"The Legacy of Communism and Contemporary Attitudes Towards Gender: Lessons from the Soviet Union"

What is the legacy of living through communism on contemporary attitudes in formerly communist states? Despite a wide body of existing literature addressing this question, our understanding of the relationship between communism and support for gender equality in post-communist states remains enigmatic. While communist states embraced a commitment to equality between men and women, a close analysis of Soviet history reveals that the state's message on the topic oscillated, at times aligning with a Marxist ideological commitment to equality but in other cases driven by pragmatic considerations. Using data from the World Values Survey, I test the hypothesis that the contemporary effect of communist ideology depends on the period of communism under which an individual was socialized. I find evidence of greater support for gender equality on average amongst the oldest cohort of Soviet citizens that lived through a period of alignment between rhetoric and reality in the first two decades of the Soviet Union. My results suggest that the state can, and did, play a role in socializing expectations on gender.

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I. Introduction

The rise and fall of communism across the globe constitutes one of the most transformative phenomena of modern times. With new economic and political institutions, the political theory shaped the everyday existence of millions of people for over half a century. Although we often think of communism as characterized by a central planned economy, it "was more than simply a political or economic project—it had an explicitly social component as well" (Pop-Eleches and Tucker 2017). In much the same way that communist authorities planned economic output, communist states took an active role in shaping the attitudes and beliefs of those they governed. Over 25 years after its global collapse, sociologists, economists, and political scientists alike continue to revisit the communist experience as an informative setting for understanding the socialization of norms and beliefs.

What is the legacy of living through this state-directed effort to reshape political and social beliefs on contemporary attitudes in formerly communist states? Arguably the most exhaustive attempt to address this question comes from Grigore Pop-Eleches and Joshua A. Tucker in their recent work *Communism's Shadow: Historical Legacies and Contemporary Political Attitudes.* Using data from the World Value Survey, a cross-national survey designed to study values and beliefs, the authors empirically compare attitudes in post-communist countries with those in societies never ruled by communist regimes on four topics: democracy, markets, social welfare, and gender equality. The authors conclude that citizens of post-communist country are less supportive of democracy and market based economies while they are more supportive of social welfare policies. Regarding attitudes towards gender, however, Pop-Eleches and Tucker (2017) do not find a clear effect.

This relationship between communism and support for gender equality is both intriguing and so far, remains not well understood. Previous scholarship on the determinants of gender norms within industrialized westerns states interpret greater levels of support for a more gender equal society as a byproduct of modernization. As countries moved away from agrarian production towards manufacturing and processing, the occupational structure of economies shifted away from primarily physically demanding manual labor to jobs which required training and skill. These economic changes created new opportunities for women to join the paid workforce and raised the opportunity cost of having children young (Becker, Murphy, and Tamura 1990). As women began spending a greater proportion of adult life outside of the home, they began to form identities that transcended domestic responsibilities and motherhood (Goldin 2006). Modernization theory concludes that in this way, a greater level of acceptance for women in non-traditional roles diffused throughout society.

In contrast to the experience of western industrialized states, in the communist context gender equality itself was treated as a goal. Marx and Engels viewed the economic structure of the family as shaped by capitalism; without private property, the supremacy of male inheritance rights and the nuclear family will, much like the state, gradually 'wither away' (K.B. 2005). Rooted in this Marxist-feminist background, communist states espoused an ideological commitment to gender equality. Taking this stated goal at face-value, the communist experiment represents a unique example of a state-directed effort to break down traditional patriarchal structures of society. From propaganda campaigns championing the female worker to mass female literacy campaigns to the substantial legal and civil freedoms granted to women, communist states progressed towards realizing this rhetorical support for gender equality in some ways.

Given this background, the fact that Pop-Eleches and Tucker (2017) do not find evidence of a relationship between communism and support for gender egalitarianism in post-communist states is unexpected and the purpose of this paper is to improve our understanding of why this might be the case. I start by examining historical interpretations of how the Soviet government constructed gender identities and moreover, how this construction changed over time. Informed by this qualitative analyses, I hypothesize that the socialization effect of communism may likewise vary, depending on the type of communist ideology under which a respondent was socialized.

To empirically test this hypothesis, I compare attitudes towards gender in post-communist states to those found in the rest of the world using the methodology put forward by Pop-Eleches and Tucker (2017). Support for gender equality is measured using a constructed index composed of three questions from the World Values Survey, focused on how respondents view female employment, education and political representation. Starting with a simple comparison of average support for gender equality between respondents living in a post-communist and non-post-communist state, the base model is built upon using a series of control variables designed to isolate the legacy effect of communism from other omitted variables which might explain differences in attitudes towards gender.

Although the first part of my empirical approach attempts to replicate Pop-Eleches and Tucker (2017), the analysis differs in two notable way. First, I include a new wave of survey data from the World Values Survey not available to the original authors. Second, Pop-Eleches and Tucker (2017) design a model that can be used to measure attitudes and beliefs towards democracy, markets, social welfare programs *and* gender equality. I tailor my model to a more specific analysis of gender norms with the inclusion of several control variables not used by the original authors. Consistent with Pop-Eleches and Tucker (2017), I do not find evidence of a

clear relationship between attitudes towards gender and living in a post-communist state when examined at an aggregate level.

Informed by my early discussion of the cultural history of the Soviet Union, I break out the effects of communism across space and time. Focusing only on states in the former Soviet Union, I distinguish between types of Soviet treatment of gender over time by allowing for differential effects of socialization under communism across five age cohorts of respondents. This segmenting reveals that individuals exposed to the early years of the Soviet Union, on average, are about one quarter of a standard deviation more supportive of gender equality. While I cannot definitively conclude that the relationship between early communist exposure and more progressive conceptions of gender is causal, the estimate is stable to the inclusion of pre-communist, demographic and contemporary macroeconomic and political controls.

My findings support the hypothesis that, at least in the realm of gender equality, communism should be treated as a dynamic ideology. While it may not be possible to generalize about relationship between living in a post-communist states and contemporary gender norms broadly, this conclusion does not imply that communism did not have a meaningful socialization effect on the attitudes of those that lived through it. My results suggest the opposite: that socialization in the early years of Soviet communism had a persistent effect on support for female employment, education and political representation.

This paper falls into a diverse body of literature which empirically examines the legacy of communism on normative attitudes and beliefs. Previous research in this area suggests that living through communism influenced individual preference in a variety of spheres. For example, research suggests that citizens of post-communist states tend to be more supportive of redistributive policies, have lower life satisfaction and lower levels of trust than citizens living in countries with no exposure to communism (Alesina and Fuchs-Schündeln 2007; Pop-Eleches

and Tucker 2014; Mishler and Rose 1997). A much smaller subset of the literature analyzes the legacy of communism on attitudes about gender and finds mixed and often contradictory, results (Panayotova and Brayfield 1997; Bauernschuster and Rainer 2012; Campa and Serafinelli 2018). Using the division between East and West Germany as a quasi-experimental setting to investigate whether political regimes can shape attitudes, Bauernschuster and Rainer (2012) find that citizens exposed to the socialist system of East Germany are more likely to hold egalitarian gender beliefs. Campa and Serafinelli (2018) use a similar empirical strategy to measure the extent to which women in East Germany hold more positive attitudes toward female employment than their West German counterparts. The authors conclude that East Germans are more supportive of women's economic inclusion due to higher levels of female workforce participation, although they do not rule out the possibility of a propaganda effect. In contrast, using the International Social Survey, Panayotova and Brayfield (1997) compare attitudes of Hungarian and U.S. citizens in 1988 just prior to the communist collapse and find that Hungarian respondents are much *less* supportive of female employment. My paper helps unravel part of this ambiguity in the existing literature by showing how differences in the construction of gender roles by communist authorities over time and across regions could explain differences in their contemporary legacies.

The structure of the paper is as follows: Section II broadly summarizes theories on the determinant of support for gender equality from the existing literature. I show that regimes can influence gender norms through both ideology as well as institutions which shape the material distribution of goods between genders. Section III provides a historical overview of the Soviet treatment of gender to inform my hypotheses on the predicted socialization effect of Soviet ideology. Section IV replicates the findings of Pop-Eleches and Tucker (2017) using a new wave of survey data. In Section V, I empirically test my hypotheses on the differential effects of Soviet

communism depending on when one was socialized. Section VI considers conclusions and wider implications of these results.

II. Theoretical Determinants of Gender Norms

The purpose of this research paper is to examine how the experience of living under communism changed norms and beliefs about gender in post-communist societies today. Using a definition from Inglehart and Norris (2003), 'gender' refers the socially constructed role and learned behavior of women and men associated with the biological characteristics of females and males. In my discussion, I make a distinction between gender norms, which I refer to as attitudes about the correct role of men and women in society, and gender equality. Gender equality describes the material conditions of women and men: for example, the presence of women in the workforce, familial structure, the legal rights to obtain divorce, or the legal right to obtain abortion. This paper does not attempt to compare levels of gender equality within states, rather it analyzes differences in normative attitudes towards what the distribution of material good for women and men *should* be.

In a cross-country comparison of attitudes toward gender amongst western states, Alwin et al. (1992) argue that attitudinal differences between states operate on two levels. On one level, the normative climate within a state shapes attitudes. On another, the favorability of an individual's personal experience within this climate also plays a role. The determinants of gender norms can be similarly organized into two categories: cultural and structural factors. Cultural factors shape the normative climate of states. Structural factors determine the lived experience of an individual within this society.

The relationships between these two groups of factors and normative attitudes are interactive. It is difficult to measure the effect of these influences on attitudes towards gender because gender norms determine the role of men and women in society as much as they

themselves are outcome of the preexisting degree of equality within society. This problem of reverse causality makes it difficult to distinguish between the effect of a cultural change and the effect of differences in social structure on attitudes in a cross-country context.

Communist states are an excellent context to examine the extent to which a political regime can break this interactive relationship and intentionally shape the beliefs of citizens. The material and cultural structure of communist states was not a byproduct of slow-changing interaction between culture, economic development, legal reforms and gender norms. Rather, it resulted from an exogenous state-direct effort to construct a specific identity for women and men in society.

A. Social structure

Strong evidence suggests that family structure, education and employment are three interrelated factors which lead to greater levels of support for gender equality. Significant previous research connects female employment to support for gender egalitarianism (Ross 2008; Iversen and Rosenbluth 2010; Fernández 2013; Banaszak and Plutzer 1993; Goldin 2006; Blau, Ferber, and Winkler 2013). As women accumulate human capital through work experience and education, have fewer children, and spend a greater amount of time employed in paid labor instead of domestic housework, the definition of womanhood begins to change. Structural changes facilitate identity formation that expands beyond the traditional role of women as a homemaker. Previous scholarship also emphasizes the role of female personal lived experience in linking increased female labor force participation and education to more progressive attitudes towards gender equality. For example, in addition to creating financial independence, participation in paid work and higher education may dispels previously held myths about the inferior capabilities of women (Brayfield 1992). Finally, female education and workforce participation change the incentives for both women and men to support more egalitarian gender

roles. Women with higher levels education and job experience suffer the most from discrimination within the labor force and benefit the most from more egalitarian attitudes (Bolzendahl and Myers 2004).

B. Culture and Values

While there is strong evidence that the material structure of society determines gender expectations, compelling evidence that gender norms develop independently of these structural factors through cultural channels also exits. Socialization agents like religious organizations, the media, teachers, civil society and social movements are mechanism through which cultural values diffuse into norms and beliefs. The fact that individuals in varied positions within society eventually adopted more egalitarian norms throughout most industrialized democracies supports this diffusion theory (Pampel 2011).

Inglehart et al. (2003) put forth one of the more influential theories on the relationship between culture, gender equality and development, arguing that at low levels of development individuals must focus on access to material goods like food, water and shelter. As a country modernizes, individuals will begin to develop "postmaterialist values." That is, as immediate needs are met more easily, individuals shift attention to quality-of-life issues like freedom and equality (Inglehart and Baker 2000; Inglehart and Welzel 2005; Inglehart et al. 2003). From this perspective, development influences culture, which in turn motivates advances towards more egalitarian gender norms.

Other research suggests that gender norms diffuse through slow-changing cultural beliefs. For example, Bertocchi and Bozzano (2016) find that the Italian gender gap in education in the late 19th century was positively associated with patterns of trade four centuries earlier. Alesina et al. (2013) find that the traditional practices of plow agriculture, a labor-intensive form of farming which advantages men, are strongly correlated with unequal gender norms today.

Culture-based explanations of attitudes and beliefs argue that support for traditional gender norms breaks down or persists across a diverse group of sociodemographic groups. While support for gender egalitarianism may start with structural changes in female employment, education and family structure, the diffusion of this support into other groups in society depends on cultural context (Bolzendahl and Myers 2004). For example, Inglehart et al. (2003) suggest that religion acts as a resistance factor in the diffusion of egalitarian beliefs. Others find evidence that colonial legacies and traditional customs can likewise create cultures which are predisposed towards greater acceptances of non-traditional gender roles (Selhausen and Weisdorf 2016).

As previously noted education in the material sense can be interpreted as a means of acquiring greater human capital, however, evidence suggests that educational institutions can also act as agents of socialization (Klein 1984). School exposes girls and boys to their societally accepted roles early in life. Higher levels of education later in life might expose individuals to alternate interpretations of these roles and a network of similarly progressively-minded individuals (Kane 1995).

III. Applying the Theory to the Soviet Union

Keeping in mind these two categories through which previous research hypothesizes gender norms develop, how do these theories apply to the way communism transformed the material structure and culture of society? Wood (1997) argues that within the communist state, "the practice of gender definition and representation happened primarily on two levels, on the level of political rhetoric and on the level of intuitions" (Wood 1997, 4). The two mechanisms described by Wood reflect cultural and structural schools of thought for understanding the socialization of gender roles respectively. The following section examines these mechanisms within the specific context of the Soviet Union, exemplifying how culture and rhetoric around

gender morphed overtime. The analysis suggests that we should be cautious in making broad claims about the actions of the communist state in developing support for gender equality.

A. Culture and Rhetoric

When the Bolshevik party came to power in 1917, it held a utopian vision for the future role of women in society. Drawing on the writing of Marx and Engels, Bolshevik discourse in the years closely following the revolution included active debates on "the women question." Lenin in particular advocated for emancipating women from domestic burdens so they could participate in "socially useful" production (Engel 2004). To this end, the Bolsheviks implemented measures to mobilize revolutionary support amongst women including propaganda campaigns and the creation of a women's bureau or *Zhenotdel* (Wood 1997; Engel 2004). The government continued to iterate its commitment to women's emancipation, but during the first decade following the revolution what this supposed commitment entailed was nebulous. Disagreement within the party on how to define both the relationship between men and women, as well as the relationship between gender and the supposedly gender neutral "proletariat" contributed to this ambiguity (Wood 1997). In the words of Historian Barbara Engel, "this was a period of experimentation, of utopian vision, when ordinary people felt free to define revolution for themselves" (Engel 2004, 158).

With the rise of Stalinist collectivization, industrialization and the lead up to World War II, economic and strategic defense goals came to define how the state constructed gender identities. Historians disagree on how to interpret the conception of women during the Stalinist years. Some, notably Nicholas Timasheff and Elizabeth Wood, argue that the ideology adopted by the state in the mid-1930s constituted a retreat away from the socialist values espoused by Lenin toward more traditionalist elements of society. In particular, advocates of this argument point to Soviet propaganda campaigns during this time celebrating motherhood and other

policies designed to strengthen the traditional nuclear family. Others disagree with this "Great Retreat" hypothesis, arguing that despite elements of traditionalism in Stalin's cultural vision, the ideology was still motivated by the conception of building a socialist society (Hoffman 1977). As Hoffman (1977) notes, "while the Soviet effort to glorify motherhood resembled pro-natalist propaganda in other countries, it was distinguished by the fact that it encouraged women to continue working during pregnancy and to return to work after giving birth." While the state stayed consistent in its commitment to the idea of women as workers, this image was confounded with seemingly competing efforts to elevate motherhood.

State policy towards women starting in 1945 constituted a continuation as well as a break with the Stalinist years in the portrayal of women in society. Although all ensuing Soviet leaders generally adopted the reconceptualization of gender constructed during the Stalin era, a mix of Bolshevik feminism and an updated cult of domesticity, following World War II the state increasingly reasserted the primacy of traditional gender roles. Unlike during the Stalin years, leadership in the later decades of the Soviet Union also took a less hardline approach to challenging traditional patriarchal values, particularly in the Caucasus and Central Asia (Clements 2012).

If there is some ambiguity in the extent to which the Stalinist eras mark a departure from the Marxist conception of female emancipation, the later decades of the Soviet Union completely abandoned any semblance of this original adherence. Teaching young men and women to adhere to traditional gender roles became a part of primary school curriculum (Kelly 2013). Acknowledgement of deep-seated societal ills such as men's alcoholism and demoralization prompted some to blame female employment outside of the home as a perpetuator of 'the feminization of men' (Engel 2004). This line of thinking, which blamed the hardship faced by

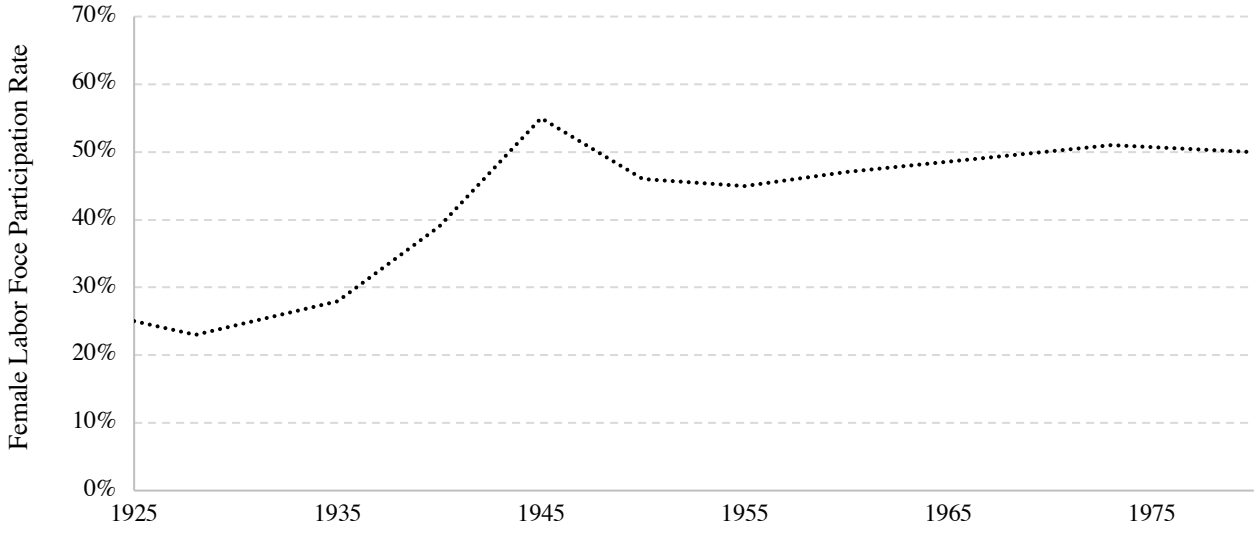
women not on the incompleteness of their emancipation but on the emancipation itself, continued into the Gorbachev era.

The Soviet state declared the female struggle for equality as won as early as 1929 but it would be an oversimplification to take this declaration of victory at face-value. Tension between the state's emphasis on women as both workers and mothers leaves much of the characterization of gender identity under communism up to the interpreter.

B. Social Structure, Laws and Institutions

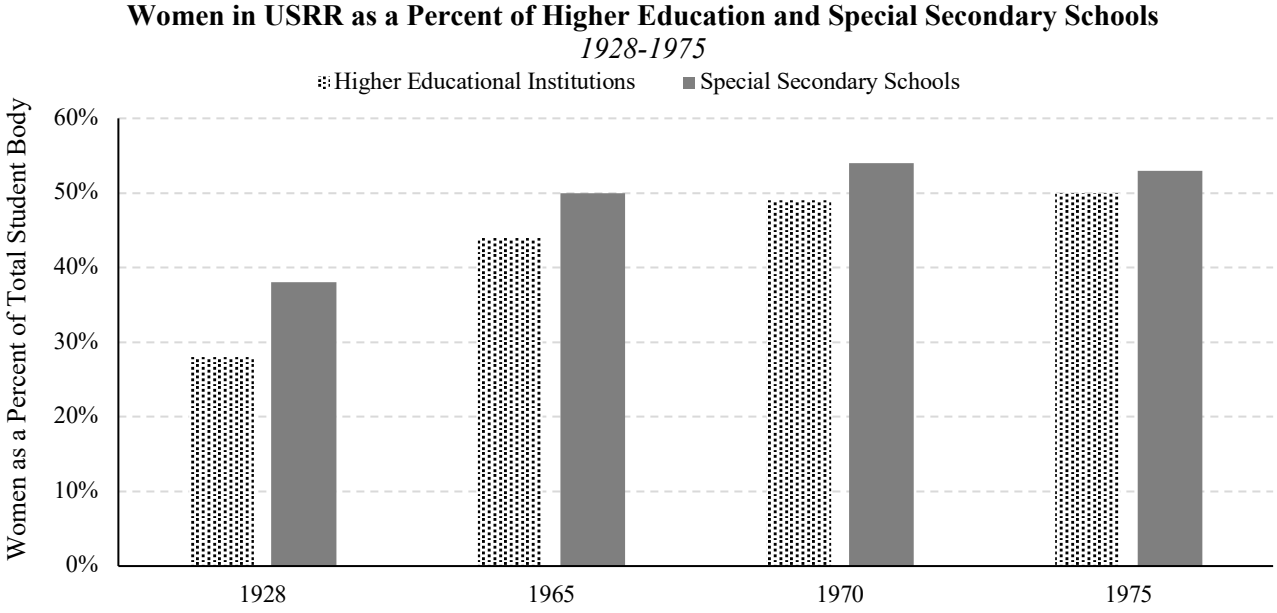
In contrast to culture and rhetoric around gender under communism, structures and institutions associated with gender remained more stable throughout the state's existence. One of the most prominent features of the structure of Soviet society as it related to gender norms is the consistently high level of female employment. Figure 2A depicts trends in female labor force participation from 1925 through 1980. Starting in earnest with the first Five Year Plan in the early 1930s, during the first twelve years of industrialization the number of women working in the Soviet Union increased more than fourfold (Buckley 1981). Demand for labor during the Second World War further accelerated this trend. High-levels of female employment, particularly in comparison to other industrializing states characterized every era of Soviet communism, however, as depicted Figure 2A the rapid increase in female labor force participation occurred primarily prior to World War Two. Although gendered occupational segregation existed, "nowhere else in the European world were there so many female lawyers, professors, scientists and artists, as well as judges and party secretaries, as there were in the Soviet Union by 1930" (Clements 1997, 250).

Figure 2A



Source: Chao, Paul. Women under Communism: Family in Russia and China. Bayside, N.Y: General Hall, 1977.

Figure 2B



Source: Blekher, Feiga. The Soviet Woman in the Family and in Society. Wiley : sole distributors for the Western Hemisphere, Halsted Press, 1980.

Educational opportunities for women followed a similar trend as female employment. Following the 1917 revolution, the Bolsheviks set about eradicating illiteracy amongst their populace. This campaign, which disproportionately benefitted women as a largely illiterate population prior to the revolution, was astonishingly successful. For example, literacy in Soviet Central Asia rose from around two percent to seventy percent by 1934 (Blekher 1980). The number of women enrolled in higher education similarly rose throughout the years. As depicted in Figure 2B, by the mid 1970s, women made up roughly 40% of students in technical schools and 50% of students overall. For reference, in the United States during this time girls made up less than 10% of students in technical schools (Chao 1977).

The legal status of marriage, divorce and abortion is one clear exception to the relative consistency in the structural features of the Soviet system. When the Bolshevik party came to power in 1917, it enshrined its commitment to the equal rights of women in the new Soviet constitution. In the New Family Code passed in 1918, the state broke down the traditional rights of the church to control marriage, made divorce easily obtainable, eliminated patriarchal property laws, granted paid maternity leave to working mothers and declared women equal members of society (Goldman 1993). While some of this legislation remained intact throughout the course of the Soviet state, concern over declining birthrates and family instability pushed the state to reshape other parts its family policy. A series of laws limiting access to divorce and outlawing abortion are two particularly notable examples.

Finally, the political representation of women is another sphere where female gains remained limited. Communist authorities instated gendered quotas in low levels of government including the USSR Supreme Soviet, however, most of these political bodies functioned more like facades of democracy than actual government authorities. Consequently, women remained

shut out of real decision making bodies like the Central Committee and Politburo (Rueschemeyer 2016).

C. Hypotheses

Pop-Eleches and Tucker (2017) test two primary hypotheses: first, that citizens living in a formerly communist country might have systematically different attitudes by virtue of living in a formerly communist state and second, that citizens living in a formerly communist country might have systematically different attitudes by virtue of living through communism. The authors ground these hypotheses in evidence from the existing literature on political socialization, noting the strong "evidence that individuals 'acquire attitudes, beliefs and values relating to the political system of which he is a member'" (Greenburg 1973, as cited in Pop-Eleches and Tucker 2017, 10). To a much larger degree than other regimes throughout history, communist states were characterized by an unpresented level of state control over the daily lives of citizens. Given this, it is not a stretch to grasp the basis for the Pop-Eleches and Tucker (2017) hypothesis that "people who lived through communist rule would come to adopt attitudes in line with those the regime wanted its citizens to hold" (pg 3). I start my analysis by testing the first of these two hypothesis: that citizens living in a formerly communist country have systematically different attitudes by virtue of living in a formerly communist state.

Informed by my earlier discussion of the way gender roles materially and rhetorically changed throughout the 70-year existence of the Soviet Union, I question the extent to which we can think about communist states as holding a cohesive objective within the realm of gender equality. From the consolidation of the state in 1920 until World War II in 1945, the Soviet state attempted to spread the Marxist-Leninist conception of female emancipation, mobilizing women into the labor force and political life as a means of spreading the revolution. Efforts to champion the image of the female worker in the lead up to the World War II maintained some adherence to

the original ideals of Bolshevik feminism. Following the end of the war in 1945 and into the late Soviet period, the ideological importance of gender equality was downgraded. The previous construction of female identity was flipped on its head and the state's message was much less clearly propagated to citizens of communist regimes. Finally, staring in 1985 in the years leading up to and directly following the collapse of the Soviet Union, rejection of the Soviet conception of female 'emancipation' led to complete return to traditionalism and the rise of social movements advocating for a return to women in the home. The following table summarizes the years which roughly correspond to my periodization of Soviet construction of gender identities. If state ideology indeed shaped the attitudes of its citizens as Pop-Eleches and Tucker suggest, we might predict diametrically opposite socialization effects for each of these four distinct times periods within the state's existence.

Periodization of Soviet Treatment of Gender

Soviet Period	*Years*
Early Soviet Communism and Stalinism	1920-1944
Post-War	1945-1964
Late-Soviet	1965-1984
Glasnost and Collapse	1985-1994

The fact that many individuals lived through multiple periods of communist treatment of gender complicates the relationship between the socialization effect of communism and contemporary attitudes of citizens today. While there is not consensus within the field of political phycology on the most formative period within the human life-cycle, strong evidence points to the importance of early life. The *impressionable years hypothesis* posits that attitude formation occurs through a process of childhood socialization and the environment under which individuals enter adulthood. Malleable attitudes of young adults crystalize with age and remain relatively stable throughout the rest of the life cycle (Mannheim 1952; Fan and Marini 2000; Sears and

Brown 2013). The *increasing persistence hypothesis* argues that individuals are open to change throughout their life but gradually become more resistant to attitude change throughout life (Krosnick and Alwin 1989). Given the relative consensus that generally attitudes formed *early* in life overshadow adult experiences, I similarly choose to focus on a respondent's adolescence as the most predictive period for later beliefs regarding gender. Applying Pop-Eleches and Tucker's second hypothesis that citizens a have systematically different attitudes by virtue of living through communism to the Soviet Union, I hypothesize that citizens in the former Soviet Union hold significantly different attitudes towards gender depending on the age they were socialized.

Finally, one must acknowledge the possibility that citizens in post-communist states do not hold significantly different attitudes towards gender than non-post-communist peers. Perhaps political regimes cannot purposefully change culture around gender in a specific direction. Perhaps the Soviet state did not last for a long enough amount of time to significantly change attitudes around gender. Perhaps communism did change the attitudes of its citizens but these changes did not persist into the post-communist era. These three hypotheses can be summarized as follows:

1. Citizens in post-communist states hold significantly different attitudes towards gender than citizens in non-post-communist states by virture of living in a formerly communist state. (*Pop-Eleches and Tucker Hypothesis I*)
2. Citizens in the former Soviet Union hold significantly different attitudes towards gender depending on the type of communist ideology under which they were first socialized. (*Pop-Eleches and Tucker Hypothesis II Applied to the Soviet Union*)
3. Citizens in post-communist states do not hold significantly different attitudes towards gender than citizens in non-post-communist states. (*Null Hypothesis*)

IV. Hypothesis I: The Effect of Living in a Formerly Communist Country

A. Data

The primary data source for my empirical analysis is the World Values Survey (WVS), which consists of six waves of nationally representative surveys designed to study changing human beliefs and values. The survey has been conducted in almost 100 countries and covers around 90 percent of the world's population. I use data from the five most recent waves of the survey, covering 276,026 year-person observations across 78 countries.[1]

Table 1A
Survey Questions Measuring Support for Gender Equality

Question	Wave 2 1989-1993	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014
Jobs scarce: Men have more right to a job than women	18,649	54,071	44,524	60,742	60,425
University is more important for a boy than for a girl	-	64,586	50,615	73,585	73,412
Men make better political leaders than women do	-	62,867	49,427	72,441	72,201

My dependent variable of interest consists of an index of responses to a series of statements regarding the role of gender in employment, education, political leadership, and parenthood. Possible responses include "strongly agree", "agree", "disagree" and "strongly disagree". These responses are coded into an index ranging from 1-4; 1 indicates strong agreement to the statement in question and 4 indicates strong disagreement. Responses from the statements measuring attitudes toward female employment, education and political leadership are added together to create a general index of support for non-traditional gender roles.

The World Values Survey collects standard demographic information on each survey participant, which I use to create a series of respondent-level demographic control variables. I

[1] Details on the country and year coverage of the WVS can be found in table A1 in the appendix

create indicator variables for sex, age, marital status, parental status and employment status at the time of the survey. To account for variation in national education systems, I use three binary variables to capture education level in a comparable way: low (respondent completed up to primary school or did not finish secondary school), medium (respondent completed technical/vocational school, or completed university-preparatory secondary school) and high education (some or completed higher education).

Table 1B
Control Variables

Pre-communist controls (country level): Literacy Rates 1920, Fertility Rate 1920, Women's Suffrage 1920, Landlocked, Elevation, Distance to equator, Distance to Meridian, Ottoman empire, Spanish Empire, Hapsberg Empire, Romanov Empire, French Colony, British Colony, Catholic (%), Orthodox (%), Muslim (%), Non-religious (%) Protestant (%)
Demographic controls (respondent level): Female, Age, Education (low, medium, high), Employment, Marital Status, Parent, Religious Attendance, Not Religious, Christian, Muslim
Macroeconomic and political controls (country-year level): Fertility rate, total labor force participation rate, female labor force participation rate, inflation, GDP, GDP per capita, Public Corruption Index, Electoral Democracy Index, Polity Index (Freedom house)

I follow Pop-Eleches and Tucker (2017) as a general guide for choosing which variables to include in my analysis, however, I tailor my models to a more specific analysis of gender norms by including several additional control variables. I include a measure of fertility rates in the 1920s and an indicator variable for if women had the right to vote by 1920. I include a contemporary measure of female labor force participation as an additional macroeconomic control. Table 1B contains a list of all control variables used in my models. A more detailed description of the sources and coding for each variable can be found in the appendix. Summary statistics can be found in Table A2 in the appendix.

B. Empirical Strategy

To empirically test the validity of these hypotheses, I use a series of bivariate ordinary least square regression models to compare attitudes towards gender in post-communist states with other non-post-communist states included in the World Values Survey. For easier interpretation, I standardize my outcome variable, an index measuring support for non-traditional gender norms, to have a mean of zero and a standard deviation of one. Higher scores indicate greater support for non-traditional norms. The explanatory variable of interest is a binary variable indicating if the respondent lives in a formerly communist state. My unit of analysis is at the country-level. I cluster standard errors on the country-level to account for within country correlation in standard errors.

In model 1, I regress support for gender equality on living in a post-communist country. This model is essentially a comparison of means across two groups of countries. Employing the empirical strategy used by Pop-Eleches and Tucker (2012), I begin to add blocs of variables to this baseline model. In model 2, I include survey-year fixed effects. This is a vector of indicator variables for the year in which a respondent took the WVS. I include year fixed-effects to control for time-variant global trends for support for gender equality. In model 3, I include a bloc of pre-communist development measures, designed to control for economic, political and social characteristics of states prior to the onset of communism, which might also influence contemporary attitudes towards gender. It is not possible to fully control for this, however, showing that my results are stable to the inclusion of some measures of historical development helps alleviate concern that I am misattributing variation in gender norms due to historical economic and political characteristics of states to communism. Because economic and political

development are two of the mechanisms through which communism might have influenced attitudes towards gender, I control for variation *prior* to the onset of communism. [2]

In model 4, I include a set of respondent-level demographic variables to control for individual-level predictors of attitudes towards gender which might be correlated with a respondent's country-of-residence. An interesting question is whether to include controls for employment status, educational attainment, parental status and marital status. On one hand, to see if there is a direct effect of communist indoctrination, one should control for demographic differences in countries which might predict differences in societal values. On the other hand, the education, employment, parental status and marital status of respondents in post-communist states could be a mechanism through which communist ideology influenced gender norms. Thus, controlling for these factors may result in a downward bias of the estimated effect of communism. To be as conservative as possible with my estimations, I choose to include these variables in my analysis. Finally, in model 5 I include macroeconomic and political conditions at the time of survey. This final model captures any difference in attitudes towards female employment between post-communist states and other countries in the World Values Survey, controlling for everything else as best as possible. For individual *i* living in country *c* at time *t* I am estimating the following models:

(1) $Index_{ict} = \propto + \beta_1 postcommunist_c + \varepsilon_{ict}$

(2) $Index_{ict} = \propto + \beta_1 postcommunist_c + \lambda_t + \varepsilon_{ict}$

(3) $Index_{ict} = \propto + \beta_1 postcommunist_c + X_c + \lambda_t + \varepsilon_{ict}$

[2] Although eastern European countries became communist around 1945 I choose to define the communist period as starting in 1920, following the consolidation of the USSR. Defining pre-communist development differently for different states will bias my estimates and lends itself to confusion around which date to use for measuring development levels in non-post-communist states. Countries within the USSR experienced significant economic and political development in the first two decades following the Russian revolution. Thus, measuring development levels in 1945 for these states does not accurately capture pre-communist development levels.

(4) $Index_{ict} = \propto + \beta_1 postcommunist_c + X_i + X_c + \lambda_t + \varepsilon_{ict}$

(5) $Index_{ict} = \propto + \beta_1 postcommunist_c + X_i + X_c + X_{ct} + \lambda_t + \varepsilon_{ict}$

The coefficient of interest is $\beta_1$which represents the effect of living in a post-communist country. $\lambda_t$represents a vector of survey years. X_c represents a country-level control variables and X_i denotes respondent-level control variables. I use X_{ct} to represent my vector of contemporary macroeconomic and political control variables which vary based on country and year. Finally, ε_{ict} represents a classical measure of error.

Table 3
Living in a Post-Communist Country and Attitudes toward Gender Equality

	(1)	(2)	(3)	(4)	(5)
	Dependent variable: Gender equality index				
Post-communist	-0.154	-0.0807	0.0108	-0.0141	-0.114
	(0.097)	(0.109)	(0.126)	(0.136)	(0.142)
Survey year fixed-effects	No	Yes	Yes	Yes	Yes
Pre-communist controls	No	No	Yes	Yes	Yes
Demographic controls	No	No	No	Yes	Yes
Contemporary economic and political controls	No	No	No	No	Yes
Observations	185,748	185,748	185,748	154,773	152,883
Number of countries	78	78	78	77	76
R-squared	0.00560	0.00258	0.194	0.254	0.245

Notes:
1. Outcome variable is an index consisting of responses to three statements: "Jobs scarce: Men should have more right to a job than women" "University is more important for a boy than for a girl" "Men make better political leaders than women do". Responses to all three statement are added together to create an index for each respondent. The index is standardized to have a mean of zero and a standard deviation of one.
2. Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$
3. Standard errors clustered at the country-level
4. Croatia and Kyrgyzstan drop out of analysis with the inclusion of additional controls in models 4 and 5 respectively due to missing data. Respondents for which demographic control information is missing similarly drop out of the analysis in both models 4 and 5.

C. Results

Table 3 contains results from a cross country comparison of attitudes towards gender in post-communist and non-post-communist states. Results from Table 3 suggest that there is not clear relationship between living in a post-communist country and general support for more progressive gender roles in the realm of employment, education and political representation. In model 1, which does not include any control variables, the coefficient is small and negative. With the inclusion of blocs of control variables, the coefficient changes signs multiple times, showing the estimate is quite unstable. The estimates all have large standard errors relative to the size of the coefficient and are not statistically significant.

Given that this analysis uses entire countries as units of observation, one should be cautious about trying to draw definitively causal interpretations from these results. To tease out a causal relationship between communism and attitudes in post-communist states, one must address the problem of omitted variable bias. That is, the problem of variables for which I cannot control that are both correlated with my explanatory variables (post-communist state) and influence my dependent variable (attitudes toward gender). Given that it is impossible to fully capture the complexities of country-level variation in economic, political and social characteristics, I cannot fully address the possibility of omitted variable bias. Thus, when making extrapolations based on the results of my statistical models, one should keep in mind that historical and contemporary economic or socio-political characteristics of states which my model fails to capture might still play a role in predicting attitudes towards gender. Systematically building groupings of control variables onto a base model as I do should help alleviate some concern about the role of omitted variables. Although it is not perfect, this design allows us to see if estimated results are stable to the inclusion of different types of control variables.

Keeping these limitations in mind, results from Table 3 suggest that when observed at an aggregate level, there is not a single unifying relationship between being a formerly communist country and attitudes towards gender. After controlling for a variety of historical and contemporary economic, political and demographic factors as best as possible, I find citizens of post-communist countries do not have on average different views than citizens of non-post-communist countries. These results are consistent with findings from Pop-Eleches and Tucker (2017) who similarly find a small and statistically insignificant effect of communism after including a full set of controls. While Pop-Eleches and Tucker similarly acknowledge the possibility of heterogeneity in the effect of communism amongst subsets of the population, they focus their discussion on respondent-level and country-level characteristics which might create greater resistance or acceptance to communist ideology. Instead of analyzing how differences in how communist ideology was received, I hypothesize that difference in the ideology itself may explain part of this heterogeneity.

V. Differential Effects of Living through Soviet Communism

A. Empirical Strategy

Having replicated the primary finding of Pop-Eleches and Tucker (2017) using the most recent wave of the WVS, I move onto the second hypothesis: that there may be differential effects of communism depending on the type of communist rhetoric espoused by the state during that time. To empirically test this hypothesis, I focus on the effect of *Soviet communism* and allow for differential effects depending on when a respondent would have been socialized; my independent variable of interest now being a binary indicator variable for if a respondent lives in a formerly Soviet state.

I group respondents into five age cohorts. Each cohort would have been socialized under a different type of state rhetoric, which roughly correspond to my earlier periodization of the Soviet treatment of gender. Table 4 contains the birth years of respondents corresponding to the type of Soviet communism under which a respondent would have lived through at late adolescence. I choose to focus on state rhetoric during a respondent's earlier years of life based on strong evidence from the field of social psychology suggesting that attitude formation occurs primarily in the years leading up to adulthood. I use the age of fifteen, the age when compulsive school attendance ended in the USSR, as a marker of the beginning of a respondent's most impressionable years. For example, an individual born in 1925 would have turned fifteen in 1940 and thus, I treat this respondent as socialized under early Soviet Communism and Stalinism. An individual born in 1975 would have reached fifteen in 1990 and thus, I treat this respondent as having been socialized in the post-communist era. I interact indicators for age cohort on my indicator for a formerly Soviet state, which allows for differential effects of living in a formerly Soviet country for each age cohort. I omit the indicator for respondents born after 1980 as my reference category.[3]

Table 4:
Soviet Age Cohorts

Soviet Period	*Impressionable Years*	*Cohort Birth Years*
Early Soviet Communism and Stalinism	1920-1944	1905-1929
Post-War	1945-1964	1930 -1949
Late-Soviet	1965-1984	1950-1969
Glasnost and Collapse	1985-1994	1970-1979
Post-Communist	1995-present	1980 <

[3] One limitation of this strategy is that each group of age cohorts does not perfectly match to a period of Soviet communism. For example, the previously mentioned respondent born in 1975 is treated as having been socialized in the post-communist era but the respondent would have spent their entire childhood under communism. To alleviate any concerns about arbitrariness in using the age of fifteen as a cutoff for categorizing respondents, replications of my results using age 20 and age 10 as the marker for the beginning of a respondents' impressionable years can be found respectively in Tables A3 and A4 in the appendix.

Focusing my analysis on socialization under Soviet communism raises an question as to how to address formerly communist Eastern European and Balkan states in my analysis.[4] In the interest of maintaining the widest breadth of countries, there is an argument for including these countries as a part of the control group. On the other hand, because these countries were exposed to a version of communism that was ideological similar to the Soviet communism (or in the case of the Balkans— the exact same), including these countries as a part of the control may bias the estimate. Assuming there is some overlap in the influence of communism on respondents in the former Soviet Union and Eastern Europe, the inclusion of these other formerly communist countries as a part of the control group could underestimate of the total 'effect' of communist ideology on Soviet respondent. For robustness, I run the models both including these countries as a part of the control group and dropping these countries from the sample.

[4] The onset of Soviet communism occurred roughly in two waves. Following the 1917 Bolshevik revolution, communist governments came to power in all the formerly Soviet states apart from Estonia, Latvia and Lithuania. A second wave of communism occurred across Eastern Europe following the end of WWII, bringing communist governments to power in countries in Eastern Europe and the Baltic states. Given that I am interested in temporal variation in early and late exposure to communism, I group the Baltic states with formerly communist countries in Eastern Europe.

Table 5A:
Estimated Differential Effect of Living in a Formerly Soviet State for Age Cohorts

	(1)	(2)	(3)	(4)	(5)
	Dependent variable: Gender equality index				
Post-communist state	-0.391***	-0.416***	-0.126	-0.148	-0.197
	(0.113)	(0.122)	(0.160)	(0.162)	(0.254)
Post-communist x age cohort: 1970-1979	-0.0710	-0.0557	-0.0553	-0.0491*	-0.0514
	(0.0520)	(0.0408)	(0.0408)	(0.0296)	(0.0361)
Post-communist x age cohort: 1950-1969	-0.0455	-0.0279	-0.0273	-0.0718*	-0.0539
	(0.0598)	(0.0503)	(0.0503)	(0.0373)	(0.0506)
Post-communist x age cohort: 1930-1949	0.0682	0.0903	0.0913	0.00134	0.0130
	(0.0730)	(0.0634)	(0.0634)	(0.0506)	(0.0670)
Post-communist x age cohort: 1905-1930	0.278***	0.305***	0.306***	0.237***	0.255***
	(0.0918)	(0.0858)	(0.0858)	(0.0822)	(0.0923)
Age cohort: 1970-1979	-0.0194	0.00601	0.00579	0.0699***	0.0773***
	(0.0250)	(0.0153)	(0.0153)	(0.0171)	(0.0174)
Age cohort: 1950-1969	0.0792***	0.0523***	0.0527***	0.104***	0.113***
	(0.0296)	(0.0199)	(0.0199)	(0.0218)	(0.0235)
Age cohort: 1930 -1949	-0.272***	-0.244***	-0.244***	0.0425	0.0540*
	(0.0389)	(0.0304)	(0.0304)	(0.0285)	(0.0302)
Age cohort: 1905-1930	-0.589***	-0.536***	-0.537***	-0.151***	-0.148***
	(0.0542)	(0.0420)	(0.0420)	(0.0462)	(0.0464)
Survey year fixed-effects	No	Yes	Yes	Yes	Yes
Pre-communist controls	No	No	Yes	Yes	Yes
Demographic controls	No	No	No	Yes	Yes
Contemporary economic and political controls	No	No	No	No	Yes
Observations	185,386	185,386	185,386	154,773	152,883
Number of countries	78	78	78	77	76
R-squared	0.0106	0.0106	0.204	0.257	0.291

Notes:
1. Outcome variable is an index consisting of responses to three statements: "Jobs scarce: Men should have more right to a job than women" "University is more important for a boy than for a girl" "Men make better political leaders than women do". Responses to each statement take on a value of 1 for agreement and 0 for disagreement. Responses to all three statement are added together to create an index for each respondent. The index is standardized to have a mean of zero and a standar deviation of one.
2. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered at the country-level
3. Formerly communist countries from E. Europe and Balkans included as a part of the control group.

Table 5B: Estimated differential effect of living in a post-communist county for age cohorts by region

	Formerly Soviet Communist State				Formerly Communist E. European State			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable: Gender equlity index							
Post-communist state	-0.513***	-0.457**	-0.537***	-0.827***	0.201**	0.102	0.00516	-0.139
	(0.153)	(0.194)	(0.171)	(0.282)	(0.0981)	(0.0937)	(0.122)	(0.157)
Post-communist x age cohort: 1970-1979	0.0116	0.0119	0.0480	-0.0171	-0.00297	-0.00284	-0.0218	-0.0516
	(0.0310)	(0.0310)	(0.0399)	(0.0326)	(0.0455)	(0.0454)	(0.0413)	(0.0487)
Post-communist x age cohort: 1950-1969	0.0480	0.0484	0.0318	-0.0492	-0.0779	-0.0776	-0.0809*	-0.113**
	(0.0420)	(0.0420)	(0.0560)	(0.0588)	(0.0501)	(0.0501)	(0.0450)	(0.0539)
Post-communist x age cohort: 1930-1949	0.185***	0.185***	0.132*	0.00770	-0.102*	-0.102*	-0.115**	-0.166***
	(0.0567)	(0.0568)	(0.0777)	(0.0734)	(0.0565)	(0.0565)	(0.0484)	(0.0635)
Post-communist x age cohort: 1905-1930	0.432***	0.433***	0.447***	0.273**	-0.0592	-0.0585	0.0797	-0.00771
	(0.0980)	(0.0980)	(0.132)	(0.119)	(0.101)	(0.101)	(0.0721)	(0.0807)
Age cohort: 1970-1979	-0.00292	-0.00311	0.0481***	0.0802***	-0.00315	-0.00331	0.0658***	0.0780***
	(0.0151)	(0.0151)	(0.0180)	(0.0168)	(0.0156)	(0.0156)	(0.0185)	(0.0189)
Age cohort: 1950-1969	-0.0559***	-0.0563***	0.0816***	0.120***	-0.0568***	-0.0571***	0.104***	0.123***
	(0.0203)	(0.0203)	(0.0242)	(0.0220)	(0.0205)	(0.0205)	(0.0231)	(0.0245)
Age cohort: 1930 -1949	-0.243***	-0.244***	0.0122	0.0549*	-0.245***	-0.245***	0.0512*	0.0768**
	(0.0331)	(0.0331)	(0.0319)	(0.0285)	(0.0330)	(0.0330)	(0.0309)	(0.0321)
Age cohort: 1905-1930	-0.545***	-0.546***	-0.234***	-0.193***	-0.547***	-0.548***	-0.174***	-0.148***
	(0.0458)	(0.0458)	(0.0479)	(0.0428)	(0.0454)	(0.0454)	(0.0457)	(0.0475)
Survey year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-communist controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Demographic controls	No	No	Yes	Yes	No	No	Yes	Yes
Contemporary economic and political controls	No	No	No	Yes	No	No	No	Yes
Observations	158,655	158,655	133,080	131,190	159,309	159,309	131,765	131,765
Number of countries	63	63	63	62	68	68	67	67
R-squared	0.00448	0.228	0.298	0.322	0.00816	0.229	0.279	0.311

1. Outcome variable is an index consisting of responses to three statements: "Jobs scarce: Men should have more right to a job than women" "University is more important for a boy than for a girl" "Men make better political leaders than women do". Responses to each statement take on a value of 1 for agreement and 0 for disagreement. Responses to all three statement are added together to create an index for each respondent. The index is standardized to have a mean of zero and a standar deviation of one.

2. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered at the country-level

3. Formerly communist countries from E. Europe and Balkans dropped from sample in models 1-4. Formerly Soviet countries dropped from sample in models 5-8

B. Results

Table 5A contains results estimating the differential effect of living in a formerly Soviet state on different age cohorts, including formerly communist countries in Eastern Europe and the Balkans as a part of the control group. Model 1 shows that on average, citizens living in formerly Soviet are on average about .4 standard deviations less supportive of gender equality. With the inclusion of pre-communist control variables, the coefficient on post-communist decreases in magnitude and statistical significance, suggesting that this difference may in fact be driven by historical cultural or developmental characteristics of formerly Soviet states.

The most interesting finding from this analysis is the relationship between age at communist exposure and attitudes towards gender. Consistent with what we expect, in general older respondents hold more traditional views on gender norms relative to younger respondent. Respondents born before 1930 in the former Soviet Union, however, have on average about one quarter of a standard deviation more progressive views than respondents of the same age cohort from non-communist states. In other words, in the former Soviet Union, the oldest respondents are the *most* accepting of non-traditional gender norms. This estimate is relatively stable to the inclusion of all control variables and is statistically significant at the one percent level in all five models. I do not find a statistically significant difference of attitudes held by respondents in the former Soviet Union for any other age cohort within my sample.

In models 1-4 in Table 5B, I drop the formerly Eastern European and Balkan countries from my sample and run the same models as Table 5A. Results from models 1 and 2 without any control variables other than survey-year fixed-effects closely match results from Table 5A. With the inclusion of a full set of control variables, the coefficient on the interaction term between living in a formerly Soviet state and being born prior to 1930 in Table 5B is only a .018 or 6 percent difference in magnitude from the results from Table 5A. This suggests that this estimate

is not sensitive to changes in the countries included in my sample. In models 5-8, I drop formerly Soviet states from the sample and run the same set of models. In these models, the indicator variable for post-communist picks up differences in attitude in respondents living in formerly communist states in Eastern Europe. Consistent with what I expect, there is no statistical evidence of a differential effect for the oldest cohort of respondents in formerly communist states in Eastern Europe.

Results from Table 5A and Table 5B provide evidence in favor of the hypothesis that the relationship between communism and attitudes towards gender varied overtime. While there does not seem to be evidence of a positive effect of living in post-communist state overall, results from Table 5A and 5B suggest the earliest cohort of respondents exposed to Soviet communism are on average more supportive of gender equality than similarly aged peers in non-post-communist countries. The fact there is no evidence of a similar difference for the same cohort in formerly communist countries in Eastern Europe suggests that exposure to communism prior to the World War II caused this differential effect. Interestingly, I do not find evidence of a similar relationship for any other cohort of respondents in the former Soviet Union, suggesting that these early years of Soviet communism were unique.

In general, my findings show that views on gender tend to become more conservative with age. The oldest cohort of respondents in non-post-communist states consistently has the most conservative attitudes towards gender. For respondents living in countries formerly making up the Soviet Union, however, this relationship between age and attitudes towards gender looks different from the rest of the world. In these countries, the oldest cohort holds more progressive views on gender compared to their younger peers, begging a closer analysis of what might explain this disparity. Through the inclusion of blocs of control variables, my models attempt to empirically test if these differences in the attitudes of respondents living in formerly communist

states are the result of communism. Although it is impossible to parcel out a true causal effect, these models as best as possible try to control for other omitted variables and estimate the "effect" of a respondent living in a formerly Soviet state.

There are several possible mechanisms through which communism could have differentially influenced the earliest cohort of Soviet respondents. One is that this cohort was exposed to communism for the longest amount of time. If exposure to communism socialized citizens to support gender equality, we expect longer exposure to communism to correspond with more progressive attitudes towards gender generally. Lack of evidence for a similar but smaller differential effect for later cohorts within the Soviet Union refutes this explanation. Second, it is possible that legal and political changes associated with the onset of communism contribute to explaining why respondents exposed to early Soviet communism hold more progressive beliefs about gender. New Soviet laws granting women the right to vote, the right to divorce and provided a mandatory minimum for the number of women in lower levels of political office dramatically improved the legal status of women, particularly relative to treatment of women in Tsarist Russia just a few years prior. Third, the rapid pace of economic change during the first two decades of the Soviet Union, which created unprecedented educational and employment opportunities for women, likely contributed to adoption of more acceptance of women in non-traditional roles. As educated and employed women become a greater proportion of society, support for gender equality within society grows. Although high levels of female labor force participation and educational achievement were a feature of every period of the Soviet Union, in the 1920s and 1930s this was a unique characteristic relative to other countries in the world at that time. The uniquely progressive attitudes of the oldest cohort in the former Soviet Union might reflect this disparity. Finally, Citizens socialized in the early years of the Soviet Union experienced a unique effort by the state to break down the traditional patriarchal structure of

society and reconstruct gender identities in a more equal manner. Propaganda campaigns, school curriculum and political discussions revolved around bringing women into society as revolutionaries, as workers, and as educated citizens. Progress in the economic and political status of women meant that reality appeared to be moving in a direction consistent with the ideology espoused by the state. The early communist rhetoric on gender created a new type of culture around gender, socializing citizens towards more progressive views on the role of women and men in society.

VI. Conclusion

While a strong commitment to gender equality was purported to be a central foundation of communist states, close analysis of Soviet cultural history reveals that the state's message on the correct role of men and women in society was in fact inconsistent, at times aligning with a Marxist ideological commitment to equality but in other cases being driven primarily by practical and strategic considerations. In light of this inconsistent messaging, it is perhaps unsurprising that both Pop-Eleches and Tucker (2017) and I find no empirical evidence of a clear unified relationship between communism and support for gender egalitarianism. Looking specifically at the Soviet Union, I allows for inconsistencies in the state's goals regarding gender egalitarianism over time and that, by extension, allows for the possibility of temporal variations in the effects of communist socialization. If the state's messaging on gender equality changed over time, I argue, it stands to reason that the socialization from living in communist states would likewise be different.

Empirical analysis of the differential effects of communism on various age cohorts within the Soviet Union suggests that a temporally-variant understanding of the Soviet socialization effect is appropriate. I find evidence of greater support for gender equality amongst the oldest cohort of Soviet citizens that lived through a period of alignment between rhetoric and reality but

do not see a similarly clear differential effect for respondents exposed to communism following World War II in either the Soviet Union or Communist Eastern Europe.

While I believe that my results are compelling and grounded in strong empirical support, I do not discount the multitude of additional factors associated with communism which likely contribute to explaining differences in attitudes held by respondents exposed to this unique social experiment. My research design is limited in that I cannot make claims on the causal mechanism at play. In light of previous literature on the determinants of support for gender egalitarianism in other contexts, it is likely that both structural factors and culture-based channels played a role in shaping attitudes towards gender. The early communist state took an active role in constructing a culture which facilitated acceptance of a particular set of normative attitudes on gender; namely, that women should be mothers but also revolutionaries, workers, and equal members of society. These norms broke down the traditional patriarchal structure of society and accelerated progress towards gender equality. Although a later departure from this early vision of Marxist-feminism meant that the stated-goal of gender equality was far from realized, my results show that there may have been genuine support for this goal in the early years of the Soviet state, suggesting that states can play an important role in shaping citizen's attitudes and beliefs.

Norms, values and beliefs are undoubtedly abstract concepts, but research suggests that they have very real material consequences. Gender roles and gender norms, for example, have been heavily linked to female employment choices, gendered occupational segregation, and wage gaps both in post-communist context as well as globally (Goldin 2006; Campa, Casarico, and Profeta 2011; Fernández and Fogli 2009; Gerber and Schaefer 2004). In the ongoing effort to understand what drives gender inequalities, an examination of the historical roots of present day attitudes is undoubtedly important.

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Appendix

I. Data and Sources

A. Pre-communist controls (country-level)

- *Literacy Rates 1920:* Data from Correlates of War Project. Colonial Contiguity Data, 1816-2016. Version 3.1 and the OECD's *the World Economy* are used to gather a literacy rate for each country in 1920. I categorize each country into one of five literacy rate 'bins' ranging from zero to one hundred percent. 1 indicates less than 20 of the population was literate in 1920 while a 5 indicates over 80 percent of the population was literate in 1920. For some countries a literacy rate in 1920 is unavailable. I use an estimate from the earliest available year within a ten year range above and below 1920 for which there is data.

- *Fertility Rate 1920:* Historical fertility rates come from gapminder.org and are measure the country-level. Fertility is defined as the average number of births per women.

- *Women's Suffrage 1920:* I construct a binary indicator at the country-level for if women had the right to vote prior to 1920 using data from womensuffrage.org. The indicator takes a value of one if women had the right to vote prior to 1920 and a value of zero otherwise.

- *Landlocked:* Landlocked is measured through a binary indicator variable which takes on a value of zero if a country is landlocked and a value of one if not. This indicator comes from Portland State University GIS world geography dataset.

- *Elevation:* Data on elevation come from Portland State University GIS world geography dataset. Elevation is measured at the country-level as mean distance in meters above sea level.
- *Distance to Equator and Meridian:* I use data from Portland State University GIS world geography dataset on latitude and longitude to create a country-level measure of the distances from the center of each country to the equator and to the prime meridian.

- *Colonial legacies* (Ottoman empire, Spanish Empire, Hapsberg Empire, Romanov Empire, French Colony and British Colony): Data on colonial legacies come from Correlates of War Project. Colonial Contiguity Data, 1816-2016. Version 3.1. Each colonial legacy is measured through a binary indicator variable which takes on a value of one if a country is a former colony and zero if not.

- *Religious percent* (Catholic (%), Orthodox (%), Muslim (%), Non-religious (%) Protestant (%)): I use data from the Correlates of War Project, World Religion Data to create five contemporary measures of the percent of the population which adherence to four major religions: Catholic, Eastern Orthodox, Muslim, and Protestant. I also include a measure of the country-level non-religious population.

B. Demographic controls (respondent-level)

- *Female:* Female is a binary indicator variable which take on a value of zero if a respondent is a man and a value of one if a respondent is a women.

- *Marital Status:* Marital status is a binary indicator variable which take on a value of zero if a respondent is divorced or single and a value of one if a respondent is married or widowed.

- *Income:* The WVS's standard ten-category measure of household income, which asks respondents to place themselves within one of ten income brackets in their local currency, is used to measure household income.

- *Education (low, medium, high)*: The WVS collects information of the highest educational level attained by respondents. I code low levels of education as respondents which indicate they "have no formal education", "inadequately completed elementary education" and "completed elementary school". I code medium levels of education as respondents which indicate they have incomplete or complete secondary school. I code high levels of education as respondents which complete some university with or without a degree. I drop respondent for which information on education is missing or not asked in the survey.

- *Employment:* Employment status is self-reported in the WVS. I recode this variable into four mutually exclusive categories: employed, retired, stay-at-home partner, and unemployed.

- *Parent:* The WVS contains information of the number of children of a respondent. I create a binary indicator variable which takes on a value of one if a respondent has one or more children and a value of zero if a respondent has zero children.

- *Religious Attendance Often:* The WVS asks respondents how often they attend religious services. Responses rage from "more than once a week" to "never practically never". I code respondents which indicate they attend "once a week" or "more than once a week" as a one and all other responses as a zero.

- *Not Religious:* The WVS ask respondents his or her religious denomination. I code respondents which indicate they have "No religious denomination" as non-religious.

C. Macroeconomic and political controls (country-year level)

- *Fertility rate:* Fertility rate data come from the World Bank and is measured as the number of births per women at the country level.

- *Total Labor Force Participation Rate:* Labor force participation rate data come from the International Labor Organization and is defined as the percent of total population ages 15-64 in the labor force. I retrieved the data from the World Bank.

- *Female Labor Force Participation Rate:* Female Labor force participation rate data come from the International Labor Organization and is defined as the percent of female population ages 15-64 in the labor force. I retrieved the data from data.worldbank.org

- *Inflation:* Data on inflation come from the International Monetary Fund and is defined as an annual percent in terms of consumer prices. I retrieved the data from the data.worldbank.org

- *GDP and GDP per capita*: GPD and GDP per capita come from the World Bank national accounts data and are both measure in constant 2010 USD.

- *Public Corruption Index:* Measures of country-year public corruption come from the Varieties of Democracy project, a social science dataset design to measure democratic principles at the country level. The index runs from less corrupt (0), to more corrupt (1) and is designed to measure "To what extent do public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?" Lindberg (2016).

- *Electoral Democracy Index:* Measures of country-year electoral democracy come from the Varieties of Democracy project, a social science dataset design to measure democratic principles at the country level. This index is measured at the country-year level and takes on a value from low-high (0-1). According to the V-Dem conceptual scheme, "electoral democracy is understood as an essential element of any other conception of representative democracy — liberal, participatory, deliberative [and] egalitarian.." Teorell et al. (2016, V-Dem Working Paper Series 2016:25).

- *Freedom House Polity Index*: I use Freedom House polity score as a broad measure of the contemporary political rights and civil liberties with a country in each survey year. Scores range from 0-10 where 0 is least democratic and 10 most democratic (Freedom House 2018).

II. Additional Tables

Table A1: Observations per country by WVS wave

Country	Wave 2 1989-1993	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014	Total
Albania		999	1,000			1,999
Algeria			1,282		1,200	2,482
Argentina	1,002	1,079	1,280	1,002	1,030	5,393
Armenia		2,000			1,100	3,100
Australia		2,048		1,421	1,477	4,946
Azerbaijan		2,002			1,002	3,004
Bangladesh		1,525	1,500			3,025
Belarus	1,015	2,092			1,535	4,642
Bosnia and Herzegov..		800	1,200			2,000
Brazil	1,782			1,500	1,486	4,768
Bulgaria		1,072		1,001		2,073
Burkina Faso				1,534		1,534
Canada			1,931	2,164		4,095
Chile	1,500	1,000	1,200	1,000	1,000	5,700
Colombia		6,025		3,025	1,512	10,562
Croatia		1,196				1,196
Cyprus				1,050	1,000	2,050
Czech Republic	924	1,147				2,071
Dominican Republic		417				417
Ecuador					1,202	1,202
El Salvador		1,254				1,254
Estonia		1,021			1,533	2,554
Ethiopia				1,500		1,500
Finland		987		1,014		2,001
France				1,001		1,001
Georgia		2,008		1,500	1,202	4,710
Germany		2,026		2,064	2,046	6,136
Ghana				1,534	1,552	3,086
Guatemala				1,000		1,000
Hungary		650		1,007		1,657
India	2,500	2,040	2,002	2,001	1,581	10,124
Indonesia			1,000	2,015		3,015
Iraq			2,325	2,701	1,200	6,226
Italy				1,012		1,012
Japan	1,011	1,054	1,362	1,096	2,443	6,966
Jordan			1,223	1,200	1,200	3,623
Kazakhstan					1,500	1,500
Kuwait					1,303	1,303
Kyrgyzstan			1,043		1,500	2,543
Libya					2,131	2,131

Table A1 (continued): Observations per country by WVS wave

Country	Wave 2 1989-1993	Wave 3 1994-1998	Wave 4 1999-2004	Wave 5 2005-2009	Wave 6 2010-2014	Total
Latvia		1,200				1,200
Kyrgyzstan			1,043		1,500	2,543
Latvia		1,200				1,200
Libya					2,131	2,131
Lithuania		1,009				1,009
Malaysia				1,201	1,300	2,501
Mali				1,534		1,534
Mexico	1,531	2,364	1,535	1,560	2,000	8,990
Moldova		984	1,008	1,046		3,038
Morocco			1,251	1,200	1,200	3,651
Netherlands				1,050	1,902	2,952
New Zealand		1,201		954	841	2,996
Nigeria	1,001	1,996	2,022		1,759	6,778
Norway		1,127		1,025		2,152
Pakistan		733	2,000		1,200	3,933
Peru		1,211	1,501	1,500	1,210	5,422
Philippines		1,200	1,200		1,200	3,600
Poland	938	1,153		1,000	966	4,057
Qatar					1,060	1,060
Romania		1,239		1,776	1,503	4,518
Russia	1,961	2,040		2,033	2,500	8,534
Rwanda				1,507	1,527	3,034
Saudi Arabia			1,502			1,502
Slovenia		1,007		1,037	1,069	3,113
South Africa	2,736	2,935	3,000	2,988	3,531	15,190
South Korea	1,251	1,249	1,200	1,200	1,200	6,100
Spain	1,510	1,211	1,209	1,200	1,189	6,319
Sweden		1,009		1,003	1,206	3,218
Switzerland		1,212		1,241		2,453
Tanzania			1,171			1,171
Thailand				1,534	1,200	2,734
Tunisia					1,205	1,205
Turkey	1,030	1,907	3,401	1,346	1,605	9,289
Uganda			1,002			1,002
Ukraine		2,811		1,000	1,500	5,311
United Kingdom		1,093		1,041		2,134
United States		1,542	1,200	1,249	2,232	6,223
Uruguay		1,000		1,000	1,000	3,000
Uzbekistan					1,500	1,500
Zambia				1,500		1,500
Zimbabwe			1,002		1,500	2,502
Total number of countries	15	46	29	49	50	78
Total observations	21,692	68,875	43,552	69,067	72,840	276,026

Table A2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Precommunist controls					
Literacy rate 1920	276,026	2.60286	1.500616	1	5
Ferility rate 1920	276,026	5.512383	1.383515	2.33872	7.85
Women's sufferage 1920	276,026	0.133513	0.3401287	0	1
Landlocked	276,026	0.138081	0.3449858	0	1
Elevation	276,026	653.5441	496.9237	9.1667	2988.048
Distance to equator	276,026	3731.917	1880.795	136.4259	7556.639
Distance to meridian	276,026	6141.717	4595.64	112.9423	19364.68
Religious population					
Catholic (%)	276,026	0.258497	0.3142661	0	0.8775
Orthodox (%)	276,026	0.117714	0.2603258	0	0.947
Muslim (%)	276,026	0.233588	0.3602203	0	0.99
Non religious (%)	276,026	0.106077	0.1363164	0	0.7575
Protestant (%)	276,026	0.116628	0.1520923	0	0.8064
Ottoman empire	276,026	0.14925	0.3563358	0	1
Spanish Empire	276,026	0.171962	0.3773482	0	1
Hapsberg Empire	276,026	0.090336	0.2866626	0	1
Romanov Empire	276,026	0.176444	0.3811978	0	1
French Colony	276,026	0.037699	0.1904685	0	1
British Colony	276,026	0.287082	0.4524008	0	1
Demographic controls					
Female	276,026	0.516672	0.4997229	0	1
Education					
Low	247,257	0.300	0.458	0	1
Middle	247,257	0.458021	0.4982357	0	1
High	247,257	0.241482	0.4279824	0	1
Age	275,456	40.83716	16.21149	15	99
Employment	329,450				
Employed	143,396				
Stay-at-home partner	39,266				
Retired	32,724				
Unemployed	25,731				
Married/ Widowed	272,336	0.625771	0.4839241	0	1
Has children	264,124	0.711	0.453	0	1
Religious attendence often	276,026	0.195496	0.3965828	0	1
Not religious	276,026	0.164869	0.3710625	0	1
Christain	276,026	0.482408	0.4996913	0	1
Muslim	276,026	0.185845	0.3889821	0	1
Macroeconomic and political controls					
GDP growth since previous year	273,674	0.046	0.090	-0.2694	0.6605278
GDP per capita, logged, base 10 (E)	272,545	73.31347	7.845965	49.809	95.785
GDP	272,545	60.14465	8.463328	39.199	86.846
Inflation	272,545	47.23124	14.13185	12.162	86.243
Female labor force participation rate	270,523	19.15006	70.98478	-17.309	958.5032
Public corruption index	276,026	0.417674	0.2935316	0.006385	0.9724507
Polity score (Freedom House)	276,026	7.169095	2.696336	0	10
Electoral democracy index	276,026	0.623537	0.2350287	0.023695	0.9327943

Table A3: Estimated differential effect of living in a formerly Soviet state for age cohorts

	(1)	(2)	(3)	(4)	(5)
	Dependent variable: Gender equality index				
Communist state	-0.426***	-0.446***	-0.157	-0.173	-0.225
	(0.106)	(0.116)	(0.158)	(0.160)	(0.249)
Communist x age cohort: 1965-1974	-0.0170	-0.00484	-0.00447	-0.0203	-0.00420
	(0.0315)	(0.0299)	(0.0299)	(0.0276)	(0.0337)
Communist x age cohort: 1945-1964	0.0107	0.0254	0.0260	-0.0406	-0.0233
	(0.0495)	(0.0444)	(0.0444)	(0.0363)	(0.0474)
Communist x age cohort: 1925 -1944	0.141**	0.160***	0.161***	0.0585	0.0731
	(0.0595)	(0.0547)	(0.0547)	(0.0498)	(0.0643)
Communist x age cohort: 1900-1924	0.400***	0.425***	0.427***	0.359***	0.394***
	(0.0822)	(0.0835)	(0.0834)	(0.0851)	(0.0893)
Age cohort: 1965-1974	-0.0274	-0.00990	-0.0101	0.0610***	0.0590***
	(0.0192)	(0.0131)	(0.0132)	(0.0127)	(0.0141)
Age cohort: 1945-1964	-0.108***	-0.0904***	-0.0908***	0.0656***	0.0617***
	(0.0247)	(0.0192)	(0.0192)	(0.0184)	(0.0215)
Age cohort: 1925 -1944	-0.337***	-0.315***	-0.315***	-0.0342	-0.0504
	(0.0371)	(0.0313)	(0.0313)	(0.0279)	(0.0327)
Age cohort: 1900-1924	-0.679***	-0.625***	-0.626***	-0.272***	-0.301***
	(0.0586)	(0.0503)	(0.0503)	(0.0557)	(0.0604)
Survey year fixed-effects	No	Yes	Yes	Yes	Yes
Pre-communist controls	No	No	Yes	Yes	Yes
Demographic controls	No	No	No	Yes	Yes
Contemporary economic and political controls	No	No	No	No	Yes
Observations	185,386	185,386	185,386	154,773	152,883
Number of countries	78	78	78	77	76
R-squared	0.0105	0.0105	0.204	0.257	0.291

Notes:
1. Outcome variable is an index consisting of responses to three statements: "Jobs scarce: Men should have more right to a job than women" "University is more important for a boy than for a girl" "Men make better political leaders than women do". Responses to each statement take on a value of 1 for agreement and 0 for disagreement. Responses to all three statement are added together to create an index for each respondent. The index is standardized to have a mean of zero and a standar deviation of one.
2. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
3. Standard errors clustered at the country-level

Table A4: Estimated differential effect of living in a formerly Soviet state for age cohorts

	(1)	(2)	(3)	(4)	(5)
	Dependent variable: Gender equality index				
Communist state	-0.400***	-0.427***	-0.141	-0.160	-0.210
	(0.119)	(0.124)	(0.158)	(0.162)	(0.251)
Communist x age cohort: 1975-1984	-0.0408	-0.0294	-0.0288	-0.0229	-0.0220
	(0.0563)	(0.0427)	(0.0427)	(0.0232)	(0.0295)
Communist x age cohort: 1955-1974	-0.0362	-0.0175	-0.0166	-0.0485	-0.0313
	(0.0678)	(0.0536)	(0.0536)	(0.0344)	(0.0476)
Communist x age cohort: 1935 -1954	0.0231	0.0480	0.0492	-0.0353	-0.0178
	(0.0872)	(0.0727)	(0.0727)	(0.0549)	(0.0721)
Communist x age cohort: 1910-1934	0.243**	0.268***	0.270***	0.189**	0.211**
	(0.0961)	(0.0856)	(0.0855)	(0.0754)	(0.0903)
Age cohort: 1975-1984	-0.00831	0.00963	0.00944	0.0649***	0.0766***
	(0.0252)	(0.0149)	(0.0149)	(0.0171)	(0.0168)
Age cohort: 1955-1974	-0.0541	-0.0236	-0.0240	0.130***	0.143***
	(0.0351)	(0.0209)	(0.0209)	(0.0263)	(0.0262)
Age cohort: 1935 -1954	-0.209***	-0.178***	-0.179***	0.108***	0.124***
	(0.0423)	(0.0302)	(0.0302)	(0.0337)	(0.0346)
Age cohort: 1910-1934	-0.504***	-0.455***	-0.456***	-0.0425	-0.0301
	(0.0531)	(0.0375)	(0.0375)	(0.0359)	(0.0374)
Survey year fixed-effects	No	Yes	Yes	Yes	Yes
Pre-communist controls	No	No	Yes	Yes	Yes
Demographic controls	No	No	No	Yes	Yes
Contemporary economic and political controls	No	No	No	No	Yes
Observations	185,386	185,386	185,386	154,773	152,883
Number of countries	78	78	78	77	76
R-squared	0.0106	0.0106	0.204	0.257	0.291

Notes:
1. Outcome variable is an index consisting of responses to three statements: "Jobs scarce: Men should have more right to a job than women" "University is more important for a boy than for a girl" "Men make better political leaders than women do". Responses to each statement take on a value of 1 for agreement and 0 for disagreement. Responses to all three statement are added together to create an index for each respondent. The index is standardized to have a mean of zero and a standard deviation of one.
2. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
3. Standard errors clustered at the country-level