

Frailty, Thy Name Is Still Woman? The Impact of Local Labor Demand Shocks On The Prevalence of Traditional Attitudes

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Abstract

This paper examines the effects of U.S. state-level labor demand changes on the prevalence of traditional attitudes toward women working outside of the home, and a woman's emotional suitability for politics. Traditional gender-role attitudes, where women are viewed as homemakers and men as breadwinners, have declined substantially over time. Although, many contributing factors have been previously studied, I examine the contribution of labor demand shifts to these attitude changes. I document that positive labor demand shocks, measured as Bartik shocks, lower the prevalence of traditional attitudes toward women working but find no statistically significant effect on traditional attitudes toward women's emotional suitability for politics. Also, despite finding no evidence of heterogeneous effects of Bartik shocks, I find suggestive evidence that own-group Bartik shocks, defined along gender and education dimensions, are possibly more relevant measures than the overall labor demand shocks, especially among men with less than a high school diploma and men with at least a baccalaureate.

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1 Introduction

Although gender inequality and the notion of “missing women” is more striking in developing countries¹, gender equality remains far from a reality in the United States (U.S.). In fact, there is an extensive body of work that studies gender differences in labor market outcomes in the U.S.². Research has shown that differences in societal expectation about appropriate roles for men and women may prescribe different choices for women versus men, including choices about schooling, work, occupation, ages of marriage and childbearing, and ultimately women’s earnings and authority both in and out of the home (Goldin, 2006; Buchmann, DiPrete, and McDaniel, 2008; Charles, Guryan, and Pan, 2018). A recent study finds that some wives try to avoid earning more than their husbands by adjusting their labor market participation when faced with such possibility (Bertrand, Kamenica, and Pan, 2015). Another study finds that in some marriages where wives end up earning more than their husbands, both spouses misrepresent their income on surveys to downplay wives’ income and exaggerate husbands’ (Murray-Close, and Heggeness, 2018).

The prevalence of traditional gender attitudes, attitudes that subscribe to traditional division of labor with men as breadwinners and women as homemakers, may affect labor market and social outcomes of women by influencing their own expectations, and the behavior of employers and schools. Examining the evolution of traditional gender attitudes and their prevalence over time is, therefore, essential to developing a deeper understanding of how these attitudes are formed.

Existing research on the determinants of attitudes toward gender roles have identified the introduction of contraceptive pills (Goldin and Katz, 2002), the AIDS epidemics (Fortin,

¹See Esther Duflo 2012 for a review of literature on gender inequality in developing countries.

²See Blau, Kahn, 2017 for a survey of literature on gender wage gap, and Bertrand, 2011 for a review of gender differences in labor market outcomes and possible contributing factors.

2015), childhood experiences and cultural backgrounds (Vella, 1994; Fernandez, Fogli, and Olivetti 2004; Farré and Vella, 2007; Fernandez and Fogli, 2009), and single-sex and co-ed schooling and college environments (Maccoby, 1990, 1998; Lee and Marks, 1990; Dasgupta and Asgari, 2004) among some of the causes of changes in attitudes toward women. I contribute to that body of work with a study of the effects of labor demand changes on attitudes.

As attitudes about the appropriateness or suitability of women for leadership positions change, women's participation in the labor force and politics have risen substantially over the past 50 years. Since 1977, the percent of women taking part in the U.S. civilian labor force has risen by 10.3 percentage points (U.S. Bureau of Labor Statistics, 2020, LNS11300002). In politics, the share of women serving in Congress grew from 3.6 percent in the 94th Congress (1975-1977) to a record high of 24.7 percent in the current 116th Congress (History, Art Archives, U.S. House of Representatives, 2020).

This large compositional change in the U.S. labor force has been mirrored in the evolution of attitudes toward the appropriate roles for women. Between 1977 and 1990, I document sharp declines of 27 and 18 percentage points in the prevalence of traditional attitudes toward women working and women's emotional suitability for politics, respectively. At the same time, a plateau in the labor market between 1990 and 2010 coincides with a plateau in traditional attitudes toward gender roles. I show that between 1990 and 2010, the prevalence of traditional attitudes toward women working and women's emotional suitability for politics dropped by 1 and 3 percentage points, respectively.

The correlation in the changes in gender-role attitudes and the increase in the percentage of women participating in the U.S. labor force, does not identify a causal effect of labor market conditions on attitudes, which is the primary objective of this paper. This paper investigates how labor demand changes, specifically between 1977 and 2016, have affected the

prevalence of traditional attitudes toward women working and women's emotional suitability for politics.

Ex ante the direction of the effects of labor demand changes on the prevalence of traditional gender attitudes is unclear. Becker (1981) argues that gender-role specialization can maximize joint household utility. Although in Becker's model women have a comparative advantage in home production and men's comparative advantage is as primary income earner, changes in labor demand as well as changes in women's educational attainments - including the returns on education investment - can alter these comparative advantages. An increase in the demand for women would be expected to reduce the comparative advantage for men in paid employment and increase the household's opportunity cost of adhering to traditional gender roles as households can materially benefit from women's outside employment. This resultant increase in opportunity cost of traditional gender-role attitudes would unambiguously move preferences toward egalitarian gender attitudes. However, there is the potentially offsetting effect of men wanting to maintain their breadwinner position and view women's paid employment as a threat (Zuo and Tang, 2000).

Nonetheless, as women continue to attain more education, offsetting their rising comparative advantage in the workforce becomes more costly. Prior to 1980, U.S. men outnumbered women in both college attendance and graduation rates. In 1960, the ratio of men to women enrolled in undergraduate programs was 1.55 and the graduation ratio was 1.60. By 1980, women had caught up with men and the gender gap in education had disappeared. Instead of slowing down after reaching undergraduate enrollment parity, women reversed the gender gap and overtook men in college graduation rates. In 2003, the ratio of women to men graduating from a four-year college in the U.S. was 1.30 (Goldin, Katz, and Kuziemko, 2006). In addition to this growing trend in educational attainment, the return to postsecondary education also rose between 1973 and 2005 (Lemieux, 2006). These trends together with

changes in labor demand can potentially increase women's household income contribution and alter the comparative advantages of men's and women's traditional roles.

To study the impacts of labor demand changes on gender attitudes, I combine three different survey datasets: the U.S. decennial Census, the American Community Survey (ACS), and the General Social Survey (GSS). The U.S. decennial Census and the ACS provide information on the labor market, and the GSS provides information on gender attitudes. To measure gender attitudes, I focus on two GSS questions: Is it better for everyone involved, if men work outside the home and women tend home? Are men better suited emotionally for politics than women? Both questions, asked periodically between 1977 and 2016, are about women's roles and capabilities in the public sphere rather than within the household. Each question captures a different aspect of attitudes toward gender roles. While the former refers to appropriateness of women working outside of the home, the latter refers to women's capabilities.

Although previous work measures gender attitudes by combining various gender questions and forming an index (Charles, Guryan and Pan, 2018), I use each question independently as a separate measure of gender attitudes. The advantages of not constructing an index are twofold. First, it allows for a degree of variation in traditional attitudes across the two questions. Believing women should stay at home is not necessarily a rejection of women's capabilities, emotional or otherwise. Second, it allows for labor demand shocks to affect the prevalence of traditional attitudes toward women working and women's emotional suitability for politics differently.

Identifying the extent to which the changes in the prevalence of traditional gender attitudes are driven by labor demand shifts is complicated. The complexity is due to the bi-directional relationship between gender attitudes and measures of labor demand changes such as employment, and the employment to population ratio and, to some degree, the difficulty in identifying the determinants of gender attitudes in general. The simultaneity occurs

because employment and the employment to population ratio are determined by government policies and labor demand and supply factors that are susceptible to the influence of gender attitudes.

I address the simultaneity via Bartik (1991) by focusing on within state variation over time in labor demand. Bartik shocks are calculated by interacting state level industry shares with national average growth rates for each industry. By conditioning on industry-specific equilibrium levels of employment in a base year and replacing national industry growth for local growth, Bartik shocks isolate exogenous variation due to labor demand. Consistent with previous work (Autor and Duggan, 2003; Charles, Hurst, and Notowidigdo, 2012; Chauvin, 2017), each state is excluded from contributing to the national industry growth calculations of its Bartik shocks, which further weakens the link between local gender attitudes and demand-driven predicted changes in employment. Leveraging Bartik at the state level, I also include state fixed effects to account for fixed differences across states.

Another critical issue is the proper specification of dynamics regarding the evolution of gender attitudes. If gender attitudes gradually change over time as cohorts exit and new cohorts enter the data, then without a lagged dependent variable the relationship between gender attitudes and labor market conditions would be mis-specified. Inclusion of prior gender attitudes as a control variable allows for a flexible specification of a cohort's attitude evolution over time. Therefore, in some specifications I include a lagged dependent variable. However, including a lagged dependent variable with state fixed effects introduces an endogeneity that I address using an instrumental variables approach.

My results suggest that the effects of demand shocks on attitudes toward women working may differ from attitudes toward suitability for politics. I find significant declines in the prevalence of traditional gender attitudes on women working outside of home in response to favorable labor demand shocks. Specifically, I find that a one percent increase in Bartik shocks lowers the prevalence of traditional attitudes by 0.45 percentage points, significant

at the 10 percent level. In contrast, regarding a woman's emotional suitability for politics, I find that a one percent increase in Bartik shocks increases the prevalence of traditional attitudes by 0.43 percentage points in the preferred specification with an instrumented lagged dependent variable. However, the imprecision of the estimate, despite substantial variation within individual states over time, precludes inference about the true effect of labor demand changes on views toward a woman's emotional suitability for politics.

I subsequently explore whether there are differences by demographic characteristics in the responses to labor demand shocks. Demographic characteristics, such as gender, education, marital status, and age would be expected to affect how people experience and respond to labor demand changes. As such, I examine how Bartik shocks affect traditional attitudes toward women working and women's emotional suitability for politics separately among married men and women, as well as men and women with less than a high school diploma, high school diploma and some college, or at least a baccalaureate. I also examine how Bartik shocks affect traditional gender attitudes among respondents aged 18-47 and 48-70.

Although the interpretation and comparison of effects of labor demand shocks on traditional attitudes toward women working and women's emotional suitability for politics across various subpopulations is less informative, given the noisy point estimates, I find, from the preferred specification with instrumented lagged dependent variable, that a one percent increase in Bartik shocks increases the prevalence of traditional attitudes toward the emotional suitability of women for politics by 1.28 percentage points, significant at the 10 percent level, among men with less than a high school diploma. This statistically significant positive effect of Bartik shocks among men with less than a high school diploma suggests that the threat to their breadwinner status is a more powerful mechanism for lower educated men than the increase in the opportunity cost of adhering to these traditional attitudes toward the emotional suitability of women for politics.

In addition, I examine the sensitivity of the estimated results to group specific Bartik shocks. It is possible that each subpopulation is more concerned about the relevant labor market changes for their own group than the broader labor market conditions; thus, examining the contribution of group specific Bartik shocks to the prevalence of traditional attitudes among a specific group may be more pertinent than the overall Bartik shocks. The smaller magnitude of the attitudinal responses of men with less than a high school diploma toward women working to overall Bartik shocks (a 0.18-percentage point decline, estimated imprecisely), compared to the magnitude of responses to their group specific Bartik shocks (a 6.45-percentage point decline, significant at the 10 percent level) suggests that men with less than a high school diploma are potentially more responsive to Bartik shocks specific to their group.

Similarly, regarding attitudes toward the emotional suitability of women for politics, despite finding no statistically significant evidence of the influence of the overall Bartik shocks on the prevalence of traditional gender attitudes among men with at least a baccalaureate, I find that a one percent increase in group specific Bartik shocks lowers the prevalence of traditional attitudes among them by 0.53 percentage points, significant at the 5 percent level. However, gender and education specific Bartik shocks are highly correlated, and without controlling for Bartik shocks across all the other gender-education subgroups, the effects of group specific Bartik shocks are only suggestive of higher sensitivity of some subpopulations to own-group specific market conditions.

The remainder of the paper proceeds as follows. Section 2 describes the data and presents trends in traditional gender attitudes and labor market participation by demographic characteristics; Section 3 introduces the empirical framework, discusses identification concerns and presents reduced form models that address those concerns. Section 4 describes the main estimates. Section 5 presents estimates from heterogeneity analyses. Section 6 evaluates

the sensitivity of the main estimates in Section 4 across subpopulations. Section 7 presents concluding remarks.

2 Data, Attitudes and Labor Market Trends

I use three survey data. The data to measure gender attitudes comes from the General Social Survey (GSS), while the data to estimate labor market conditions comes from the decennial Census and the American Community Survey (ACS). Below I describe the Census and the ACS data then describe trends in gender-role attitudes and labor market participation.

2.1 The GSS

The data to measure gender attitudes comes from the General Social Survey (GSS) (Smith et al., 2018). Although the GSS data is publicly available, the geographic information was obtained via a confidentially contract with the National Opinion Research Center (NORC), which administers the survey. From 1972 to 1994, the survey was mostly conducted annually with a target sample size of 1500 (Smith et al., 1972-2016). Since 1994, it has been conducted biennially in two samples, each with a target size of 1500. The GSS oversamples adults in small households, and since 2004, it also oversamples non-responders³. The GSS is only representative at the national level and not the state level.

³Oversampling occurs because the GSS only interviews one adult per household and the probability of being selected for the interview declines in larger households. The GSS also subsamples no response cases in a two-stage subsampling design, and focuses resources on gaining responses from this subset.

There are 27 states that are included in each of the five years of 1977, 1990, 2000, 2010, and 2016 used in this paper⁴. These states are Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, and Wisconsin.

The GSS collects information on demographics, social attitudes, and special interest topics. For the purposes of this analysis, I focus on two attitudinal questions that are directly about non-domestic roles of women⁵. In the first question, the survey participants are read the statement: “it is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family” and asked to indicate whether they strongly agree, agree, disagree, or strongly disagree with the statement. In the second question, survey participants are only asked to indicate whether they agree or disagree (there are no strong agreement or disagreement options) with the statement: “Most men are better suited emotionally for politics than are most women.” The potential response options for each statement are consistent across survey years and include a choice of “don’t know” for the first statement and a “not sure” choice for the second statement.

I create two binary variables, one for traditional attitudes and one for egalitarian attitudes per question. For whether women should tend home, the binary variable for traditional attitudes is equal to one if responders indicate agreement or strong agreement and zero otherwise (including “don’t know” responses). The binary variable for egalitarian attitudes is

⁴These years were chosen based on data availability and considerations for period length needed for measuring changes. To increase the number of observations for the empirical analysis, I pool 1978 with 1977 observations, 1986 with 1985, and 2014 with 2016 observations. It is unlikely that attitudes change much over a year or two-year period and therefore, this pooling should not affect the results.

⁵Knight and Brinton (2017) suggest that gender attitudes toward the public sphere of work and the private sphere of family should be distinguished. As such, I choose the only two questions that are not specific to private spheres or other facets of gender attitudes such as motherhood, abortion, or women in religion, to name a few, which although interesting, are not of interest in this paper. These questions are also administered as far back as 1977 and as late as 2016.

equal to one if responders indicate disagreements or strong disagreements and zero otherwise (also including “don’t know” responses). For whether men are better emotionally suited for politics, the binary variable for traditional attitudes is set to one for agreement and zero otherwise (including “not sure” responses). The binary variable for egalitarian attitudes is equal to one for disagreement and zero otherwise (also including “not sure” responses).

2.2 The Decennial Census and The ACS

I use individual-level decennial Census extracts that correspond to one percent of the population in 1970 and five percent of the population in 1980, 1990, and 2000, and single-year ACS data in 2010 and 2016 available at the Integrated Public Use Microsamples (IPUMS) database (Ruggles et al., 2018). The baseline data are restricted to non-institutionalized civilian adults between 18 to 70 years old (inclusive) living in U.S. states. Both the decennial Census and the single-year ACS data are nationally representative and have information on employment status, industry, and demographics such as sex, age, and education. An important advantage of the large samples available in the Census and the ACS data is the possibility of creating reliable measures of the state-level changes in employment that can be disaggregated at gender and education levels.

The 1970 data are used to anchor the industry share component of Bartik shocks. To match the data availability in the GSS, I use linear interpolation of employment numbers by industry and population from the 1970 to 1980 censuses to estimate employment and population estimates in 1977. To ensure that no one industry drives national industry growths in local labor demand shocks (more on this in the next section), I define 14 broad industry categories based on 3-digit industry schemes in 1990⁶.

⁶The set of industries include: 1. Agriculture, 2. Mining, 3. Construction, 4. Manufacturing, 5. Transportation, 6. Communication, Utilities and Sanitation, 7. Wholesale Trade, 8. Retail Trade, 9. Finance,

2.3 The Evolution of Gender Attitudes by Time, Cohort, and Age

Figure 1 shows the evolution of traditional and egalitarian gender attitudes toward women working outside of the home (Panel (a)) and their emotional suitability for politics (Panel (b)) from 1977 to 2016. The figure shows that the evolution of gender attitudes from traditional to egalitarian on women working outside of home essentially paused between 1990 and 2010, where the decline in the share of traditional attitudes was one percent in two decades. A similar slowdown is observed in Panel (b), where traditional attitudes fell by 3 percentage points during 1990-2010. Both panels show that between 2010 and 2016 the earlier patterns of decline in the prevalence of traditional attitudes resumed by 9 and 5 percentage points toward women working and women’s emotional suitability for politics, respectively. Thus, although traditional gender attitudes are no longer the norm in 2016, nontrivial shares of participants (27 and 18 percent) still continue to believe that women should tend home and that women are not emotionally suited for politics.

To explore the congruency between attitudes on women working outside of the home and women’s emotional suitability for politics, Figure 2 shows the joint distribution of responses between 1977 and 2016. Consistent with expectations, Figure 2 shows that attitudes on women working outside of the home and women’s emotional suitability for politics each capture a distinct dimension of gender roles and that distinction is maintained over time. In fact, at its highest, in 1977, only 30 percent of participants thought traditionally on both questions. With the evolution of gender-role attitudes toward egalitarian between 1977 and 2016, the share of this combination of responses (traditional on both) fell to an all-time low of 8 percent in 2016. Moreover, another notable combination of responses that suggests a distinction between the two questions is the 23 percent of responses that indicate egalitarian views toward the emotional suitability of women for politics and traditional attitudes toward

Insurance, and Real Estate, 10. Business and Repair Services, 11. Personal Services, 12. Entertainment and Recreation, 13. Professional and Related Services, 14. Public Administration.

women working. This combination of responses appears more persistent over time and stays at 15 percent in 2016. The most stable response combination is traditional attitudes toward the emotional suitability of women combined with egalitarian attitudes toward women working. The share of such responses remains at about 9 percent.

The underlying changes in gender attitudes may be partly driven by cohort replacement in the survey (the process of older birth cohorts being replaced by younger cohorts who have different childhood experiences and values), and partly by individuals changing their views in response to structural changes in labor markets and business cycles. People may change their views as their positions (and negotiating power) within households and workforce changes, which might legitimize some of their attitudes and disapprove of others. Moreover, people may change their views because of ideological learning and a broader change in their belief systems, where they adopt gender attitudes consistent with their views pertaining to similar matters, such as racial or religious attitudes (Brooks and Bolzendahl, 2004).

Herein I describe and discuss whether there is consistent evidence with the two processes of cohort replacement and people changing their views. To accomplish this, I describe changes by time, birth cohort or age. Identifying the independent effects is complicated by the perfect collinearity between the three and cannot be distinguished. However, descriptions of changes over time for a number of cohorts will provide evidence of the patterns of changes and the likely contributions of cohort replacement and people changing their views to differences in the prevalence of traditional gender attitudes.

Tables 1 and 2 partially decompose changes in the shares of traditional attitudes toward women working (Table 1) and the emotional suitability of women for politics (Table 2) by holding a different part fixed vertically, horizontally, and diagonally. Horizontally, data are sliced by birth cohorts, and the observed variation is due to a combination of changes in time and age. Vertically, data are sliced by year, and variation in shares are due to differences across birth cohorts and age groups. Diagonally, data are sliced by age groups and changes

are because of time and birth cohorts. Given the differences in gaps between years, especially 1977-1990 and 2010-2016 from 1990-2000 and 2000-2010, the age groups in 1977 and 2016 are a few years different from their diagonal counterparts between 1990 and 2010.

Table 1 shows that the prevalence of traditional attitudes is consistently higher among older cohorts. In fact, when the differences in shares of traditional attitudes toward women working across cohorts are formally tested by a regression of the shares on year and cohort fixed effects, statistically significant and positive coefficients are estimated for older cohorts, starting from the 1940-1949 cohort. These differences across cohorts, however, narrow with each subsequent cohort replacement. Specifically, the 1990 column shows a difference of 42 percentage points between the prevalence of traditional attitudes among the youngest (1960-1969) and the oldest (1920-1929) birth cohorts. This oldest birth cohort that was 61-70 years old in 1990, ages out of the data by 2000 and is replaced by the 1970-1979 birth cohort, some of whom were too young to be observed in the data in 1990. As a result of the cohort replacement between 1990 and 2000, the difference in shares of traditional gender attitudes drops by 11 percentage points to 31 percentage points in 2000. In the next round, as the 1930-1939 cohort in 2000 is replaced by the 1980-1989 cohort in 2010, the difference declines to 5 percentage points.

In addition to the cross-cohort variation in the prevalence of traditional gender attitudes toward women working, Table 1 documents within cohort variation horizontally. This within cohort variation implies a potential link between the traditional gender attitude trends and individuals changing their views toward women working. Such changes capture the effects of aging and of time. However, changes in the composition of cohorts for reasons such as immigration and mortality may also contribute to the observed within cohort variation in attitudes, which appear to be more pronounced among the older cohorts. Even so, immigration is unlikely to be driving these within cohort variations in attitudes. Not only did the U.S. experience relatively small inflow of immigrants during the Great Depression of

the 1930s and the World War II in the 1940s, but also the size of the elderly foreign-born population declined between 1950 and 1990 (Rogers and Raymer, 2001).

The larger within cohort variation among earlier (the 1930s, 1940s, and 1950s) versus later cohorts (the 1960s, 1970s, and 1980s) is underlined when comparing the overall drop in the prevalence of traditional attitudes toward women working between 1977 and 2016. The prevalence of traditional attitudes among the earlier cohorts dropped between 9 to 18 percentage points compared to 0 to 11 percentage points among the later cohorts.

Another noteworthy observation from Table 1 is the similar patterns of decline and surge within different cohorts. In every cohort, there is an initial rapid decline between 1977 and 1990, a surge in traditional attitudes between 1990 and 2010, and a restart of the earlier pattern of decline in the prevalence of traditional attitudes between 2010 and 2016. The 1990-2010 within-cohort spikes in the prevalence of traditional attitudes toward women working are an interesting deviation from earlier trends and possibly suggest a response to the economic downturns of the early 1990s and the Great Recession between 2008 and 2010. In fact, this is consistent with the results in Section 4 that show the prevalence of traditional gender attitudes toward women working increases in response to negative labor demand shocks.

Similar patterns of cross and within cohort variations is observed in Table 2 with regards to the prevalence of traditional attitudes toward the emotional suitability of women for politics. Just as in Table 1, within cohort variation is larger among older cohorts. Indeed, whereas the within variation among later cohorts (1960s, 1970s, and 1980s) ranges from 1 to 8 percentage points, the within variation in earlier cohorts (1930s, 1940s, and 1950s) ranges from 16 to 24 percentage points. Also, like Table 1, there is a period of deviation, a spike, in the prevalence of traditional attitudes toward the emotional suitability of women for politics within all cohorts. However, unlike Table 1, the deviation is shorter and limited to 2000-2010 instead of 1990-2010 observed in Table 1.

Both tables demonstrate evidence consistent with cohort replacement (changes over time across cohorts), and individuals changing their views (changes over time within cohorts as they age). However, cohort replacement is a less prominent factor in driving changes across cohorts in Table 2 than in Table 1. Indeed, after the replacement of the 1920-1929 cohort in 1990 with the 1970-1979 cohort in 2000, which halved the differences in the share of traditional attitudes toward the emotional suitability of women for politics across cohorts from 16 to 8 percentage points, the subsequent cohort replacement from 2000 to 2010 contributes little, since the prevalence of traditional attitudes is 26 percent among both the 1930-1939 and 1980-1989 cohorts. Nonetheless, the presence of cohort replacement here and in Table 1 points to the potential effects of longer-term changes in labor market conditions on attitude formation of different cohorts. These cohorts grew up under different labor market conditions, including having different fractions of their mothers working. Before the 1920s, women virtually always exited the labor market upon marriage. Whereas, between 1950 to 1970, the labor force participation of married women aged 35-44 years old grew from 25 to 46 percent (Goldin, 2006).

Figure 3 highlights differences in the rate of decline within age groups. The differences among the older age groups over time indicates the long-term changes in socioeconomic structure of the country. The 58-70 years old in 1977 grew up in an era where women were poorly educated, job options were limited and tended to be associated with less authority and power, and women almost always left the labor force upon marriage. By contrast, the 58-70 years old in 2016 grew up in a time that women had started to increase their college attendance and labor force participation. Even then, a report by the U.S. Commission on Civil Rights in 1977, found that women and minorities were “window dressing” on the television set and that women were often portrayed as weak, unemployed, and committed to family.

As noted, there are differences in life circumstances and characteristics among cohorts in, for example, available employment opportunities for women and the resultant income autonomy of women, average educational attainment, and marriage rates. These differences may not only play a role in attitude formation but may also influence the magnitude and direction of change in attitudes. Thus, in the next subsection, I describe trends in traditional gender attitudes by gender (Figure 4), by education (Figure 5), by gender and education (Figure 6), and finally by marital status (Figure 7).

2.4 The Evolution of Gender Attitudes by Characteristics

Figure 4 shows the share of traditional attitudes toward women working outside of home (Panel (a)) and the emotional suitability of women for politics (Panel (b)) separately by gender. Both panels show that traditional gender attitudes are almost always less prevalent among women than men (except for 1977 in panel (b)), but that women do not adopt egalitarian gender attitudes at a greater rate than men. In fact, men and women display a similar pattern of decline in adherence to traditional views across both dimensions of gender roles. Formal testing of these observational patterns in a regression confirms that women, on average, show 4 percentage points lower prevalence of traditional attitudes toward women working than men; but no statistically significant evidence of a differential rate of change is found for women versus men in either panel.

Figure 5 displays considerable variation in the prevalence of and the rate of decline in traditional gender attitudes by education levels. Panels (a) and (b) show the share of traditional views on women working outside of the home and the emotional suitability of women for politics, respectively for three education groups: less than or equal to eleven years of schooling, between twelve to fifteen years of schooling, and at least sixteen years of schooling. Both panels show that in every period traditional views are most common among the lower educated groups, followed by the middle and then the highest educated groups. Con-

sistently, regression tests show that respondents with twelve to fifteen years of schooling have 14 percentage points, significant at the 1 percent level, and 6 percentage points, significant at the 5 percent level, lower prevalence of traditional attitudes than respondents with less than or equal to eleven years of schooling across panels (a) and (b); respondents with at least sixteen years of schooling have 26 and 13 percentage points, significant at the 1 percent level, lower share of traditional attitudes toward women working and women's emotional suitability for politics than those with less than or equal to eleven years of schooling.

In Panel (a) of Figure 5, 76 percent of respondents with less than or equal to eleven years of schooling (less than a high school diploma) agreed or strongly agreed that women should tend home in 1977, compared to 59 percent of respondents with twelve to fifteen years of schooling (high school diploma or some college) and 44 percent of respondents with at least sixteen years of schooling (a baccalaureate or more). By 2016, the least educated remained the most traditional in their views with 40 percent of them believing that women should tend home, compared to 28 percent of the middle group and 15 percent of the most educated group. Notably, the gaps between the education groups remained fairly stable between 1977 and 2016, with only a slight narrowing that was more pronounced between the lower and middle education groups than middle and higher groups. Indeed, the gap between lower and middle groups narrowed from a 17-percentage point difference in 1977 to a 12-percentage point difference in 2016, whereas the difference between the middle and the higher education groups went down from a 15-percentage point difference to 13 percentage points. Panel (b) shows similar but smaller level differences across education groups with a greater convergence by 2016. Panel (b) shows that the 13-percentage point difference between the lower and middle education groups in 1977 narrows to a 3-percentage point difference in 2016. The 11 percentage points between the middle and the higher education groups in 1997 also narrows to 5 percentage points in 2016.

Furthermore, both panels show that the rate of decline in share of traditional gender attitudes is largest among the least educated groups, likely because they started at a much higher base, followed by the middle education groups and the most educated groups. Between 1977 and 2016, the shares dropped by 36 (Panel (a)) and 33 (Panel (b)) percentage points among the least educated groups compared to 31 (Panel (a)) and 23 (Panel (b)) percentage points for the middle group and 29 (Panel (a)) and 17 (Panel (b)) points for the highest education groups.

These differential rates of change in attitudes across educational groups are not surprising given that many of the factors that contribute to self-selection into education can very well be associated with different gender-role attitudes, such as socioeconomic conditions or parental education (Oreopoulos, Page, and Stevens, 2003). At least since the 1980s in the U.S., employment and wage growth has been increasingly uneven across occupational skills and the growth at either distribution tails, (high skill, high wage versus low skill, low wage) has been larger than gains in the middle (Autor, 2010).

Figure 6 shows that conditioned on education, women on average continue to be more egalitarian in their attitudes than men with the same education levels on both dimensions of gender roles. In addition, both panels of Figure 6 show that traditional attitudes are more prevalent among lower educated women and men than higher educated women and men, respectively. The rate of decline in the prevalence of traditional attitudes is still larger among the least educated women compared to the middle educated and the most educated women. However, the middle-educated men appear to adopt egalitarian attitudes at a lower rate compared to both the lower and higher educated men.

Figure 7 illustrates that the prevalence of traditional attitudes is consistently higher among married women and men compared to single women and men, which is also verified through formal regression tests. The observed differences are consistent with expectations given the potential associations between marital decisions, socioeconomic status, and atti-

tudes. For example, marriage is associated with higher job stability and wages, which may influence values and gender-role attitudes (Killewald and Lundberg, 2017, and Ahituv and Lerman, 2005).

2.5 The Evolution of Gender Attitudes by State

I now turn from the analysis of national gender attitude trend to the state level analysis of changes in the prevalence of traditional attitudes toward women working and women's emotional suitability for politics. The empirical methodology described in Section 3 depends upon substantial variation across states in the evolution of gender attitudes over time. Figures 8 and 9 depict share of traditional attitudes toward women working outside of the home (Figure 8) and the emotional suitability of women for politics (Figure 9) by state for the years 1977 in (a), 1990 in (b), 2000 in (c), 2010 in (d) and 2016 in (e). Both figures illustrate considerable differential cross-state variation across periods that largely mimic the national trends over time. A more in-depth look at Arizona, Wisconsin, Minnesota and Indiana as examples from Figure 8 highlights the divergence of their changes over time.

In 1977, an equal share of respondents, 77 percent, in Arizona and Indiana agreed or strongly agreed that women should tend home. Between 1977 and 1990, the shares of traditional attitudes dropped significantly, but not at the same rate. By 1990, Arizona had a higher prevalence of traditional attitudes toward women working than Indiana by 2 percentage points. Between 1990 and 2000, the shares of traditional attitudes continued to drop more for Indiana than for Arizona. As a result, by 2000, Arizona had a higher prevalence of traditional attitudes than Indiana by 6 percentage points. In a reversal, between 2000 and 2010, both states saw an increase in the prevalence of traditional attitudes; albeit the rise in the shares was greater in Indiana than in Arizona, and the gap in traditional attitudes between the two states narrowed to 4 percentage points. Between 2010 and 2016, the earlier

pattern of decline in the prevalence of traditional attitudes resumed across Arizona and Indiana, but the gap grew to 9 percentage points.

Like Indiana and Arizona, in 1997, Minnesota and Wisconsin both had virtually the same share of traditional views on women working, 63 and 62 percent, respectively. But between 1977 and 1990, the prevalence of traditional attitudes in Minnesota dropped by 48 percentage points, while it fell by only 35 percentage points in Wisconsin. Thus, by 1990, Wisconsin was the more traditional of the two by 12 percentage points. Between 1990 and 2000, the prevalence of traditional attitudes stayed at 27 percent in Wisconsin, while Minnesota became even more egalitarian and the gap between the two states grew to 17 percentage points. Just as observed with Indiana and Arizona, between 2000 and 2010, the prevalence of traditional attitudes rose in both states, more in Minnesota than Wisconsin, and the gap fell to 8 percentage points. Between 2010 and 2016, the earlier pattern of decline in traditional attitudes resumed for both states. The prevalence fell by 6 percentage points in Minnesota and 16 percentage points in Wisconsin, increasing the gap to 10 percentage points.

Therefore, there are differences in the rate of change in the prevalence of traditional attitudes across states, consistent with the existence of differential changes across states in the factors that affect attitudes toward women working and women's emotional suitability for politics. In this paper, I examine the causal effects of one such factor, labor demand changes.

2.6 Trends in The Labor Force Participation

With the substantial decline in the prevalence of traditional attitudes toward women working and women's emotional suitability for politics, the labor force participation of women also changed significantly. Figure 10 plots the labor force participation of women and men,

age 18 to 70 years old. Mirroring the sharp declines in traditional gender attitudes between 1977 to 1990, followed by a period of stagnation, and a continuation of the earlier pattern of decline between 2010 and 2016, the labor force participation of women grew rapidly between 1970 to 1990 and then stabilized after. In the meanwhile, the labor force participation of men remained fairly stable until 1990 and then began to fall ever so slightly.

Figure 11 disaggregates the trends in labor force participation of men and women by education. The figure shows that the labor force participation has increased for women of all education level, while it has decreased for men of all education level. However, the growth in labor force participation of women with at least sixteen years of education at 18 percentage points, and women with twelve to fifteen years of schooling at 17 percentage points, have been more than twice the 8 percentage point increase in the labor force participation rate of women with less than or equal to eleven years of schooling. The higher prevalence of traditional attitudes among lower educated women documented earlier is, therefore, consistent with the lower labor force participation rate among them.

Figure 12 illustrates the labor force participation rates by gender and marital status. It shows that the labor force participation rate of married women has increase more than the labor force participation rate of single women. Between 1970 and 2016, the labor force participation of the former grew by 25 percentage points, while the labor force participation rate of the latter rose by only 13 percentage points. By contrast, the labor force participation rate of married men appears very stable with only a 5 percentage point decline during this time. Interestingly, the labor force participation rate of single men like their female counterparts grew between 1970 and 2016, but not as much. The trends in Panel (a) of Figure 7, where the prevalence of traditional attitudes toward women working is highest among married men is consistent with these labor force participation rate trends.

3 Empirical Framework

Estimating the causal effect of labor demand changes on gender attitudes is difficult. The difficulty is rooted in the simultaneity between measures of labor demand shifts, such as changes in employment or the employment to population ratio, and gender attitudes and the dynamics of gender attitudes. Employment and the employment to population ratio are determined by a combination of government policies and supply and demand factors, which are likely influenced by prevailing gender attitudes; therefore, hampering efforts to isolate exogenous variation in labor demand shifts. Also, if gender attitudes are dynamic and a function of prior attitudes, omission of a lagged dependent variable in a statistical model would lead to a specification error. However, the inclusion of a lagged dependent variable in a fixed effects model, introduces a mechanical endogeneity. The two primary difficulties of estimating the causal effect (the simultaneity between labor market and gender attitudes, and the dynamics of attitudes) are now discussed in detail.

3.1 Simultaneity

There are many ways gender attitudes could affect labor supply and demand decisions, which complicate efforts to identify the effects of labor demand changes on attitudes. Traditional gender-role views may discourage some women from working outside of the home as they try to align their actions with society's beliefs, encountered in both childhood and adulthood. Traditional gender-role views may also shape upbringing and teaching practices used by parents and teachers who try to prepare girls to meet society's expectations. If not through this self-fulfilling prophecy, gender attitudes could also restrict labor supply of women by increasing the cost of labor force participation of women relative to men. The prevalence of unfavorable views toward women working outside of the home may require women to invest in more skills to compete with men. Gender-role attitudes could also affect

labor demand decisions. Traditional views may result in prejudice and discrimination against women in hiring practices, despite anti-discrimination laws. The effects of gender attitude on employment through these mechanisms or others impede estimating exogenous variation in labor demand changes, which would be imperative for identifying the causal effects on gender attitudes.

3.2 Exogenous Variation in Labor Demand

Following a widely used practice across different fields, I address the simultaneity between labor market conditions and gender attitudes by estimating predicted local labor demand, known as Bartik shocks or shift-share instruments, based on Bartik (1991). Bartik shocks are calculated by interacting a state’s industry shares with national average industry growth rates. Formally, I calculate Bartik shocks as follows:

$$Bartik_{gest_0-t} = \left[\sum_j \frac{EMP_{jgest_0}}{EMP_{gest_0}} * \left(\frac{EMP_{-sjget} - EMP_{-sjget_0}}{EMP_{-sjget_0}} \right) \right] \quad (1)$$

where $Bartik_{gest_0-t}$ represents exogenous demand-driven employment growth between base year $t_0 = 1977$ and end year $t = \{1990, 2000, 2010, 2016\}$ in state s for gender $g = \{\text{female, male, all}\}$ and education group $e = \{\leq 11, 12 - 15, \geq 16\text{years of schooling, all}\}$ ⁷. The first component of the interaction term $\frac{EMP_{jgest_0}}{EMP_{gest_0}}$ represents employment share of industry j in state s , at base year t_0 for gender g , and education group e . The second component of the interaction $\frac{EMP_{-sjget} - EMP_{-sjget_0}}{EMP_{-sjget_0}}$ represents the national employment growth of gender g and education group e , in industry j between $t - t_0$ that excludes state s per the leave-one-out approach used in literature (Autor and Duggan, 2003; Charles, Hurst, and

⁷When Bartik shocks are for the entire local population, $g = \text{all}$ and $e = \text{all}$. For sex-specific shocks, g is either female or male, and $e = \text{all}$. For education-specific shocks, $g = \text{all}$ and e is either education levels less than high school, high school or some college, or with at least a baccalaureate.

Notowidigdo, 2012; Chauvin, 2017). In the leave-one-out approach to national employment growth estimation, own-state is excluded from national industry-specific employment growth calculations.

The intuition for exogeneity of Bartik shocks is that state-level employment growth (E_s) can be written as weighted averages of state-level industry-specific employment growth rates ($E_s = \sum_{j=1}^J \omega_{js} E_{js}$), where ω_{js} are industry j shares in state s and E_{js} are industry-specific growth rates in state s ; but these local industry growth rates are influenced by local industry-specific labor demand and labor supply shocks. By replacing local industry growth rates by national rates, excluding own state from contributing to estimation of national industry rates, and conditioning on a lagged local supply shocks (i.e. local employment distribution across industries in a base year), Bartik shocks are understood to provide exogenous demand-driven shocks that vary across local markets based on their base-year distribution of local industries. As noted in the literature (Maestas, Mullen, and Powell, 2013; Schaller, 2016), using broad industry definitions in constructing industry-specific national growth rates further serves to ensure that national rates are not correlated with state-level supply factors because employment would not be concentrated in one industry and state, and there would be sufficient cross-sectional variation in base-year industry composition.

Emerging literature formalizes the exogeneity assumptions in the context of Bartik shocks in terms of either industry shares (Goldsmith-Pinkham, Sorkin and Swift, 2018) or growth rates (Borusyak, Hull, and Jaravel, 2018). I discuss the plausibility of conditionally random assignment of national industry-specific growth rates in Section 4.1, based on summarizing the distribution of national industry growth rates, industry-level shares, and Bartik shocks.

To gain a better understanding of the magnitude of the effects of Bartik shocks on employment, I estimate the following first-stage relationship between Bartik shocks and changes in employment, while controlling for state (λ_s) and year (γ_t) fixed effects:

$$\ln employment_{st} = \alpha + \beta Bartik_{st} + \lambda_s + \gamma_t + \epsilon_{st} \quad (2)$$

3.3 Gender Attitude Dynamics

There are many reasons to think gender attitudes evolve over time, including the recognition that attitudes are learned beliefs through socialization and interactions with others, the replacement of older cohorts by younger cohorts, and so on. As such, even despite the exogeneity of Bartik shocks, failure to appropriately account for dynamics via a lagged dependent variable could introduce specification error. However, including a lagged dependent variable with state fixed effects introduces a mechanical relationship between the demeaned lagged dependent variable and the demeaned error term as shown by Nickell (1981).

I include lagged gender attitudes in some specifications and examine the sensitivity of results. Following Wooldridge (2006), I address this endogeneity using instrumental variables approach that is described in detail below.

3.3.1 Empirical Models

In this section, I describe my approach to estimating the effects of labor market conditions on gender attitudes and addressing complications introduced by simultaneity and dynamics discussed above. Using panel data, I estimate fixed effects, dynamic fixed effects, and dynamic fixed effects with instrumental variables models.

Equation (3) is the baseline regression specification for estimating the impact of labor demand changes on changes in the prevalence of traditional gender attitudes. Here, share of traditional gender attitudes (Y) for agreeing or strongly agreeing that women should tend home or agreeing that women are not emotionally suited for politics in state s at time t is

modeled as a function of labor demand changes, characteristics of respondents and state, and state and time fixed effects:

$$Y_{st} = \alpha + \beta T + \delta X_{st} + \lambda_s + \gamma_t + \epsilon_{st} \quad (3)$$

where T represents one of the following treatment variables: natural log of employment, the employment to population ratio, or Bartik shocks anchored in 1970. λ_s and γ_t are state and year fixed effects, respectively. X_{st} is a vector of respondent or state s characteristics in year t , and includes shares of respondents to gender attitude questions who are female, respondents who have less than or equal to eleven years of schooling, respondents who have twelve to fifteen years of schooling, and natural log of population when the treatment variable is not the employment to population ratio. ϵ_{st} is the error term.

Equation (3) highlights a key identification concern regarding the dynamics of gender attitudes. If gender attitudes evolve over time, and people only partially update their a priori beliefs as new labor demand shocks are realized, it is important to account for this dynamic. Equation (4) expands equation (3) by including the lagged dependent variable:

$$Y_{st} = \alpha + \beta T + \theta Y_{st-1} + \delta X_{st} + \lambda_s + \gamma_t + \epsilon_{st} \quad (4)$$

Where Y_{st} , T , and X_{st} are dependent, treatment and control variables as defined in equation (3). Y_{st-1} is the lagged share of traditional gender attitudes in state s and lagged year $t - 1$. When t is 2000, the lagged year is 1990; when t is 2010, the lagged year is 2000, and when t is 2016, the lagged year is 2010.

The lagged dependent variable allows for gender attitudes to change with partial persistence. Partial persistence in gender attitudes is reasonable given that survey population

is aging, and attitudes evolve over time. Older cohorts exit and are replaced by younger cohorts with different gender views.

However, when a lagged dependent variable is included in a fixed effects model, Nickell (1981) shows that the demeaning process creates a correlation between the demeaned lagged dependent variable and the demeaned error term that biases the coefficient of the lagged variable. Nickell shows that this bias may be sizable in settings with small time periods. Among the solutions described in Wooldridge (2006) is creating instruments from second or third lags of the dependent variable either in the form of lagged differences or levels. I use the second lag of the dependent variable as an instrument; with only 5 time period observations per state, using third or fourth lags as instruments is not feasible.

The validity of this instrumental variables approach depends on the plausibility of the exclusion restriction assumption that twice-lagged prevalence of traditional attitudes only affects the current prevalence of traditional attitudes through the prevalence of lagged traditional attitudes. In other words, traditional attitudes in 1977 only affect traditional attitude formation in 2000 through their effects on traditional attitudes in 1990. If one is willing to maintain this exclusion restriction assumption, then, formally, the second stage (5a) and first stage (5b) models are:

$$Y_{st} = \alpha_1 + \beta T + \theta \widehat{Y_{st-1}} + \delta X_{st} + \lambda_s + \gamma_t + \epsilon_{st} \quad (5a)$$

$$Y_{st-1} = \alpha_2 + \theta_2 Z_{st} + \beta_2 T + \delta_2 X_{st} + \lambda_s + \gamma_t + \nu_{st} \quad (5b)$$

$Y_{(st-1)}$ is the lagged share of traditional gender attitude that is instrumented for by a twice-lagged share of traditional gender attitudes $Z_{st} = Y_{st-2}$. All other terms are as defined previously.

4 Results

In this section, I first describe properties of national industry growth rates, industry shares, and Bartik shocks, which are important for the interpretation of regression results. Then I proceed to present findings from regression models discussed in the previous section.

4.1 Properties of Bartik Shocks and Its Components

Table 3 presents summary statistics (mean, standard deviation, and interquartile range) for the national industry growth rates across 70 industry-by-period observations in a similar manner to Borusyak, Hull, and Jaravel (2018). The objective of the table is to assess whether the average industry growth rates depend on industry shares in the base year or industry unobservables. That is, whether the same average growth rate is realized regardless of which industries are included in the sample.

Column (1) reports an average growth rate of 0.77, with a standard deviation of 0.85 and an interquartile range of 1.03. All the statistics are weighted by the average national industry shares in 1970, the base year. The largest industry share in the base year is 0.27. The relatively small largest industry share together with reported mean, standard deviation and interquartile range suggest moderate industry-level variation.

To assess the contribution of service industries to the distribution of industry growth rates and the correlation across industry growth rates, Column (2) reports mean, standard deviation, interquartile range and the largest industry share in 1970 excluding service industries, which correspond to 3 industry groups: Business and Repair Services, Personal Services, and Professional and Related Services. Column (2) reports an average growth rate of 0.52 across the remaining 11 industries with a standard deviation of 0.58 and an interquartile range of 0.85. Not surprisingly, excluding 3 industry groups lowers the industry-level variation but

not a lot. This suggests that service industries do not account for a large share of total employment, and industry growth rates are only weakly correlated. With and without service industries, the largest industry share is still 0.27 across industries in the base year, which also suggests a moderate level of variation despite the aggregate nature of industry groups used.

So far, the distribution of national industry growth rates has been reasonably consistent with the two assumptions regarding quasi random assignment of industry growth rates discussed in Section 3.2. With national industry growth shocks measured across 5 time periods, it is also important to assess the level of variation in national industry growth rates within periods. Column 3 reports standard deviation and interquartile range for residuals obtained from regressing industry growth rates on period indicators and weighting by industry shares in the base year. The standard deviation and interquartile means in Column 3 are only slightly smaller than in Column 2, suggesting moderate variation in residual industry growth rates necessary for satisfying the two assumptions for quasi-random assignment of growth rates.

Table 4 summarizes Bartik shocks across states to see how the variation across industry groups translate to variation across states. However, it is important to note that, as detailed in Section 3.2, the national industry-specific growth rates that contribute to the construction of Bartik shocks follow the leave-one-out approach; whereas for the purposes of assessing variation in growth rates across industry and time periods, the growth rates summarized in Table 3 were transformed to industry-period level and were not estimated using the leave-one-out method.

Column (1) of Table 4 shows the raw variation in Bartik shocks with a mean of 0.76, standard deviation of 0.32, and interquartile range of 0.44. Columns (2)-(4) add controls that are identical to the regression specifications, except for controls that were used because of possible correlation with the dependent variable such as lagged dependent variables or share

of respondents with certain years of schooling. Column (2) residualizes Bartik shocks on end-of-period natural log of population, while Column (3) residualizes on end-of-period natural log of population and time period fixed effects, and Column (4) residualizes on end-of-period natural log of population, time period fixed effects, and state fixed effects. With each added control, the residual variation in Bartik shocks falls. Relatively small variation is left in Column (4) with standard deviation of 0.04 and interquartile range of 0.04. Although, a small residual variation in Bartik shocks limits the predictive power of the shocks, especially since Bartik shocks are also anchored in the lagged period of 1970, the leftover variation is plausibly clean.

4.2 Regression Findings

This section reports the results of regressions discussed in section 3.3.1 on the effects of labor demand changes on the prevalence of traditional gender attitudes. Specifications differ on whether they measure labor demand changes with natural log of employment, the employment to population ratio or Bartik shocks to illuminate the importance of properly accounting for the reverse effects of gender attitudes on employment or the employment to population ratio. Specifications also differ on whether they include a lagged dependent variable, and on whether the approach uses an instrumental variable for the lagged dependent variable. The inclusion of prior gender attitudes in some specifications provides information about the dynamics of gender attitudes. All specifications are weighted by the average number of respondents per state, and therefore, states with higher number of observations contribute more to the estimates. All specifications also control for shares of respondents who are female, shares with less than or equal to eleven years of schooling, shares with twelve to fifteen years of schooling, and natural log of population when the treatment variable is not the employment to population ratio.

Table 5 presents coefficients that capture the effects of labor demand changes (measured in the three different ways) on the share of traditional views (agreements or strong agreements) that women should tend home. Estimates in columns (1)-(3) are from a basic specification without controlling for prior gender attitudes; columns (4)-(6) control for prior gender attitudes by including a lagged dependent variable; columns (7)-(9) instrument for last period's gender attitudes using gender attitudes from two periods ago. All columns include state and year fixed effects to deal with time-invariant state-specific characteristics and aggregate differences across time that might influence both labor demand changes and gender attitudes.

Columns (1) and (2) of Table 5 show the effect of natural log of employment and the employment to population ratio on the share of traditional views that women should tend home, respectively. In Column (1), I find an effect of -0.68, significant at the 5 percent level. This indicates that a one percent change in natural log of employment leads to a 0.68-percentage point decline in the prevalence of traditional attitudes on women working outside of the home. In Column (2), I find that a one percent change in employment to population ratio lowers the prevalence of traditional attitudes by 0.96 percentage points, also significant at the 5 percent level.

An important limitation of employment and the employment to population ratio as measures of labor demand changes is that they are driven by both supply and demand forces. To address this concern, Column (3) studies the effect of Bartik shocks. One important conceptual point to keep in mind when interpreting the coefficient on the Bartik shock is that changes in predicted employment do not map one to one to actual changes in employment. Thus, the effect of a one-unit change in a Bartik shock is different from a one-unit change in employment, although it is fairly close. To help make comparisons across employment and Bartik shock estimates, Table 15, Appendix shows that a one percent increase in Bartik

shocks increases the natural log of employment by 0.78 percentage points, significant at the 1 percent level, suggesting that estimates are comparable in terms of magnitude.

Although Column (3) of Table 5 shows that the coefficient on the Bartik shock is practically zero and extremely noisy, the more rigorous specifications in Column (6) and Column (7) consistently report coefficients of -0.51 and -0.45, respectively, significant at the 10 percent level. This implies that a one percent increase in a Bartik shock leads to about 0.45 to 0.51 percentage points decline in the share of traditional attitudes. Unfortunately, comparing the Bartik estimates to employment and the employment to population coefficients is not informative about the possible endogeneity bias from the effects of traditional gender attitudes on labor supply, given the imprecision of coefficients for employment and the employment to population ratio. Even if point estimates are taken as the best guess of the impacts of employment and the employment to population ratio on the prevalence of traditional attitudes toward women working, there is no compelling evidence of endogeneity bias. The Bartik coefficients are smaller (larger in absolute values) than the employment coefficients and larger (smaller in absolute values) than the employment to population coefficients.

Despite a smaller sample size of 81 versus 135 observations, the estimated effects of Bartik shocks are only statistically significant in specifications that allow for flexible persistence of prior traditional gender attitudes through a lagged or an instrumented lagged dependent variable. Even the employment and the employment to population estimates that are noisy become less sensitive to specifications and more stable across dynamic models of traditional attitudes with a lagged dependent variable and an instrumented lagged dependent variable. The specification with lagged dependent variable (columns (4)-(7)) would have more observations than the specification where the lagged variable is instrumented, but for comparability of the estimates, the former specification is restricted to the same observations available in the latter model.

Table 6 presents coefficients of labor market conditions on share of traditional views (agreements) that women are not emotionally suited for politics with the same structure as Table 5. All the coefficients are positive, and none are significant at conventional levels of 1, 5 or 10 percent. Therefore, the hypothesis that labor demand has no effect on attitudes cannot be rejected at any conventional level regardless of the specification.

5 Heterogeneity Analysis

As shown by Figures 3-7, innate characteristics, such as age and gender, and acquired characteristics such as education and marital status are associated with differences in gender attitudes. Differences in these observable characteristics may partly reflect differences in socioeconomic positions and peers, and partly reflect differences in unobservables, such as identity, which are all potentially linked to differences in gender-role attitudes.

Marriage, for example, may alter views on gender roles as men and women transition into their roles as husbands and wives and need to adopt a division of labor, such as men as breadwinners and women as homemakers. The division of labor within marriage itself may alter views on gender roles. But also, evidence suggests that wives' paid employment affects men's mental health and psychological distress, which may very well influence gender-role attitudes (Kessler and McRae Jr., 1982; Syrda, 2020). Yet another possible link between marriage and gender attitudes can be through assortative mating decisions. Men and women may choose partners with similar characteristics and beliefs, which may further reduce any disagreements in attitudes between them by adopting some of their partner's views after marriage.

Therefore, I examine whether common labor demand shocks differentially affect the prevalence of traditional gender attitudes by gender and education (Tables 7 and 8) by gender and marital status (Tables 9 and 10) and by age (Tables 11 and 12).

Table 7 shows the effects of labor demand shocks on traditional attitudes toward women working outside of the home for men (Panel (a)) and women (Panel (b)) with different education levels. The first three columns are for eleven or fewer years of schooling, the middle three columns are for twelve to fifteen years of schooling and the last three columns are for at least sixteen years of schooling. In each panel, comparisons across columns within education groups reveal sensitivity of estimates to specification. Comparisons of the same specifications across samples, reveal heterogeneous effects of Bartik shocks. Columns (1), (4), and (7) report coefficient of Bartik shocks from regressions without lagged dependent variables. Columns (2), (5) and (8) report coefficients from regressions with lagged dependent variables. Columns (3), (6) and (9) report coefficients from regressions with instrumented lagged dependent variables by twice-lagged dependent variables. The number of observations vary across specifications as a direct consequence of including a lagged dependent variable or instrumenting using twice-lagged dependent variable. Unlike the main results where I used balanced samples in the latter two specifications, samples are not balanced when disaggregated beyond state-year level due to the small number of observations.

Table 7 does not show a statistically noticeable pattern of heterogeneous effects of Bartik shocks on the prevalence of traditional attitudes toward women working given the large standard errors across columns. The only statistically significant effect is among the middle educated men in a specification with a lagged dependent variable, where a one percent increase in Bartik shocks lowers the prevalence of traditional attitudes among men with twelve to fifteen years of education by 1.20 percentage points, significant at the 10 percent level. Absent any statistically meaningful effects among other gender-education subgroups, this finding suggests that men with middle education levels are more responsive to positive labor demand and become less traditional in their attitudes toward women working. Given the “hollowing out” of the occupational distribution in the middle, it is not surprising that the attitudinal response of men with twelve to fifteen years of schooling to favorable labor

demand is consistent with the opportunity cost mechanism and not the threat to breadwinner status hypothesis (Autor, 2010).

Table 8 has the same structure as Table 7. It reports the effects of Bartik shocks on the prevalence of traditional attitudes toward the emotional suitability of women for politics for different education attainments among men (Panel (a)) and among women (Panel (b)). Two marginally significant patterns emerge from Table 8, despite the general noisiness of the estimates. The first pattern suggests that the prevalence of traditional attitudes among men with less than or equal to eleven years of schooling increases in response to favorable Bartik shocks. The second pattern suggests a similar response among women with at least sixteen years of schooling.

As for the first pattern, Columns (1)-(3) of Panel (a) demonstrate small differences across specifications and more consistency in both magnitude and direction of point estimates among lower educated men. Column (1) shows that a one percent increase in Bartik shocks increases the prevalence of traditional attitudes toward the emotional suitability of women for politics by 0.86 percentage points, significant at the 5 percent level, compared to an increase of 0.99 percentage points in Column (2), and a 1.28-percentage point increase in Column (3), significant at the 10 percent level. Although the coefficient in Column (2) is not statistically significant at conventional levels, its consistency both in terms of magnitude and direction with statistically significant coefficients in Columns (1) and (3) suggests that the true effects is likely not too far off.

As for the second pattern, regarding the effects of Bartik shocks on traditional attitudes toward the emotional suitability of women for politics among women with at least a baccalaureate, Column (7) of Panel (b) shows that a one percent increase in Bartik shocks increases the prevalence of traditional attitudes by 0.65 percentage points, significant at the 5 percent level. This column does not account for the dynamics of gender attitudes and is, therefore, not the preferred specification. However, the magnitude and the direction of the

point estimate in Column (7) is consistent with the estimate in Column (9), which albeit the noise is from the preferred specification of instrumented lagged dependent variable.

Table 9 consists of two panels and six columns. Panel (a) reports the estimated effects of Bartik shocks on the prevalence of traditional attitudes (agreements or strong agreements) toward women working outside of the home among single men (columns (1)-(3)) and among married men (columns (4)-(6)). Panel (b) report the estimated effects of Bartik shocks on the prevalence of traditional attitudes among single women (columns (1)-(3)) and married women (columns (4)-(6)). In each panel, Column (1) and Column (4) do not include a lagged dependent variable, Column (2) and Column (5) include a lagged dependent variable, and Column (3) and Column (6) instrument for a lagged dependent variable using a twice-lagged dependent variable.

The heterogeneous effects of labor demand shocks on the prevalence of traditional attitudes toward women working by gender and marital status is not as informative given that almost all coefficients are imprecisely estimated. The only marginally significant pattern is observed among married women. Column (4) of Panel (b) shows that a one percent increase in Bartik shocks increases the prevalence of traditional gender attitudes among married women by 0.64 percentage points, significant at the 5 percent level.

Table 10 has an identical structure to Table 9, but it reports the effect of Bartik shocks on the prevalence of traditional attitudes (agreements) toward the emotional suitability of women for politics among single men and married men in Panel (a) and single women and married women in Panel (b). Just as was the case in Table 9, the only statistically significant coefficient is observed among married women. Column (4) of Panel (b) shows that a one percent increase in the predicted labor demand shocks, increases the prevalence of traditional attitudes among married women, significant at the 5 percent level, by 0.55 percentage points. Although the coefficient from Column (4) does not include a lagged dependent variable and is, therefore, not from a preferred specification, it is consistent in magnitude and direction

with the point estimates in Columns (5) and (6) of Panel (b) despite their large standard errors.

Finally, Tables 11 and 12 report the effects of Bartik shocks among younger respondents, aged 18-47 years old, (columns (1)-(3)) versus older respondents, aged 48-70 years old, (columns (4)-(6)) on the prevalence of traditional attitudes toward women working outside of the home and the prevalence of traditional attitudes toward the emotional suitability of women for politics, respectively.

None of the coefficients in Table 11 are statistically significant at conventional levels of 1, 5 and 10 percent and therefore, not informative. However, even though there is no evidence of heterogeneous effects of labor demand shocks on the prevalence of traditional gender attitudes toward women working by age in Table 11, I find a marginally significant effect among the younger respondents regarding the prevalence of traditional attitudes toward the emotional suitability of women for politics in Table 12. Column (1) of Table 12 shows that a one percent increase in Bartik shocks increases the prevalence of traditional attitudes toward the emotional suitability of women for politics by 0.50 percentage points in a specification without lagged dependent variable, significant at the 1 percent level. Although the coefficients in Columns (2) and (3) of Table 12 are noisy and statistically indistinguishable from zero, the magnitudes of their point estimates are comparable with Column (1).

6 Sensitivity Analysis

While different demographics may experience and respond differently to state-wide employment growth and labor demand shocks, they may also respond more strongly to changes in market segments relevant to their skill levels. That is, lower educated men may care more about labor demand growth and employment opportunities for lower educated men than the overall market conditions that include changes in opportunities for higher educated women,

for example. Thus, to examine the sensitivity of Section 4's results in segmented state-level labor markets by gender and education, I construct six separate Bartik shocks, three each for men and women by education level: those with less than or equal to eleven years of schooling, those with twelve to fifteen years of schooling, and those with at least sixteen years of schooling.

In Tables 13 and 14, I report the results from regressing the prevalence of traditional gender attitudes toward women working outside of the home and women's emotional suitability for politics, separately, among each of the six gender-education subgroups, on Bartik shocks that are specific to their segment. The regressions control for changes in the relevant population, and state and year fixed effects. All regressions instrument for lagged dependent variable using twice-lagged dependent variable and are weighted such that states with a higher share of relevant subpopulation contribute more to the estimation. For comparability of gender-education specific Bartik shocks with gender-education specific employment, see Table 16, Appendix.

Column (1) of Table 13 shows that a one percent increase in Bartik shocks specific to men with less than or equal to eleven years of schooling lowers the prevalence of traditional gender attitudes toward women working outside of the home by 6.45 percentage points, significant at the 10 percent level, among men with less than or equal to eleven years of schooling. Comparing the responsiveness of men with less than or equal to eleven years of schooling to own labor demand shocks versus their responses to the overall labor demand shocks reported in Table 7, where there was no evidence of a statistically significant response to overall Bartik shocks, suggests that this group is particularly responsive to shifts in demand in their industries.

Table 14 shows how the share of traditional attitudes toward the emotional suitability of women for politics among each of the six gender-education subgroups changes in response to their group specific labor demand shocks. With the exception of the coefficient in column

(3), all the other estimates are not statistically significant at conventional levels. Column (3) shows that men with at least sixteen years of schooling are fairly responsive to own-group Bartik shocks. A one percent increase in Bartik shocks specific to men with at least sixteen years of schooling, lowers the prevalence of traditional attitudes toward the emotional suitability of women for politics among men with at least sixteen years of schooling by 0.53 percentage points, significant at the 5 percent level. By contrast, Table 8 shows no statistically significant evidence of responsiveness of men with at least sixteen years of schooling to the overall labor demand shocks, implying that this group is more responsive to changes in their own market segment.

It must be noted that the evidence presented in Tables 13 and 14 is suggestive and not definitive, since the regressions do not control for changes in labor demand across other gender-education subpopulations. As shown in the Table 17, Appendix, Bartik shocks specific to one gender-education segment of the population are highly correlated with Bartik shocks specific to other gender-education segments. This high correlation is consistent with expectations, since despite sorting across industries and occupations by gender and education, no one industry or occupation is completely segregated, and major economic shocks to states reverberates across groups.

7 Conclusions

This paper investigates the size and direction of labor demand shocks on the prevalence of traditional attitudes toward women working outside of the home and women's emotional suitability for politics. It significantly expands what is known about the evolution of gender attitudes by documenting aggregate trends of decline in the prevalence of traditional gender-role attitudes over time, within and between cohorts, and by innate and acquired characteristics such as gender, education, marital status, and age. In addition, it documents

a general lack of heterogeneous effects of labor demand shocks across subpopulations; and lastly, it highlights the possible responsiveness of subpopulations to own-group labor demand shocks.

The difficulty of isolating the effects of labor market conditions on gender attitudes lies in the simultaneity between the two. The interrelated government policies, and demand and supply factors that determine labor market conditions are likely influenced by prevailing gender attitudes. Gender attitudes could influence early childhood education, subsequent levels of human capital investments, women's decision to join the labor force, and employers' decisions to hire women, which complicates the identification of any causal effects of labor demand changes. However, by using a framework that estimates local labor demand shifts based on only the initial local industry distribution and national industry growth, I effectively overcome the simultaneity concern between labor market changes and gender attitudes.

Four analytical components add credibility to the results. One, controlling for systematic time-invariant differences across states that would affect the local industry distributions as well as local attitudes. Two, controlling for variables that would plausibly affect both national employment growth trends and local gender attitudes such as changes in population, or gender and education characteristics of survey respondents. Three, recognizing the dynamics of gender attitudes and measuring current gender attitudes as a function of prior attitudes. Four, overcoming the endogeneity introduced when controlling for both gender dynamics and state fixed effects by using an instrumental variables approach.

This analysis provides insights into how traditional gender attitudes respond to labor demand changes that are largely unaffected by government policies. The 40-year period of this study, which captures both longer-term structural changes in market dynamics as well as shorter-term fluctuation of business cycles, sheds light on both the power and limitations of market demand forces in bringing about attitudinal change. For example, the analysis highlights that despite the considerable declines in the prevalence of traditional gender atti-

tudes toward women working outside of the home and their emotional suitability for politics between 1977 and 2016, the declines have not been continuous and without setbacks. Of the 37- and 26-percent declines during this period in the prevalence of traditional attitudes toward women working outside of the home and their emotional suitability for politics, 27 and 18 percent of each, respectively, took place between 1977 and 1990 with only small declines thereafter. These shares sit at 25 and 17 percent in 2016. Although, this paper does not attempt to answer whether the social marginal cost of reducing the existing levels of traditional gender attitudes is acceptable or whether the rates of attitudinal change have been adequate, it, nonetheless, provides policymakers with important initial benchmarks for consideration via the reduced form estimates.

The reduced form estimates reveal that the effect of labor demand shocks may differ systematically by the aspect of gender roles in question. Positive Bartik shocks lower the prevalence of traditional attitudes toward women working outside of the home by 0.45 percentage points, while I find no statistically significant evidence that labor demand shocks affect the prevalence of traditional attitudes toward the emotional suitability of women for politics across different specifications. This possible difference in the effectiveness of labor demand shocks highlights the multidimensional character of attitude formation and the importance of separately considering the effects on attitudes related to work as opposed to politics.

Another key lesson is that group-specific labor demand shocks are possibly more important than the overall demand shocks in influencing the prevalence of traditional attitudes toward women working and women's emotional suitability among specific groups. Although I find no evidence that positive overall Bartik shocks affect the prevalence of traditional attitudes toward women working among men with less than a high school diploma, I find that a one percent increase in Bartik shocks specific to men with less than a high school diploma lowers the prevalence of said attitudes by 6.45 percentage points, significant at the

10 percent level. Similarly, I find no statistically significant evidence that positive Bartik shocks affect the prevalence of traditional attitudes toward women's emotional suitability for politics, but I find that a one percent increase in Bartik shocks specific to men with at least a baccalaureate lowers the prevalence of these traditional attitudes by 0.53 percentage points among men with at least a baccalaureate, significant at the 5 percent level. This higher relevance of group specific labor demand shocks in driving changes in traditional gender-role attitudes suggests that any effective policy should be matched to the target population. However, since labor demand shocks across various gender-education groups are highly correlated, whether each group is responding to own labor demand changes or other groups' labor demand changes is unclear.

References

- Ahituv, A., and Lerman, R. (2005). Job Turnover, Wage Rates, and Marital Stability: How Are They Related? *IZA Discussion Paper No. 1470*.
- Autor, D.H (2010). The Polarization of Job Opportunities in the US Labor Market. *The Center for American Progress and The Hamilton Project*.
- Autor, D.H., and Duggan, M.G.(2003). The Rise in the Disability Rolls and Decline in Unemployment. *Quarterly Journal of Economics* 118(1): 157-206.
- Bartik, T.J. (1991). Who Benefits from State and Local Economic Development Policies? Kalamazoo, W.E. Upjohn Institute for Employment Research.
- Becker, G.S. (1981). A Treatise on the Family. Cambridge, Massachusetts, Harvard University Press.
- Bertrand, M. (2011). New Perspectives on Gender. In: Handbook of Labor Economics. Volume 4B, Chapter 17, pp. 1543-1590. Elsevier.
- Bertrand, M., Kamenica, E., and Pan, J. (2015) Gender Identity and Relative Income Within Households. *The Quarterly Journal of Economics* 130(2): 571-614.
- Blau, F.D., and Kahn, L.M. (2017). The Gender Wage Gap: Extent, Trends, and Explanations. *Journal of Economic Literature* 55(3): 789-865.
- Borusyak, K., Hull, P. and Jaravel, X. (2018). Quasi-Experimental Shift-Share Research Designs. *NBER Working Paper No. 24997*.

Brooks, C., and Bolzendal, C. (2004). The Transformation of US Gender Role Attitudes: Cohort Replacement, Social-Structural Change, and Ideological Learning. *Social Science Research* 33: 106-133.

Buchmann, C., DiPrete, T.A., and McDaniel, A. (2008). Gender Inequalities in Education. *Annual Review of Sociology* 34(August): 319-337.

Charles K.K., Guryan, J. and Pan, J. (2018). The Effects of Sexism on American Women: The Role of Norms Vs. Discrimination. *NBER Working Paper No. 24904*, 2018.

Charles, K.K., Hurst, E., and Notowidigdo, M.J. (2012). Manufacturing Busts, Housing Booms, and Declining Employment: A Structural Explanation. Retrieved from University of Chicago website. https://faculty.chicagobooth.edu/erik.hurst/research/charles_hurst_notowidigdo_manufacturing.pdf
(accessed May 11, 2020)

Chauvin, J.P. (2017). Gender-Segmented Labor Markets and the Effects of Local Demand Shocks. Job Market Paper. Harvard University.

Dasgupta, N., and Asgari, S. (2004). Seeing is believing: Exposure to counterstereotypic women leaders and its effect on the malleability of automatic gender stereotyping. *Journal of Experimental Social Psychology* 40(5): 642-658.

Duflo, E. (2012). Women Empowerment and Economic Development. *Journal of Economic Literature* 50(4): 1051-1079.

Farré, L., and Vella, F. (2007). The Intergenerational Transmission of Gender Role Attitudes and its Implications for Female Labor Force Participation. *IZA Discussion Paper No. 2802*.

Fernandez, R., Fogli, A., and Olivetti, C. (2004). Mothers and Sons: Preference Formation and Female Labor Force Dynamics. *The Quarterly Journal of Economics* 119(4): 1249-1299.

Fernandez, R., and Fogli, A. (2009). Culture: An Empirical Investigation of Beliefs, Work, and Fertility.” *American Economic Journal: Macroeconomics* 1(1): 146-177.

Fortin, N.M. (2015). Gender Role Attitudes and Women’s Labor Market Participation: Opting-Out, AIDS, and the Persistent Appeal of Housewifery. *Annals of Economics and Statistics* 117/118: 379-401.

Goldin, C. (2006). The Quiet Revolution That Transformed Women’s Employment, Education, and Family. *American Economic Review* 96(2): 1-21.

Goldin, C., Katz, L.F., and Kuziemko, I. (2006). The Homecoming of American College Women: The Reversal of the College Gender Gap. *Journal of Economic Perspectives* 20(4): 133-156.

Goldin, C., and Katz, L.F. (2002). The Power of the Pill: Oral Contraceptives and Women’s Career and Marriage Decisions. *Journal of Political Economy* 110(4): 730-770.

Goldsmith-Pinkham, P., Sorkin, I., and Swift, H. (2018). Bartik Instruments: What, When, Why, and How. *NBER Working Paper No. 24408*.

History, Art Archives, U.S. House of Representatives, Office of the Historian, Women in Congress, 1917-2006, Washington, D.C. Government Printing Office: Women Members by Congress, 1917-Present. U.S. House of Representatives website, 2007.

<https://history.house.gov/Exhibitions-and-Publications/WIC/Historical-Data/Women-Representatives-and-Senators-by-Congress/> (accessed May 2, 2020)

Kessler, R.C., and McRae J.A. Jr. (1982). The Effect of Wives Employment on The Mental Health of Married Men and Women. *American Sociological Review* 47(2): 216-227, 1982.

Killewald, A., and Lundberg, I. (2017). New Evidence against a Causal Marriage Wage Premium. *Demography* 54(3): 1007-1028.

Knight, C.R., and Brinton, M.C. (2017). One Egalitarianism or Several? Two Decades of Gender-Role Attitude Change in Europe. *American Journal of Sociology* 122(5): 1485-1532.

Lee, V.E., and Marks, H.M. (1990). Sustained effects of the single-sex secondary school experience on attitudes, behaviors, and values in college. *Journal of Educational Psychology* 82(3): 578-592.

Lemieux, T. (2006). Postsecondary Education and Increasing Wage Inequality. *American Economic Review* 96(2): 195-199.

Maccoby, E.E. (1990). Gender and relationships: A developmental account. *American Psychologist* 45(4): 513-520.

Maccoby, E.E. (1998). The two sexes: Growing up apart, coming together. Cambridge, Massachusetts, Family and Public Policy, 1998.

Maestas, N., Mullen, K., and Powell, D. (2013). The Effect of Local Labor Demand Conditions on the Labor Supply of Older Americans. *SIEPR Discussion Paper No. 13-014*.

Murray-Close, M., and Heggeness, M.L. (2018). Manning up and womaning down: How husbands and wives report their earnings when she earns more. *SESHD Working Paper 2018-20*.

Nickell, S. (1981). Biases in Dynamic Models with Fixed Effects. *Econometrica* 49(6): 1417-1426.

Oreopoulos, P., Page, M.E., and Stevens, A.H. (2003). Does Human Capital Transfer from Parent to Child? The Intergenerational Effects of Compulsory Schooling. *NBER Working Paper No. 10164*.

Rogers, A., and Raymer, J. (2001). Immigration and the Regional Demographics of the Elderly Population in the United States. *Journal of Gerontology Series B* 56(1): S44-S55.

Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., and Sobek, M.: IPUMS USA: Version 8.0 [dataset]. Minneapolis MS: IPUMS, 2018.

Schaller, J. (2016). Booms, Busts, and Fertility: Testing the Becker Model Using Gender-Specific Labor Demand. *Journal of Human Resources* 51(1): 1-29.

Smith, T.W., Dayern, M., Freese, J., and Hout, M.: General Social Surveys, 1972-2018 [machine-readable data file]. NORC at the University of Chicago, 2018.

Syrda, J. (2020). Spousal Relative Income and Male Psychological Distress. *Personality and Social Psychology Bulletin* 46(6): 976-992.

U.S. Bureau of Labor Statistics. (2020). Labor Force Participation Rate-Women [LNS11300002]. Retrieved from FRED, Federal Reserve Bank of St. Louis website. <https://fred.stlouisfed.org/series/LNS11300002> (accessed February 24, 2020).

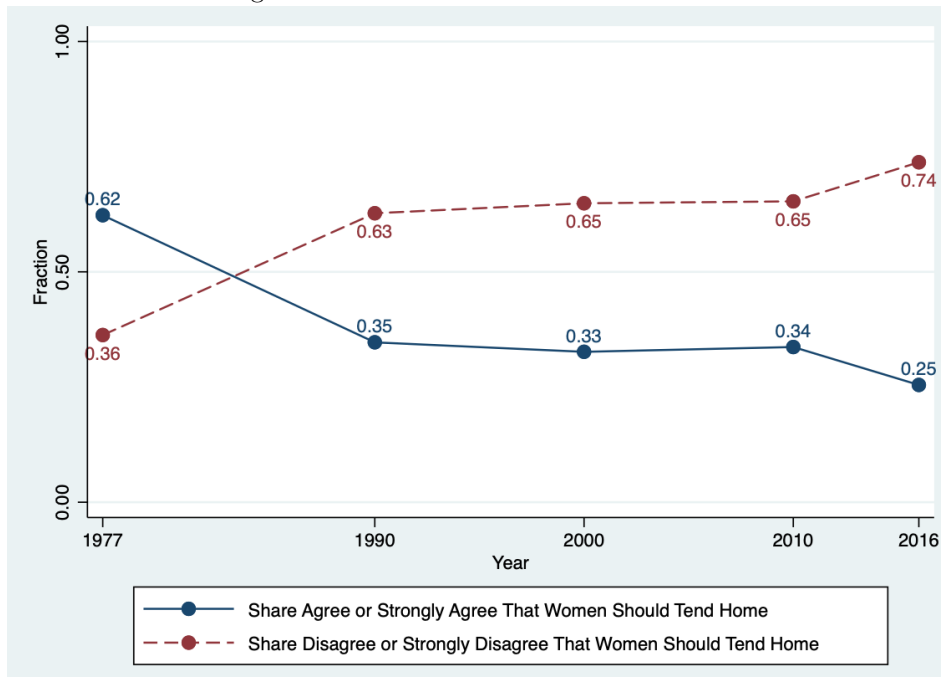
U.S. Commission on Civil Rights (1977). Window Dressing on The Set: Women and Minorities in Television. Retrieved from Law.umaryland.edu. <https://www2.law.umaryland.edu/marshall/usccr/documents/cr12t23.pdf> (accessed March 9, 2020).

Vella, F. (1994). Gender Roles and Human Capital Investment: The Relationship between Traditional Attitudes and Females Labor Market Performance. *Economica* 61(242): 191-211.

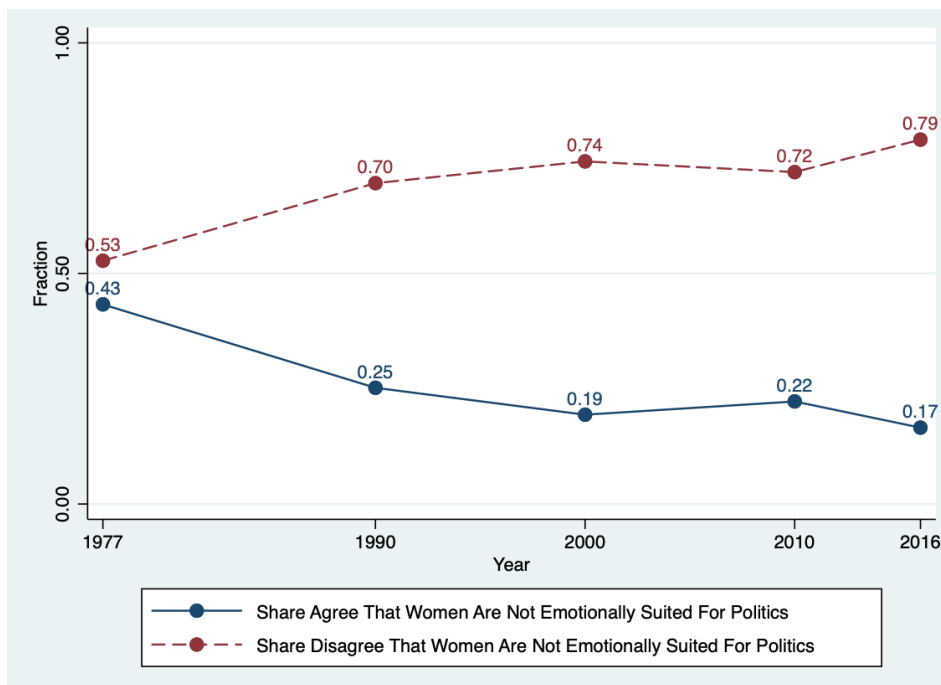
Wooldridge, J.M. (2006). *Introductory Econometrics: A Modern Approach*. South-Western College Publishing.

Zuo, J., and Tang, S. (2000). Breadwinner Status and Gender Ideologies of Men and Women Regarding family roles. *Sociological Perspectives* 43(1): 29-43.

Figure 1: Evolution of Gender-Role Attitudes in The U.S. Over Time



Panel (a)

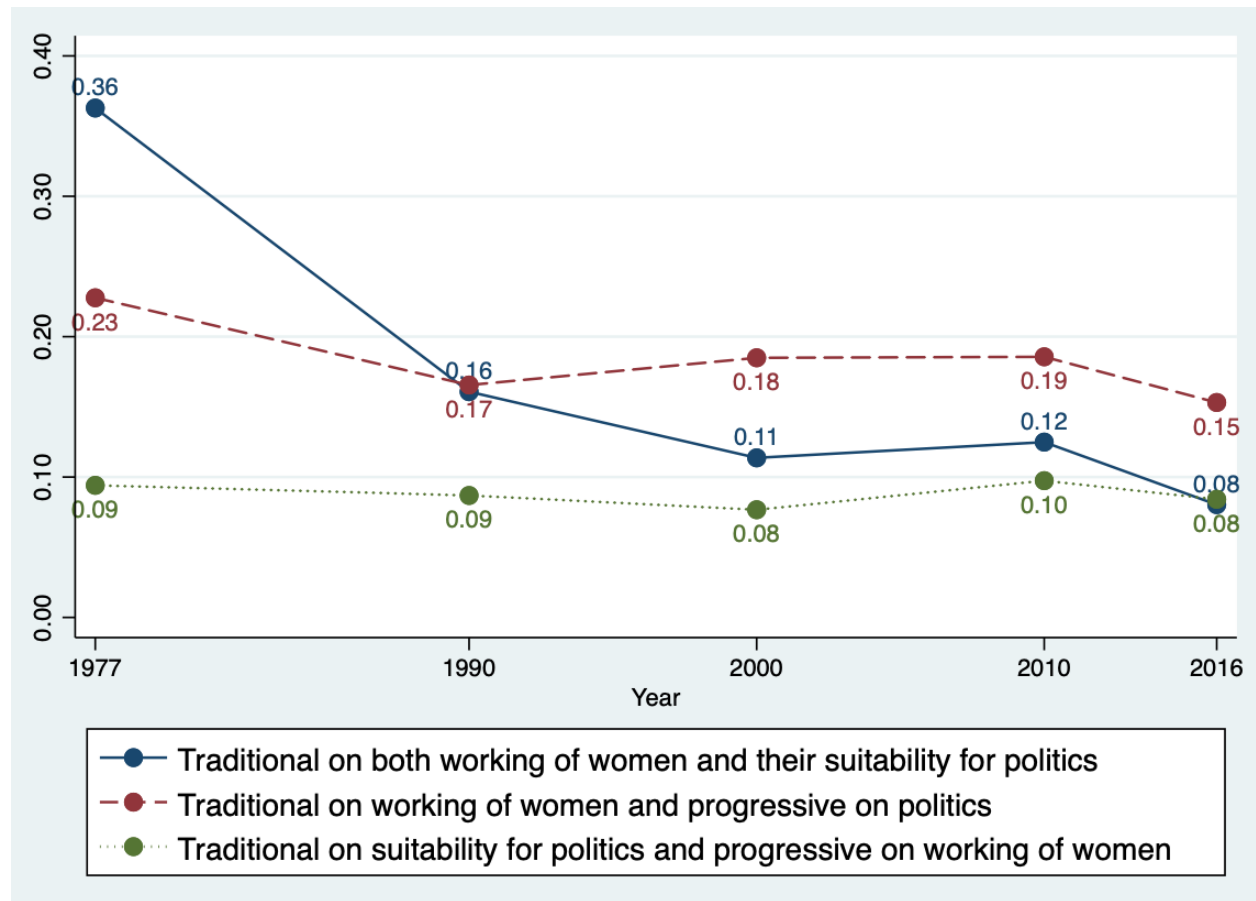


Panel (b)

Data Source: The General Social Survey.

Notes: Each panel plots the shares of traditional and progressive gender attitudes over time. In Panel (a), the share of traditional attitudes is defined as the number of agreements or strong agreements divided by the total number of responses to the statement that is better for men to work and women tend home. The share of progressive gender attitudes is defined similarly but instead uses the number of disagreements or strong disagreements. In Panel (b), the share of traditional gender attitudes is defined as the number of agreements (no option for strong agreements) divided by the total number of responses to the statement that women are not emotionally suited for politics. The share of progressive gender attitudes is defined similarly but instead uses the number of disagreements (no option for strong disagreements).

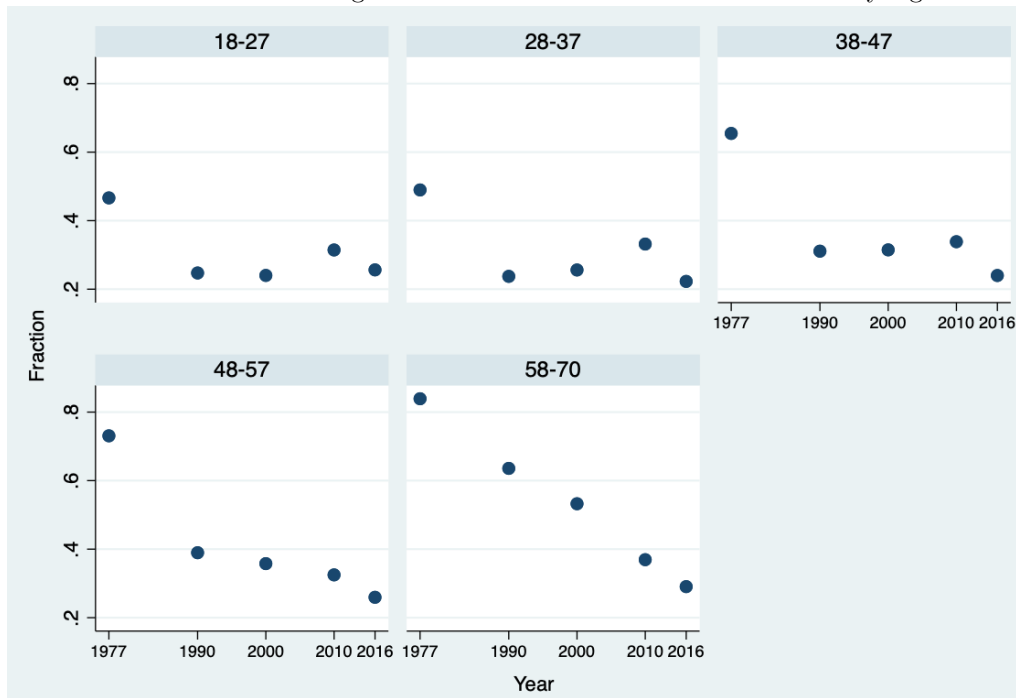
Figure 2: Joint Distribution of Attitudes Toward Women Working and Women’s Emotional Suitability for Politics



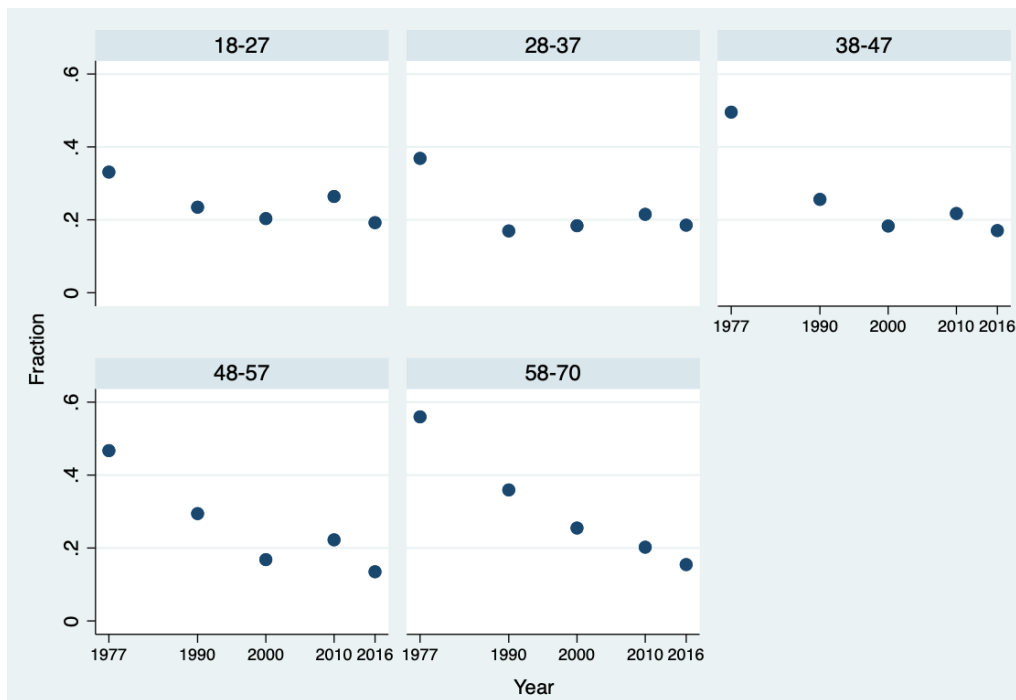
Data Source: The General Social Survey.

Notes: This figure plots 3 of the 9 possible combination of responses to statements that it is better for men to work and women tend home and that women are not emotionally suited for politics over time. The possible combinations are between agreement or strong agreement (traditional), disagreement or strong disagreement (egalitarian), and don’t know response options to it is better for men to work and women tend home and the agreement (traditional), disagreement (egalitarian), and not sure response options to women are not emotionally suited for politics.

Figure 3: Traditional Gender-Role Attitudes by Age



Panel (a)

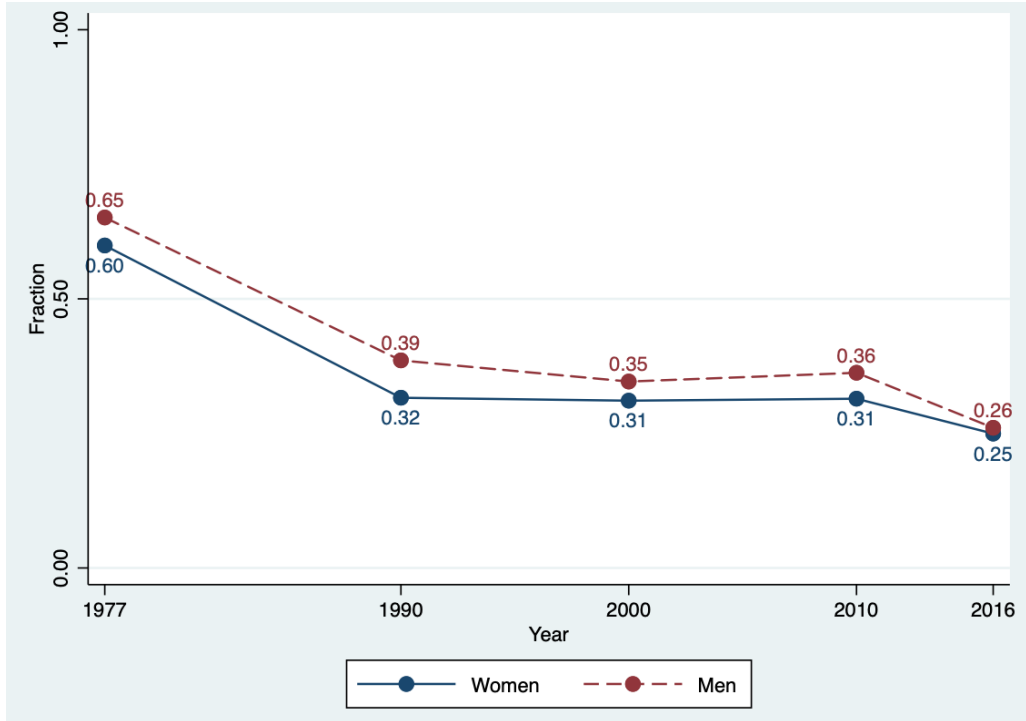


Panel (b)

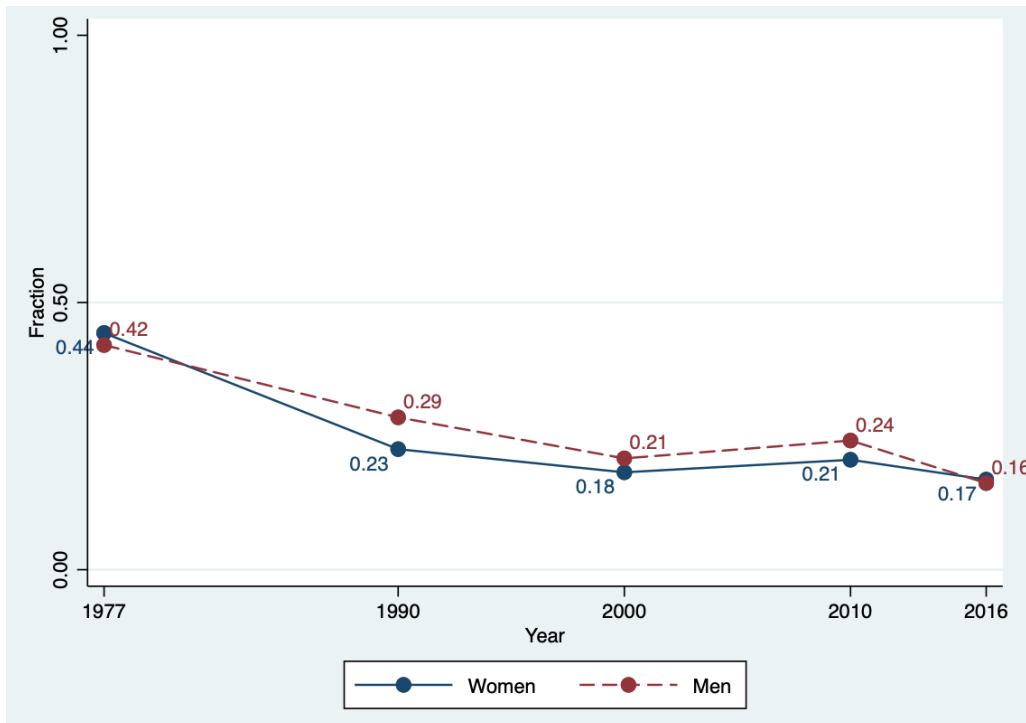
Data Source: The General Social Survey.

Notes: Each panel plots the share of traditional attitudes, within 5 age groups of 18-27, 28-37, 38-47, 48-57, and 58-70, across different birth cohorts and time. In Panel (a), the share of traditional attitudes is defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home. In Panel (b), the share of traditional attitudes is defined as the number of agreements (there is no strong agreement option) divided by the total number of responses to the statement that women are not emotionally suited for politics.

Figure 4: Evolution of Traditional Gender-Role Attitudes by Gender



Panel (a)

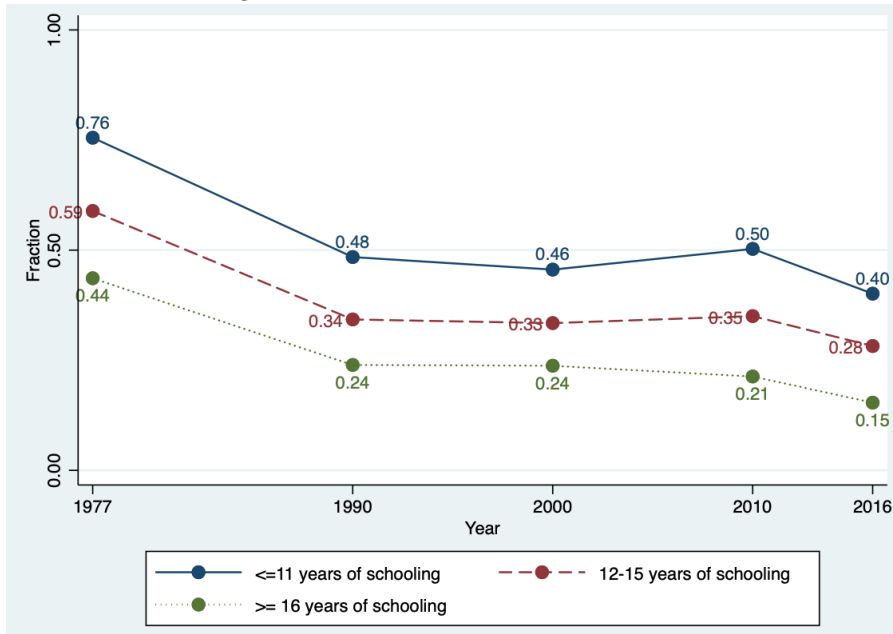


Panel (b)

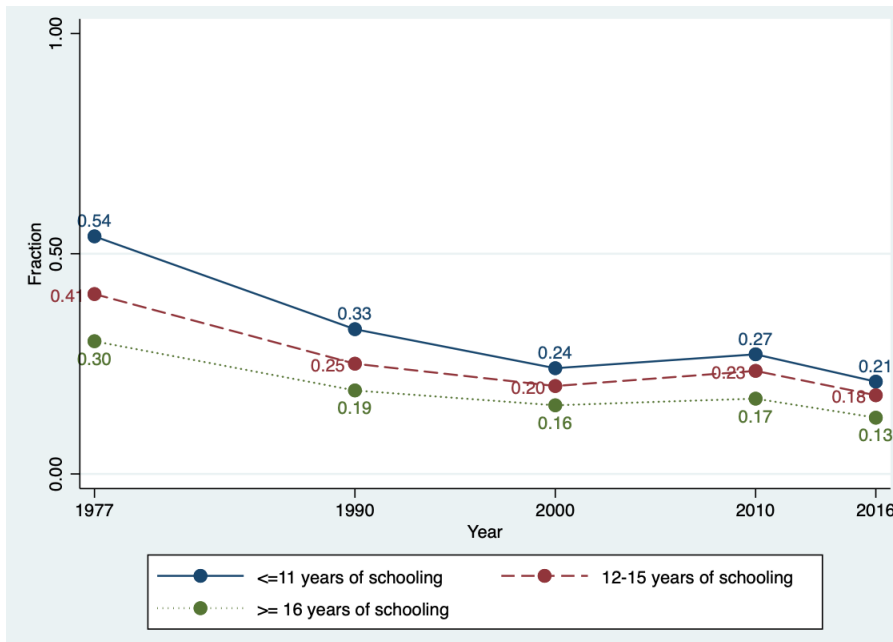
Data Source: The General Social Survey.

Notes: Each panel plots the shares of traditional gender attitudes among men and women separately, between 1977 and 2016. In Panel (a), the shares of men with traditional attitudes is defined as the number of male responders who indicate agreement or strong agreement with the statement that it is better for men to work and women tend home divided by the total number of male responders to this statement. The shares of women with traditional attitudes is defined similarly, but based on the female responders. In Panel (b), the shares of men and women with traditional attitudes is defined in the same manner as in Panel (a), except responses are with regard to the statement that women are not emotionally suited for politics.

Figure 5: Evolution of Traditional Gender-Role Attitudes by Education



Panel (a)

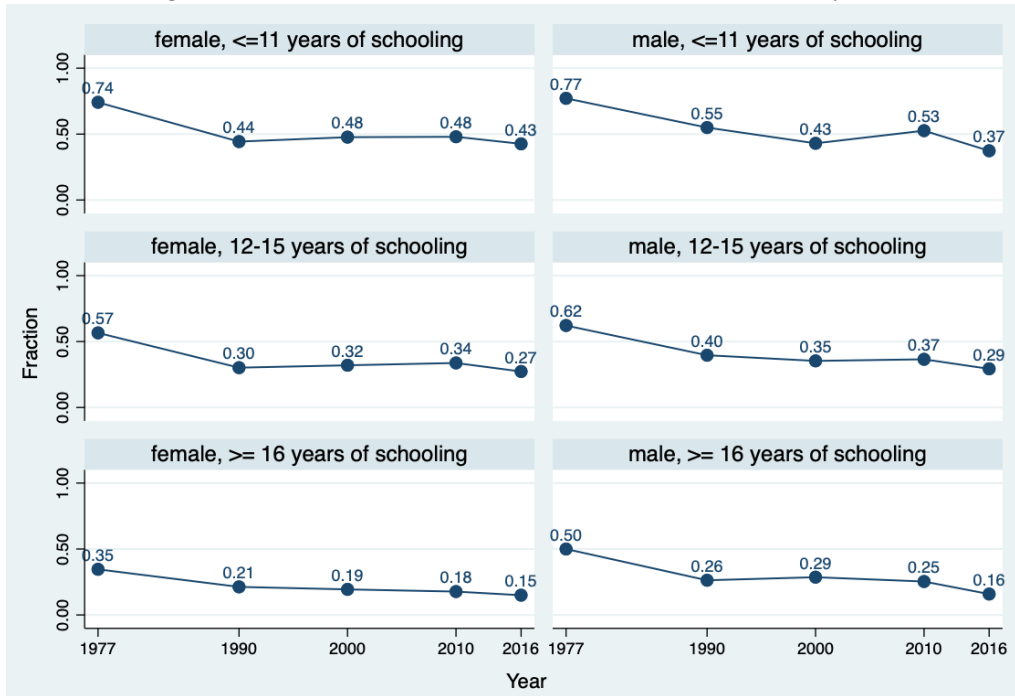


Panel (b)

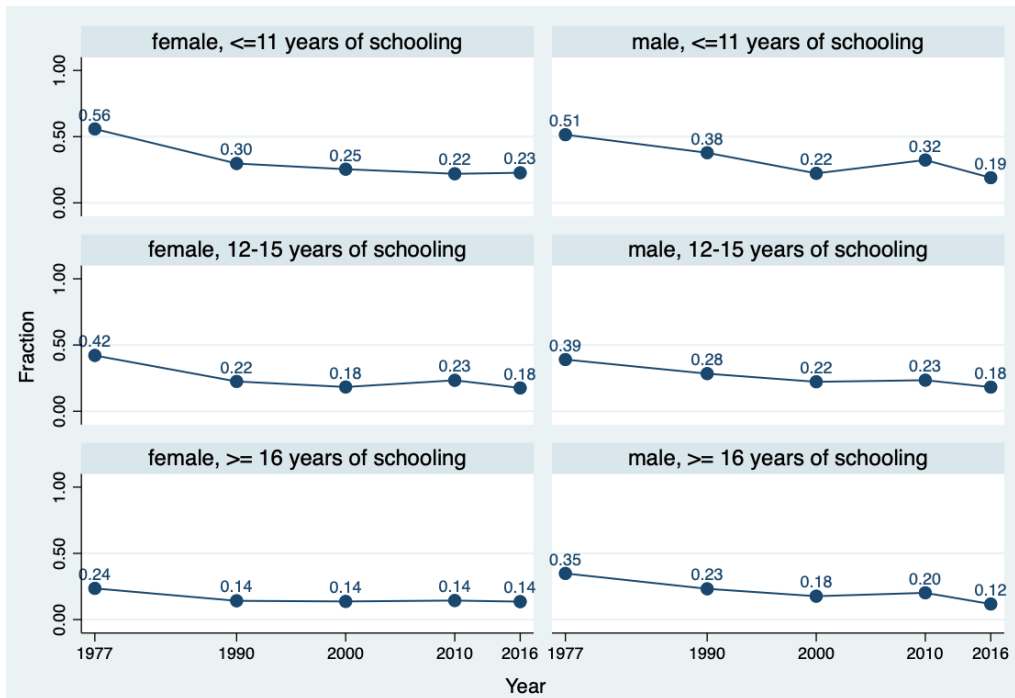
Data Source: The General Social Survey.

Notes: Each panel plots the shares of traditional gender attitudes among responders with less than or equal to eleven years of schooling, eleven to fifteen years of schooling, and sixteen or more years of schooling between 1977 and 2016. In Panel (a), the share of traditional attitudes among each of the 3 education groups is defined as the number of responders within that education group who indicate agreement or strong agreement with the statement that it is better for men to work and women tend home divided by the total number of responders to this statement in that education group. In Panel (b), the shares are defined similarly to Panel (a), except that the responses are with regard to the statement that women are not emotionally suited for politics.

Figure 6: Evolution of Traditional Gender-Role Attitudes by Gender and Education



Panel (a)

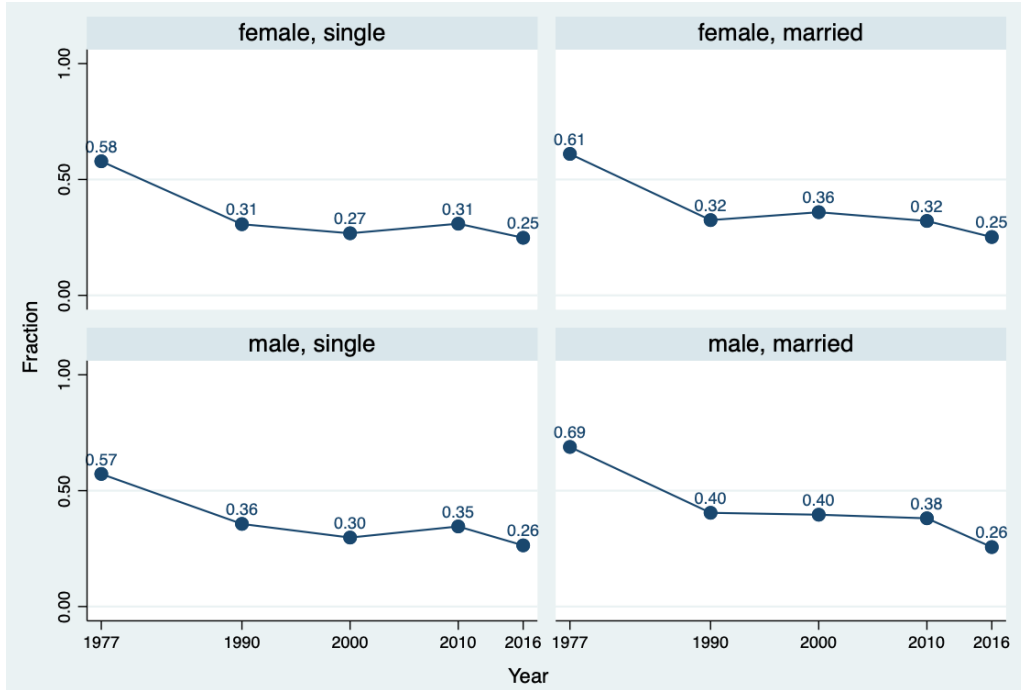


Panel (b)

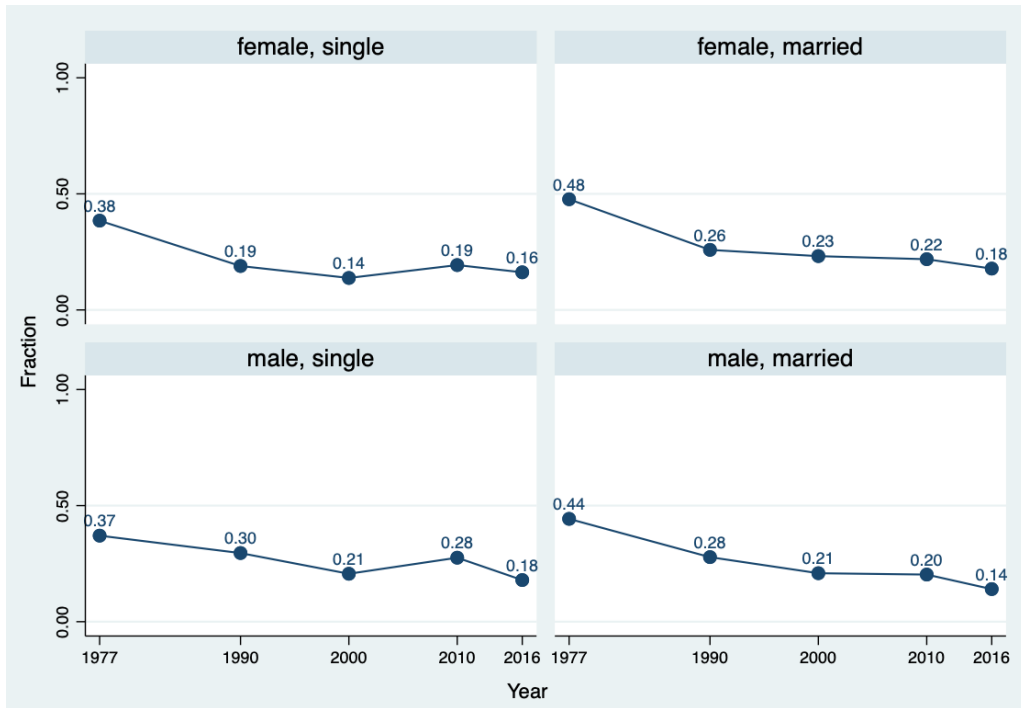
Data Source: The General Social Survey.

Notes: Each panel shows the share of traditional gender attitudes by gender (female, male) and education levels (less than or equal to eleven years of schooling, twelve to fifteen years of schooling, and at least sixteen years of schooling) over time. In Panel (a) the share of traditional gender attitudes is defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home. In Panel (b) the share of traditional gender attitudes is defined as the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for politics.

Figure 7: Evolution of Traditional Gender-Role Attitudes by Gender and Marital Status



Panel (a)

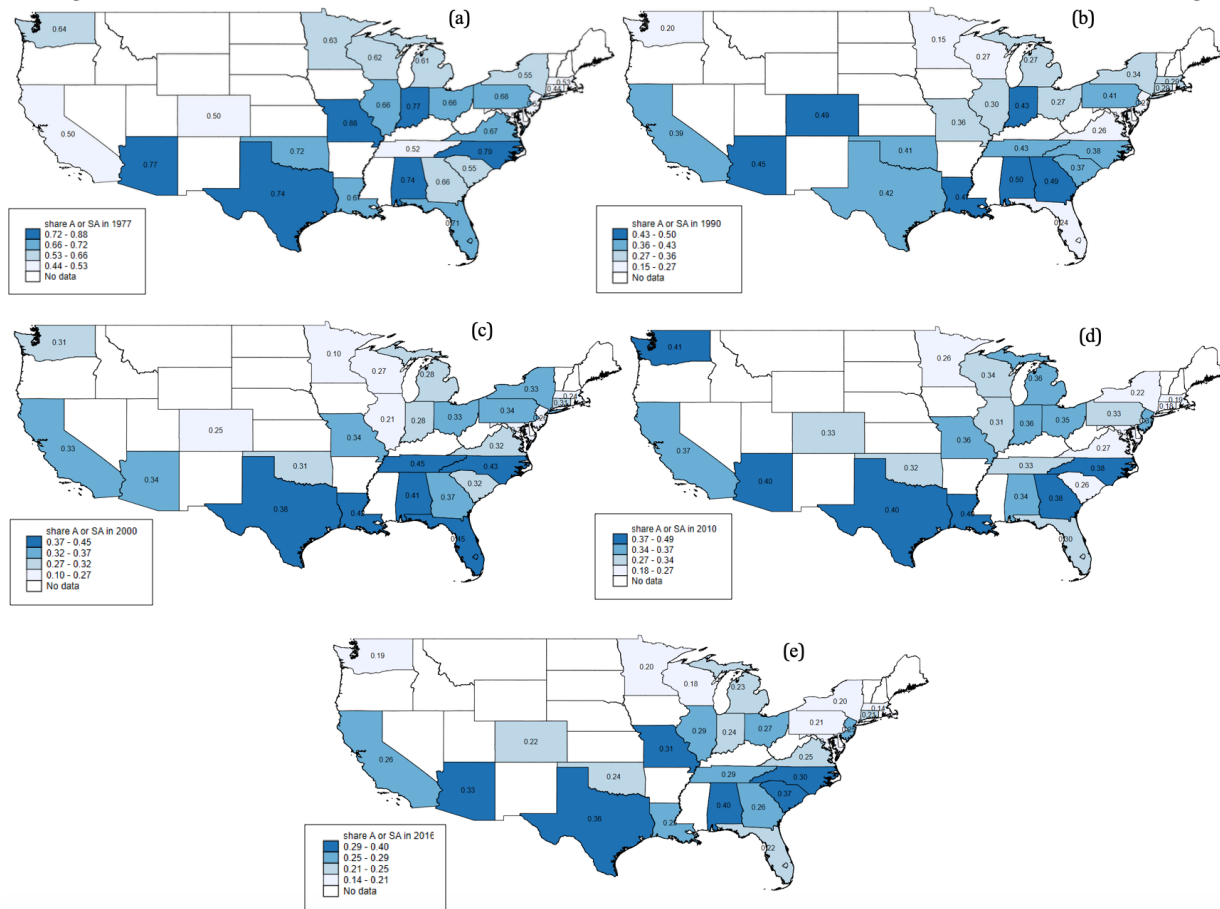


Panel (b)

Data Source: The General Social Survey.

Notes: Each panel shows the share of traditional gender attitudes by gender (female, male) and marital status (married, single) over time. In Panel (a) the share of traditional attitudes is defined as the number of agreements or strong agreements that women should tend home divided by the total number of responses to the statement that it is better for men to work and women tend home. In Panel (b) the share of traditional attitudes is defined similarly to Panel (a), except with regard to the statement that women are not emotionally suited for politics. Single marital status includes widowed, divorced, separated, and never married. Married status includes currently married.

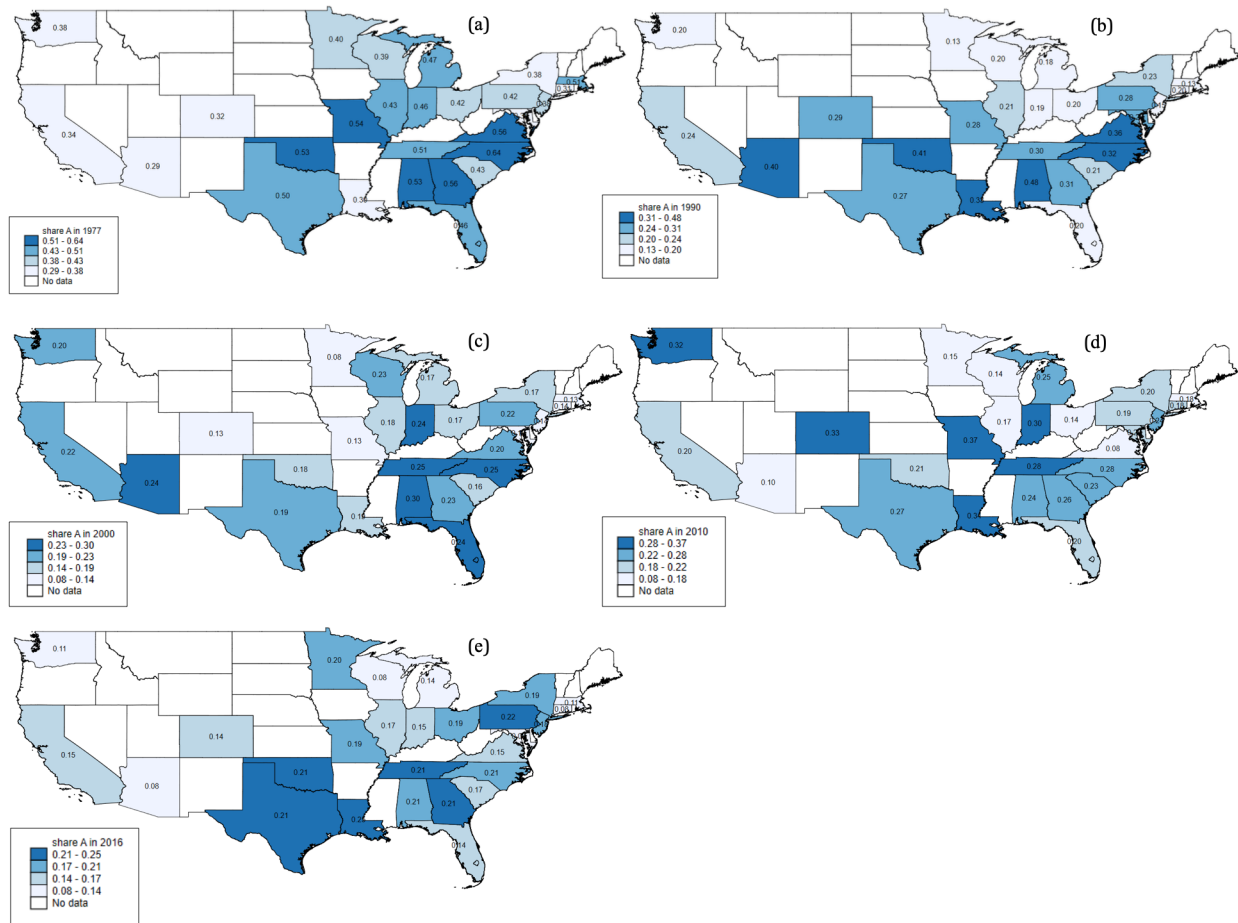
Figure 8: State-Level Variation in The Prevalence of Traditional Attitudes Toward Women working



Data Source: The General Social Survey.

Notes: Each panel shows the share of traditional gender attitudes on women working outside of the home across the U.S. states in 1977 (a), 1990 (b), 2000 (c), 2010 (d), and 2016 (e). In each panel, the darker shades indicate a stronger prevalence of traditional gender attitudes relative to other states in that year. The share of traditional attitudes is defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home.

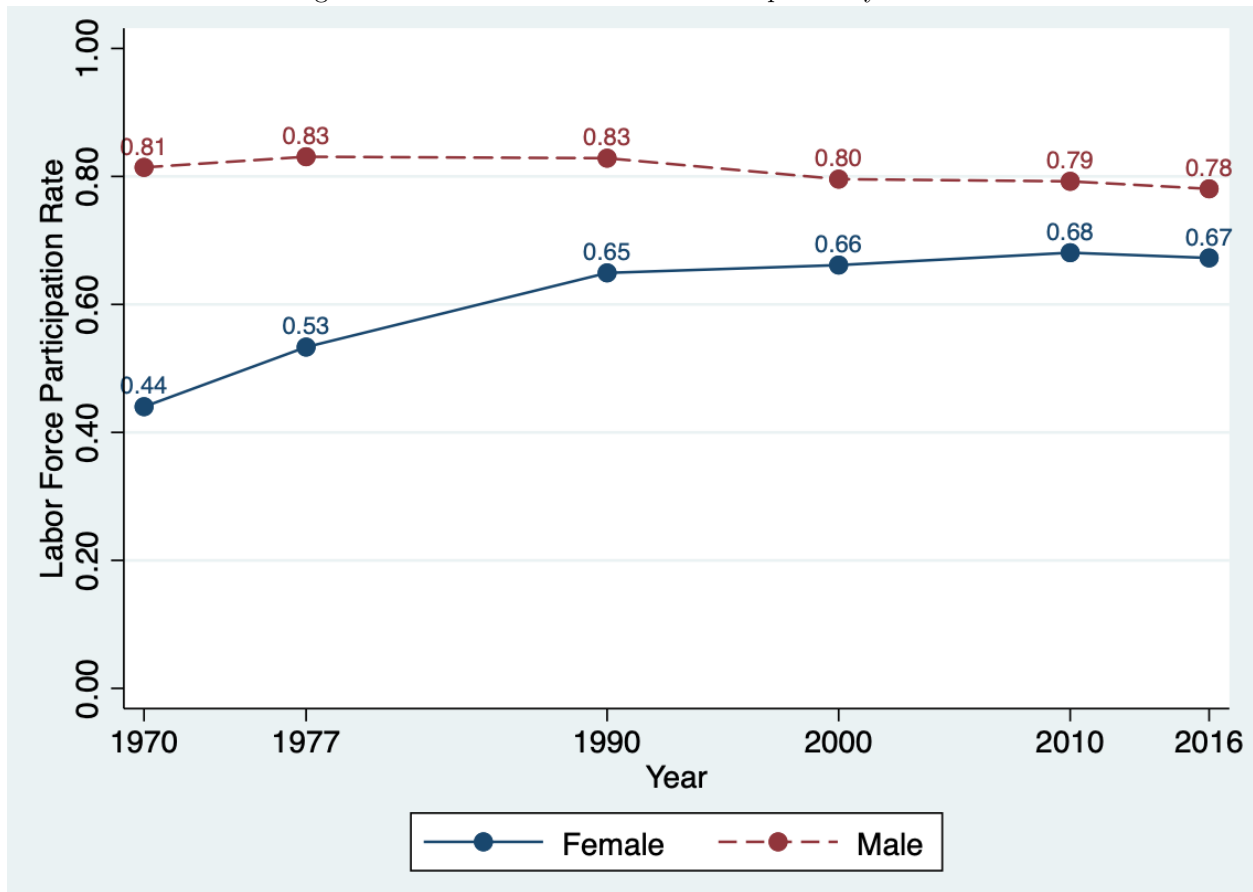
Figure 9: State-Level Variation in The Prevalence of Traditional Attitudes Toward The Emotional Suitability of Women for Politics



Data Source: The General Social Survey.

Notes: Each panel shows the share of traditional gender attitudes on emotional suitability of women for politics across the U.S. states in 1977 (a), 1990 (b), 2000 (c), 2010 (d), and 2016 (e). In each panel, the darker shades indicate a stronger prevalence of traditional gender attitudes relative to other states in that year. The share of traditional attitudes is defined as the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for politics.

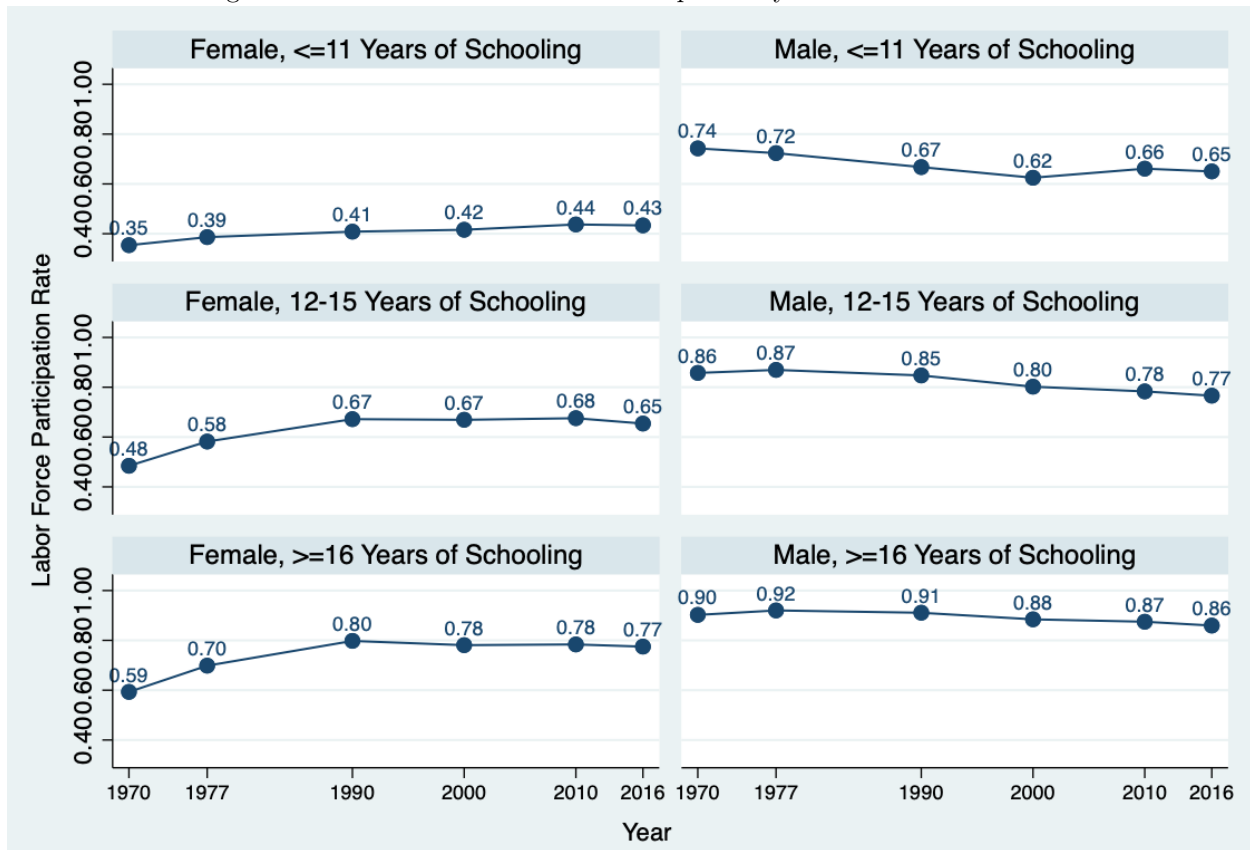
Figure 10: Trends In Labor Force Participation by Gender



Data Source: The decennial Census and the American Community Survey.

Notes: The labor force participation rates are estimated for samples of men and women aged 18 to 70, as the number of people in the civilian labor force divided by the civilian population. The labor force participation rate in 1977 is interpolated using the data in 1970 and 1980.

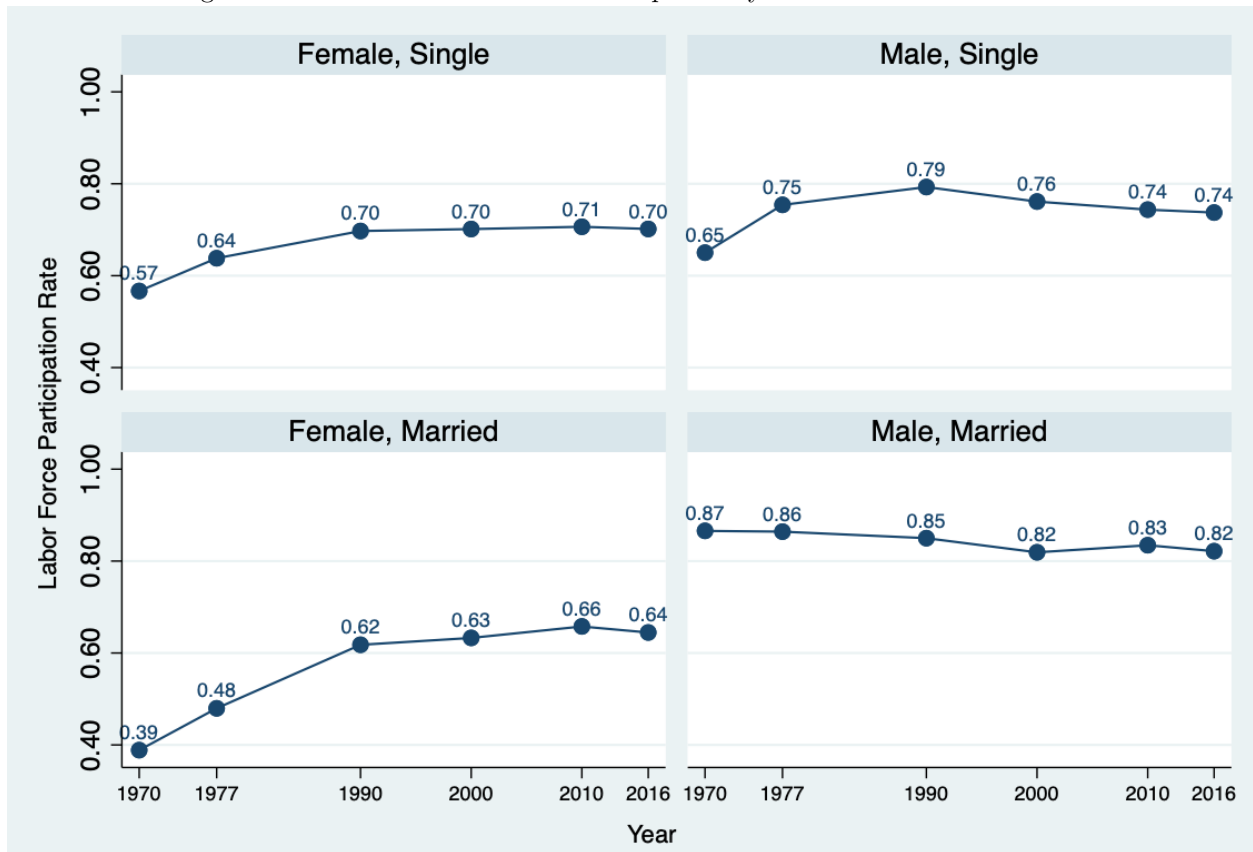
Figure 11: Trends in Labor Force Participation by Gender and Education



Data Source: The decennial Census and the American Community Survey.

Notes: The labor force participation rates are estimated separately for samples of men and women aged 18 to 70, with less than or equal to eleven year of schooling, twelve to fifteen years of schooling, and at least sixteen years of schooling. The labor force participation rate for women with less than or equal to eleven years of schooling is defined as the number of women with less then or equal to eleven years of schooling in the civilian labor force (employed or unemployed) divided by the total number of civilian female population with less than or equal to eleven years of schooling. The labor force participation rate among all the other gender and education sub-populations are defined similarly. The labor force participation rate in 1977 is interpolated using the data in 1970 and 1980.

Figure 12: Trends in Labor Force Participation by Gender and Marital Status



Data Source: The decennial Census and the American Community Survey.

Notes: The labor force participation rates are estimated separately for single and married men and women between 18 to 70 years old. Single is defined as divorced, separated, widowed, and never married. Married is defined as currently married regardless of whether the spouse is present. The labor force participation rate for "Female, Single" is calculated as the number of single women in the labor force divided by the total civilian population of single women in each year. The labor force participation rates for married women, single men and married men are calculated similarly. The labor force participation rate in 1977 is interpolated using the data in 1970 and 1980.

TABLE 1: SHARE AGREE OR STRONGLY
 AGREE THAT WOMEN SHOULD TEND HOME
 BY BIRTH COHORT, AGE, AND PERIOD

	GSS survey years				
Median Birth	1977	1990	2000	2010	2016
2010-2016					
2000-2009					
1990-1999					0.27
1980-1989				0.33	0.22
1970-1978			0.25	0.32	0.25
1960-1969		0.25	0.27	0.33	0.24
1950-1959	0.47	0.25	0.32	0.34	0.29
1940-1949	0.49	0.29	0.40	0.38	
1930-1939	0.65	0.46	0.56		
1920-1920	0.73	0.67			
1907-1919	0.84				

Notes: Table 1 depicts the share of traditional attitudes on women working outside of home, defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home, by birth cohort (horizontally), by period (vertically), and by age group (diagonally).

TABLE 2: SHARE AGREE THAT WOMEN ARE NOT EMOTIONALLY SUITED FOR POLITICS BY BIRTH COHORT, AGE, AND PERIOD

	GSS survey years				
Median Birth	1977	1990	2000	2010	2016
2010-2016					
2000-2009					
1990-1999					0.21
1980-1989				0.26	0.18
1970-1978			0.18	0.21	0.17
1960-1969		0.20	0.18	0.21	0.13
1950-1959	0.33	0.21	0.19	0.22	0.15
1940-1949	0.37	0.23	0.19	0.21	
1930-1939	0.50	0.34	0.26		
1920-1920	0.47	0.36			
1907-1919	0.56				

Notes: Table 2 depicts the share of traditional attitudes on emotional suitability of women for politics, defined as the number of agreements (there are no strong agreement options) divided by the total number of responses to the statement that women are not emotionally suited for politics, by birth cohort (horizontally), by period (vertically), and by age group (diagonally).

TABLE 3: GROWTH RATES SUMMARY STATISTICS

	(1)	(2)	(3)
Mean	0.767	0.515	0
Standard deviation	0.848	0.583	0.558
Interquartile range	1.027	0.854	0.735
<u>Specification</u>			
Excluding service industries		Yes	Yes
Residualized on industry-by-period FE			Yes
<u>Largest industry shares in base year</u>			
Across industries	0.269	0.269	0.269
<u>Observation counts</u>			
N of industry-by-period shocks	70	55	55
N of industries	14	11	11
N of periods	5	5	5

Notes: This table summarizes the distribution of industry-specific national growth rates across 14 industries and 5 time periods, in a similar manner to Borusyak, Hull, and Jaravel (2018). All statistics are weighted by the average industry shares in the base year of 1970. Column (1) includes all industry growth rates, while Columns (2) and (3) restrict to non-service industries (i.e. Business and Repair Services, Personal Services, and Professional and Related Services are excluded). Column (3) also residualizes on time period indicators. The largest industry shares in the base years are also reported.

TABLE 4: BARTIK SHOCKS SUMMARY
STATISTICS

	(1)	(2)	(3)	(4)
Mean	0.761	0	0	0
Standard deviation	0.320	0.306	0.086	0.039
Interquartile range	0.440	0.435	0.096	0.040
<u>Controls</u>				
$\ln(\text{Population})$		Yes	Yes	Yes
Period FE			Yes	Yes
State FE				Yes
<u>Observation counts</u>				
N of state-by-period	135	135	135	135
N of states	27	27	27	27
N of periods	5	5	5	5

Notes: This table summarized the distribution of Bartik shocks across states and time periods, in a similar manner to Borusyak, Hull, Jaravel (2018). Bartik shocks are constructed by interacting local industry shares in a base year with national industry-specific growth rates as described in the text. Columns (2)-(4) residualizes the Bartik shocks on natural log of population (end-of-period), period and State fixed effects.

TABLE 5: FIXED EFFECTS ESTIMATES OF LABOR DEMAND CHANGES ON TRADITIONAL ATTITUDES TOWARD WOMEN WORKING

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>ln Employment</i>	-0.678** (0.285)			-0.399 (0.329)			-0.351 (0.289)		
Employment to Population Ratio		-0.956** (0.391)			-0.620 (0.493)			-0.569 (0.439)	
Bartik Shocks			-0.002 (0.137)			-0.505* (0.285)			-0.454* (0.252)
Lagged Dependent Variable				-0.209* (0.106)	-0.210* (0.107)	-0.212** (0.105)	0.219 (0.197)	0.234 (0.201)	0.220 (0.198)
Instrumental Variable	No	No	No	No	No	No	Yes	Yes	Yes
N	135	135	135	81	81	81	81	81	81

Notes: The unit of observation is state by year. The outcome variable is the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home. *ln Employment* is the natural logarithm of number of employed persons. Employment To Population Ratio is the number of employed divided by population. Bartik Shocks measure changes in predicted labor demand by interacting state-specific industry shares in 1970 by national industry growths between 1970-1977, 1970-1990, 1970-2000, 1970-2010, 1970-2016. All specifications include state and year fixed effects and are weighted by the average number of respondents per state. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * p < 0.10, ** p < 0.05, *** p < 0.01

TABLE 6: FIXED EFFECTS ESTIMATES OF LABOR DEMAND CHANGES ON TRADITIONAL ATTITUDES TOWARD THE EMOTIONAL SUITABILITY OF WOMEN FOR POLITICS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>In Employment</i>	-0.181 (0.264)			-0.210 (0.331)			0.033 (0.430)		
Employment to Population Ratio		-0.229 (0.362)			-0.295 (0.518)			0.050 (0.649)	
Bartik Shocks			0.173 (0.131)			0.034 (0.295)			0.427 (0.492)
Lagged Dependent Variable				-0.261** (0.114)	-0.224* (0.119)	-0.253** (0.115)	0.711 (0.650)	0.736 (0.645)	0.999 (0.837)
Instrumental Variable	No	No	No	No	No	No	Yes	Yes	Yes
N	135	135	135	81	81	81	81	81	81

Notes: The unit of observation is state by year. The outcome variable is the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for Politics. *In Employment* is the natural logarithm of number of employed persons. Employment To Population Ratio is the number of employed divided by population. Bartik Shocks measure changes in predicted labor demand by interacting state-specific industry shares in 1970 by national industry growths between 1970-1977, 1970-1990, 1970-2000, 1970-2010, 1970-2016. All specifications include state and year fixed effects and are weighted by the average number of respondents per state. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 7: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD WOMEN WORKING OUTSIDE OF THE HOME BY GENDER AND EDUCATION

Panel (a)	≤ 11 Years of Schooling, Men			12-15 Years of Schooling, Men			≥ 16 Years of Schooling, Men		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bartik Shocks	-0.406	0.026	0.104	0.218	-1.195*	-0.715	-0.421	-1.016	-0.061
	(0.473)	(1.339)	(1.053)	(0.334)	(0.613)	(0.712)	(0.420)	(0.836)	(0.920)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes	No	No	Yes
N	127	71	68	135	81	81	130	79	75
Panel (b)	≤ 11 Years of Schooling, Women			12-15 Years of Schooling, Women			≥ 16 Years of Schooling, Women		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bartik Shocks	0.236	-0.675	-0.614	0.348	0.264	0.827	0.499	-0.227	-0.541
	(0.475)	(1.385)	(1.081)	(0.246)	(0.574)	(0.981)	(0.432)	(0.617)	(1.007)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes	No	No	Yes
N	133	77	76	135	81	81	127	78	71

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home, for specific gender-education level characteristics. In Panel (a), the outcome variable is calculated among men with less than or equal to eleven years of schooling, men with twelve to fifteen years of schooling, and men with sixteen or more years of schooling. In Panel (b), the outcome variable is calculated among women with less than or equal to eleven years of schooling, women with twelve to fifteen years of schooling, and women with sixteen or more years of schooling. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 8: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD THE EMOTIONAL SUITABILITY OF WOMEN FOR POLITICS BY GENDER AND EDUCATION

Panel (a)	≤ 11 Years of Schooling, Men			12-15 Years of Schooling, Men			≥ 16 Years of Schooling, Men		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bartik Shocks	0.862**	0.993	1.277*	0.201	-0.089	-0.450	-0.527	-1.148	-0.740
	(0.381)	(0.791)	(0.665)	(0.206)	(0.463)	(0.554)	(0.324)	(0.704)	(0.631)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes	No	No	Yes
N	127	71	68	135	81	81	134	79	79
Panel (b)	≤ 11 Years of Schooling, Women			12-15 Years of Schooling, Women			≥ 16 Years of Schooling, Women		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bartik Shocks	0.056	-0.608	-3.279	0.429	0.487	0.807	0.647**	-0.050	1.665
	(0.467)	(1.453)	(2.395)	(0.275)	(0.710)	(0.754)	(0.297)	(0.493)	(1.472)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes	No	No	Yes
N	133	77	76	135	81	81	133	78	77

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, defined as the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for politics, for specific gender-education level characteristics. In Panel (a), the outcome variable is calculated among men with less than or equal to eleven years of schooling, men with twelve to fifteen years of schooling, and men with sixteen or more years of schooling. In Panel (b), the outcome variable is calculated among women with less than or equal to eleven years of schooling, women with twelve to fifteen years of schooling, and women with sixteen or more years of schooling. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 9: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD WOMEN WORKING OUTSIDE OF THE HOME BY GENDER AND MARITAL STATUS

Panel (a)	Single, Men			Married, Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	-0.033 (0.356)	-1.329** (0.579)	0.256 (1.264)	-0.176 (0.263)	-0.464 (0.627)	-0.332 (0.512)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81
Panel (b)	Single, Women			Married, Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	0.148 (0.266)	-0.252 (0.565)	-0.139 (0.608)	0.638** (0.252)	0.660 (0.594)	-0.214 (1.129)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable.	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, as defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women tend home, for specific gender-marital status characteristics. In Panel (a), "Single, Men" indicates that the outcome variable is calculated among single men (widowed, divorced, separated, or never married), and "Married, Men" indicates that the outcome variable is calculated among currently married men. In Panel (b), "Single, Women" indicates that the outcome variable is calculated among single women (widowed, divorced, separated, or never married), and "Married, Women" indicates that the outcome variable is calculated among currently married women. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 10: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD THE EMOTIONAL SUITABILITY OF WOMEN FOR POLITICS BY GENDER AND MARITAL STATUS

Panel (a)	Single, Men			Married, Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	0.034	0.159	0.048	0.139	-0.540	-0.962
	(0.260)	(0.579)	(0.520)	(0.206)	(0.462)	(0.672)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81
Panel (b)	Single, Women			Married, Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	0.281	-0.191	0.730	0.550**	0.809	0.911
	(0.231)	(0.468)	(1.802)	(0.245)	(0.650)	(0.625)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable.	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, as defined as the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for politics, for specific gender-marital status characteristics. In Panel (a), "Single, Men" indicates that the outcome variable is calculated among single men (widowed, divorced, separated, or never married), and "Married, Men" indicates that the outcome variable is calculated among currently married men. In Panel (b), "Single, Women" indicates that the outcome variable is calculated among single women (widowed, divorced, separated, or never married), and "Married, Women" indicates that the outcome variable is calculated among currently married women. The sample is restricted to respondents aged 18-70. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 11: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD WOMEN WORKING BY AGE

	Young			Old		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	0.292 (0.193)	-0.372 (0.416)	-0.270 (0.444)	-0.026 (0.227)	0.035 (0.432)	0.166 (0.389)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, defined as the number of agreements or strong agreements divided by the total number of responses to the statement that it is better for men to work and women to tend home, for specific age characteristics. "Young" indicates that the outcome variable is calculated among respondents aged 18-47 years old, whereas "Old" indicates that the outcome variable is calculated among 48-70 years old. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 12: DIFFERENTIAL EFFECTS ON TRADITIONAL ATTITUDES TOWARD THE EMOTIONAL SUITABILITY OF WOMEN FOR POLITICS BY AGE

	Young			Old		
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks	0.498** (0.146)	0.405 (0.389)	0.423 (0.332)	0.112 (0.196)	-0.187 (0.430)	-0.057 (0.385)
Lagged Dependent Variable	No	Yes	Yes	No	Yes	Yes
Instrumental Variable	No	No	Yes	No	No	Yes
N	135	81	81	135	81	81

Notes: The unit of observation is the state by year. The outcome variable is the share of traditional attitudes, defined as the number of agreements divided by the total number of responses to the statement that women are not emotionally suited for politics, for specific age characteristics. "Young" indicates that the outcome variable is calculated among respondents aged 18-47 years old, whereas "Old" indicates that the outcome variable is calculated among 48-70 years old. Standard errors are reported in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 13: EFFECTS OF GENDER-EDUCATION-SPECIFIC BARTIK SHOCKS ON SHARE OF TRADITIONAL ATTITUDES TOWARD WOMEN WORKING AMONG GENDER-EDUCATION SUBGROUPS

	≤ 11 Years of Schooling		12-15 Years of Schooling		≥ 16 Years of Schooling	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks for Men						
With ≤ 11 Years of Schooling	-6.451*					
	(3.472)					
Bartik Shocks for Women						
With ≤ 11 Years of Schooling		-1.549				
		(2.665)				
Bartik Shocks for Men						
With 12-15 Years of Schooling			-0.744			
			(0.526)			
Bartik Shocks for Women						
With 12-15 Years of Schooling				0.449		
				(0.869)		
Bartik Shocks for Men						
With ≥ 16 Years of Schooling					0.046	
					(0.324)	
Bartik Shocks for Women						
With ≥ 16 Years of Schooling						0.089
						(0.235)
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Instrumental Variable	Yes	Yes	Yes	Yes	Yes	Yes
N	68	76	81	81	75	71

Notes: The unit of observation is state by year. Each coefficient is from a separate regression. The regression specifications are the same across columns. The data is restricted to respondents aged 18-70 years old different, but the samples are different based on gender and education characteristics of respondents. The coefficient in Column (1) is from a sample of men with less than or equal to eleven years of schooling. The Coefficient in Column (2) is from a sample of women with less than or eleven years of schooling. The coefficient in Column (3) is from a sample of men with twelve to fifteen years of schooling. The coefficient in Column (4) is from a sample of women with twelve to fifteen years of schooling. The coefficient in Column (5) is from a sample of men with at least sixteen years of schooling. Finally, the coefficient in Column (6) is from a sample of women with at least sixteen years of schooling. Every regression has a lagged dependent variable and instruments for it using a twice-lagged dependent variable. State and year fixed effects are included in all regressions. Regressions are weighted by the average number of respondents in each state in the relevant sample. Standard errors are in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 14: EFFECTS OF GENDER-EDUCATION-SPECIFIC BARTIK SHOCKS ON SHARE OF TRADITIONAL ATTITUDES TOWARD THE EMOTIONAL SUITABILITY OF WOMEN FOR POLITICS AMONG GENDER-EDUCATION SUBGROUPS

	≤ 11 Years of Schooling		12-15 Years of Schooling		≥ 16 Years of Schooling	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks for Men						
With ≤ 11 Years of Schooling	-3.090*					
	(2.214)					
Bartik Shocks for Women						
With ≤ 11 Years of Schooling		-4.016				
		(4.820)				
Bartik Shocks for Men						
With 12-15 Years of Schooling			-0.233			
			(0.426)			
Bartik Shocks for Women						
With 12-15 Years of Schooling				-0.061		
				(0.609)		
Bartik Shocks for Men						
With ≥ 16 Years of Schooling					-0.532**	
					(0.244)	
Bartik Shocks for Women						
With ≥ 16 Years of Schooling						0.115
						(0.119)
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Instrumental Variable	Yes	Yes	Yes	Yes	Yes	Yes
N	68	76	81	81	79	77

Notes: The unit of observation is state by year. Each coefficient is from a separate regression. The regression specifications are the same across columns. The data is restricted to respondents aged 18-70 years old, but the samples are different based on gender and education characteristics of respondents. The coefficient in Column (1) is from a sample of men with less than or equal to eleven years of schooling. The Coefficient in Column (2) is from a sample of women with less than or eleven years of schooling. The coefficient in Column (3) is from a sample of men with twelve to fifteen years of schooling. The coefficient in Column (4) is from a sample of women with twelve to fifteen years of schooling. The coefficient in Column (5) is from a sample of men with at least sixteen years of schooling. Finally, the coefficient in Column (6) is from a sample of women with at least sixteen years of schooling. Every regression has a lagged dependent variable and instruments for it using a twice-lagged dependent variable. State and year fixed effects are included in all regressions. Regressions are weighted by the average number of respondents in each state in the relevant sample. Standard errors are in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

APPENDIX

TABLE 15: EFFECTS OF
BARTIK SHOCKS ON
CHANGES IN EMPLOYMENT

	<i>ln Employment</i>
Bartik Shocks	0.783*** (0.212)
N	135

Notes: The unit of observation is state by year. Bartik shocks and $\ln Employment$ are calculated for individuals aged 18-70 years old. The former is calculated by interacting industry-specific employment shares in each state in 1970 with the national industry growth rates between 1970-1977, 1970-1990, 1970-2000, 1970-2010, and 1970-2016. The latter is calculated by taking the natural log of employment. The sample is restricted to the 27 states available every year in the General Social Survey across 1977, 1990, 2000, 2010, and 2016. The regression includes state and year fixed effects with no additional controls. Standard errors are in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 16: EFFECTS OF GENDER-EDUCATION-SPECIFIC BARTIK SHOCKS ON CHANGES IN GENDER-EDUCATION EMPLOYMENT

	≤ 11 Years of Schooling		12-15 Years of Schooling		≥ 16 Years of Schooling	
	<i>ln Employment</i>		<i>ln Employment</i>		<i>ln Employment</i>	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks for Men						
With ≤ 11 Years of Schooling	7.940***					
	(1.339)					
Bartik Shocks for Women						
With ≤ 11 Years of Schooling		4.586***				
		(0.842)				
Bartik Shocks for Men						
With 12-15 Years of Schooling			0.862***			
			(0.217)			
Bartik Shocks for Women						
With 12-15 Years of Schooling				-0.197		
				(0.208)		
Bartik Shocks for Men						
With ≥ 16 Years of Schooling					0.294**	
					(0.148)	
Bartik Shocks for Women						
With ≥ 16 Years of Schooling						-0.024
						(0.044)
N	135	135	135	135	135	135

Notes: The unit of observation is state by year. Bartik shocks and the natural log of employment are calculated separately for 6 sub-populations aged 18-70 years old: men with less than or equal to eleven years of schooling, women with less than or equal to eleven years of schooling, men with twelve to fifteen years of schooling, women with twelve to fifteen years of schooling, men with at least sixteen years of schooling, and women with at least sixteen years of schooling. The sample is restricted to the 27 states available every year in the General Social Survey across 1977, 1990, 2000, 2010, and 2016. The regression includes state and year fixed effects with no additional controls. Standard errors are in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 17: PAIRWISE CORRELATION BETWEEN BARTIK SHOCKS OF DIFFERENT GENDER-EDUCATION SUBGROUPS

	≤ 11 Years of Schooling		12-15 Years of Schooling		≥ 16 Years of Schooling	
	Bartik Shocks		Bartik Shocks		Bartik Shocks	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
Bartik Shocks for Men						
With ≤ 11 Years of Schooling	1.000					
Bartik Shocks for Women						
With ≤ 11 Years of Schooling	0.978***	1.000				
Bartik Shocks for Men						
With 12-15 Years of Schooling	-0.897***	-0.912***	1.000			
Bartik Shocks for Women						
With 12-15 Years of Schooling	-0.952***	-0.924***	0.962***	1.000		
Bartik Shocks for Men						
With ≥ 16 Years of Schooling	-0.875***	-0.907***	0.958***	0.907***	1.000	
Bartik Shocks for Women						
With ≥ 16 Years of Schooling	-0.849***	-0.877***	0.931***	0.881***	0.990***	1.000

Notes: Each row, column pair reports the pairwise correlation coefficient between gender-education-specific Bartik shocks. There are 6 gender-education-specific Bartik shocks: Bartik shocks for men with less than or equal to eleven years of schooling, for women with less than or equal to eleven years of schooling, for men with twelve to fifteen years of schooling, for women with twelve to fifteen years of schooling, for men with at least sixteen years of schooling, and for women with at least sixteen years of schooling. * significant at 10 percent level, ** significant at 5 percent level, *** significant at 1 percent level