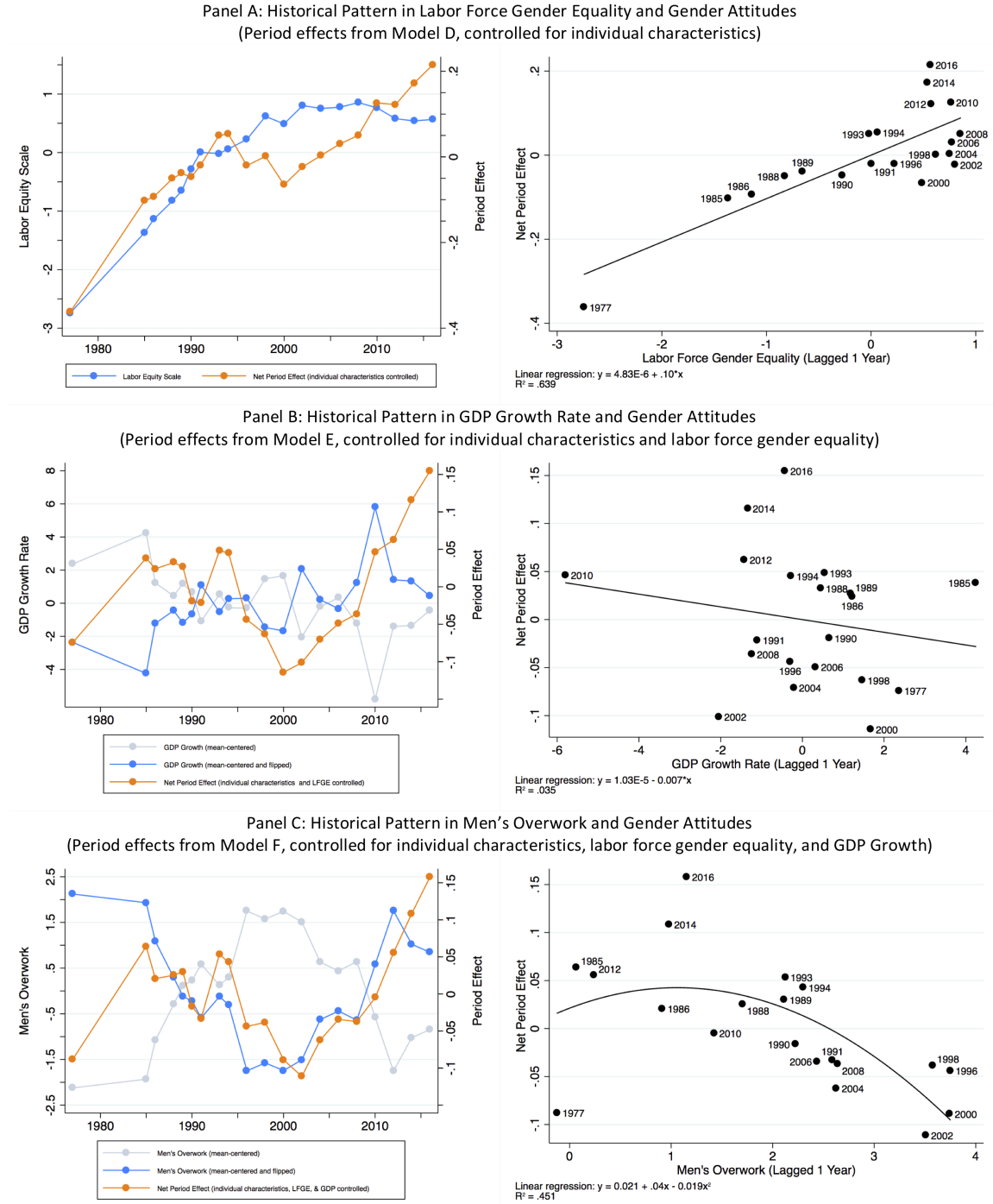
Figure 5: Historical Patterns of Labor Force Gender Equality, GDP Growth Rate, and Men's Overwork with Period Effects (Variation by Survey Years) in Gender Attitudes, with Individual Characteristics Controlled

CONCLUSION

The historical trajectory of American gender attitudes forms a curious pattern: gender egalitarianism rose steeply from the 1970s to the mid-1990s, but declined until the early 2000s, and then resumed the upward trend. The period of 1994–2004 thus constitutes a "lost" decade in a largely upward movement toward gender egalitarianism. Cotter, Hermsen, and Vanneman (2011), analyzing GSS data from 1977 to 2008, wondered if we had reached the "end of the gender revolution" in the United States. Our analysis of the four more recent waves of GSS data suggests that the gender revolution has not ended, but this "restart" advances much more gradually than it did in the first few decades. Gender egalitarianism recently surpassed pre-1994 levels and has continued to climb at a moderate pace. However, the conservative swing in the 1990s represents a puzzle in American gender scholarship and indicates that rising egalitarianism may not be continuous and can be interrupted.

Although the vast majority of variance in gender attitudes over the study period occurs at the individual level, individual-level effects do not explain the stagnation of gender attitudes in the 1990s or their subsequent rise. Therefore, we examine whether cohort and period effects are related to this puzzling period effect despite their modest overall influence. Although cohort replacement is largely responsible for the rise in egalitarian attitudes prior to the mid-1990s (Brewster and Padavic 2000; Mason and Lu 1988), it fails to explain much of the conservative swing or subsequent rebound. Cohort-based attitudinal changes largely result from cohort transitions in individual characteristics; between-cohort transitions in individual education, demographic characteristics, marriage and family arrangements, employment, income, and ideological orientations account for 77.5 percent of the cohort variation in gender attitudes. More recent cohorts have higher levels of education and generally express more liberal attitudes about civil rights and social issues, which helps explain cohort attitudinal differences. The larger number of respondents in younger cohorts reporting nontraditional family arrangements and female employment also helps explain variation across cohorts. The process of population metabolism, in which younger cohorts with different characteristics replace older cohorts, is the primary source of cohort-based transformations in gender attitudes.

However, cohort replacement is unlikely to produce substantial gains in gender egalitarianism in the coming years, and it may even precipitate another conservative swing. The two youngest generations (X and Millennials) report similar attitudes to the Boomer generation despite substantial age differences, ending the liberal generational trend. Given that individuals tend to become more conservative as they age, it is likely that the ongoing process of cohort replacement will slow or reverse the current egalitarian trend in future decades.

Individual characteristics account for a much smaller percentage (around 32 percent) of the period variation than the cohort variation. The source of the remaining period variation has led to some disagreement in the literature. Scholars have variously argued that period

effects might be due to women's education, labor force participation, or feminist discourse (Ciabattari 2001), to the rise of a new "egalitarian but traditional" cultural frame (Cotter, Hermsen, and Vanneman 2011), or to other ideological changes (Brooks and Bolzendahl 2004). Yet none of these studies attempts to directly test the link between these historical transitions and attitudinal changes.

Our analyses present strong empirical support for the association between two historical forces and period variations in gender attitudes. Historical changes in labor force gender equality account for 43.8 percent of the period variance, and men's overwork accounts for 14.7 percent. Broad labor market conditions and economic climate are responsible for 60 percent of the period variation in gender attitudes, while individual characteristics account for 30 percent. We conclude that labor force gender equality and patterns of overwork are strongly linked to historical transformations in gender attitudes. These societal-level influences have impacted the entire population regardless of their personal characteristics.

Gender equality in the labor force is most strongly associated with historical patterns in gender attitudes in the late 1970s to the early 1990s. However, changes in labor force equality do not correlate with the downward trend in the 1990s or even its reversal after 2000. The GDP growth rate accounts for a small and statistically insignificant share of the historical variations in gender attitudes (1.4 percent).

The rise of overwork in the 1990s may be the key to understanding the "stalled revolution" in gender attitudes. Men's overwork accounts for 14.7 percent of the historical variation in gender attitudes, including the downward trend in the 1990s and subsequent rebound. This buttresses Overwork Hypothesis A, that gender attitudes are less egalitarian when more men work long hours. Findings also suggest a threshold effect at around 12 percent; below that, the relationship between overwork and attitudes is almost flat, but after that the relationship becomes increasingly negative as overwork increases. Expectations of long working hours may impact women in two ways: female partners of male workers often pick up the slack in caring for the home and family, and women in time-hungry professions are often perceived as less ideal workers and are often driven out of these occupations. This pressure to return to a "separate spheres" division of labor may have a broad social influence beyond the men and women directly affected by long working hours, leading more Americans to support the "male breadwinner" ideology and downgrade their expectations for women's participation in paid employment and politics.

It was not just the families who were affected by long working hours whose attitudes shifted in the mid-1990s, but all segments of the population. This gendered impact of workplace norms of overwork is not only the culprit of a persistent or even enlarging gender wage gap (Cha and Weeden 2014), but may also have been interpreted by other Americans as a sign that women are not equally capable of having successful careers. The subsequent decline in the proportion of overworking men since the mid-twenty-first century (Cha and Weeden 2014) may have weakened the gendered outcomes of workplace norms around overwork, thus precipitating an upswing in Americans' gender attitudes.

Cohort and historical transformation in gender attitudes has been an important topic

of investigation for many gender scholars. Our research contributes to this literature that explains historical changes in gender attitudes by macro-level processes of cohort replacement and period effects (Brewster and Padavic 2000; Brooks and Bolzendahl 2004; Farley 1996; Mason and Lu 1988; Rindfuss, Brewster, and Kavee 1996; Thornton, Alwin, and Camburn 1983; Wilkie 1993). Although period and cohort effects account for less than 10 percent of the total variance in gender attitudes, adding period and cohort to the models has improved the total accounted-for variance by more than one-quarter, as individual characteristics have rather modest explanatory power.

Our research indicates that historical transformations in Americans' gender attitudes are linked to macro-level changes in the labor market. Unfortunately, it is impossible from the data to establish a causal relationship between structural characteristics and individual attitudinal changes; additional longitudinal and/or cross-national data are necessary to determine the precise relationship between these macro- and micro-level processes. Indeed, it is likely that individual and structural forces were reciprocal and mutually reinforcing over this period. Our paper describes potential mechanisms by which women's labor force participation, the gender pay gap, and men's overwork can precipitate attitudinal changes by modifying household divisions of labor and reshaping expectations about women's roles and potential for achievement. However, it is also plausible that attitudinal changes preceded or coincided with household changes in response to structural changes in the labor market. Our analysis shows only the aggregate reciprocal effects between structural characteristics and gender attitudes, and it cannot establish the causal order of these influences. Understanding the direction and magnitude of these influences will require additional data and remains an important area for future research.

Our research identifies two structural forces related to historical transformations in American gender attitudes: gender equality in the labor force and the rise of overwork. Both factors account for a significant proportion of the period variation in gender attitudes in our analysis, and historical patterns in men's overwork correlate with the "stalled revolution" in gender egalitarianism in the 1990s and its "restart" in the mid-2000s (Cotter, Hermsen, and Vanneman 2011, 2014). New cultural frames, such as the "egalitarian essentialist" ideology that envisions "separate but equal" roles for men and women, may indeed characterize recent trends in American gender attitudes, and our research has identified the structural opportunities and constraints in which these cultural trends are rooted.

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APPENDIX A: VALIDATION OF GENDER ATTITUDES MEASURE

In light of recent research demonstrating the multidimensionality of gender attitudes (Charles and Grusky 2004; Cotter et al. 2011), we test an alternative specification with separate models for the horizontal and vertical dimensions of gender attitudes. The horizontal dimension, sometimes called the "separate spheres" or "gender essentialist" ideology, captures the extent to which people believe men and women should occupy different public and private roles due to perceptions of their fundamental difference (Davis and Greenstein 2009). The vertical dimension, often called the "male primacy" ideology, depicts the extent to which people believe men should occupy higher-status positions in society. Egalitarian views about men's and women's relative status and essentialist views about their "separate spheres" can coexist among the same people; this represents a "separate but equal" gender ideology (Charles and Grusky 2004; Cotter et al. 2011). We model these two dimensions separately in order to test the robustness of our original analysis.

Three of the measures in the original scale represent horizontal dimensions of gender attitudes: "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work" (FECHLD); "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" (FEFAM); and "A preschool child is likely to suffer if his or her mother works" (FEPRESCH). In the same way that the original scale was constructed, we combine these measures into a single outcome, Gender Essentialism (Cronbach's $\alpha = 0.74$). The second outcome, Male Primacy, represents the vertical dimension of gender attitudes and is the fourth item in the original scale: "Most men are better suited emotionally for politics than are most women" (FEPOL). We replicate our original analysis for these gender attitudes separately, and the results are consistent with prior findings. (Full results are available by request.)

Graph A1 displays historical patterns in attitudes about Gender Essentialism and Male Primacy by the three macro-level predictors. The first panel reveals that historical patterns in Gender Essentialism are strikingly similar to those of the original gender attitudes scale. Gender Essentialism becomes more egalitarian from the late 1970s to the mid-1990s, experiences a conservative downturn until 2000, and then resumes its egalitarian trend. The second panel displays historical patterns in Male Primacy, which experiences more moderate changes over time. Attitudes about male primacy become moderately more egalitarian until the mid-1990s, then decline slightly until the mid-2000s, and then reverse direction again. These graphs suggest that attitudes about gender essentialism experience more dramatic shifts than attitudes about male primacy over the same period, but the direction of change on both attitudes is consistent.

We estimate a series of multilevel cross-classified APC models for attitudes about Gender Essentialism and Male Primacy using the same nested model approach as in Table 2. Model coefficients for the macro-level predictors are in Table A1. The results from the models of Gender Essentialist attitudes are consistent with the main analysis; the

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same macro-level coefficients are significant and are approximately the same magnitude and direction as the coefficients in the main analysis. The models of attitudes about Male Primacy diverge somewhat from the main analysis; men's overwork is no longer significant. However, the direction of all coefficients is consistent with the main findings. All models include the same set of control variables as the original analysis, and the coefficients for the individual-level variables are consistent with those in the original analysis. (Full results are available by request.)

Overall, the findings lend support for the use of a single measure for gender attitudes and validate the findings from our original models. Differences in attitudes about Male Primacy and Gender Essentialism may be an interesting subject for further research, but for this study we use a single gender attitudes scale to contribute to the robust literature examining historical variations in this measure (Brewster and Padavic 2000; Cotter et al. 2011; Mason and Lu 1988).

Table A1: Coefficients for Structural Variables in Cross-Classified Random APC Models (GSS 1977-2016)

	Model E			Model F			Model G		
	Coef.		S.E.	Coef.		S.E.	Coef.		S.E.
Gender Essentialism as Dependent Variable									
Labor Force Gender Equality	0.105	***	0.02	0.087	**	0.03	0.152	***	0.02
GDP Growth Rate				-0.014		0.01	0.005		0.01
Men's Overwork							0.484	*	0.21
Men's Overwork*Men's Overwork							-0.023	**	0.01
Male Primacy as Dependent Variable									
Labor Force Gender Equality	0.059	***	0.01	0.056	***	0.01	0.061	***	0.01
GDP Growth Rate				-0.002		0	-0.001		0
Men's Overwork							0.048		0.12
Men's Overwork*Men's Overwork							-0.002		0

Note: Models included the same set of control variables as the original
analysis in Table 2. Full results available by request.

Panel 1. Historical Patterns in Attitudes about Gender Essentialism
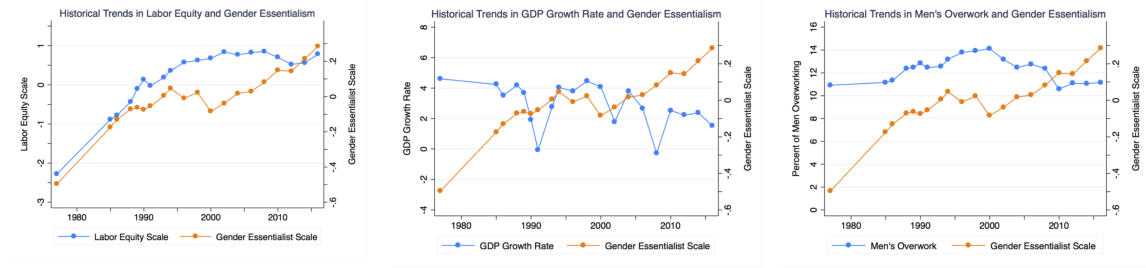
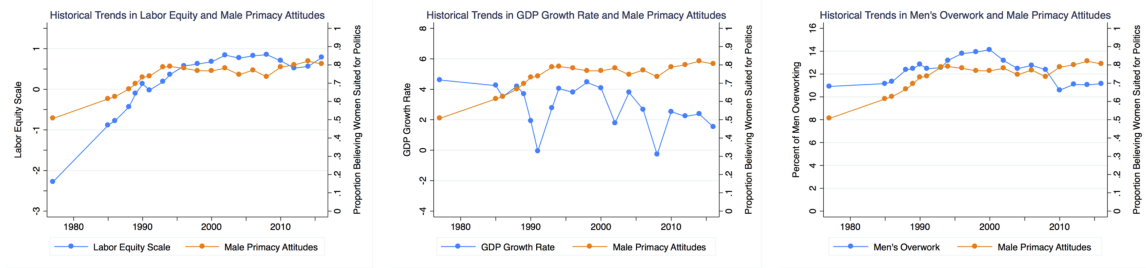Panel 2. Historical Patterns in Attitudes about Male Primacy

Figure A1: Changes in Attitudes about Gender Essentialism and Male Primacy by Labor Force Gender Equality, GDP Growth, and Men's Overwork

APPENDIX B: DESCRIPTIVE STATISTICS

Table A2: Descriptive Statistics (GSS 1977-2016, N = 45,125)

Variable	N	Missing	Mean	SD	Min	Max
Gender Attitudes						
Gender Attitudes Scale	29101	16024	-0.005	0.731	-2.042	1.541
Working Mother Establishes Secure Attachment	28822	16303	2.834	0.873	1	4
Preschool Children Suffer from Working Mother	28514	16611	2.593	0.806	1	4
Woman Should Take Care of Home and Family	28530	16595	2.7	0.858	1	4
Men Better Suited for Politics	27071	18054	1.739	0.439	1	2
Survey Year	45125	0	1999.961	9.89	1977	2016
Birth Year	44986	139	1953.432	19.454	1888	1998
Age	44986	139	46.528	17.419	18	89
Birth Cohort	44986	139	7.863	3.142	1	15
Male	45125	0	0.441	0.496	0	1
Race						
Non-Hispanic White	44420	705	0.775	0.417	0	1
Non-Hispanic Black	44420	705	0.137	0.344	0	1
Asian	44420	705	0.019	0.138	0	1
Hispanic	44420	705	0.068	0.252	0	1
Education (in years)	45007	118	13.194	3.078	0	20
Wife Has More Education	44000	1125	0.159	0.366	0	1
Mother's Education	40848	4277	10.306	4.673	0	20
Mother's Education Missing	45125	0	0.074	0.261	0	1
Father's Education	40523	4602	8.73	5.938	0	20
Father's Education Missing	45125	0	0.194	0.396	0	1
Religious Affiliation						
Mainline Protestant	43044	2081	0.178	0.383	0	1
Evangelical	43044	2081	0.264	0.441	0	1
Baptist	43044	2081	0.084	0.278	0	1
Catholic	43044	2081	0.254	0.435	0	1
Jewish	43044	2081	0.02	0.14	0	1
Other Faith	43044	2081	0.059	0.235	0	1
Nonaffiliated	43044	2081	0.14	0.347	0	1
Religious Attendance	44636	489	3.686	2.747	0	8
Marital and Parental						
Married with Children	44793	332	0.214	0.41	0	1
Married without Children	44793	332	0.279	0.448	0	1
Not Married with Children	44793	332	0.121	0.326	0	1
Not Married without Children	44793	332	0.386	0.487	0	1
Number of Children in Household						
Under 6 Years Old	44828	297	0.205	0.539	0	6
6-12 Years Old	44801	324	0.251	0.618	0	8
13-17 Years Old	44869	256	0.184	0.502	0	7
Woman's Work Hours	44926	199	16.491	20.738	0	89
Man's Work Hours	44850	275	22.411	24.569	0	89
Woman Working Full-Time	45077	48	0.331	0.47	0	1
Woman's Professional/Managerial Status	42245	2880	0.257	0.437	0	1
Man's Professional/Managerial Status	44402	723	0.225	0.418	0	1
Family Income	40185	4940	10.357	1.024	5.894	12.103
Liberal Rights Ideology	40674	4451	-0.004	0.7	-2.68	1.423
Political Conservatism	40411	4714	0.117	1.396	-3	3