

Female Empowerment as a Core Driver of Democratic Development: A Dynamic Panel Model from 1980 to 2005

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Summary. — We investigated the causal effects of female empowerment (female educational attainment, female labor force participation, and total fertility rates) on democratic development for 97 countries from 1980 to 2005. Using Polity IV as an indicator of levels of democracy, our results show that female empowerment was strongly associated with democratic development over this period. The effect of female education increased with lags of 5 and 10 years, suggesting that democracy is more likely to occur in nations with a history of educating girls and a longer experience of the social and economic conditions that have occurred because of this investment.
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1. INTRODUCTION

In the latter part of the 20th century many countries moved away from autocratic rule toward more democratic regimes. During this period women's economic and social rights also improved, with greater access to education (Barro & Lee, 2010) and employment (UN, 2000), and a world wide fall in fertility rates (World Bank, 2011). The general presumption has been that democracy leads to improvements in these aspects of gender equality. However, insufficient attention has been paid to the possibility that a causal relationship may operate in the opposite direction. Hence, the absence of empirical studies investigating the role played by improvements in women's rights in advancing democracy is a significant gap in the research literature. Existing literature on the social and economic determinants of democracy has tended to focus on income and factors closely associated with it, such as mass education and urbanization (Barro, 1999; Bollen, 1979; Epstein, Bates, Goldstone, Kristensen, & O'Halloran, 2006; Glaeser, Ponzetto, & Shleifer, 2007; Lipset, 1994; Londregan & Poole, 1996; Papaioannou & Siourounis, 2008). However, there are still many wealthy countries that have not become democratic, particularly throughout the Middle-East. This challenges the assumption that wealth automatically leads to more democratic regimes, and suggests a possible role for gender equality and female empowerment in advancing democracy.

While we recognize that there are many factors that contribute to the democratic development process, the purpose of this paper is to address the “gender lacuna” (Baldez, 2010) or gender gap in comparative politics and to incorporate a gendered perspective into democratic development theory. Specifically, this cross-national study investigates the causal relationship between female empowerment and democratic development from 1980 to 2005 for countries that began the period as non-democratic. Democracy is measured on a continuum using the Polity IV dataset and democratic development refers to a country's temporal movement toward democracy. Three indicators representing the empowerment of women are female educational attainment, fertility rates, and female labor force participation, and they reflect the interplay between women's productive and reproductive activities. A dynamic panel model with a System Generalized Method of Moments (GMM)

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estimator is employed to account for the possibility that the relationship between female empowerment and democratic development is influenced by endogeneity and autocorrelation.

Our results show that improvements in female empowerment were associated with democratic development over this period, with female education and female labor force participation having a significant positive and causal effect on these movements. The magnitude of the effect of female education increased with lags of 5 and 10 years, suggesting that democracy is more likely to occur in countries with a history of educating girls and possibly a longer experience of the social and economic conditions that have occurred because of this investment. Moreover, it appears that all three empowerment indicators were requisites for democracy to occur, with deficits in any area hindering democratic development. This highlights the importance of recognizing the interplay between women's productive and reproductive activities for advancing democracy.

2. THE DETERMINANTS OF DEMOCRACY

With countries moving away from autocracy toward more democratic regimes in the latter part of the 20th century many scholars have sought to understand the preconditions required for democracy to emerge and be sustained. According to the modernization theory democracy is more likely to occur in affluent and educated societies (Lipset, 1959, 1994). Lipset (1959) conceptualized modernization as changes in the factors of industrialization, urbanization, wealth, and education which are so closely interrelated as to form one common factor. The positive association between income and democracy (Barro, 1999; Bollen, 1979; Epstein, Bates, Goldstone, Kristensen, & O'Halloran, 2006; Glaeser *et al.*, 2007; Lipset, 1994; Londregan & Poole, 1996; Papaioannou & Siourounis, 2008), and a country's average education level and democracy (Barro, 1999; Feng & Zak, 1999; Glaeser *et al.*, 2007; Lutz, Cuaresma, & Abbasi-Shavazi 2010; Papaioannou & Siourounis, 2008; Persson & Tabellini, 2009) is an empirical regularity in the democratization literature. However, the effect of urbanization on democratization appears to be negligible or negative (Barro, 1999; Epstein *et al.*, 2006; Ross, 2001), except when established democracies are removed from the analyses (Castelló-Climent, 2008), then urbanization has a positive effect.¹

Despite strong evidence supporting the modernization theory, others argue that income and education have no *causal* effect on democracy. Acemoglu, Johnson, Robinson, and Yared (2005, 2008) found no evidence of a *causal* relationship between income and democracy or between total education and democracy, once country fixed effects were controlled for. However, others questioned their statistical methods and argued that the Blundell-Bond system GMM estimator was more appropriate to use when variables were highly persistent, rather than the Arellano-Bond first difference GMM estimator (Bobba & Covello, 2007; Castelló-Climent, 2008). In doing so, these authors found that total education was causally related to democracy. Moreover, in a seminal piece of work Przeworski and Limongi (1996) argued that the main effect of income on political change was to sustain democracies once they transitioned via other means.² However, subsequent critiques of Przeworski *et al.*'s findings and further analyses by Boix and Stokes (2003) and Epstein *et al.* (2006) showed that the modernization theory still held. Hadenius and Teorell (2005) found that while income had a positive effect among the more democratic countries and countries still in transition, their results showed that income had no significant effect on regime change in fully autocratic countries. This suggests that other factors over and above eco-

nomic development are required for democratic development to occur in these countries.

Recent studies suggest that in countries where total increases in wealth results in a more equal distribution of education and or income, democracy is more likely to emerge (Boix & Stokes, 2003; Castelló-Climent, 2008; Muller, 1995). Moreover, a study by Lutz *et al.* (2010) showed that while total education attainment was significant, increases in female education was also a core driver of democracy. Thus, while total levels of income and education are associated with higher levels of democracy, it appears that transitions out of autocracy may require a more equal distribution of economic and social resources between socio-economic groups and between genders. This suggests a possible role for gender equality and female empowerment in advancing democracy.

3. GENDER EQUALITY AND DEMOCRACY

Inglehart and Baker (2000) and Inglehart and Welzel (2009, 2010) make an important contribution to the democratization literature by attempting to explain the causal mechanism through which modernization creates the desire or demand for democracy. They propose that gains in economic security and development shift people's focus from survival to self-expression values, such as trust, tolerance, political activism, support for gender equality, and emphasis on freedom of expression. Rather than being a consequence of democratic transition, these authors suggest that gender equality is an important part of the broad cultural changes taking place that supports the spread of democracy (Inglehart, Norris, & Welzel, 2002). Implicit in these studies is the presumption that both gender equality and democratic development occur as a consequence of economic development. However, others have argued that economic development does not always improve the status of women (Boserup, 1970; Marchand & Parpart, 1995), particularly where patriarchal institutions still exist and where cultural norms, laws, and traditions restrict women's access to resources (Morrisson & Jütting, 2005).

Studies which test these assumptions are scarce. Using cross-sectional data to examine the causal link between Islam and authoritarianism, Fish (2002) identified the subordinate status of women as a factor contributing to the democratic deficit in Muslim countries. Specifically, gender literacy gaps, sex ratio imbalances (more males than females in the population), low percentages of women in government and a low gender empowerment score (GEM)³ were significantly correlated with more authoritarian regimes. Moreover, all these factors reduced the association between Islam and authoritarianism. Donno and Russett (2004) first replicated and then expanded Fish's study (Fish, 2002), using a more sophisticated model to test the causal link between women's status and democracy. They found that the indicators of women's rights (excluding the proportion of women in government) had no causal or independent effect on regime type. Additionally, their results showed that the negative impact of Islam on democracy was attributed to being an Arab country, rather than being an Islamic country. Both studies include democratic and nondemocratic countries and thus have difficulty (as Fish concedes) in identifying the direction of causation between gender equality and democracy. Donno and Russett's findings are further limited to the period of time toward the end of the 1990s and many of the countries included in their sample were already democratic prior to this period. Finally, studies linking modernization, democracy, and gender equality (Beer, 2009; Donno and Russett (2004), Fish, 2002; Inglehart *et al.*, 2002) are further complicated by the lack of consensus over the mean-

ings and measurement of democracy, women's status, and female empowerment. Accordingly, we address these issues next.

(a) *Conceptualizing democracy*

Democracy is a highly complex, multi-faceted concept that is contested at many levels. Firstly, there is disagreement as to whether democracy is a binary concept (Alvarez, Cheibub, Limongi, & Przeworski, 1996; Boix & Stokes, 2003) or a continuous concept (Bollen & Jackman, 1989; Jagers & Gurr, 1995). Others call for the recognition of the hybrid regime where countries may have elements of both democratic and autocratic regimes (Diamond, 2002; Epstein *et al.*, 2006). In the democratization literature the definition and measurement of democracy largely follows Dahl's narrow view of "polyarchy" rather than democracy. Its key characteristics are the existence of free, fair, and competitive elections, and the ability of its citizens to formulate and signify their preferences (Dahl, 1971). While narrow definitions of democracy have been criticized for being too minimalist and not including other attributes, such as measures of social and economic equality, it has also been argued that using an all-encompassing measure of democracy makes it difficult to separate social or economic progress from political progress (Di Palma, 1990; Munck & Verkuilen, 2002), and to test the effects of one element on another.

As the focus of this study is the causal effect of female empowerment on democratic development a narrow definition of democracy is used to separate political rights from social or economic rights. Consequently, democracy is conceptualized as a system of governance that allows free and fair elections, where there are constraints on executive power, and where there is universal suffrage. It is viewed as being on a continuum with countries embracing some or all of the elements of this system of governance.

(b) *Conceptualizing female empowerment*

The Beijing Declaration and Platform for Action set an agenda for the empowerment of women, and reaffirmed "women's rights as human rights." This document stresses that the empowerment of women and the equalization of men and women's rights are of critical concern for "achieving political, social, economic, cultural, and environmental security among all peoples" (United Nations, 1995). Since then, the term "empowerment" has been freely used, with many attempts to conceptualize and define this term. Ibrahim and Alkire (2007) identified more than 20 definitions of "empowerment" in the literature. The commonality in these descriptions is the relationship between a woman's individual agency and the macro-social structures or institutions that enhance or restrict a woman's ability to exercise that agency. Furthermore, empowerment is generally conceptualized as a process, where, over time, an individual moves from a lesser state to higher one (Kabeer, 1999; Rowlands, 1995).

This study is particularly interested in the transformative power of agency or "enabling factors" (Kishor, 2000) that challenge existing structures of patriarchy, particularly in authoritarian regimes. These include female education, female labor force participation, and fertility rates. We concede that aggregate measures fail to capture the efficacy of each of these items as tools for empowerment in different contexts and at different points in a woman's life course (Mason, 1986). However, the value of these three aggregate measures is that they enable us to measure female empowerment as a process because they are readily available for many countries over a long period of time, making cross-country comparisons possible. Moreover, the

inclusion of all three variables together represents a significant cultural shift in gender roles within a country and enables us to examine if and how deficits in one or more areas may hinder democratic development.

4. FEMALE EMPOWERMENT AND DEMOCRATIC DEVELOPMENT

Intuitively, the relationship between gender equality and democracy appears axiomatic. Since the UN Decade for Women (1975–85) international strategies and conventions, such as the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Millennium Development Goals, have created a strong mandate to ensure that gender equality and women's empowerment are an essential component of development and democracy. But what is the *causal* mechanism underpinning such a relationship and why would female empowerment in particular, promote democratic development?

The preamble from the Universal Declaration of Rights (1948) declares that democracy is based on the "freely expressed will of the people to determine their own political, economic, social, and cultural systems, and their full participation in all aspects of their lives." However, as women bear a disproportionate level of the world's poverty (UNDP, 1995), women's ability to shape their own lives and that of society is limited unless women gain access to and control over resources that are tools for empowerment. These include, but are not limited to, education, reproduction, and employment.⁴ As women become less burdened by childbearing and childrearing, are more educated and as they enter the work force, they become increasingly conscious of the gender inequalities that exist in society. Over time, women realize that their demands for gender equality are linked to a political regime that is more responsive to their needs (Arat, 1994), thus a push for *both* gender equality and democracy ensues.⁵

Empowering women through education and employment may have a causal effect on democratic development by raising the benefits of political participation and expanding the broad base of support for democracy. "It is more appealing to participate in a collective activity the more educated a person is, and the more educated the other participants are" (Glaeser *et al.*, 2007, p. 8). These authors suggest that *anything* that promotes collective action will also promote democracy. In 2006 the "*One Million Signatures Campaign*" was established in Iran to achieve two main goals. The first was to raise women's awareness of their individual human rights; the second was to demand legal changes to discriminatory laws against women. At the same time, the campaign strengthened the democratic reform agenda as women raised their voices with men advocating for change (Jahanshahrad, 2012). Hence, we argue that the increased participation of women in education will motivate *both* women and men to be more involved in grass roots political activism, thus expanding the broad base of support for democracy.

(a) *Female education*

Educating both boys and girls is acknowledged as a universal human right with benefits for individuals and society. However, educating girls indirectly advances democratic development by producing other socio-economic gains, above and beyond educating boys. These include reduced fertility, (Lehr, 2009; Lena & London, 1993), lower child mortality (Cleland & van Ginneken, 1988), and increased female labor force participation (Bloom, Canning, Fink, & Finlay, 2009).

Likewise, educating girls builds the human capital of the current and future generations of one half of the population, which in turn reduces the fertility rate of the next generation (Blumberg, 1989), and promotes long-term economic growth (Galor & Weil, 1996; Psacharopoulos & Patrinos, 2004). Educating girls also reduces gender inequalities as educated women are also more likely than noneducated women to educate their sons and daughters, thus increasing the overall distribution of education (Basu, 2002).

(b) *Female labor force participation*

The expansion of economic rights for women is an important tool for female empowerment and raising women's status (Blumberg, 1984, 2007; Chafetz, 1990; Collins, Chafetz, Blumberg, Coltrane, & Turner, 1993). While others have questioned its validity as a tool for empowering women in developing countries, particularly within the domestic sphere (Malhotra & Mather, 1997), female labor force participation, like education, appears to play an important role in raising women's political consciousness (Iversen & Rosenbluth, 2008; Ross, 2006; Staeheli & Cope, 1994). Women's entry into the work force creates the impetus for democratic transition as women are increasingly exposed to gender discrimination, and try to juggle the demands of both work and home. Regular association with other women at work creates opportunities to share grievances and discusses strategies to overcome them. This may be lobbying unions to improve their working conditions or forming organizations to protest against discriminatory laws and practices. Concomitantly, working women's policy interests change as their challenges become increasingly disparate to those of the males in their family (Iversen & Rosenbluth, 2006). Conversely, women in the traditional role of wife and mother are less likely to agitate for change or mobilize politically. Women's exclusion from the labor force appears to be a key factor in explaining the persistence of autocratic regimes in Muslim countries (Ross, 2008).

Women's participation in the labor force is also important for democratic development because it gives women individual autonomy and disperses the concentration of power from men in society. The importance of women's struggle for full citizenship—that is participation across all domains—contributes to changes in the relationship between the state and the citizen (Moghadam, 2007). The presence of more women in formal employment, in parliament, in the judiciary, and in leadership positions ensures that women's struggle for equal rights becomes highly visible as it is played out in the public sphere (Kazemi, 2000). This weakens the strength of the elites and creates opportunities for democratic development to occur.

Finally, women's economic participation is important for democratic development because it changes the social structure of society from a pyramid, with a large lower class, to a diamond with a growing middle class. Additionally, women are more likely than men to save and to reinvest their earnings back in to the health and education of their families (Jowett, 2000; Sinha, Raju, & Morrison, 2007), further expanding the human capital base of the middle class in the current and future generations. Consequently, a stronger middle class emerges, creating a greater impetus for political change.

(c) *Fertility rates*

There is scant theoretical and empirical literature on the direct relationship between fertility rates and political regimes. Przeworski, Alvarez, Cheibub, and Limongi (2000, p. 233) found that falling birth rates are associated with transitions

from dictatorships to democracies, and rising birth rates are associated with democratic reversals. Moreover, they found that stable dictatorships record higher rates of fertility than stable democracies. In a recent, longitudinal study examining the effect of demography and education on democratization, Lutz *et al.* found that fertility declines had an *independent and direct* effect on democratic development (Lutz *et al.*, 2010).⁶ These authors concluded that a falling fertility rate affects the population age structure by decreasing the youth dependency ratio. This favorable demographic constellation is referred to as a "demographic gift" where the working population will grow much faster than the overall population and enhance economic growth through increased savings, capital accumulation, and productivity, (Bloom & Canning, 2003; Bloom & Williamson, 1998). These factors are believed to be conducive to democratic development.

We argue that the main effect of fertility declines on democratic development is by directly transforming the lives of women. As falls in fertility are generally accompanied by falls in mortality rates and increases in life expectancy, women's lives are no longer solely devoted to childbearing and childrearing (Malhotra, 2012). This frees women to pursue other activities outside the home, such as further education and employment, particularly in countries where these opportunities exist. Furthermore, smaller families reduce the domestic workload, giving women the time and space to engage in other informal political activities, such as voluntary associations and women's movements (Huber, 1991), thus contributing to democratic development. In contrast, high fertility rates impair women's health and their capacity for education, employment, and participation in decision-making in both the family and the community (Blumberg, 1989; UNDP, 1995).⁷ The social, cultural, economic, and political contexts of women's lives are critical in determining the extent to which fertility declines have the capacity to transform gender relations and thus improve women's lives (Blumberg, 2007). However, it appears that, overall, achieving low fertility rates is an important determinant of a female's life prospects and consequently her society's advancement.

(d) *Civil society, NGOs, INGOs, and women's movements*

Globally, civil society has increased substantially with an explosion of Non Government Organizations (NGOs) and social movements of varying sizes and causes.⁸ A strong civil society has been credited in the struggle against authoritarian regimes (Mainwaring, 1989) and is considered an essential part of a democratic state (Diamond, 1994). Waylen (1994), Baldez (2003), and Moghadam (2003) have highlighted the role of women's movements in Latin America, Europe, and throughout the Middle East in advancing democracy in the 1970s and 1980s. By demanding equality and greater opportunities, women recognized that a more liberal political regime was needed to guarantee and protect the freedoms they were campaigning for (Arat, 1994; Safa, 1990). Women's participation and influence in these organizations and movements has risen as women become less burdened with childbearing, more educated and as they enter the formal work force. Concomitantly, support from transnational networks has legitimized their concerns (Safa, 1990). This widening of the informal political space in civil society creates an important link between female empowerment and democratic development.

This paper contributes to the existing literature in several aspects. Firstly, it introduces a gendered perspective to democratic development theory. We hypothesize that female empowerment as represented by female education, female labor force participation, and fertility rates, was a core driver

of democratic development during 1980–2005. Secondly, we investigate the causal effect of these indicators on regime status using the most sophisticated modeling techniques. Finally, we examine the interplay between women’s productive and reproductive activities and its influence on democratic development by estimating interactions between female education, fertility rates, and female labor force participation.

5. METHODS

(a) *Dependent variable—Levels of democracy*

The Polity IV dataset was used to measure the level of democracy for each country from 1980 to 2005 annually (Marshall & Jaggers, 2009). It consists of six components that measure executive recruitment, constraints on executive authority, and political competition. Executive recruitment reflects how the governments are elected and how regulated, open, and competitive this process is. Constraints on executive authority refer to the extent of institutionalized constraints on the decision-making powers of chief executives. Finally, political competition reflects the extent to which citizens can influence the decisions of the elite through political participation and competition. Implicit in these measures is a degree of civil interaction so countries where all citizens are excluded from the political process will score poorly on both components.

The Polity data were developed to examine the authority patterns that characterize any social units, including national political systems. Dahl (1971, p. 1) states that one of the key characteristics of democracy is, “the continuing responsiveness of the government to the preferences of its citizens, considered as political equals.” Thus, the relationship between a democratic government and its citizens should be one of mutual reciprocity and equality. Thus, while the Polity database has been criticized for weighting heavily the constraints on executive power (Gleditsch & Ward, 1997), we feel that this is one of the most important factors reflecting a more equal relationship between the state and its citizens.

We use the Polity2 indicator in the Polity IV dataset (Marshall & Jaggers, 2010) because it is a composite measure of both democracy and autocracy. It is a continuous variable on a 21 point scale, where 10 represents a full democracy and –10 a full autocracy. The value of using this continuous measure is that it enables us to look at gradations in political regime type instead of categorical measures that tell us very little about the degree of democratic development in a country.

The ongoing debate about the definition and measurement of democracy has resulted in the construction of many political datasets. Paxton (2008) highlights the way that universal suffrage is implied in various definitions of democracy, but argues that participation or inclusion is often not measured, for example, the Polity IV database. However, the developers of the Polity database state that, “competitive political participation and regulation of political participation are intended to measure participation, but are neutral on the issue of suffrage.”⁹ As this study focuses on the period from 1980 onwards the omission of universal suffrage in this dataset has no impact on the Polity2 scores.

Together with the Polity IV dataset the Freedom House Political Rights Index is the most widely used dataset in the democratization literature (Acemoglu *et al.*, 2005, 2008; Barro, 1999; Castelló-Climent, 2008; Donno & Russett, 2004; Fish, 2002). However, some of the methods of coding regimes have been criticized for not being transparent (Hadenius & Teorell, 2005) and for favoring some regions (Bollen, 1993).

The Freedom House Index has also been criticized for including measures of socioeconomic rights (Gastil, 1991, pp. 32–33; Ryan, 1994, pp. 10–11, in Munck and Verkuilen (2002)). These measures may be linked with other aspects of development, rather than political development. Other datasets widely used in the literature were rejected because they use categorical measures and thus fail to consider “mixed” or “hybrid regimes.” They include Gasiorowski’s Political Regime Change Dataset (PRCD), Vanhanen’s Index of Democratization (ID), and Przeworski *et al.*’s dichotomous measure (PACL) (Przeworski *et al.*, 2000).¹⁰

(b) *Independent variables*

Several indexes try to distill female empowerment into neat composite measures. They include the Gender Development Index, the Gender Empowerment Index, and the Global Gender Gap Index. These three indexes are unavailable for many countries over a long period of time, which makes them unsuitable for this study.

(i) *Female education*

The average level of total female educational attainment (aged over 15) was accessed from the Barro and Lee dataset, (Barro & Lee, 2011). Previous studies have used adult literacy rates,¹¹ school enrollment rates for girls and gender gaps in education (Barro, 1999; Donno & Russett, 2004; Fish, 2002; Lutz *et al.*, 2010; Ross, 2001; Wejnert, 2005). However, adult literacy rates do not take into account other aspects of education such as numeracy, logical, and analytical reasoning (Barro & Lee, 1993) nor capture the social benefits that occur just by attending school (Glaeser *et al.*, 2007). School enrollment statistics are collected at the beginning of the year so they do not reflect accurately the number of children who actually attended school throughout the year. This is particularly relevant in developing countries as large numbers of children repeat grades or are late entrants (UNESCO, 1983). Enrollment figures may also be inflated to obtain more resources and supplies for the schools (Barro & Lee, 1993) and are also a reflection of the expansion of education rather than actual educational achievement (Benavot, 1996). While gender gaps in education reflect the inequalities in educational achievement between men and women it is not suitable for this study as it does not measure the number of years of education achieved. The focus of this study is female education as a tool for social and political transformation, independently and in conjunction with fertility rates and female labor force participation. We interpolated the 5 year education data to create annual female educational attainment data from 1980 to 2005.

(ii) *Fertility rates*

Total fertility rates is defined as “the average number of children that a woman gives birth to in her lifetime, assuming that the prevailing birth rate for each age category remains unchanged” (World Bank, 2011). Annual total fertility rates for all countries in our study were accessed from the World Development Indicators Database (World Bank, 2011) and were available for every year.

(iii) *Female labor force participation*

The data for female labor force participation were accessed from the World Development Indicators Database and contains the most comprehensive cross-national information since 1980. Female labor force participation rate is defined as “the proportion of the female population aged 15 and older that is economically active: all females who supply labor for the

production of goods and services during a specified period” (World Bank, 2011). In practice labor force participation refers to women in paid employment.

(iv) *Control variables*

The models were adjusted for widely used measures of modernization including urbanization, level of economic development in 1980, economic growth, and population density. Urbanization is the percentage of the population living in urban areas accessed from the World Development Indicators (World Bank, 2011). To measure income and compare living standards across countries the log of GDP per capita adjusted for Purchasing Power Parity (PPP) was used (World Bank, 2011). GDP in each country is measured in current international dollars and the PPP adjustment is made to avoid the bias in the GDP comparison caused by exchange rate fluctuations (Central Intelligence Agency (CIA), 2008). The level of initial GDP is taken from 1980 or the first available time point. Economic growth is measured by calculating the percentage change in GDP, which is mathematically equivalent to the first difference in the log of GDP.¹² Population density measures the number of people per sq. km of land area and was accessed from the World Development Indicators (World Bank, 2011). Total education as a measure of modernization was also examined together with female employment and fertility rates but separately from female education due to their high correlation.

(c) *Statistical analyses*

(i) *Sample*

All sovereign countries were included for which Polity2 data were available for the period from 1980 to 2005.¹³ Taiwan had no fertility or female labor force participation data so it was removed from the analyses. Germany was removed as West Germany was a democracy the entire period and Yemen was also removed as it was unclear whether data collected for the explanatory variables reflected North or South Yemen. This left 155 countries. For the descriptive statistics 24 countries with no education data for this period were also removed, leaving a total of 131 countries. These countries were Angola, Bhutan, Burkina Faso, Chad, Comoros, Democratic Republic of Korea, Djibouti, Eritrea, Equatorial Guinea, Ethiopia, Guinea, Guinea-Bissau, Lebanon, Macedonia, Madagascar, Nigeria, Oman, Solomon Islands, and Somalia (19). Additionally, five of the post-Soviet countries were also without education data. They were Azerbaijan, Belarus, Georgia, Turkmenistan, and Uzbekistan.

Using the recommendations for regime classification (Marshall & Jaggers, 2009), we then categorized countries with a Polity2 score of -10 to -6 as being autocratic, those with a score of -5 to 5 as being anocratic, and countries with Polity2 score of $6-10$ as being democratic. Descriptive statistics were obtained to assess the nature of the longitudinal data and to examine the trends over the 25-year period. Each country's Polity2 change was then tracked over the 25 year period, and then classified as follows:

- (1) Not democratic—countries that remained autocratic or anocratic over the period from 1980 to 2005 ($n = 51$)
- (2) Democratic transition—countries that developed democratically over this period, that is they began the period as nondemocratic but recorded a Polity2 score of six and above by 2005 ($n = 46$)
- (3) Democratic—countries that began and finished the period with a Polity2 score above six ($n = 34$)

Each category was then graphed against each of the female empowerment variables to show the changes that occurred

from 1980 to 2005. All graphs are reported with 95% confidence intervals. See Appendix, Table 4 for the full list of countries by category.

(ii) *Dynamic panel model*

To control for reverse causation in the regression analyses we removed all countries that recorded a Polity2 score of six and above in every time period.¹⁴ These countries include Australia, Austria, Belgium, Botswana, Canada, Colombia, Costa Rica, Cyprus, Denmark, Dominican Republic,¹⁵ Ecuador, Finland, France, Greece, India, Ireland, Israel, Italy, Jamaica, Japan, Mauritius, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Trinidad, United Kingdom, United States, and Venezuela ($n = 32$). We also removed three countries with large amounts of missing Polity2 data (Lebanon, Cambodia, and Afghanistan). This resulted in a strongly balanced panel of 97 countries with 26 time periods from 1980 to 2005 and a total of 2,522 observations. See Appendix, Table 5 for a full list of countries. The analyses were run again with an extended sample, including the aforementioned countries with missing education and Polity2 data. This resulted in a strongly balanced panel of 123 countries with 26 time periods and a total of 3198 observations. See Appendix, Table 6 for a full list of countries. Summary statistics are available for both samples. See Appendix, Tables 7 and 8.

The following dynamic model was estimated:

$$\text{Democracy}_{i,t} = a\text{Democracy}_{i,t-T} + \beta \text{Xit-T} + \epsilon_{i,t} \quad (1)$$

$$\begin{aligned} \beta \text{Xit} = & \beta 1 \text{femeduc}_{i,t-T} + \beta 2 \text{fertility}_{i,t-T} + \beta 3 \text{labor}_{i,t-T} \\ & + \beta 4 \text{urban}_{i,t-T} + \beta 5 \text{d.lngdp}_{i,t} + \beta 6 \text{lngdp80} \\ & + \beta 7 \ln(\text{pop})_{i,t-T} \end{aligned}$$

$$\epsilon_{i,t} = \mu_i + \nu_{i,t}$$

where i is the country, t is the time period, and x is the vector of the explanatory variables and the controls. The coefficient of interest is β which reflects whether female educational attainment, fertility rates, or female labor force participation had any causal effect on political status over a 25 year period during 1980–2005, independent of modernization. The error term consists of the fixed effects (μ_i) and idiosyncratic shocks ($\nu_{i,t}$). The advantage of using a dynamic panel model is that it allows for each additional time period to be independent of previous time periods by adjusting the standard errors (Cameron & Trivedi, 2009), and we can control for unobserved country-specific characteristics (Castelló-Climent, 2008). We chose the System Generalized Method of Moments (GMM) estimator as it accommodates multiple endogenous variables (Roodman, 2008). This estimator also controls for fixed effects, as recommended by Acemoglu *et al.* (2005), and it shows better performance than the first difference estimator when variables are highly persistent (Castelló-Climent, 2008). To be able to capture the causal relationships in question a lag structure was employed. The dependent variable, Polity2, was lagged by 1 year to capture the persistency of democracy (Bobba & Coviello, 2007), and the independent variables were lagged by 5 and 10 years to acknowledge that the effects of these variables may take time to manifest. Time dummies were also included in the model to prevent contemporaneous correlation (Roodman, 2006, p. 33) and to take into account any common variations in the dependent variable (Sarafidis & Robertson, 2009).

Multivariate analyses were run with the independent variables lagged by 0, 5 and then 10 years. Next, interactions were run between the three female empowerment variables to high-

light the importance of the interplay between women’s productive and reproductive activities for democratic development. These models were run again with an extended sample, including countries with no female education data and some missing Polity2 data to see if the exclusion of these countries would affect our results.

6. RESULTS

There was a substantial shift toward democracy from 1980 to 2005. In 1980, 73 countries were classified as being autocratic; in 2005 this had fallen to 19. In 1980 there were 37 democracies; in 2005 the number had increased to 80 and the number of anocracies increased by 11, with most of the shift being from autocratic countries. Only two countries suffered democratic reversal by the end of the period. These were Sri Lanka (−6 to −5) and Gambia (8 to −5). Iran recorded a reversal from anocracy to autocracy (−2 to −6).

The following graphs (Figures 1–3) show that countries that transitioned from being “autocratic” or “anocratic” to “democratic” reported, on average, higher female educational attainment and lower fertility rates than countries that did not develop democratically. Countries that did complete the democratic transition had on average 7.7 years of female education, a fertility rate of 2.75 and female labor force participation of 43% by 2005, whereas countries that did not make the transition had on average 5.6 years of female education, a fertility rate of 3.69, and female labor force participation of 37% by 2005. These differences were statistically significant. The mean difference between countries that transitioned to more democratic regimes and those that did not was not significant for urbanization and initial level of GDP. There was a significant difference between the two groups (those that transitioned and those that did) for the income variable in 2005, $p < 0.10$. These graphs are not shown here but are available upon request.

Table 1 displays the results of our analyses and the diagnostic tests to determine the validity of our instruments. The p values of the AR(2) test, the Sargen test and the Hansen difference test suggest that the instruments are valid. Increases in female education and female labor force participation had a

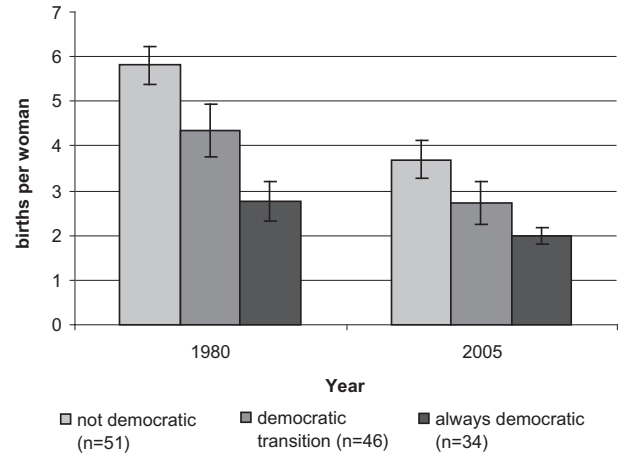


Figure 2. Mean fertility rates from 1980 to 2005 by Polity change.

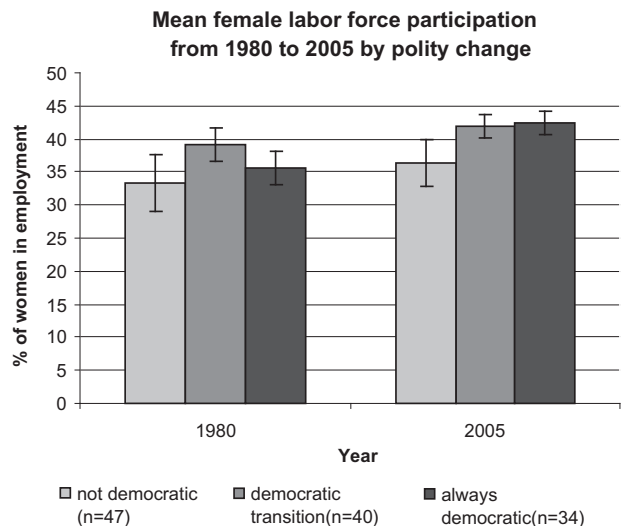


Figure 3. Mean female labor force participation from 1980 to 2005 by Polity change.

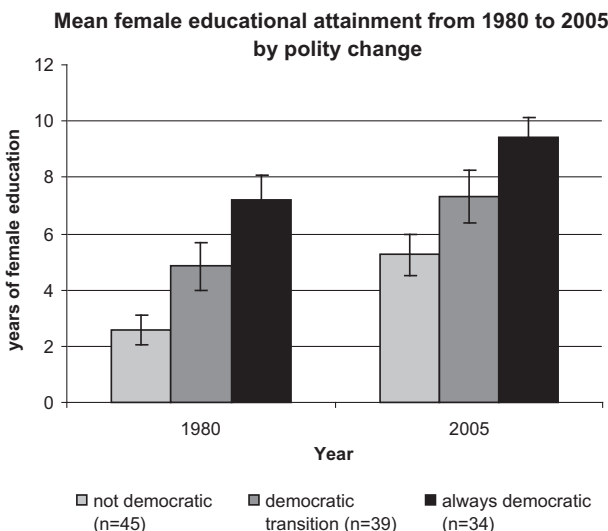


Figure 1. Mean female educational attainment from 1980 to 2005 by Polity change.

positive and causal effect on democratic development over this period, their positive effect increasing with 5 and 10 year lags. The interactions demonstrated a positive and significant interaction between female education and labor force participation on democratic development (Figure 4). There was also a negative and significant relationship between fertility rates and female labor force participation. As the level of female labor force participation increased and the fertility rate decreased, the level of democracy also increased (Figure 5). Even though the interaction model between female education and fertility was not significant, a distinct pattern emerged when plotted. With high education levels and low fertility countries are more likely to be democratic than countries where both education and fertility is high (Figure 6).

(a) Robustness

To test for the robustness of our results we re-ran all the models presented in Table 1 with an extended sample including countries that had missing education and Polity2 data. The results remain unchanged in the extended sample (Table 2). We

Table 1. System GMM dynamic panel model; a fully balanced sample with 97 countries ($N = 2,522$ country-year observations)

Polity2	(i) β (s.e)	(ii) β (s.e)	(iii) β (s.e)	(iv) β (s.e)	(v) β (s.e)	(vi) β (s.e)	(vii) β (s.e)	(viii) β (s.e)	(ix) (s.e)
Polityt-1	0.873*** (0.048)	0.860*** (0.052)	0.876*** (0.047)	0.876*** (0.049)	0.862*** (0.052)	0.811*** (0.052)	0.881*** (0.047)	0.882*** (0.047)	0.884*** (0.047)
Female education	0.168** (0.060)			0.079* (0.047)			0.075* (0.044)	0.073 (0.046)	0.071 (0.045)
Fertility rates		-0.278** (0.113)		-0.113 (0.089)			-0.149 (0.093)	-0.085 (0.083)	-0.092 (0.083)
% Female labor Force participation			0.032** (0.012)	0.020** (0.009)			0.016** (0.008)	0.027** (0.009)	0.024** (0.009)
Female education t-5					0.089* (0.053)				
Fertility rates t-5					-0.162 (0.109)				
% Female labor Force t-5					0.019** (0.009)				
Female education t-10						0.134** (0.068)			
fertility rates t-10						-0.220 (0.155)			
% Female labor Force t-10						0.027** (0.011)			
Urbanization	0.007 (0.006)	0.001 (0.006)	0.009 (0.006)	0.006 (0.005)	-0.006 (0.006)	-0.006 (0.007)	0.006 (0.004)	0.007 (0.005)	0.007 (0.005)
Economic growth	-0.130 (0.993)	-0.345 (0.972)	0.121 (0.984)	-0.230 (0.985)	-0.477 (1.066)	-0.287 (1.153)	-0.240 (0.979)	-0.233 (0.985)	-0.221 (0.987)
lnGdp80	-0.296* (0.159)	-0.166 (0.163)	0.052 (0.121)	-0.169 (0.137)	-0.219 (0.154)	-0.339* (0.199)	-0.189 (0.132)	-0.174 (0.126)	-0.185 (0.134)
lnpop	-0.032 (0.050)	-0.086 (0.061)	0.002 (0.061)	-0.052 (0.053)	-0.063 (0.062)	-0.111 (0.083)	-0.059 (0.053)	-0.037 (0.049)	-0.038 (0.049)
Femeduc * fertility							-0.026 (0.016)		
Femeduc * labor								0.005** (0.002)	
Fertility * labor									-0.008** (0.004)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	2,127	2,104	2,127	2,104	1,807	1,413	2,104	2,104	2,104
No of countries	94	94	94	94	94	94	94	94	94
No of instruments	53	53	53	55	48	38	56	56	56
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.271	0.258	0.278	0.262	0.473	0.560	0.263	0.263	0.263
Sargen test	0.546	0.471	0.547	0.440	0.401	0.727	0.451	0.454	0.450
Hansen diff test	0.415	0.378	0.405	0.288	0.270	0.431	0.292	0.265	0.270

(i) Bivariate analysis female education; (ii) bivariate analysis fertility rates; (iii) bivariate analysis female labor force participation; (iv) multivariate analyses—contemporaneous; (v) lagged explanatory variables t-5; (vi) lagged explanatory variables t-10; (vii) femeduc * fertility; (viii) femeduc * labor; (ix) fertility * labor.
 * $p < 0.10$ robust standard errors are reported in parentheses.
 ** $p < 0.05$ robust standard errors are reported in parentheses.
 *** $p < 0.01$ robust standard errors are reported in parentheses.

also adjusted our multivariate models for other covariates including level of foreign aid, debt servicing, and Muslim majority countries. Typically, Islamic countries have more conservative attitudes toward women’s role in society (Inglehart & Norris, 2003), thus it is likely that women’s level of empowerment in these countries is lower. A dummy variable was created for countries where more than 50% of the population is Muslim (Pew Research Centre, 2009). See Appendix, Table 9 for list of Muslim majority countries. Further analyses were run substituting alternative measures of female education such as the gap between male and female education and female secondary enrollments. Moreover, to provide further evidence of the significance of increases in female education, rather than male education or overall education, we also tested for the effect of

total education, male education, and male secondary enrollments on democratic development.¹⁶ Adjusting for foreign aid, debt servicing, and Muslim majority reduced the size of the female education coefficient slightly, but its positive and significant effect still held when female education was lagged by 5 and 10 years. However, the effect of female labor force participation on democracy was reduced and was no longer significant (Table 3 models i–iii). Female secondary enrollment had a positive and significant effect on democratic development when it was lagged by 10 years. Also, it had a significant interaction with female labor force participation, but not with fertility rates, consistent with the results when female education was used (see the main findings in Table 1).

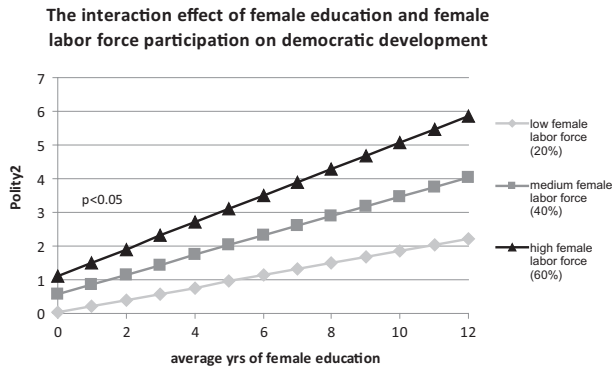


Figure 4. *The interaction effect of female education by percentage of women in the labor force on democratic development.*

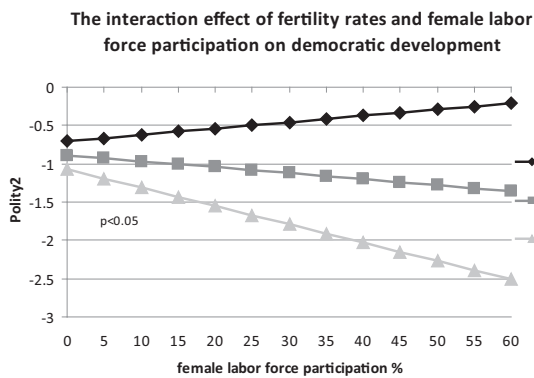


Figure 5. *The interaction effect of fertility rates and female labor force participation on democratic development.*

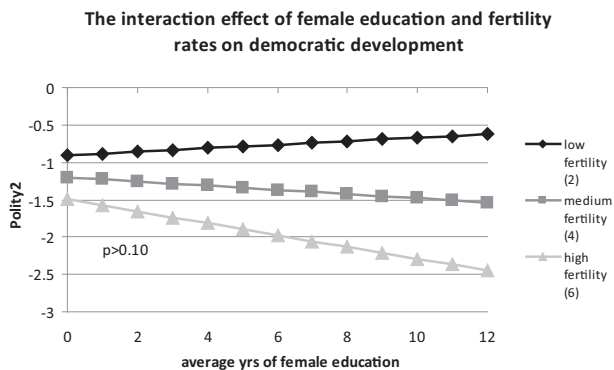


Figure 6. *The interaction effect of female education and fertility rates on democratic development.*

The results from the interactions between male education and the female empowerment measures on democratic development suggest that male education on its own was insufficient to promote democratic development, and high levels of female education and female labor force participation must occur before male education can move a country toward democracy (Table 3 and Figures 7–9). Further, at low to medium levels of female education or at medium to high levels of fertility rates, male education was negatively associated with democratic development. The gender gap in education was not significant in any model. Further analysis showed that total

education did not have a significant effect on democratic development, except when it was lagged by 10 years (results available upon request). Whereas, female education was significant even when not lagged and displayed larger coefficients than total education, indicating a stronger and a more immediate influence on democratic development.

All models in Table 3 were re-run with an extended sample including countries with missing education and Polity2 data. The results were very similar when controlling for foreign aid, debt, and Muslim majority. None of the alternative measures of female education was significant. To address the potential bias caused by the exclusion of the countries with missing education data (24 countries), we ran the three multivariate models (iv, v, vi) in Table 1 again, removing female education from the analyses. Both fertility rates and female labor force participation remained significant at the 5% level across all three models.¹⁷

It is possible that the countries that made the greatest progress in female empowerment were already moving toward democracy in the period leading up to the 1980s, or had prior experience of democracy. Consequently, further models were run lagging Polity2 by 2, 3, 5, and 10 years. Female education and female labor force participation remained significant with these lagged Polity variables. However, from a statistical point of view lagging Polity2 by more than 1 year was problematic as it rendered the tests of autocorrelation and the Sargen test invalid. Furthermore, once we lagged Polity2 by 3 years or more it became negatively associated with the dependent variable, Polity2. Accordingly, we created graphs showing the level of Polity2 annually from 1960 onward for the 32 countries that transitioned from autocracy in 1980 to democracy by 2005. Only five countries had some prior experience of democracy. They were Uruguay (1960–70), Chile (1964–72), Argentina (1973–75), Ghana (1979–80), and Lesotho (1966–69). The remainder of countries recorded low Polity2 scores throughout the 1970s and 1980s. Two countries from each continent were graphed as an example (Appendix, Figures A1–A8). The remaining graphs are available upon request. Out of the 14 countries that transitioned from anocracy to democracy only Brazil and Turkey had any prior experience of democracy.

7. DISCUSSION

(a) *Main findings*

This study has demonstrated that improvements in female empowerment were strongly associated with democratic development during this period. Specifically, increases in female education and female labor force participation had a positive and causal effect on movement toward democracy. Moreover, the effect of female education increased with lags of 5 and 10 years, suggesting that democracy is more likely to occur in countries with a history of educating girls and possibly a longer experience of the social and economic conditions that may have occurred because of this investment. The descriptive statistics show that countries that began the period with higher levels of female educational attainment and female labor force participation, and lower fertility rates made greater political gains than countries that made such improvements later in the period. It appears that all three empowerment variables needed to be strong for a country to develop democratically over this period. This was confirmed with results from the dynamic panel models testing the multivariate interactions between the three empowerment variables: female education had

Table 2. *Robustness—an extended sample including countries with no education data and missing polity data with 123 countries (N = 3,198 country-year observations)*

Polity2	(i) β (s.e)	(ii) β (s.e)	(iii) β (s.e)	(iv) β (s.e)	(v) β (s.e)	(vi) β (s.e)	(vii) β (s.e)	(viii) β (s.e)	(ix) β (s.e)
Polityt-1	0.876*** (0.048)	0.854*** (0.049)	0.874*** (0.045)	0.878*** (0.049)	0.864*** (0.052)	0.813*** (0.052)	0.883*** (0.047)	0.884*** (0.047)	0.886*** (0.047)
Female education	0.165** (0.060)			0.077* (0.046)			0.073* (0.043)	0.072* (0.046)	0.070 (0.044)
Fertility rates		-0.249** (0.098)		-0.113 (0.088)			-0.148 (0.092)	-0.084 (0.082)	-0.092 (0.082)
% Female labor Force participation			0.030** (0.011)	0.019** (0.009)			0.015** (0.008)	0.026** (0.009)	0.024** (0.009)
Female education t-5					0.087* (0.052)				
Fertility rates t-5					-0.163 (0.108)				
% Female labor Force t-5					0.019** (0.009)				
Female education t-10						0.129* (0.067)			
Fertility rates t-10						-0.225 (0.152)			
% Female labor Force t-10						0.027** (0.011)			
Urbanization	0.007 (0.006)	0.003 (0.006)	0.010 (0.006)	0.006 (0.005)	0.006 (0.006)	0.006 (0.007)	0.006 (0.005)	0.007 (0.005)	0.007 (0.005)
Economic growth	-0.158 (0.995)	0.089 (0.797)	0.465 (0.800)	-0.261 (0.979)	-0.512 (1.059)	-0.337 (1.146)	-0.187 (0.130)	-0.173 (0.125)	-0.253 (0.982)
ln gdp80	-0.293* (0.157)	-0.187 (0.153)	0.031 (0.117)	-0.169 (0.135)	-0.218 (0.153)	-0.338* (0.197)	-0.267 (0.974)	-0.265 (0.980)	-0.184 (0.132)
ln pop	-0.032 (0.053)	-0.041 (0.060)	0.036 (0.062)	-0.052 (0.052)	-0.063 (0.061)	-0.112 (0.082)	-0.059 (0.052)	-0.037 (0.048)	-0.038 (0.048)
Femeduc * fertility							-0.025 (0.016)		
Femeduc * labor								0.005** (0.002)	
Fertility * labor									-0.008** (0.004)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	2,139	2,545	2,568	2,116	1,819	1,425	2,116	2,116	2,079
No of countries	95	117	117	95	95	95	95	95	93
No of instruments	53	53	53	55	48	38	56	56	56
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.390	0.266	0.280	0.380	0.621	0.768	0.381	0.380	0.381
Sargen test	0.582	0.493	0.539	0.478	0.438	0.755	0.489	0.492	0.487
Hansen diff test	0.410	0.462	0.425	0.281	0.264	0.420	0.285	0.260	0.264

(i) Bivariate analysis female education; (ii) bivariate analysis fertility rates; (iii) bivariate analysis female labor force participation; (iv) multivariate analyses—contemporaneous; (v) lagged explanatory variables t-5; (vi) lagged explanatory variables t-10; (vii) femeduc * fertility; (viii) femeduc * labor; (ix) fertility * labor.

* $p < 0.10$ robust standard errors are reported in parentheses.

** $p < 0.05$ robust standard errors are reported in parentheses.

*** $p < 0.01$ robust standard errors are reported in parentheses.

the largest positive effect on democratic development when female labor participation was also high; only at high levels of female labor force participation did low fertility contribute to democratic development.

Further scrutiny of the causal link between female empowerment and democratic development using longer lags of Polity2 in the multivariate analyses and graphing the Polity2 status of each country prior to the study period give us greater confidence with our findings. Moreover, they are largely robust to adjustment for additional covariates, alternative measures of female education, and extended samples. One caveat is that the effect of female labor force participation on the dependent variable was no longer statistically significant in

models which adjusted for foreign aid, debt servicing, or Muslim majority, partly due to the correlation between Muslim and female labor force participation ($r = -0.60$). In many Muslim countries throughout the Middle-East, cultural and social norms prevent women from participating in the service, retail, and nursing sectors. Consequently, there are low numbers of women in the work force, and they are mainly concentrated in professional or technical roles requiring tertiary education (Moghadam, 2003). The weakening of the effect of female labor force in the models adjusting for foreign aid and debt service may also be attributed to missing cases in these variables, thus reducing the statistical power of the female labor force variable. Both covariates had correlations

Table 3. Robustness—fully balanced sample with additional covariates, alternative measures for female education and their interactions (97 countries, $N = 2,522$ country-year observations)

Polity2	(i) β (s.e)	(ii) β (s.e)	(iii) β (s.e)	(iv) β (s.e)	(v) β (s.e)	(vi) β (s.e)	(vii) β (s.e)	(viii) β (s.e)	(ix) β (s.e)	(x) β (s.e)	(xi) β (s.e)	(xii) β (s.e)
Polityt-1	0.908*** (0.047)	0.884*** (0.038)	0.871*** (0.050)	0.870*** (0.050)	0.784*** (0.095)	0.791*** (0.092)	0.798*** (0.087)	0.876*** (0.049)	0.879*** (0.047)	0.879*** (0.047)	0.881*** (0.048)	0.801*** (0.089)
Female education	0.063 ^{b,c} (0.040)	0.051 ^c (0.046)	0.055 ^d (0.041)						-0.019 (0.010)			
Fertility rates	-0.070 (0.076)	-0.017 (0.083)	-0.134 (0.094)	-0.188 ^{a,**} (0.094)	-0.242 (0.186)	-0.072 (0.205)	-0.039 (0.141)	-0.144 ^{b,d} (0.086)	-0.116 (0.087)	0.022 (0.115)	-0.124 (0.082)	-0.202 (0.159)
% Female labor	0.012 (0.007)	0.009 (0.008)	0.007 (0.008)	0.023 ^{**} (0.010)	0.039 [*] (0.021)	0.028 (0.020)	-0.033 (0.020)	0.022 ^{a,**} (0.009)	0.017 ^{**} (0.008)	0.018 ^{**} (0.008)	-0.021 (0.016)	0.023 (0.016)
Force participation												
Urbanization	0.008 (0.005)	0.010 (0.006)	0.005 (0.005)	0.006 (0.006)	0.008 (0.010)	0.008 (0.009)	0.013 (0.009)	0.005 (0.005)	0.007 (0.005)	0.006 (0.005)	0.006 (0.005)	0.009 (0.009)
Economic growth	-0.290 (1.1169)	0.428 (1.225)	-0.236 (0.972)	-0.250 (0.975)	-0.773 (1.323)	-0.789 (1.312)	-0.670 (1.309)	-0.215 (0.981)	-0.241 (0.984)	-0.239 (0.976)	-0.200 (0.981)	-0.902 (1.323)
Ingdp80	-0.204 (0.133)	-0.009 (0.209)	-0.156 (0.137)	-0.103 (0.138)	-0.111 (0.197)	-0.159 (0.184)	-0.098 (0.152)	-0.117 (0.132)	-0.183 (0.131)	-0.144 (0.128)	-0.139 (0.124)	-0.167 (0.175)
Inpop	-0.046 (0.045)	0.046 (0.066)	-0.056 (0.052)	-0.056 (0.059)	-0.038 (0.100)	-0.057 (0.100)	0.053 (0.077)	-0.060 (0.054)	-0.056 (0.054)	-0.067 (0.054)	-0.045 (0.050)	-0.064 (0.100)
Foreign aid	-0.001 (0.001)											
Debt		0.031 (0.037)										
Muslim			-0.503 ^{**} (0.243)									
Gender gap in education				-0.056 (0.082)								
Female secondary enrollments					0.002 ^c (0.008)	0.001 (0.008)	0.006 (0.008)					-0.027 ^c (0.014)
Female secondary enroll * fertility						-0.004 (0.003)						
Female secondary enroll * labor							0.001 ^{***} (0.000)					
Male education								0.058 (0.044)	-0.109 (0.087)	0.057 (0.042)	0.043 (0.043)	-0.071 (0.096)
Maled * female education									0.016 [*] (0.010)			
Male education * fertility										-0.027 [*] (0.016)		
Male education * labor											0.007 ^{***} (0.003)	
Male education * female secondary enroll												0.004 ^{**} (0.002)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	1,802	1,672	2,104	2,104	1,355	1,355	1,355	2,104	2,104	2,104	2,104	1,355
No of countries	83	77	94	94	93	93	93	94	94	94	94	93
No of instruments	56	56	56	55	55	56	56	55	57	56	56	57
AR(1)	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.484	0.210	0.261	0.261	0.255	0.258	0.270	0.262	0.262	0.263	0.263	0.260
Sargen test	0.415	0.531	0.455	0.449	0.608	0.620	0.645	0.440	0.453	0.450	0.446	0.620
Hansen diff test	0.203	0.158	0.318	0.316	0.825	0.831	0.835	0.280	0.285	0.288	0.258	0.823

(i) Adjusted for foreign aid; (ii) adjusted for debt; (iii) adjusted for Muslim; (iv) gender gap in education; (v) female secondary enrollments; (vi) female secondary enroll * fertility; (vii) female secondary enroll * labor; (viii) male education; (ix) male education * female education; (x) male education * fertility; (xi) male education * labor; (xii) male education * secondary enrollments.

*Male secondary enrollments was also substituted for female education in the models. It was not significant in any model.

^a Sig at 5% when lagged by 5 and 10 years.

^b Sig at 10% level when lagged by 5 years.

^c Sig at 5% level when lagged by 10 years.

^d Sig at 10% level when lagged by 10 years.

^e Sig at 5% when lagged by 5 years.

* $p < 0.10$ robust standard errors are reported in parentheses.

** $p < 0.05$ robust standard errors are reported in parentheses.

*** $p < 0.01$ robust standard errors are reported in parentheses.

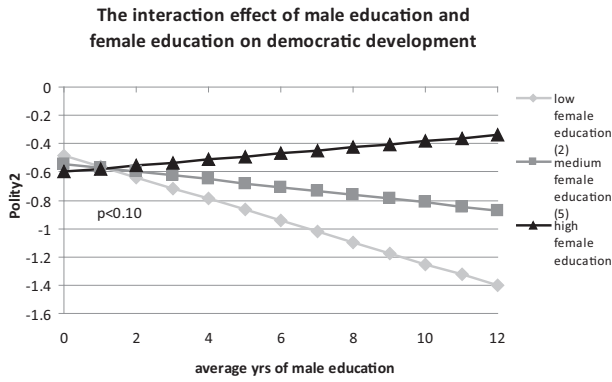


Figure 7. *The interaction effect of male and female education on democratic development.*

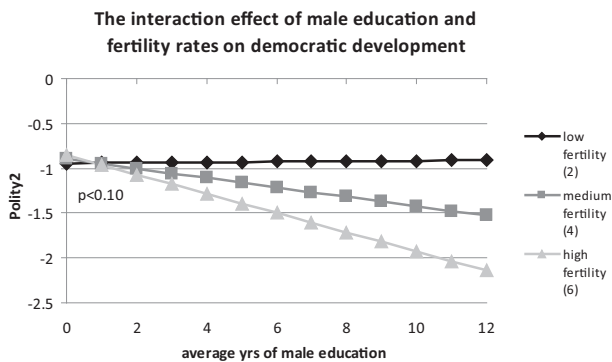


Figure 8. *The interaction effect of male education and fertility rates on democratic development.*

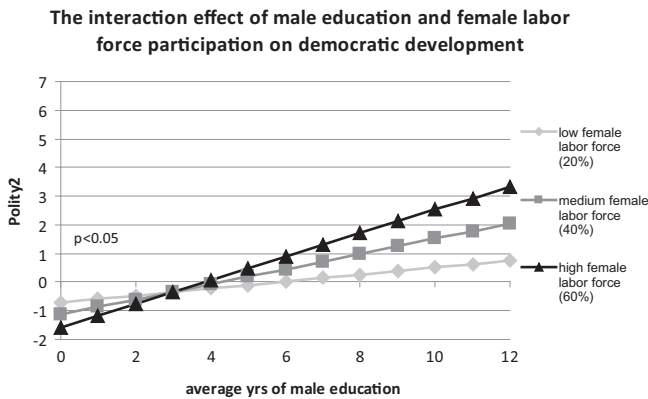


Figure 9. *The interaction effect of male education and female labor force participation on democratic development.*

with Polity2 close to zero and low correlations with female labor force participation.

(b) *Why and how does female education drive democratic development?*

One of the main outcomes from educating girls is to delay marriage as women seek alternative pathways outside the home in the form of further education or employment. With increased education girls are exposed to democratic values such as equality, freedom, and tolerance. However, the ability

to challenge political institutions may not take full effect until they leave school and reach voting age. Through work and other informal networks women are then able to develop and practice the necessary cognitive and communication skills that enable them to agitate for political change. With two incomes parents have surplus income to invest back into their families, thus building the human capital of the next generation. Moreover, families where both parents are educated are more likely to educate their sons and daughters, again building the human capital of the next generation and expanding support for democracy.

Our results also highlight the interplay between women’s productive and reproductive activities. Typically, fertility is high in regimes where human capital is low, but low in regimes where investment in human capital is high (Becker, Murphy, & Tamura, 1990). However, when we look more closely at the temporality of these two factors across different regions a different story emerges. Countries commencing their demographic transition report smaller differentials in fertility rates between the most highly educated and the least educated groups than countries in the middle stages of transition. Also, education does not reduce fertility rates where only a few years of primary education have been achieved (Lehr, 2009). Perhaps there is a tipping point where a certain number of years of schooling reduce fertility rates substantially in order for significant transformations in women’s lives to occur. Our results show that countries that did develop democratically began the period with a higher level of female education (5.2 years) and lower fertility rates (4.34 births per woman). By the end of the period these countries had achieved on average 7.7 years of female education, and a fertility rate of 2.75. This suggests that over and beyond economic development, there is an optimal level of female empowerment that countries need to achieve before political transformation occurs. Further research is required to test this theory.

Over the last 25 years, the majority of nondemocratic countries that invested early in all three domains of female empowerment and achieved progress in all these domains, that is at or above the threshold, developed democratically by 2005; whereas countries that failed in one or more of these elements remained autocratic or anocratic. Almost all countries that began the period with very high rates of both female education and low fertility rates achieved Polity2 scores of six and above by 2005, and these were represented mainly by the former communist and socialist countries (with the exception of South Korea, Panama, and Uruguay). Two countries (China and Cuba) remained persistently autocratic, and Kazakhstan experienced varying periods of political instability and political progress. Armenia’s trajectory has also been unstable, but in recent years the political regime has liberalized.

There was another group of countries that were strong on all three female empowerment indicators by the end of the study period, but did not develop democratically. One of these countries, Gabon has made recent democratic progress with a change in Polity2 score from -9 to 3 in 2009–10. This seems to hold promise for continual political progress in the future. Another country, Malaysia became democratic in 2010; and three other countries remain nondemocratic today (Singapore, Swaziland, and Zimbabwe). Persistent cultural factors such as Confucianism and royal nepotism, the HIV/AIDS epidemic, and wide spread poverty may have prevented these countries from making greater democratic progress. See Table 10 in the Appendix for a comparison of these three groups.

The significant interaction between female education and female labor force participation (Figure 4) shows that a more

highly educated female work force is important for advancing democracy. Previous research shows that greater numbers of women in the skilled sectors is associated with higher levels of democracy (Ross, 2001). However, highly educated women may be excluded from the work force, as a result of cultural and social expectations about family composition or women's roles. This may be exacerbated in countries where unemployment levels are high and opportunities for work are limited. For example, in Jordan, women and men report low rates of labor force participation (Spierings & Smits, 2007). In contrast, women with only a few years of education are less likely to be in the work force (Psacharopoulos & Tzannatos, 1992), or be employed in work that is of low status and is low paid (Nisha & Ravi, 2010). In this scenario the opportunity cost of bearing children may be higher than the income a woman earns (Galor & Weil, 1996).

Therefore, while improvements in female education confer significant benefits to women and society, we must not rely on educating females as the only solution for solving all of society's problems, including democratic development. Education on its own may not equip girls and women with the ability to question the second class status assigned to them and to mobilize politically, if they are still excluded from public life because of childrearing and domestic duties (Kabeer, 2005). Consideration must be given to the different cultural or social structures across societies that restrict women's participation in the economic or political sphere and keep women's status low.

Our results also show that, on its own, an increase in male education was insufficient for countries to develop democratically over this period. However, increases in male education together with high levels of female empowerment were important. It appears that in countries where men are highly educated and where women's lives have also improved political progress is greater. In contrast, some countries, despite being financially able to do so may not invest in their girls. Cultural barriers to women accessing education, permission to work in certain industries, and son preference impact on women's ability to take advantage of opportunities. When a country's income is high and women's education and labor force participation is low, this suggests that a country's income distribution skews toward the men of these countries. As a result men have a disproportionate level of power and prestige (Friedl, 1975). These findings further emphasize the importance of investing in the education of girls to advance both gender equality and democracy.

(c) *Importance of female empowerment to early democratizers*

While female empowerment was important for countries developing democratically during this period, a recent study shows that female empowerment was also important for the early democratizers. Woodberry (2012) highlights the role of the conversionary Protestant missionaries who played an important role in the early democratization of Western Europe through mass education, including educating women despite resistance from the elites. By being involved in the running of religious organizations, women gained valuable skills and developed networks that could be translated to other types of grass roots movements. Together with expanded religious liberty these factors laid a foundation for democracy that was then copied by other religions, particularly Catholicism, post World War II. Bollen (1979) first highlighted the cultural differences between the early democratizers and late democratizers. These early democratizers were from a similar western cultural heritage, whereas the late democratizers represented a more heterogeneous cultural group. Therefore, it

is possible that gender inequalities are more entrenched in the family and other social institutions in this latter group compared with the early democratizers. Consequently, explicit efforts to address gender inequalities at a social institutional level, that is deeply embedded social and cultural norms, may be required to move countries toward democracy in the future.

(d) *Factors contributing to improvements in female empowerment*

Our results showed that economic development did not have a significant impact on democratic development during this period. Moreover, the majority of countries that developed democratically had little prior experience of democracy, particularly in the preceding decade. So what could explain the increased participation of women in education and employment and fertility declines over this period? The role of the UN Decade for Women (1975–85) as a major force for advancing both women's rights and democracy cannot be underestimated. It championed women's rights and promoted the incorporation of women into development activities when many states were governed by nondemocratic regimes. It also facilitated opportunities for women to meet at conferences and triggered a proliferation across the globe of women's movements. This increased global focus legitimizes women's movements pressing for equality and democratic reform at a national level (Safa, 1990). We envisage that INGOs will continue to encourage governments to expand and strengthen national gender machineries as an integral part of the democratic reform process.

(e) *Female empowerment as a dimension of modernization*

We consider female empowerment to be an important aspect of modernization, a dimension that to date has not received adequate attention in the democratization literature. The purpose of this study was to provide a gendered lens to both theoretical and empirical research in democratic development. We believe that change in all three aspects of female empowerment (female education, female employment, and fertility) represents a significant cultural shift in gender roles within countries, rather than reflecting a country's overall level of development. By including all three indicators in the analysis, we were able to empirically demonstrate that this shift has had a causal effect on democratic development in the last 25 years, independent of the conventional indicators of modernization (economic growth, GDP, urbanization, and population density).

(f) *Anomalies*

This study demonstrates that female empowerment played an important role in advancing democracy during 1980–2005. Despite being a cross-national study we are careful to acknowledge the uniqueness of every country within each time period and recognize that there are a handful of countries that have not developed democratically despite achieving high levels of female empowerment, including Singapore, China, and Cuba.¹⁸ There is evidence of other discriminatory practices toward women in these countries. A recent report into "Trafficking in Persons" (US Dept, 2011) reveal that these three governments still have a long way to go to eliminate sex trafficking of women and children for prostitution and forced labor in their countries. Additionally, it is expected that by 2020 China will record over 33 million "missing women," as a result of infanticide, son preference, and discrimination toward girls and women (Hudson & den Boer, 2002).

In contrast, there are also other countries that did attain high Polity2 scores without achieving primary school completion for women, high female labor force participation, and low fertility rates, in particular, Guatemala and Mali. In Guatemala the negotiations and signing of the Peace Accords in 1996 to end 36 years of civil war opened up the political space for a transition to democracy. However, since then, the extreme social and economic poverty in Guatemala continues to threaten the strength and sustainability of democracy in this country (Jonas, 2000). Mali has been a democracy for the last 20 years and this may be explained partly, by a history of cultural norms conducive to democracy, including tolerance, trust, pluralism, separation of powers, and the government's accountability to its people (Smith, 2001). However, recent political events in Mali have seen the government overthrown by the military. There is some evidence that the recent neo-liberal policies of the government have contributed to the current weak economic conditions and democratic instability (County & Peterson, 2012). These recent events suggest that moving beyond a minimum level of economic and social development is important for democracy to consolidate and deepen. Nevertheless, despite these few anomalies this study has highlighted that overall the transformation of women's lives made a significant contribution to democratic development at the end of the last century. As women's social and economic rights continue to improve we expect to see more countries move toward democracy and existing democracies strengthen and deepen.

(g) *Study strengths and limitations*

The strength of this study is that it is based on longitudinal data and advanced modeling techniques, thus it demonstrates temporality and causation between female empowerment and democratic development. It also provides descriptive data and qualitative information to offer an adequate explanation of countries lying outside this pattern. The main limitation in this study is the use of secondary data, rather than primary data to inform the analyses. Firstly, the variability across countries in the process of data collection affects the consistency and comparability of international data. For example, in many countries female labor force measure fails to capture women engaged in unpaid family work or those who work a few hours

per week or to distinguish women engaging in agriculture from those employed in high status occupations. Also, there are often cultural aspects that determine whether women are classified as paid workers or not (Psacharopoulos & Tzannatos, 1989).¹⁹ While we acknowledge that some types of work have a greater capacity to confer more power, for example, managerial and professional positions, this was the most comprehensive variable available to us over this period. Further research would benefit from a more comprehensive database detailing different occupational statuses. Secondly, as this is a cross-national study it is difficult to capture the variability of women's lives within countries or regions.

8. CONCLUSION

Neither the modernization theory nor the neo-modernization theory explicitly views gender equality or female empowerment as playing an *active* role in the modernization process. Implicit in the neo-modernization theory is the presumption that *both* gender equality and democracy occur as a consequence of economic development. We argue that female empowerment plays an active but not a passive role in democratic development and consider it to be an important aspect of modernization that has not received adequate attention in the democratization literature to date. This study has shown that female empowerment, particularly female education, was a core driver of democratic development during the latter part of the 20th century. Our findings provide a different lens to view democratic development and broaden our understanding of what drives this process. Rather than being a natural consequence of economic development, we have shown empirically that female empowerment has a causal effect on democratic development, independent of the commonly used measures of modernization, and as such it deserves much greater attention in future democracy research. The findings suggest that a gendered approach to democratic development has the potential to explain some of the variability in the quality and stability of current and future democracies, thus underscoring the importance of a multi-disciplined approach to future research in this area.

NOTES

1. We could find no study that specifically used a measure of industrialization since Lipset's original study in 1959, except for the share of agricultural output in total output in Lutz *et al.* (2010). Typically, urbanization is seen as a proxy for industrialization (see Castelló-Climent, 2008).

2. A per-capita income of \$6055 was achieved by Argentina in 1976 when it reverted to an autocracy. It is the only country with a per capita income over \$6000 to reverse its standing as a democracy (Przeworski and Limongi, 1996).

3. The Gender Empowerment Measure consists of % of women in parliamentary seats, % of female legislators, senior officials and managers, % of female professional and technical workers, and ratio of estimated female to male earned income (UNDP, 2011).

4. Other measures include socio-demographic, bodily integrity and health, cultural participation and rights, and the ratification of international legal frames for women's rights (Moghadam & Senftova, 2005).

5. Rizzo, Abdel-Latif, and Meyer (2007) found that support for gender equality was not related to support for democracy in Egypt, Algeria, Morocco, Saudi Arabia, and Jordan. The authors concluded that supporters of gender equality were worried that democracy may bring with it deeply conservative opposition parties committed to eroding individual rights, in particular women's rights.

6. In situations where women have been forced to choose a small family size through national policies e.g. in Korea (Hyoung, 1997) and China (Li, 2004) then the reduction in fertility rates may not always be an accurate representation of female empowerment.

7. Sub-Saharan Africa is the only region in the world where falls in fertility have not followed the same path as other regions in the last 30 years. This is largely because of a cultural preference for large families (Caldwell & Caldwell, 1987).

8. At present the UN consults with over 3,500 NGOs (United Nations, 2012).

9. "The Polity data series is largely neutral to the issue of suffrage. It only records issues regarding restrictions on identity group participation rights which may be incorporated in formal or informal restrictions on electoral enfranchisement. Polity does not track issues relating to male/female suffrage nor does it record information on suffrage specifically." (Personal comm: Marshall, 2010).
10. See Gleditsch and Ward (1997) for a discussion about the Polity data being more of categorical measure than a continuous one.
11. In 1978, UNESCO's General Conference adopted a definition of functional literacy which is still in use today. It states that 'A person is functionally literate who can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development (see Education for all Global Monitoring Project, Chapter 6 for a comprehensive discussion on the meaning of literacy) (UNESCO, 2011).
12. Several countries do not have GDP data—these include Myanmar, Cuba, and Zimbabwe. The baseline level of economic development was taken from 1980 or from the first year that data was available. (Czech Republic—1990; Cambodia—1988; Croatia—1990; Haiti—1991; Iraq—1997; Laos—1984; Libya—1999; Mongolia—1981; Poland—1990; Qatar—2000; Romania—1981; Slovak Republic—1984; Slovenia—1990; Tanzania—1988; Uganda—1982; Vietnam—1985). For the post-Soviet nations the initial GDP was taken from 1990.
13. Sovereign country is defined as "an independent member of the international system that had a population greater than 500,000"—Gurr, Jagers, & Moore, 1990).
14. Countries may be categorized as being fully democratic if they score above seven throughout the entire time period (Epstein *et al.*, 2006). A score of eight and above means that a country attains a maximum score on at least one of the three main components; measures of executive constraints, political competition, and the quality of political participation.
15. Dominican Republic had a polity score of 6 and above for every period except for 2 years in 1994–95 so it was coded as being democratic for the entire period.
16. Total education and male education, over 15 was accessed from the Barro and Lee dataset (2011) and gaps in education was obtained by subtracting female education from male education. Secondary enrolment rates reflect the gross percentage students enrolled in school and were accessed from the World Development Indicators (World Bank, 2011). Level of foreign aid and level of debt servicing (% of interest paid on Gross National Income (GNI)) were also accessed from the World Development Indicators (World Bank, 2011).
17. These results are not presented but are available upon request.
18. Data out of Cuba are limited, hence it is difficult to know the true extent of the problem (US Dept, 2011) The formation of the Federation of Cuban women of which 85% of Cuban women are members (4 million women) has tackled equal rights for women in education, employment, reproductive health, and violence. As a result, women in Cuba enjoy some of the highest levels of equality and opportunity in the world. http://www.cuba-solidarity.org/cubasi_article.asp?ArticleID=30.
19. India, Pakistan, and Bangladesh have very high rates of unpaid work (Psacharopoulos & Tzannatos, 1989).

REFERENCES

- Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2005). From education to democracy?. *American Economic Review*, 95(2), 44–49.
- Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2008). Income and democracy. *American Economic Review*, 98(3), 808–842.
- Alvarez, M., Cheibub, J. A., Limongi, F., & Przeworski, A. (1996). Classifying political regimes. *Studies in Comparative International Development*, 31(2), 3–36.
- Arat, Y. (1994). Toward a democratic society: The women's movement in Turkey in the 1980s. *Women's Studies International Forum*, 17(2–3), 241–248.
- Baldez, L. (2003). Women's movements and democratic transition in Chile, Brazil, East Germany, and Poland. *Comparative Politics*, 35(3), 253–272.
- Baldez, L. (2010). The gender lacuna in comparative politics. *Perspectives on Politics*, 8(1), 199–205.
- Barro, R. J. (1999). Determinants of democracy. *Journal of Political Economy*, 107(6), S158–S183.
- Barro, R. J., & Lee, J.-W. (1993). International comparisons of educational attainment. *Journal of Monetary Economics*, 32(3), 363–394.
- Barro, R. J., & Lee, J.-W. (2010). *A new data set of educational attainment in the world, 1950–2010 NBER Working paper series*. National Bureau of Economic Research. Cambridge, MA. <http://www.nber.org/papers/w15902> (Accessed 05.09.10).
- Basu, A. M. (2002). Why does education lead to lower fertility? A critical review of some of the possibilities. *World Development*, 30(10), 1779–1790.
- Becker, G. S., Murphy, K. M., & Tamura, R. (1990). Human capital, fertility, and economic growth. *The Journal of Political Economy*, 98(5), S12–S37.
- Beer, C. (2009). Democracy and gender equality. *Studies in Comparative International Development (SCID)*, 44(3), 212–227.
- Benavot, A. (1996). Education and political democratization: Cross-national and longitudinal findings. *Comparative Education Review*, 40(4), 377–403.
- Bloom, D. E., & Canning, D. (2003). Contraception and the Celtic tiger. *Economic and Social Review*, 34(3), 229–247.
- Bloom, D. E., Canning, D., Fink, G., & Finlay, J. (2009). Fertility, female labor force participation, and the demographic dividend. *Journal of Economic Growth*, 14(2), 79–101.
- Bloom, D. E., & Williamson, J. G. (1998). Demographic transitions and economic miracles in emerging Asia. *World Bank Economic Review*, 12(3), 419–455.
- Blumberg, R. L. (1984). A general theory of gender stratification. *Sociological Theory*, 2, 23–101.
- Blumberg, R. L. (1989). Making the case for the gender variable: Women and the wealth and well-being of nations. Agency for International Development, Office of Women in Development.
- Blumberg, R. L. (2007). *How mother's economic activities and empowerment affect early childhood care and education (ECCE) for boys and girls: A theory-guided exploration across history, cultures and societies*. A background paper prepared for the Education or All Global Monitoring Report 2007: Strong Foundations: Early childhood care and education.
- Bobba, M., & Coviello, D. (2007). Weak instruments and weak identification, in estimating the effects of education, on democracy. *Economics Letters*, 96(3), 301–306.
- Boix, C., & Stokes, S. C. (2003). Endogenous democratization. *World Politics*, 55(4), 517–549.
- Bollen, K. A. (1979). Political democracy and the timing of development. *American Sociological Review*, 44(4), 572–587.
- Bollen, K. A. (1993). Liberal democracy—Validity and method factors in cross-national measures. *American Journal of Political Science*, 37(4), 1207–1230.

- Bollen, K. A., & Jackman, R. W. (1989). Democracy, stability, and dichotomies. *American Sociological Review*, 54(4), 612–621.
- Boserup, E. (1970). *Woman's role in economic development*. London: Allen & Unwin.
- Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using Stata*. Texas: Stata Press.
- Caldwell, J. C., & Caldwell, P. (1987). The cultural context of high fertility in sub-Saharan Africa. *Population and Development Review*, 13(3), 409–437.
- Castelló-Climent, A. (2008). On the distribution of education and democracy. *Journal of Development Economics*, 87(2), 179–190.
- Central Intelligence Agency (CIA). (2008). *The world factbook*. <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2001rank.html> (Accessed 04.04.11).
- Chafetz, J. S. (1990). *Gender equity. An integrated theory of stability and change*. California: Sage Publications.
- Cleland, J., & van Ginneken, J. (1988). Maternal education and child survival in developing countries: The search for pathways of influence. *Social Science & Medicine*, 27(12), 1357–1368.
- Collins, R., Chafetz, Janet Saltzman, Blumberg, R. L., Coltrane, S., & Turner, J. H. (1993). Toward an integrated theory of gender stratification. *Sociological Perspectives*, 36(3), 185–216.
- County, B., & Peterson, B. (2012). *Mali: Hungry for democracy—The peasantry and the coup*. <http://allafrica.com/stories/201204030227.html> (Accessed 06.05.12).
- Dahl, R. A. (1971). *Polyarchy: Participation and opposition*. New Haven: Yale University Press.
- Di Palma, G. (1990). *To craft democracies: An essay on democratic transitions*. Berkeley: University of California Press.
- Diamond, L. (1994). Toward democratic consolidation. *Journal of Democracy*, 5(3), 4–17.
- Diamond, L. (2002). Thinking about hybrid regimes. *Journal of Democracy*, 13(2), 21–35.
- Donno, D., & Russett, B. (2004). Islam, authoritarianism, and female empowerment—What are the linkages?. *World Politics*, 56(4), 582.
- Epstein, D. L., Bates, R., Goldstone, J., Kristensen, I., & O'Halloran, S. (2006). Democratic transitions. *American Journal of Political Science*, 50(3), 551–569.
- Feng, Y., & Zak, P. J. (1999). The determinants of democratic transitions. *The Journal of Conflict Resolution*, 43(2), 162–177.
- Fish, M. S. (2002). Islam and authoritarianism. *World Politics*, 55(1), 4–37.
- Friedl, E. (1975). *Women and men: An anthropologist's view*. New York: Holt, Rinehart and Winston.
- Galor, O., & Weil, D. N. (1996). The gender gap, fertility, and growth. *The American Economic Review*, 86(3), 374–387.
- Gastil, R. D. (1991). The comparative survey of freedom: Experiences and suggestions. *On Measuring Democracy: Its Consequences and Concomitants*, 21–46.
- Glaeser, E. L., Ponzetto, G. A. M., & Shleifer, A. (2007). Why does democracy need education?. *Journal of Economic Growth*, 12(2), 77–99.
- Gleditsch, K. S., & Ward, M. D. (1997). Double take: A reexamination of democracy and autocracy in modern polities. *The Journal of Conflict Resolution*, 41(3), 361–383.
- Gurr, T., Jagers, K., & Moore, W. (1990). The transformation of the western state: The growth of democracy, autocracy, and state power since 1800. *Studies in Comparative International Development (SCID)*, 25(1), 73–108.
- Hadenius, A., & Teorell, J. (2005). Cultural and economic prerequisites of democracy: Reassessing recent evidence. *Studies in Comparative International Development*, 39(4), 87–106.
- Huber, J. (1991). *Macro-micro links in gender stratification. Macro-micro linkages in sociology*. Newbury Park, CA: Sage Publications, pp. 11–25.
- Hudson, V. M., & den Boer, A. M. (2002). A surplus of men, a deficit of peace: Security and sex ratios in Asia's largest states. *International Security*, 26(4), 5–38.
- Hyung, C. (1997). Fertility control, reproductive rights, and women's empowerment in Korea. *Asian Journal of Women's Studies*, 3(1), 103–132.
- Ibrahim, S., & Alkire, S. (2007). Agency and empowerment: A proposal for internationally comparable indicators. *Oxford Development Studies*, 35(4), 379–403.
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review*, 65(1), 19–51.
- Inglehart, R., & Norris, P. (2003). The true clash of civilizations. *Foreign Policy*, 135, 62–70.
- Inglehart, R., Norris, P., & Welzel, C. (2002). Gender equality and democracy. *Comparative Sociology*, 1(3–4), 321–346.
- Inglehart, R., & Welzel, C. (2009). How development leads to democracy. *Foreign Affairs*, 88(2), 33–48.
- Inglehart, R., & Welzel, C. (2010). Changing mass priorities: The link between modernization and democracy. *Perspectives on Politics*, 8(2), 551–567.
- Iversen, T., & Rosenbluth, F. (2006). The political economy of gender: Explaining cross-national variation in the gender division of labor and the gender voting gap. *American Journal of Political Science*, 50(1), 1–19.
- Iversen, T., & Rosenbluth, F. (2008). Work and power: The connection between female labor force participation and female political representation. *Annual Review of Political Science*, 11, 479–495.
- Jagers, K., & Gurr, T. (1995). Tracking democracy's 3rd wave with the polity-III data. *Journal of Peace Research*, 32(4), 469–482.
- Jahanshahrad, H. (2012). A genuine civil society and its implications for the Iranian women's movement. *Women's History Review*, 21(2), 233–252.
- Jonas, S. (2000). Democratization through peace: The difficult case of Guatemala. *Journal of InterAmerican Studies & World Affairs*, 42(4), 9.
- Jowett, M. (2000). Safe motherhood interventions in low-income countries: An economic justification and evidence of cost effectiveness. *Health Policy*, 53(3), 201–228.
- Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change*, 30(3), 435–464.
- Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third Millennium development goal. *Gender and Development*, 13(1), 13–24.
- Kazemi, F. (2000). Gender, Islam, and politics. *Social Research*, 67(2), 439–474.
- Kishor, S. (2000). Empowerment of women in Egypt and links to the survival and health of their infants. In Harriet Presser, & Gita Sen (Eds.), *Women's empowerment and demographic processes: Moving beyond Cairo*. New York: Oxford University Press.
- Lehr, C. S. (2009). Evidence on the demographic transition. *Review of Economics and Statistics*, 91(4), 871–887.
- Lena, H. F., & London, B. (1993). The political and economic determinants of health outcomes: A cross-national analysis. *International Journal of Health Services*, 23(3), 585–602.
- Li, J. (2004). Gender inequality, family planning, and maternal and child care in a rural Chinese county. *Social Science and Medicine*, 59(4), 695–708.
- Lipset, S. M. (1959). Some social requisites of democracy—Economic development and political legitimacy. *The American Political Science Review*, 53(1), 69–105.
- Lipset, S. M. (1994). The social requisites of democracy revisited—1993 Presidential address. *American Sociological Review*, 59(1), 1–22.
- Londregan, J. B., & Poole, K. T. (1996). Does high income promote democracy?. *World Politics*, 49(1), 1–30.
- Lutz, W., Cuaresma, J. C., & Abbasi-Shavazi, M. J. (2010). Demography, education, and democracy: Global trends and the case of Iran. *Population and Development Review*, 36(2), 253–281.
- Mainwaring, S. (1989). *Transitions to democracy and democratic consolidation: Theoretical and comparative issues*. Working paper—Helen Kellogg Institute for International Studies, p. 130.
- Malhotra, A. (2012). *Remobilizing the gender and fertility connection: The case for examining the impact of fertility control and fertility declines on gender equality*. International center for research on women fertility and empowerment work paper series, 001-2012-ICRW-FE, pp. 1–38.
- Malhotra, A., & Mather, M. (1997). Do schooling and work empower women in developing countries? Gender and domestic decisions in Sri Lanka. *Sociological Forum*, 12(4), 599–630.
- Marchand, M. H., & Parpart, J. L. (1995). *Feminism/postmodernism/development*. London: Routledge.

- Marshall, M.G., & Jagers, K. (2009). *Polity IV project. Political regime characteristics and transitions, 1800–2008*. <http://www.systemic-peace.org/polity/polity4.htm> (Accessed 11.05.09).
- Mason, K. O. (1986). The status of women: Conceptual and methodological issues in demographic studies. *Sociological Forum*, 1(2), 284–300.
- Moghadam, V. M. (2003). *Modernizing women: Gender and social change in the Middle East* (2nd ed.). London: Lynne Rienner Publishers.
- Moghadam, V. M. (2007). *Governance and women's citizenship in the Middle East and North Africa*. Paper presented at the IDRC MENA regional consultation, women's rights and citizenship, Cairo, Egypt.
- Moghadam, V. M., & Senftova, L. (2005). Measuring women's empowerment: Participation and rights in civil, political, social, economic, and cultural domains. *International Social Science Journal*, 57(184), 389–412.
- Morrisson, C., & Jütting, J. P. (2005). Women's discrimination in developing countries: A new data set for better policies. *World Development*, 33(7), 1065–1081.
- Muller, E. N. (1995). Economic determinants of democracy. *American Sociological Review*, 60(6), 966–982.
- Munck, G. L., & Verkuilen, J. (2002). Conceptualizing and measuring democracy: Evaluating alternative indices. *Comparative Political Studies*, 35(1), 5–34.
- Nisha, S., & Ravi, S. (2010). Women, work, and employment outcomes in rural India. *Economic and Political Weekly*, 45(28), 49–60.
- Papaioannou, E., & Siourounis, G. (2008). Economic and social factors driving the third wave of democratization. *Journal of Comparative Economics*, 36(3), 365–387.
- Paxton, P. (2008). Gendering democracy. In A. M. Goetz, & A. Mazur (Eds.), *Politics, gender and concepts*. Cambridge: Cambridge University Press.
- Persson, T., & Tabellini, G. (2009). Democratic capital: The nexus of political and economic change. *American Economic Journal*, 1(2), 88–126.
- Przeworski, A., Alvarez, M. E., Cheibub, J. A., & Limongi, F. (2000). *Democracy and development: Political institutions and well-being in the world, 1950–1990*. New York: Cambridge University Press.
- Przeworski, A., & Limongi, F. (1996). Modernization: Theories and facts. *World Politics*, 49(2), 155–183.
- Psacharopoulos, G., & Patrinos, H. A. (2004). Returns to investment in education: A further update. *Education Economics*, 12(2), 111–134.
- Psacharopoulos, G., & Tzannatos, Z. (1989). Female labor force participation: An international perspective. *The World Bank Research Observer*, 4(2), 187–201.
- Psacharopoulos, G., & Tzannatos, Z. (1992). *Latin American women's earnings and participation in the labor force*. World Bank. http://www.wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/1992/02/01/000009265_3961002093302/Rendered/PDF/multi_page.pdf. (Accessed 20.07.11).
- Rizzo, H., Abdel-Latif, A. H., & Meyer, K. (2007). The relationship between gender equality and democracy: A comparison of Arab versus non-Arab Muslim societies. *Sociology—The Journal of the British Sociological Association*, 41(6), 1151–1170.
- Roodman, D. (2006). *How to do xtabond2: An introduction to “Difference” and “System” GMM in Stata*. Centre for Global Development. Working paper 103. http://www.cgdev.org/sites/default/files/11619_file_HowtoDoxtabond8_with_foreword_0.pdf (Accessed 27.01.11).
- Roodman, D. (2008). *A note on the theme of too many instruments*. Center for Global Development. Working paper no. 125. http://www.cgdev.org/sites/default/files/14256_file_Instruments.pdf (Accessed 27.01.11).
- Ross, M. L. (2001). Does oil hinder democracy?. *World Politics*, 53(3), 325–361.
- Ross, M. L. (2006). Is democracy good for the poor?. *American Journal of Political Science*, 50(4), 860–874.
- Ross, M. L. (2008). Oil, Islam, and women. *American Political Science Review*, 102(1), 107–123.
- Rowlands, J. (1995). Empowerment examined. *Development in Practice*, 5(2), 101–107.
- Ryan, J. E. (1994). Survey methodology. *Freedom Review*, 25(1), 9–13.
- Safa, H. I. (1990). Women's social movements in Latin America. *Gender & Society*, 4(3), 354–369.
- Sarafidis, V., & Robertson, D. (2009). On the impact of error cross-sectional dependence in short dynamic panel estimation. *Econometrics Journal*, 12(1), 62–81.
- Sinha, N., Raju, D., & Morrison, A. R. (2007). *Gender equality, poverty and economic growth*. World bank policy research working paper no. 4349. <http://ssrn.com/abstract=1014233>. (Accessed 11.03.12).
- Smith, Z. K. (2001). Mali's decade of democracy. *Journal of Democracy*, 12(3), 73–79.
- Spierings, N., & Smits, J. (2007). *Women's labour market participation in Egypt, Jordan, Morocco, Syria & Tunisia: A three-level analysis*. Paper prepared for the IZA-world bank conference on employment and development, June 8th/9th in Bonn. <http://www.genderclearing-house.org/upload/Assets/Documents/pdf/women%27%27s%20labour%20market%20participation%20in%20egypt.pdf> (Accessed 30.04.12).
- Staheli, L. A., & Cope, M. S. (1994). Empowering women's citizenship. *Political Geography*, 13(5), 443–460.
- UNDP. (1995). *Human development report 1995*. http://hdr.undp.org/en/media/hdr_1995_en_overview.pdf (Accessed 18.08.11).
- UNDP. (2011). *Measuring inequality: Gender-related development index (GDI) and gender empowerment measure (GEM)*. http://hdr.undp.org/en/statistics/indices/gdi_gem/ (Accessed 17.02.12).
- UNESCO (1983). *Training seminars on education statistics. Statistics of education in developing countries. Book 3. An introduction to their collection and analysis*. <http://unesdoc.unesco.org/images/0005/000548/054881eo.pdf> (Accessed 23.11.11).
- UNESCO (2011). *Education for all global monitoring project, Chapter 6: Understandings of literacy*. http://www.unesco.org/education/GMR2006/full/chapt6_eng.pdf (Accessed 23.11.11).
- United Nations. (1995). *Beijing Declaration and Platform for Action, fourth World Conference on Women*, Beijing, China, 4–15 September 1995. NY: United Nations <http://www.un.org/womenwatch/daw/beijing/platform/plat1.htm#statement> (Accessed 03.10.10).
- United Nations. (2000). *World's women 2000: Trends and statistics* (Vol. 16). New York: United Nations Publications.
- United Nations. (2012). *NGO branch, department of economic and social affairs*. <http://csonet.org/> (Accessed 25.09.12).
- U.S. Department of State. (2011). *Trafficking in persons report 2011*. <http://www.state.gov/j/tip/rls/tiprpt/2011/index.htm> (Accessed 16.03.12).
- Waylen, G. (1994). Women and democratization: Conceptualizing gender relations in transition politics. *World Politics*, 46(3), 327–354.
- Wejnert, B. (2005). Diffusion, development, and democracy, 1800–1999. *American Sociological Review*, 70(1), 53–81.
- Woodberry, R. D. (2012). The missionary roots of liberal democracy. *American Political Science Review*, 106(2), 244–274.
- Statistical Sources*
- Barro, R. J., & Lee, J.-W. (2011). *Barro-Lee educational attainment dataset*. <http://www.barrolee.com/> (Accessed 16.11.11).
- Pew Research Centre. (2009). *A report on the size and distribution of the world's Muslim population*. [http://www.pewforum.org/Muslim/Mapping-the-Global-Muslim-Population\(18\).aspx](http://www.pewforum.org/Muslim/Mapping-the-Global-Muslim-Population(18).aspx) (Accessed 18.11.11).
- Marshall, M. G., & Jagers, K. (2010). *Polity IV Project. Political Regime Characteristics and Transitions, 1800–2010*. <http://www.systemic-peace.org/polity/polity4.htm>.
- World Bank. (2011). *World development indicators*. <http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators> (Accessed 17.11.11).

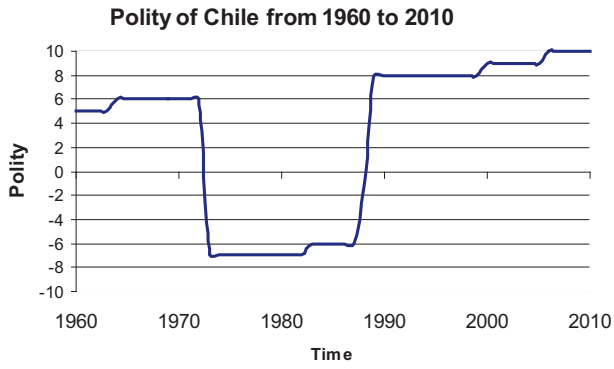


Figure A1. Latin America—Chile.

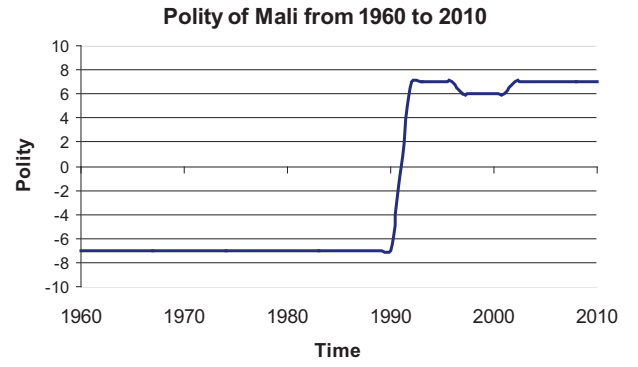


Figure A5. Sub-Saharan Africa—Mali.

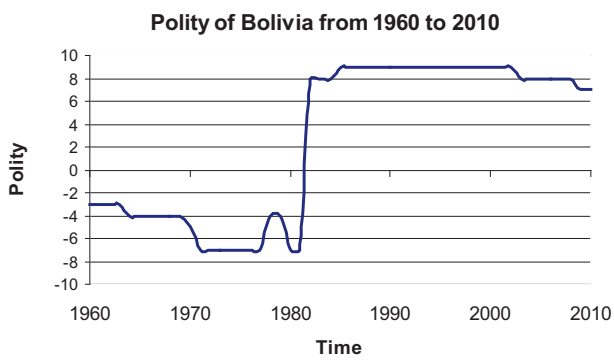


Figure A2. Latin America—Bolivia.

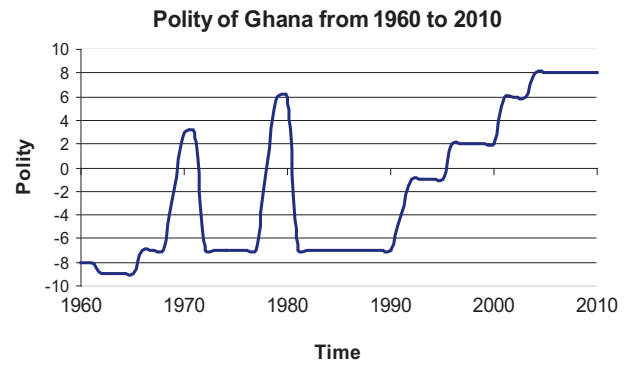


Figure A6. Sub-Sahara—Ghana.

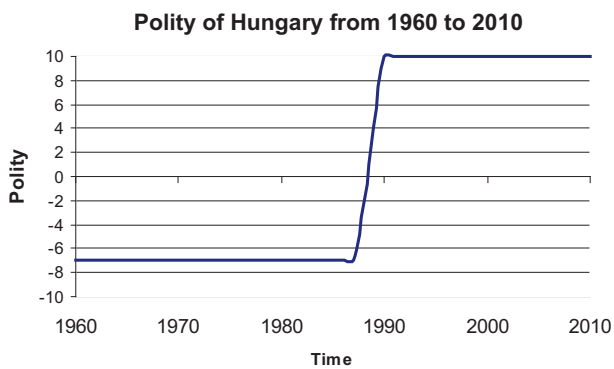


Figure A3. Eastern Europe—Hungary.

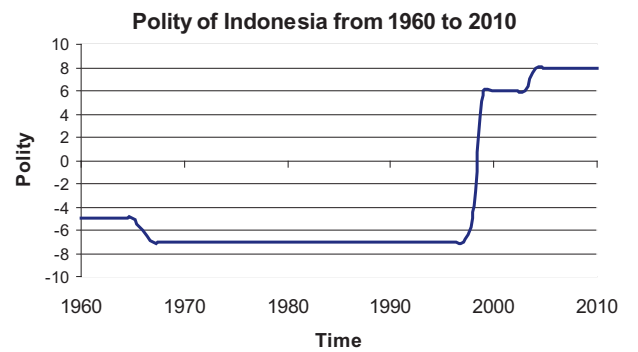


Figure A7. Asia—Indonesia.

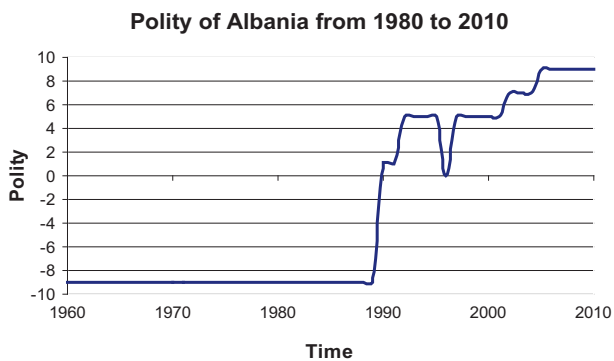


Figure A4. Eastern Europe—Albania.

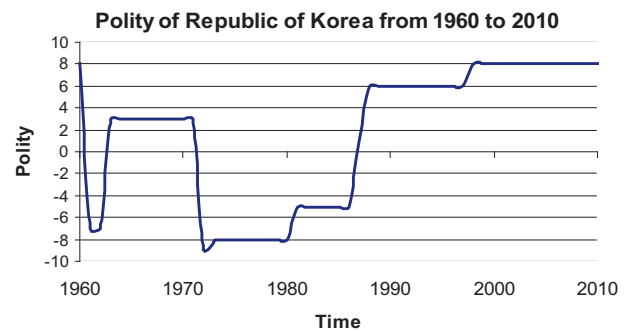


Figure A8. Asia—Republic of Korea.

Table 4. *List of countries by regime type**Always autocratic or anocratic*

Afghanistan, Algeria, Armenia, Bahrain, Cambodia, Cameroon, Central African Republic, China, Cote d'Ivoire, Cuba, Democratic Republic of Congo, Egypt, Arab Rep., Gabon, Gambia, Haiti, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lao PDR, Liberia, Libya, Malaysia, Mauritania, Morocco, Mozambique, Myanmar (Burma), Nepal, Pakistan, Papua New Guinea, Qatar, Republic of the Congo, Rwanda, Saudi Arabia, Sierra Leone, Singapore, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Togo, Tunisia, Uganda, United Arab Emirates, Vietnam, Zambia, Zimbabwe (51)

Transition to democratic

Albania, Argentina, Bangladesh, Benin, Bolivia, Brazil, Bulgaria, Burundi, Chile, Croatia, Czech Republic, El Salvador, Estonia, Ghana, Guatemala, Guyana, Honduras, Hungary, Indonesia, Kenya, Korea South, Latvia, Lesotho, Lithuania, Malawi, Mali, Mexico, Moldova, Mongolia, Namibia, Nicaragua, Niger, Panama, Paraguay, Philippines, Poland, Romania, Russia, Senegal, Slovak Republic, Slovenia, South Africa, Thailand, Turkey, Ukraine, Uruguay (46)

Democratic at the beginning and at the end of the period

Australia, Austria, Belgium, Botswana, Canada, Colombia, Costa Rica, Cyprus, Denmark, Dominican Rep, Ecuador, Fiji, Finland, France, Greece, India, Ireland, Israel, Italy, Jamaica, Japan, Mauritius, Netherlands, New Zealand, Norway, Peru, Portugal, Spain, Sweden, Switzerland, Trinidad, United Kingdom, United States, Venezuela (34)

Table 5. *All countries included in the dynamic panel models—fully balanced*

Armenia, Albania, Algeria, Argentina, Bahrain, Bangladesh, Benin, Bolivia, Brazil, Bulgaria, Burundi, Cameroon, Central African Republic, Chile, China, Cote D'Ivoire, Croatia, Cuba, Czech Republic, Democratic Republic of Congo, Egypt, El Salvador, Estonia, Fiji, Gabon, Gambia, Ghana, Guatemala, Guyana, Haiti, Honduras, Hungary, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Kuwait, Laos, Latvia, Lesotho, Liberia, Libya, Lithuania, Malawi, Malaysia, Mali, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar (Burma), Namibia, Nepal, Nicaragua, Niger, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Republic of Congo, Republic of Korea, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, South Africa, Sri Lanka, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Uruguay, Vietnam, Zambia, Zimbabwe (97)

Table 6. *All countries included in the dynamic panel models—extended sample*

Afghanistan, Albania, Angola, Algeria, Argentina, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Benin, Bhutan, Bolivia, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Chile, China, Comoros, Cote D'Ivoire, Croatia, Cuba, Czech Republic, Democratic Republic of Congo, Democratic Republic of Korea, Djibouti, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Gabon, Gambia, Georgia, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar (Burma), Namibia, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Republic of Congo, Republic of Korea, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, Somalia, South Africa, Sri Lanka, Sudan, Swaziland, Syria, Tajikistan, Tanzania, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Uruguay, Uzbekistan, Vietnam, Zambia, Zimbabwe (123)

Table 7. *Fully balanced sample—summary statistics*

Variable		Mean	Std. Dev.	Min	Max	Observations
Polity2	Overall	-1.023	6.68	-10.00	10.00	$N = 2,518$
	Between		4.69	-10.00	7.54	$n = 97$
	Within		4.79	-15.75	10.86	$T\text{-bar} = 25.959$
Female education	Overall	5.434	2.91	0.25	12.61	$N = 2,522$
	Between		2.79	0.58	10.93	$n = 97$
	Within		0.88	2.27	8.21	$T = 26$
Fertility rates	Overall	4.105	1.82	1.08	8.31	$N = 2,484$
	Between		1.69	1.44	7.75	$n = 97$
	Within		0.72	1.90	6.81	$T\text{-bar} = 25.608$
Female labor force	Overall	38.385	10.86	5.05	53.76	$N = 2,519$
	Between		10.79	10.38	52.87	$n = 97$
	Within		1.69	30.92	44.21	$T\text{-bar} = 25.969$
Urbanization	Overall	47.757	22.75	4.34	100.00	$N = 2,522$
	Between		22.56	6.76	100.00	$n = 97$
	Within		3.70	31.30	61.65	$T = 26$
Economic growth	Overall	0.037	0.07	-0.66	0.67	$N = 2,130$
	Between		0.02	-0.04	0.11	$n = 94$
	Within		0.07	-0.61	0.75	$T\text{-bar} = 22.660$

Variable		Mean	Std. Dev.	Min	Max	Observations
lngdp80	Overall	7.355	1.15	5.32	10.96	$N = 2,240$
	Between		1.21	5.32	10.96	$n = 94$
	Within		0.00	7.35	7.35	$T\text{-bar} = 23.830$
log (population density)	Overall	3.760	1.39	0.09	8.74	$N = 2,519$
	Between		1.38	0.34	8.50	$n = 97$
	Within		0.17	3.02	4.45	$T\text{-bar} = 25.970$
Muslim	Overall	0.309	0.46	0.00	1.00	$N = 2,522$
	Between		0.46	0.00	1.00	$n = 97$
	Within		0.00	0.31	0.31	$T = 26$
Foreign aid	Overall	38.101	54.79	-21.50	799.22	$N = 2,061$
	Between		38.67	0.23	231.43	$n = 87$
	Within		38.21	-198.97	790.57	$T\text{-bar} = 23.690$
Interest on debt servicing	Overall	2.433	2.47	0.00	43.73	$N = 1,778$
	Between		1.64	0.33	11.06	$n = 78$
	Within		1.81	-7.30	35.10	$T\text{-bar} = 22.795$
Gender gap in education	Overall	1.001	1.00	-2.08	3.81	$N = 2,522$
	Between		0.96	-1.75	3.33	$n = 97$
	Within		0.30	-0.95	2.37	$T = 26$
Female secondary enrollment	Overall	53.908	32.67	1.63	117.00	$N = 1,550$
	Between		32.10	3.81	110.08	$n = 96$
	Within		9.26	13.76	94.91	$T\text{-bar} = 16.146$
Male education	Overall	6.435	2.52	0.88	12.90	$N = 2,522$
	Between		2.41	1.32	11.51	$n = 97$
	Within		0.78	3.71	9.08	$T = 26$
Male secondary enrollment	Overall	57.584	28.45	3.40	119.54	$N = 1,550$
	Between		27.88	5.24	100.06	$n = 96$
	Within		0.782	3.711	9.077	$T = 26$
Total education	Overall	5.931	2.68	0.615	12.749	$N = 2,522$
	Between		2.57	1.000	11.211	$n = 97$
	Within		0.82	3.16	8.411	$T = 26$

Table 8. *Extended sample—summary statistics*

Variable		Mean	Std. Dev.	Min	Max	Observations
Polity2	Overall	-1.527	6.526	-10	10	$N = 3,143$
	Between		4.632	-10	7.538	$n = 123$
	Within		4.605	-16.258	10.358	$T\text{-bar} = 25.553$
Female education	Overall	5.384	2.922	0.250	12.609	$N = 2,574$
	Between		2.804	0.577	10.935	$n = 99$
	Within		0.868	2.224	8.157	$T = 26$
Fertility rates	Overall	4.306	1.877	1.080	8.310	$N = 3,156$
	Between		1.748	1.444	7.787	$n = 123$
	Within		0.703	1.855	7.007	$T\text{-bar} = 25.658$
Female labor force	Overall	38.853	10.535	5.048	55.108	$N = 3,195$
	Between		10.463	10.382	52.868	$n = 123$
	Within		1.606	31.391	44.690	$T\text{-bar} = 25.976$
Urbanization	Overall	45.642	22.652	4.339	100.000	$N = 3,198$
	Between		22.433	6.765	100.000	$n = 123$
	Within		3.720	28.185	59.700	$T = 26$
Economic growth	Overall	0.038	0.074	-0.662	0.674	$N = 2,593$
	Between		0.025	-0.036	0.145	$n = 118$
	Within		0.070	-0.613	0.748	$T\text{-bar} = 21.975$
lngdp80	Overall	7.281	1.139	5.325	10.959	$N = 2,733$
	Between		1.183	5.325	10.959	$n = 118$
	Within		0.000	7.281	7.281	$T\text{-bar} = 23.161$

(Continued on next page)

Variable		Mean	Std. Dev.	Min	Max	Observations
log (population density)	Overall	3.709	1.335	0.086	8.744	$N = 3,195$
	Between		1.329	0.336	8.497	$n = 123$
	Within		0.170	2.974	4.404	$T\text{-bar} = 25.976$
Muslim	Overall	0.333	0.471	0	1	$N = 3,198$
	Between		0.473	0	1	$n = 123$
	Within		0.000	0.333	0.333	$T = 26$
Foreign aid	Overall	41.098	55.018	-21.498	799.215	$N = 2,645$
	Between		39.893	0.232	231.429	$n = 113$
	Within		37.168	-195.977	793.567	$T\text{-bar} = 23.407$
Interest on debt servicing	Overall	2.217	2.352	0.002	43.728	$N = 2,195$
	Between		1.577	0.331	11.057	$n = 100$
	Within		1.688	-7.516	34.888	$T\text{-bar} = 21.95$
Gender gap in education	Overall	1.017	1.006	-2.077	4.371	$N = 2,574$
	Between		0.962	-1.747	3.328	$n = 99$
	Within		0.307	-0.933	2.695	$T = 26$
Female secondary enrollment	Overall	50.548	33.485	0.000	116.998	$N = 1,848$
	Between		32.945	3.808	110.080	$n = 120$
	Within		9.234	10.399	91.550	$T\text{-bar} = 15.4$
Male education	Overall	6.401	2.516	0.879	12.899	$N = 2,574$
	Between		2.404	1.317	11.512	$n = 99$
	Within		0.781	3.677	9.043	$T = 26$
Male secondary enrollment	Overall	54.760	29.322	2.966	124.497	$N = 1,848$
	Between		28.778	5.237	100.062	$n = 120$
	Within		8.362	15.961	91.501	$T\text{-bar} = 15.4$
Total education	Overall	5.889	2.68	0.615	12.749	$N = 2,574$
	Between		2.57	1.000	11.211	$n = 97$
	Within		0.81	3.11	8.369	$T = 26$

Table 9. *Muslim majority countries*

Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Egypt, Gambia, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Libya, Malaysia, Mali, Mauritania, Morocco, Niger, Pakistan, Qatar, Saudi Arabia, Senegal, Sierra Leone, Sudan, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan (33)

Table 10. *Comparison of countries that developed democratically by their level of female education and low fertility[§]*

Countries that did develop democratically (Polity2 scores 6–10)		
Began period with female education over 6 years	Over 6 years of education achieved during this period	Below 6 years of education achieved during this period
A	B	C
Albania, Bulgaria, Chile, Croatia, Czech Republic, Estonia, Guyana, Hungary, South Korea, Latvia, Lithuania, Moldova, Panama, Russia, Slovak Republic, Slovenia, Ukraine, and Uruguay	Bolivia, Brazil, El Salvador, Honduras, Lesotho, Mongolia, Mexico, Namibia, Paraguay, South Africa, and Thailand	Bangladesh (4.85), Nicaragua (5.27), and Turkey* (5.5)
Countries that did not develop democratically (Polity2 score less than 6)		
Began period with female education over 6 years	Over 6 years of education achieved during this period	Below 6 years of education achieved during this period
D	E	F
Armenia, China, Cuba, and Kazakhstan	Algeria*, Bahrain*, Gabon*, Iran*, Jordan*, Kuwait*, Libya*, Malaysia, Qatar*, Saudi Arabia*, Singapore, Swaziland, UAE*, and Zimbabwe	Cambodia, Egypt*, Haiti, Laos, Morocco*, Myanmar, Nepal, Pakistan*, Syria*, Tunisia*, Vietnam

[§]All countries in the table achieved a low fertility rate (<4 children per woman).

*These countries have very low female labor force participation rates below 30%. Countries without * had achieved female labor force participation above 30%.