A HISTORICAL PERSPECTIVE ON GENDER INEQUALITY AND DEVELOPMENT IN THE WORLD ECONOMY, c. 1850-2000

SELIN DILLI

Cover Image: U.S. women suffragists demonstrating for the right to vote in 1913 (Bain News Service, photographer unknown)
Cover Design: Nikki Vermeulen***,*** Ridderprint BV
Printing: Ridderprint BV, www.ridderprint.nl

A Historical Perspective on Gender Inequality and Development in the World Economy, c. 1850-2000

Een Historisch Perspectief op Ongelijkheid Tussen de Seksen en Ontwikkeling in de Wereld Economie, ca. 1850-2000
(met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Utrecht op gezag van de rector magnificus, prof.dr. G.J. van der Zwaan, ingevolge het besluit van het college voor promoties in het openbaar te verdedigen op dinsdag 22 december 2015 des ochtends te 10.30 uur.

door

Selin van Leeuwen
geboren op 20 juli 1987
te Montreuil, Frankrijk

Promotoren: Prof.dr. J.L. van Zanden
Prof.dr. M.R.Prak

Copromotor: Dr. A. Rijpma

Dit proefschrift werd mede mogelijk gemaakt door financiële steun van de Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO).

ACKNOWLEDGEMENTS

This work includes input from numerous people who have helped and inspired me directly or indirectly.

I am most indebted to Jan Luiten van Zanden, whom I got to know four years ago when I joined to the Agency project to work on my PhD. Thanks to him, I had the chance to be part of a very inspiring and interdisciplinary project and a research group. His encouragement to think outside my comfort zone as a sociologist has widened my scope as a researcher. His confidence in my work gave me the freedom to pursue my own research interests. Having the chance to work with him was a truly unique and a great experience. I was also privileged to have Maarten Prak as a second supervisor, who has contributed to this study significantly with his extensive and insightful comments. While he placed trust in my research skills when it came to the numbers, the arguments of this research became sharper thanks to him. Without his input, this dissertation would have lacked important elements. His guidance during this process was much appreciated. I am also very grateful to Auke Rijpma, my daily supervisor, with whom I have collaborated in many projects together. I have turned to him whenever I was stuck with puzzling findings. He was always very patient and helpful with all my questions and requests. I cannot think of a better daily supervisor than him. I also would like to thank him for sharing his data with me.

Jan Kok has commented on earlier versions of this dissertation as a member of the Agency group. His expertise was of great value and it was a great pleasure to collaborate with him during the Agency project. Sarah Carmichael and Lotte van der Vleuten, the two other PhDs of the Agency project, were one of the first people I met in the department and later on they became an indispensable part of my life with their friendship. I have enjoyed our collaborations and the countless international adventures we had in the conferences. I especially thank Sarah Carmichael for being such a supportive friend during this process. I also thank her for proofreading my papers. Thanks to Lotte van der Vleuten for her suggestions, our memorable discussions, and making me cheerful even when we were stressed with deadlines.

This brings me to my other PhD buddies who have made this journey wonderful. I am most grateful to Sandra de Pleijt who became a great friend and a colleague from the first moment she joined to the department. The long discussions on our work usually turned into late dinners where we forgot the time. I also would like to thank her for commenting on parts of my thesis. Thanks to the Spaniard of the group, Miguel Laborda Peman, the homesicknesses became more tolerable. I also would like to thank Bram Besouw, Winny Bierman, Anita Boele, Kati Buzasi, Daniel Curtis, Benjamin Guilbert, Mikolaj Malinowski,

Michail Maotsos, Kostadis Papaiannou, Ruben Schalk, Charlotte Stormer, Annelies Tukker, Danielle Teeuwen, Pim de Zwart, Michiel de Haas, and Felix Meier zu Selhausen for their contributions and making the work environment such a pleasant place to be. It was great to share this experience with all of you. I thank Kostadis Papapiannou also for taking the time to introduce me to *GMM*.

For their valuable comments and suggestions on earlier versions of this work and for welcoming me to the group, many thanks must go to all members of the Economic and Social History (ESH). I feel very lucky to have the opportunity to be member of such a very vibrant and friendly work group. The seminar series and group lunches provided many opportunities for interesting discussions and exchange of ideas. I also had the possibility to improve my teaching skills during this period. For this, I would like to thank especially to Jan Luiten van Zanden, Oscar Gelderblom, Jessica Dijkman and Ewout Frankema.

Through the N.W. Posthumus Institute, I got acquainted with many other economic historians in the Netherlands. I have benefited from the trainings and the master classes provided by the Posthumus Institute. I especially thank Elise van Nederveen Meerkerk for her input to this project. Her comments were always very elaborative and constructive. Thanks to Herman de Jong for inviting me to the Political Economy, Economic History and Growth & Development seminar and to its seminar participants for their useful suggestions. This work also benefited from the comments received in the World Economic History Conference in Stellenbosch (2012) and in Kyoto (2015), the Economic and Social Science History Conference in Glasgow (2012) and in Vienna (2014), the World Interdisciplinary Network for Interdisciplinary Research Conference (2014) and the Cesifo Venice Institute. During these events, I have met with great international colleagues who have provided important feedback on parts of this dissertation. I am especially indebted to Joerg Baten, Tracy Dennison, and Jacob Weisdorf. I also would like to thank Kees Klein Goldewijk and Pamela Paxton for sharing their data with me.

Finally, thank you too to all my great friends for showing constant interest in my work and for your patience for all the times I could not be around. I was especially lucky to have Safir Cubukcuoglu, Duygu Dinccelik, Elif Okan, Ceren Tunali, and Esra Demirkol who never denied me of the cheering I needed. Last but not least, I thank my family for their support and love. Special thanks to my husband, Jeroen van Leeuwen who has beard with me in the most difficult parts. He always found ways to put a smile on my face. Without him, this work would have not been possible. I also would like to thank him for his assistance in the Dutch translation of the summary. Final thanks must go to my mother, Asuman Dilli who not only has been always there for me with her love and constant support, but also introduced me to the problem of ‘gender inequality’ in the early stages of my life. Her struggle and dedication as an ‘activist’ to raise the voice of women in Turkey against inequalities undeniably inspired me both as a person and as a scholar. I could only hope that this work will also have some contribution to this struggle for a society where women are free to make choices and reach to their full potential.

Table of Contents

CHAPTER 1: INTRODUCTION

"*Why exclude them? Of the two sexes of which the species is composed, how comes all the natural right to political benefits to be confined to one?*" **Jeremy Bentham (1789)**[1]

In the late eighteenth century, Jeremy Bentham, a British philosopher and legal reformist, questioned why suffrage should be restricted to men and recognized that women should also have the right to vote, and participate equally in the legislative and executive branches of the government (Williford 1975). His call for equality between genders did not concern only the field of politics, but also education and domestic duties (Chernock 2009). In 1893, a century after Bentham drew attention to women's political rights, New Zealand became the first country in the world to grant women the right to vote in the national elections. By that time, the United Kingdom, a country with a long history of parliamentary rule, had already witnessed organized suffrage campaigns and struggles for female voting for almost half a century. Only at the end of World War I, did the British parliament pass *The Representation of the People Act* to grant women over the age of 30 the right to vote, if they met the property criteria. In 1928, British women gained universal suffrage.[2] More than two centuries after Bentham, Saudi Arabia, the last country to deny this right to women, will allow women to participate in municipal elections for the first time in 2015.

The right to vote is one of the fields in which gender equality has been achieved after a long struggle. However, gender equality is not one homogenous phenomenon, but has many facets. Gender gaps manifest themselves in access to healthcare, economic resources, time use, and decision-making power in the public and the private sphere (Sen 2001; World Bank 2001, 2011). In a nutshell, gender equality refers to the equal rights, responsibilities and

[1] Bentham, University College Mss., CLXX p.144, cited in Chernock (2009)
[2] Similar restrictions applied to men in the United Kingdom. Men with property gained the right to vote in 1832. In 1868, this threshold was reduced and as a result, the percentage of men who could participate in elections increased substantially. In 1918, universal suffrage was introduced for all men over the age of 21.

opportunities of women and men, as well as girls and boys.[3] Achieving gender equality means to create a situation in which the social and cultural environment recognizes both men and women as being of equal value. Since the 1970s, the world has witnessed many national and international attempts to eliminate gender inequalities in all the domains of women's daily lives. The UN decade for women, which took place between 1976 and 1985, initiated the integration of women in the development agenda. In 1979, the General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and set up an agenda for national action to end discrimination against women. Gender equality has been acknowledged as an important development goal, as shown by its inclusion as the 3rd Millennium Development Goal in 2000.

Figure 1.1. Labour force participation of men and women in the world, 1945-1995

Source: International Labour Organization

The same period has also witnessed important improvements in women's position in many fields. For instance, globally, women's enrolment in tertiary education has on average risen more than sevenfold since 1970. Since the 1980s, women can expect to live longer than men throughout the world. More countries than ever guarantee women and men equal rights before the law in areas such as ownership of property, inheritance, and marriage (World Bank 2011). As visible from Figure 1.1, presenting the average global trend in male and female labour force participation, in the second half of the twentieth century the participation of women in the labour force has increased steadily.

[3] Gender is generally used to emphasize the social and cultural, as opposed to the biological distinctions, between the sexes (Oxford English Dictionary). The definition of gender equality used here has been adopted from http://www.un.org/womenwatch/osagi/conceptsandefinitions.htm.

However, despite progress towards gender equality, inequalities continue to exist in every part of the world, from the United States to China and from Morocco to Japan. Moreover, inequalities between men and women are not the same everywhere (Sen 2001). For instance, throughout the developing world, property rights favouring male ownership persist (Htun and Weldon 2011). One third of girls in the developing world are married before the age of 18 and one in nine are married before the age of 15.[4] Globally, women are underrepresented in the field of politics (Inter-Parliamentary Union 2015). A recent report by the OECD (2015) highlights that while some progress towards the 3rd Millennium Development Goal target on gender equality has been made, global gender gaps persist. This report shows that although gender equality in access to primary schooling has almost been achieved in most countries, significant gender gaps persist in later stages of educational attainment. Every day, around 800 women die from preventable causes during pregnancy and childbirth. Women still face a gender pay gap, segregation in occupations and glass ceilings, with over-representation in low-paying jobs and under-representation in senior positions. While more women have entered the workforce in recent decades, they typically work at the informal end of labour markets with poor earnings and insecure conditions in developing countries.

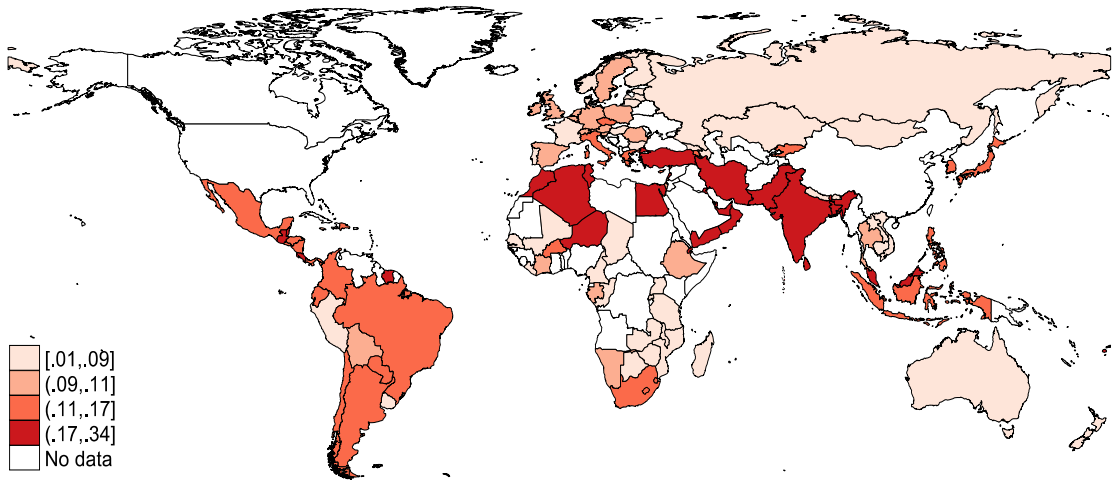
More recently, attention has been directed to the benefits of achieving gender equality for the overall development and wellbeing of societies (Sen 1999; World Bank 2011, 2014; Branisa, Klasen, and Ziegler 2013). On International Women's Day 2014, Ban Ki-Moon, the Secretary-General of the United Nations highlighted how boosting gender equality has benefits ranging from better health outcomes to education.[5] Christine Lagarde, the IMF managing director, also drew attention to the negative economic consequences of unequal treatment of women: "In too many countries, too many legal restrictions conspire against women to be economically active…. In a world in search of growth, women will help find it, if they face a level playing field instead of an insidious conspiracy."[6] A recent study by Teiginer and Cuberes (2014), which studies the consequences of the gender gap in labour force participation and entrepreneurship for aggregate productivity and income per capita, supports these claims. Map 1 below summarizes their findings:[7] countries with the highest income losses associated with gender gaps are located in the Middle East and North Africa (MENA) where female labour force participation is the most limited in the world. The authors found up to 30 per cent income loss for countries such as Iran, Algeria, and United Arab Emirates due to gender discrimination in the labour force.

This dissertation aims to contribute to this line of research on the link between gender equality and development. The main research question to be investigated in this study concerns *to what extent is there a relationship between family systems and gender equality on the one hand and democratic and economic development on the other hand in the long run?*

[4] http://www.icrw.org/child-marriage-facts-and-figures
[5] http://www.un.org/sg/statements/index.asp?nid=7510
[6] http://www.theguardian.com/global-development/2015/feb/24/christine-lagarde-says-conspiracy-against-women-makes-the-world-poorer?CMP=fb_gu
[7] Their results are based on data for the latest available year from the International Labour Organization (ILO).

To do so, the first section of the dissertation studies the global progress that has been made towards gender equality from the nineteenth century onwards and the causes behind this process. Particular attention is paid to the long-term institutional arrangements regarding family organization as a determinant of gender equality. The second part of the dissertation studies the consequences of these family systems that determine the position of women for democratic and economic development of societies.

Map 1.1. World Map of Total Income Loss due to Gender Gap



Source: Teiginer and Cuberes (2014: 20)

The rest of the introduction is structured as follows. First, a theoretical background on the determinants of gender equality, democratic and economic development and their links with each other is provided. After a discussion of the debates in the current literature, the main objectives of the dissertation will be introduced. This section will also elaborate on the key concepts used in the dissertation. This includes family systems related to female agency. After the introduction of the main data sources and the methodology, an overview of each chapter will be provided.

1.1. Gender Equality and Development

Gender equality is central to development for two reasons. First, the freedoms women enjoy in a society are an integral part of the development process. According to Sen (1999), development should be understood as a process of expanding freedoms people enjoy in addition to the growth of gross national product or rise in individual incomes. These freedoms enable individuals to make independent choices during their life course – for example, whom they should marry, electing a political leader, getting an education and a job, which they prefer, or living in the country they want (Kok 2015). Thus, in a society where half the population faces discrimination, it is not be possible to speak of a developed society. Second, achievement of democratic and economic development is dependent on the freedoms of individuals, in particular of women (Sen 1999:4). As mentioned, eliminating the conditions

that produce inequalities between men and women is relevant not only for intrinsic reasons but can also be "smart economics" in the long run (World Bank 2011). Therefore, improving our understanding of the causes of gender equality is not only important to gain more insight into how to achieve the goal of an equitable society, but also relevant to promote sustainable development. While gender equality is receiving increasing attention in the development agenda, how to achieve this goal is not an easy question to answer. This is one of the main issues this dissertation will try to shed light on. Below, first the literature on the drivers of gender equality is reviewed. Then, attention has been given to the literature on how and why gender equality is expected to promote development.

Determinants of Gender Equality

The explanations on the drivers of gender equality in the literature can be grouped into two schools of thought: economic development and institutions. The first school of thought, based on the modernization thesis, highlights economic development as an important contributor to gender equality. The world economy has changed substantially in the last two centuries: World GDP per capita has increased on average by a factor 10 since 1820, though this growth was unevenly distributed around the world (Bolt and van Zanden 2014). The Industrial Revolution that began around 200 years ago, played a crucial role in this and transformed all life domains: the mode of production, division of labour, consumption patterns, household structure, fertility behaviour and so on (van Zanden et al. 2014). These transformations in the economy had important consequences for the position of women as well. For instance, industrialisation and machine technology are argued to promote gender equality as intellectual skills become more important, where the two sexes are more similar, while decreasing the importance of muscular strength (Christy 1987).[8] Moreover, technological change has been argued to reduce the burden of housework and so has freed up the time of women to work in the labour market (Eswaran 2014). Unified Growth Theory (UGT) states that in the context of rapid technological progress, having children became more costly with respect to investments in children's education and led to a decline in fertility rates (Galor and Weil 1996; Murtin 2012). Another view highlights that gender inequality is linked to scarcity of material resources in a society and women are placed at the back of the queue whether it is for food, health care, education or jobs, when these resources are in short supply, particularly if women's economic contributions are seen to be less than those of men. Increase in these material resources, as a result of economic development, makes it less necessary to discriminate against women (Kabeer and Natali 2013: 21). In sum, economic development is argued to promote gender equality through channels such as opening up job opportunities for women and thus increasing the returns to female education, and leading to a shift from traditional gender role attitudes to more egalitarian gender role attitudes (Inglehart and Norris 2003). Indeed, a considerable amount of evidence from different disciplines including economics, political science, sociology, and history literature supports the thesis that

[8] The suggested positive link between industrialization and gender equality has been challenged by scholars such as Goldin (1995). This discussion is covered later in the introduction.

economic development would promote gender equality.[9]

However, looking at the experiences of individual countries reveals that economic development alone does not always translate into reduced gender inequality. For example, China and India are experiencing worsening sex ratios, despite their rapid economic growth in the last decades. Sex ratios are usually interpreted as a sign of gender bias in the allocation of resources, nutrition, and health outcomes (Klasen and Wink 2003). Kuwait, Saudi Arabia, United Arab Emirates and Qatar, some of the richest countries in per capita GDP, are some of the poorest performers worldwide when it comes to gender equality.[10] These countries were the last in the world to grant women the right to vote and stand for election and women have restricted rights and opportunities outside the home (Inglehart and Norris 2003). For instance, it is illegal for women to drive cars in Saudi Arabia even today, although protests against this law are becoming increasingly vocal.[11] Women face gender-based discrimination in personal status laws, which regulate marriage, divorce, child custody, inheritance, and other aspects of family life. Family laws in these societies declare that the husband is the head of the family, give him power over his wife's right to work and travel, and in some instances specifically require the wife to obey her husband (Kelly 2009).[12] When it comes to the political representation of women in parliaments, many Latin American and African countries such as Bolivia, Rwanda, South Africa, outrank the most affluent societies in the world today. While female parliamentary representation in Western European countries has never exceeded 30 per cent in the twentieth century, today in Rwanda 63.8 per cent of parliamentary seats are held by women (Inter-Parliamentary Union 2015). While countries like Bangladesh, Pakistan and Sri Lanka have had female heads of governments, this has never been the case in the United States and Japan (Sen 2001). Compared with its level of economic development, the Middle East and North Africa region is known for having low female labour market participation rates, which is contradictory to the economic development thesis (Verme 2014).

Besides economic development, an institutional environment providing equal rights and opportunities for men and women to achieve gender equality is required (World Bank 2001, 2011; OECD 2015). In a broad sense, institutions can be defined as "the rules of the game in a society or more formally are the humanly devised constraints that shape human interaction" (North 1990:3). They can be seen as a set of formal and informal laws, social norms and practices that shape or restrict the decisions, choices and behaviours of individuals (Jütting et al. 2008; North 1990). Institutions play a key role in defining and influencing gender roles and relations. For instance, Jayachandran (2015) argues that norms such as son preference and concern for women's "purity" help to explain the male-skewed sex ratio in India and China and low female employment in India, the Middle East, and North Africa. While infanticide and neglect of infant girls have long been (proximate) causes of "missing" women, the availability of sex-selective abortion combined with a strong son preference dramatically exacerbated the problem of the skewed sex ratio (Hu and Schlosser 2012; Chen

[9] See Inglehart and Norris (2003) for a review.
[10] GDP per capita estimates are based on the most recent data from the World Bank (2015).
[11] http://www.genderindex.org/country/saudi-arabia#_ftn55
[12] The low performance of these countries in terms of gender equality has been explained by the fact that they are oil rich countries (see Ross (2008) for an elaborate discussion on this view).

et al. 2103).[13] Using cross-country regressions based on the data available after 2009, and controlling for the level of socio-economic and political development, Branisa et al. (2013) find that social institutions – norms, laws and practices – which discriminate against women and girls are significantly associated with lower female education. Policy researchers too acknowledge that among the key root causes of unequal outcomes for women and men are institutions, both formal and informal and that consequently economic development by itself does not deliver greater gender equality on all fronts (World Bank 2011; OECD 2015; Cerise and Francavilla 2012).

Among the formal institutions, a positive correlation between democracy and gender equality has been observed in a number of studies (e.g., Inglehart, Norris, and Welzel 2002; Beer 2009). Since the 1820s, many countries have experienced a democratic transition, moving from autocratic regimes with low political participation and limited constraint on the executive and legislative power, to more democratic regimes with higher levels of political participation and greater limits on the exercise of political power (Murtin and Wacziarg 2013). Democratic development has been argued to contribute to gender equality. For instance, Paxton (1997) hypothesized that democracies will have more women in parliament because democracies reduce barriers to power and are therefore more likely to promote the interests of those not in power. However, other studies (e.g., Reynolds 1999; Kenworthy and Malami 1999) have found that the level of democracy, using the Freedom House index as an indicator of democracy, is not a significant factor in determining the percentage of women in parliaments. Likewise, a number of studies highlight that women are more mobilized in dictatorships than in democracies and that it may be easier to enact some types of progressive gender legislation in authoritarian settings than in democracies (see Beer 2009 for a review). The evidence on the role of democracy in promoting gender equality, therefore, is inconclusive. This link will be investigated in the current study.

Lastly, in the last decades, the deeper roots of gender inequalities have started to receive attention among scholars. The interest in long-term historical conditions as an explanation of current day outcomes has become especially popular among the economists. Historical variations in socio-economic and environmental conditions such as factor endowments or agricultural practices have been argued to set in motion divergent evolutionary paths and therefore help explain the current day outcomes (Sokoloff and Engerman 2000; Nunn 2009, 2012). So far, religion has received the most attention in the literature as a long-term institution determining the informal and formal rules that lead to different gender equality outcomes. Especially Islam has been held accountable for the disadvantageous position of women in the Middle East. For instance, in Muslim majority countries where the rules of Shari'a are practiced, men, unlike women, have the unilateral right of divorce, and a woman can work and travel only with the written permission of her male guardian (Moghadam 2003). Yet, Muslim majority countries show large variation in gender equality. Another example of long-term institution is that in Africa, colonial legacies

[13] Chen et al. (2013) estimate that about half the increase in the sex imbalance in China is explained by access to ultrasound. Lin et al. (2014) find that this technological advance also played a large role in driving the skewed sex ratio in Taiwan.

have been shown to be accountable for the introduction of patrilineal systems in land inheritance and the reinforcement of gender inegalitarian outcomes in educational attainment (Henderson and Whatley 2014).

Gender Equality as 'Smart Economics'

This section reviews the literature on the role of gender equality in promoting development. Compared to the proliferation of studies exploring the impact of development on gender equality, the interest in the reverse direction of this relationship has started to receive attention only recently in the literature.

A number of channels have been suggested as to why gender equality matters for development. Gender equality is argued to boost economic growth by enhancing human capital accumulation, fostering higher labour productivity, increasing agricultural productivity and the quality of political institutions (Ward et al. 2010; Cuberes and Teignier 2014). For instance, when women work outside the home and earn an independent income, they contribute to the prosperity of the family, which means more resources are available to invest in the wellbeing of the children (Sen 1999). Moreover, women have been shown to invest more household resources in children compared to men (Duflo 2003; Eswaran 2014). Therefore, in societies where women have a higher decision making power in the household, the overall level of human capital formation is expected to be higher (Diebolt and Perrin 2013). These differences between men and women in behaviour could be related to the socialization process: women and men are expected to play different roles in societies and be trained to behave differently from childhood. A second explanation could be evolutionary, in which women and men adopted different behaviour to what was effective in the environment in the past (Eswaran 2014).

Moreover, not only removing gender inequalities in indicators such as education or labour force participation are relevant for economic development. Eliminating the institutional structures that discriminate against women can also be 'smart economic' in the long run (Wold Bank 2011). New Institutional Economics (NIE) literature draws attention to institutions concerning secure property rights, rule of law, and democracy as important conditions for economic growth (e.g., North and Weingast 1989; Rodrik, Subramanian, and Trebbi 2004; Acemoglu and Robinson 2012). While a large body of scholarship examined the relationship between these growth enhancing institutions such as democracy and economic growth (Przeworski 2000), world peace (Russett 1993), human rights (Mitchell and McCormick 1988), human development (Gerring et al. 2012), and almost every other policy imaginable, surprisingly little empirical research has addressed the relationship between the institutions related to gender equality and their relevance for the development process (Beer 2009). An underlying assumption of NIE literature is that the growth-enhancing institutions should be inclusive (Acemoglu and Robinson 2012). Based on this assumption, one can expect that institutions that promote gender equality can be relevant in promoting economic development in the long run.

While scarce, a number of studies have provided empirical evidence that improving women's access to resources and legal rights plays a key role in a wide-range of development outcomes, amongst other things, children's educational attainment, agricultural productivity, health conditions and corruption (e.g., Klasen 2002; Dollar and Gatti 1999). Klasen and his co-authors (e.g., Klasen 2002; Klasen and Lamanna 2009), Barro (1999), and recently Teiginer and Cuberes (2014) are among the few to study the consequences of gender equality for economic development at the macro level, using data available from the 1970s onwards. Similarly, a number of cross-national studies using current day data emphasize the relevance of improving the societal position of women for democratic development (e.g., Fish 2002; Inglehart et al. 2002). Recently, Wyndow, Li, and Mattes (2013) provided an empirical analysis of this link starting from the 1980s onwards. At the micro level, Duflo (2003) has shown that pensions received by women in South Africa had improved the anthropometric status (weight given height and height given age) of their grandchildren significantly. Menon, Rodgers, and Kennedy (2013) documented that the introduction of 1993 Land Reform in Vietnam, which granted egalitarian land use right to both husbands and wives, had several beneficial consequences as a result of the increased female agency, including increased household expenditure, women's self-employment, and lower household vulnerability to poverty. Lindert (2004) points out that women gaining the right to vote in the early twentieth century seemed to be accompanied by a jump in social transfers and the introduction of progressive income taxes in the United States.

However, the evidence on the consequences of gender equality for development is mostly either based on recent cross-sectional data or provides a long-term perspective on this link only for a limited number of cases. Moreover, they mostly consider only the relevance of women's socio-economic status for development captured by the gender gap in education and labour force participation, whereas the position of women in other fields such as in the household could matter just as much for development. The evidence on the institutional structure that discriminate against women and their relevance in development process is even scarcer. Taking these shortcomings in the literature into account, the next section introduces how the current study contributes to this debate on gender equality and development.

1.2. Objectives and Contribution of the Dissertation

The main objective of this dissertation is to add a historical perspective to the discussion on gender equality and development. However, before moving on to the discussion on why such a long-term view on this link is necessary; first, what is meant by development should be made clearer. As mentioned earlier, according to Sen (1999), for instance, the freedoms women enjoy are an integral part of development process. The interest here, though, does not only concern gender equality which can be seen as a development outcome in itself, but also to provide evidence on whether improving the position of women can be smart economics, thus contribute to other development outcomes. Here attention has been given to the democratic and economic development of societies. Democratic development refers to a change in the form of governance in which societies move from an authoritarian regime to a

democratic one.[14] Economic development refers to the changes in income levels of societies and is simply captured in terms of GDP per capita of societies. This allows for an empirical study of how improving the position of women can matter for democratic and economic development of societies in the long run.

The first section of this dissertation will aim to contribute to the literature by focusing on the drivers of gender equality in the long run. A better understanding of the historical conditions that have created gender inequalities that persist to this day can provide better insight into how to change these conditions. Gender relations and roles are not phenomena that change overnight. Rather, gender inequality has historical roots. The long-term gender differences may refer to the role of biology. A variety of theories attribute the origins of gender inequalities to biological differences between the sexes. Three biological differences have received the most attention: (1) reproduction, (2) physical capacity (strength, stamina), or (3) a genetic or hormonal predisposition toward violence or domination.[15] However, as evident from the discussion above, gender disparities differ both over time and in different contexts. Therefore, while biology may have played a role in the emergence of traditional gender roles, this study builds upon the assumption that it is the historical social context that determines the extent to which women face discrimination (Rhode 1996).

One author who attributes an important role to the historical context is Katherine Lynch (2011). She concludes that the fact that Western Europe has not seen noticeable levels of "missing women" since the 16th century can be ascribed to its family structures, opportunities for paid labour and elements of Christianity that had long been present in the European context. This stands in sharp contrast to both the historical and the present-day experience of countries such as India and China. Goody (1976) reports that between 1200 and 1800 in European societies, property was largely transmitted both to men and women. Another example is that of the European Marriage Pattern (EMP),[16] a demographic system involving late marriage ages for women, high proportions of female celibacy, and a nuclear household structure, which emerged in the late Middle Ages. The key characteristic of this European marriage pattern was that women had an equal say in the marriage decision and were involved in the household decision-making process on an equal footing with their husbands (De Moor and van Zanden 2010).

Different hypotheses have been proposed to explain the deep roots of gender inequality. For instance, Stark (1996) argues that in Roman times, Christians allowed women to hold positions within the Church, improved the treatment of widows, and extended women's rights to inherit and hold property (see also Goody 1976; Edlund and Lagerlöf 2005). Ahmed (1993) suggests that the subordination of women in the Middle East was institutionalized together with the rise of urban societies and a centralized state structure, which took place before the introduction of Islam to the region. Alesina, Giuliano, and Nunn (2013) find that the descendants of societies that traditionally practiced plough agriculture

[14] For an elaborate definition of democracy, please refer to Chapter 5.
[15] See the unpublished manuscript by R.M. Jackson from http://www.nyu.edu/classes/jackson/future.of.gender/Readings/DownSoLong--Persistence&Origins.pdf
[16] As devised by Hajnal (1965)

today have less equal gender norms, measured using reported gender-role attitudes and female participation in the workplace, politics, and entrepreneurial activities. The authors argue that some agricultural practices such as the plough, required more upper body strength compared to shifting cultivation in which the usage of a hoe or a digging stick was more common. Therefore, in societies where the plough was used, women specialized in the household and men worked in the fields. This historical gendered division of labour is argued to have led to the belief that the natural place for women is within the home. Such long-run influences on underlying cultural traits may be reinforced by policies, laws, and institutions (Giuliano 2014). This dissertation will test the importance of historical legacies of societies in explaining their gender equality outcomes in the long run.

Moreover, one needs to study not only the historical legacies that determine gender inequalities but also the evolution of these inequalities over time. Women deserve attention as historic actors whose experiences were not always the same as men's. For instance, contrary to the expectation in the literature that industrialization would increase the living standards of women and would promote gender equality, a number of scholars have observed that the industrial revolution increased the dependence on male-wages and created a male breadwinner economy (Horrell and Humphries 1995). Others have highlighted the negative effects of women's employment in mines and mills during the period of industrialization in Britain (Hammond and Hammond 1917).[17] A long-term view on this link led to revisions of the economic development thesis as a promoter of gender equality.

Boserup (1970) has suggested a non-linear relationship between economic development and gender equality. She hypothesized that in early stages of economic development, female labour force participation would decline in the transition from an agricultural to an industrialized society. Gender equality would increase in later stages when countries mature into modern economies, fertility rates decline and female education rates increase. Goldin (1995: 62) explains this by observing that in agricultural societies, where a certain type of agriculture dominates (for example the production of poultry, dairy, rice, cotton, peanuts), women participate in the labour force to a great extent. As income rises either due to the market expansion or introduction of a new technology, the relative price of home-produced goods increases as well. As a result of this change, and because women's work is often implicitly bought by the family, women then retreat into the home. But as female education improves and the value of women's time in the labour market increases further relative to the price of goods, they move back into the paid labour force. She finds evidence for the presence of such a U-shaped link between economic development and women's labour force participation in the United States over the twentieth century and based on cross-national data from 1995. However, time-series evidence for countries other than the US is still scarce. Similar results to these for the United States have been found by Tilly and Scott (1987) for England and France, based on an investigation covering the time period from 1750 to present, and by Friesen, Baten, and Prayon (2012) for 14 Asian countries, using data on the gender gap in numeracy for the period between 1900 and 1960. Recent studies tested

[17] As cited in Horrell and Humphries (1995).

the U-shaped hypothesis in developing economies with time-series data as well, though the time period of these studies are typically much shorter, focusing on the last few decades. For instance, Verme (2014) found no evidence for the U-shaped link in the MENA region between 1990 and 2010. This dissertation will introduce a historical dataset of gender equality available at the global level to test this hypothesis on the relationship between economic development and gender equality over the long run. Moreover, the U-shaped relationship will be tested for other factors related to gender equality, including health, household, education and politics.

Several scholars have emphasized the continuing or rising vulnerability of women over the course of economic development due to institutional arrangements (such as patriarchal family structures, and discriminatory labour practices and property laws) that are relatively impervious to the process of economic growth (Forsythe, Korzeniewicz, and Durrant 2000). These institutions related to gender equality are shown to be slow changing, as they are reflective of the underlying culture in a society. Culture itself is a slow-changing institution due to the transmission of norms and values between generations (Branisa et al. 2009, 2013; Cerise and Francavilla 2012; Roland 2004). This dissertation will focus on family as it plays a primary role in the transmission of culture and behaviour between generations (Bisin and Verdier 2000, 2001) and therefore deserves attention as a crucial determinant of development, both in socio-economic and political terms. Family is also the most basic unit in a society where crucial decisions about life (marriage, children, migration etc.) and development (consumption, savings and investment in physical and human capital) are made (Carmichael, De Moor, and van Zanden 2011). Amartya Sen (1983) has long urged economists to seek a deeper understanding of the societal and economic implications of the fact that people make many decisions within the realms of the family. Another motivation to focus on family is that family institutions have been argued to be the central locus of women's disempowerment (Malhotra 2003). For instance, Alesina et al. (2013) observed that in World Values Survey, respondents from countries with strong family ties have significantly lower levels of female labour force participation and hold more traditional views on gender roles. The authors explain this by showing that strong family ties require a member of the family (typically the wife) to stay at home more to take care of the family organization; the role of women is therefore more "traditional".

This dissertation uses family systems as a way of studying the institutional arrangements that determine the position of women in the household over the long run. Family systems can be seen as "a set of beliefs and norms, common practices, and associated sanctions through which kinship and the rights and obligations of particular kin relationships are defined" (Mason 2001:160). They are regionally path dependent institutions defining the rules, norms and behavioural patterns for members of the family (Kok 2015). Todd (1985) provided a typology of family institutions available at a global level, which he referred to as family systems. A motivation to use Todd's classification is that it provides the most global insight not only on how the family is organized (Galasso and Profeta 2010) but also on the

norms and values reproduced within the family.[18] Moreover, Rijpma and Carmichael (2013) test the validity of Todd's classification of family systems and conclude that his data on family systems match reasonably well with data from Murdock's (1969) Ethnographic Atlas and the OECD's (2009) measure of gender inequality, the Social Institutions and Gender Index (SIGI). Most importantly, the underlying indicators of family systems, used by Todd, have been shown to be directly linked with the position of women in the household, in particular with their agency (Rijpma and Carmichael 2013, 2015; Carmichael 2015).

In a nutshell, agency can be defined as the capacity of individuals to take meaningful decisions as regards to their own lives. It refers to the possibility to make 'strategic life choices' (Sen 1999; Kabeer 1999; World Bank 2014). These life choices can be seen as critical decisions in the realms of education and work, mobility and residence, relationships and fertility, and so on (Kok 2015). While few studies have actually measured and studied agency; it still remains a slippery and underspecified theoretical concept (Hitlin and Elder 2007; Kristiansen 2014). Studies aiming to measure agency quantitatively have usually created a measure based on responses to questions asking women about their role in specific decisions ranging from household budget to children's education (Kabeer 1999). Therefore, current available measures of female agency do not allow for a comparison between countries and are usually captured at the individual level.

The aim here is not to engage in the debate concerning how agency should be defined and measured, but to find a way to test Sen's (1999) hypothesis that removing constraints on (female) agency will increase the potential for society to generate economic growth and improve its institutions. To do so, the current study follows a similar strategy to the one described in Kok (2015). In line with Kabeer (1999), Kok (2015) defines three constitutive components of agency, namely relative power or bargaining position, resources and planning capacity. He then discusses how each characteristic of family systems can increase or limit female agency. Family systems can stimulate or limit (female) agency in many ways, through socialization, through transmission of resources or support of the kin, distribution of power within couples, household, and family networks (Kok 2015). To study family systems related to female agency, inheritance practices, early marriage, co-residence, and polygamy are used as indicators, which have been shown to matter for female agency in the household and are also indicators for which sufficient information is available historically. An overview of the relevant family practices and the expected outcome regarding female agency is provided in table 1.1.

[18] An exception to the statement about the variation is Africa where variation is present only in the northern part and Southern tip of the continent (please see Map D.2 in the appendix).

Table 1.1. Overview of the hypothesized effects of family systems on female agency[19]

	Bargaining position	Resources		Planning capacity
		Property, income	Networks of support	
Matrilineal or bilateral descent	+	+	-/+	
Matrilineal or bilateral inheritance	+	+		+
Endogamy/kin proximity			-	+
Monogamous marriage	+			
Relatively late age at marriage		+	+	+
Nuclear household	+		+	

Source: Kok (2015:25)

Despite the fact that family behaviour and laws have undergone major transformations due to economic (e.g., industrialization) and institutional changes (i.e., introduction of family laws), family systems have been used to understand the long-term persistence in culture that shapes behaviour and are argued to resist socio-economic changes such as urbanisation (Kok 2010). Institutions like family systems are prime examples of *slow changing institutions* as they reflect the norms and values in a society (Roland 2004:109). Rijpma and Carmichael (2013, 2015) provide evidence of persistent traits of the family over the twentieth century as well. Studies looking at the behaviour of immigrants have shown this persistence as well (Guiso, Sapienza, and Zingales 2006). For example, Alesina and Giuliano (2010) show that the characteristics of family systems persist in economic behaviour (for instance female labour force participation) of second-generation immigrants in the United States.

However, these family institutions can be influenced by factors such as current governmental policies. For instance, by the 1980s a number of African, Eastern European, Central Asian and South American countries had shifted their legislation to require gender equal inheritance, linked to the adoption of the Convention on the Elimination of Discrimination Against Women, CEDAW, by the UN General Assembly in 1979. Religion is another factor that can play a role in shaping these family practices. For instance, Indonesia adopted an inegalitarian inheritance system due to the Islamisation of Indonesian law following independence. Confucianism strenghtens the patrilineal and patrilocal systems in place in China, Vietnam, and elsewhere (Jayachandran 2015). The study by Htun and Meldon (2011:2) highlight that many modern family laws tends to emphasize patriarchy, with the exception of socialist/communist law system.

Family systems are argued to have roots going back to the Middle Ages (Todd 1985; Galasso and Profeta 2010). A number of hypotheses have been suggested on the origins of family systems. For instance, family systems have been linked to the crop types, peasant

[19] Testing the effect of these family institutions on female agency is beyond the scope of this dissertation. For an empirical evidence on this link, please refer to Rijpma and Carmichael (2013, 2015).

community and the feudal nobility, which are argued to influence inheritance practices (Mitterauer 1992). Another view by Todd (2011) is that nuclear families are the original pattern found in hunter-gatherer societies, in which women had relatively strong bargaining position. The development of sedentary agriculture and of states had its effects on power balances within the family, resulting in a co-evolution of hierarchies at the level of the state and of the family. In regions (e.g., the Middle East (Fertile Crescent), North India, North China) where this co-evolution started earliest resulted in the rise of family systems in which the agency of women (and children) was severely constrained. In the margins, where agriculture and state hierarchies emerged much later, stem families (a 'compromise' between nuclear and community family patterns) and nuclear families developed or survived.[20]

According to Lagerlöf (2003), only a long-term perspective will allow a better understanding of the relationship between gender equality and economic development. He argues that economic and demographic development in Europe over the last couple of centuries is linked with long-term changes in gender equality. For instance, the European Marriage Pattern (EMP) has received scholarly attention as one of the key contributors to the economic success of north-western Europe in the late medieval and early modern period (Edlund and Lagerlöf 2006; De Moor and van Zanden 2010; Foreman-Peck 2011). A number of channels have been suggested as to why the EMP was relevant for the economic success of Europe: by increasing human capital investment, increasing savings, leading to fertility decline and sustaining beneficial cultural norms that are conducive to economic development, such as leaving the household once reaching to adulthood (De Moor and van Zanden 2010; Voigtländer and Voth 2013; Greif 2006). However, this debate concerns the pre-modern period before 1800 and is limited in geographical scope.

Taking into account these issues in the literature, this dissertation aims to answer *to what extent is there a relationship between family systems and gender equality on the one hand and democratic and economic development on the other hand in the long run?* To study the main research question, first measures that allow for a long-term perspective on gender equality are required. Therefore, a sub set of questions to be investigated concerns:

- *How can gender equality be measured in the long run?*
- *Has there been global progress toward gender equality over the last century?*
- *In which dimensions do gender inequalities continue to persist? Which countries are the best and the worst performers in gender equality in the long run?*

Using this long-term dataset on gender equality, the following questions will be studied:

- *Is economic development a sufficient explanation for the disparities in gender equality in the long run?*
- *To what extent do family systems related to female agency explain the cross-national differences in gender equality outcomes in the long run?*

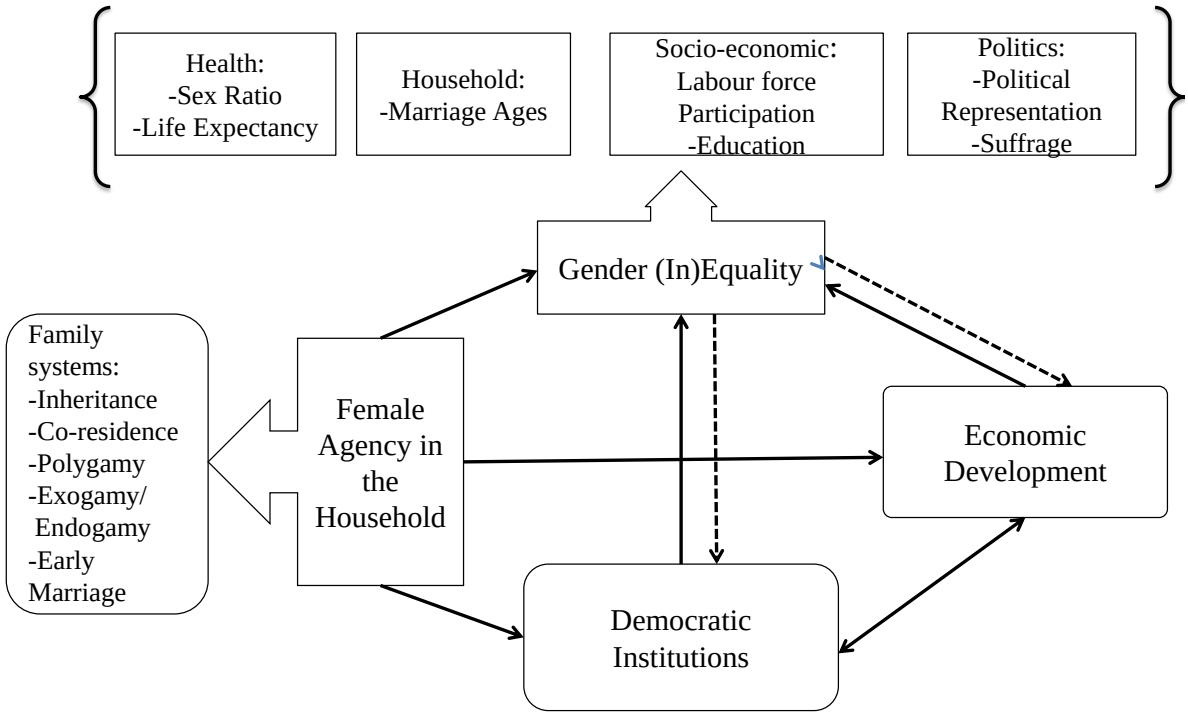
In the second part of the dissertation, the following questions will be investigated:

- *To what extent do family systems explain the cross-national gaps in democratic development in the long run?*

[20] As cited in Carmichael and van Zanden (2015:15)

- *Do differences in family systems related to female agency help to explain the diverging paths of democratic and economic development in the world economy over 1850 and 2000?*

Figure 1.2. Overview of the Links Explored in the Dissertation



The links explored in the dissertation are summarized in Figure 1.2. The literature discussed above highlights that women's empowerment and economic development are closely related: in one direction, development alone can play a major role in driving down inequality between men and women; in the other direction, empowering women may benefit development (Duflo 2012:1051). The investigation here will concern both directions of this relationship. However, to study the relevance of women's empowerment in the development process, the focus will be on the role of institutional structure related to female agency rather than the gender equality measures in democratic and economic development. The dashed lines in Figure 1.2 shows the theoretical links in the literature for which empirical evidence has been provided and that will not be directly invested in the current study. The solid lines represent the relationships this dissertation aims to provide evidence for. The large arrows on female agency and gender equality show the indicators used to measure these concepts. The first section of the dissertation will focus on the drivers of gender equality, including democratic and economic development as plausible explanatory factors, whereas the second section will study the consequences of institutions related to female agency for the development process.

1.3. Data Sources and Methodology

To study the research questions, aggregated data at the macro level from nations across all regions of the world is used, analysed using quantitative techniques. Since the project looks at the global patterns over a long period, quantitative analysis is a more feasible approach for the purpose here. A global dataset of countries capturing their progress in various indicators (i.e., in terms of gender equality, democracy and economic development together with a set of control variables) in the late nineteenth and the twentieth centuries has been collected from online sources. An important share of the data comes from CLIO-Infra.[21] The CLIO-Infra project provides a set of interconnected databases, containing worldwide data on social, economic, and institutional indicators for the past five centuries, with special attention to the past 200 years. These indicators allow research on the long-term development of worldwide economic growth and to test which factors are influential in determining the long-term development of countries. This data is supplemented by datasets used in previous studies, which are made available online. While in some chapters the data analysis includes information for up to 129 countries, this number is reduced in other chapters, as additional variables covering fewer countries are included. In-depth information on data sources and measures are provided in each chapter.

Next to an investigation at a global level, a case study on India is included to evaluate whether the findings from the macro level hold at the regional level. The motivation for this case study emerges from the fact that ensuring gender equality is one of the "most pressing" development challenges facing India, according to the United Nations' most senior representative in the country.[22] India is the most populous democracy in the world and perhaps the most stable democracy example among former colonies (Hasan 2010). When it comes to gender equality though, a contradictory picture emerges. Despite robust economic growth, women's labour force participation in India is among one of the lowest in the world (Ghani 2011).[23] Legal and judicial systems, as well as law enforcement mechanisms have failed to address the high incidence of violence against women. Moreover, large regional differences exist within India in terms of women's wellbeing. For instance, Dyson and Moore (1983) showed that states in the South were characterized by lower marital fertility, later age at marriage, and more equal sex ratios compared to the North. Therefore, an investigation of gender equality in India is highly relevant. Indian censuses, going back in time until 1881, are used to collect data on development and gender equality indicators at a state level. For the post-colonial period, data on male and female parliamentary and voting activity becomes available after 1951, to provide an indication of female political empowerment. This data is available from the reports published by the Election Commission of India (ECI).

[21] More information on the dataset and the variables included in the dataset can be found at www.clio-infra.eu.
[22] http://www.unmultimedia.org/radio/english/2014/06/gender-equality-one-of-most-pressing-development-challenges-facing-india/#.VOHbL7B4r5K
[23] http://www.voxeu.org/article/growth-incomplete-without-social-progress-india-s-development-paradox

One of the commonly faced challenges with historical data is missing information, especially when it comes to gender equality indicators. Therefore, a number of strategies have been employed to deal with the missing values to carry out an empirical analysis. In the first section of the dissertation, multiple imputation technique is used to estimate the missing values using a bootstrapping-based algorithm. Bootstrapping-based algorithm is a fast imputation model, which uses a combination of Imputation-Posterior (IP) and Expectation-Maximization (EM) algorithms (King et al. 2001).[24] Multiple imputation technique involves imputing *m* values for each missing item and creating *m* completed data sets. Across these completed data sets, the observed values are the same, but the missing values are filled in with different imputations to reflect uncertainty levels (King et al. 2001:3). The dataset used in Chapters 2 and 3 has been imputed five times whereas in Chapter 4, the dataset have been imputed ten times to get more precise imputations as this dataset is smaller in size. The multiple imputation technique has been shown to outperform other commonly used techniques in dealing with missing values such as dummy variable adjustment or mean imputation (Allison 2002). It also prevents "loss of valuable information at best and severe selection bias" (King et al. 2001: 49). Amelia II is used to predict the missing values, which can impute the missing values by taking into account the panel nature of the data (Honaker and King 2010). Ignoring the panel data structure of the data (years nested within countries) would result in imprecise imputations (van Buuren 2010). To get more precise imputations of the missing values of the variables of interest, which are the indicators on gender equality and development, auxiliary variables were included, namely: family systems religion, and colonial origin. An auxiliary variable is not imputed, but is instead employed in the imputation model to improve the estimation of the variables of interest that are missing (Lavrakas 2008).

Imputation of the missing values is a necessary step for Chapters 2, 3 and 4 as the large amount of missing information in gender equality indicators limits the possibilities for a long term overview in the composite index of gender equality and a multivariate regression analysis. For instance, in Chapter 3, without any imputation procedure, the number of observations available for the Historical Gender Equality Index is 106. This amount of data is too limited to draw conclusions on the drivers of gender equality. Besides multiple imputation technique, the robustness of the findings in these chapters have been checked by using data based on interpolation methods and excluding the missing values from the analysis completely.

The coverage of the data in the second part of the dissertation is substantially better compared to the first section, as the last two chapters do not employ the measures on gender equality but instead focus on the indicators of family systems related to female agency. Therefore, in the last two chapters, the missing values were simply excluded from the analysis. In Chapter 5, as the dependent variable is the Polity IV index which is used to capture the democratic development of societies and has been shown to be more persistent over time (Barro 1999), the analysis is based on 10-year interval data. In the dissertation,

[24] For further information on the imputation procedure, please refer to King et al. (2001).

cross-sectional and longitudinal data were analysed using a range of statistical techniques. The relevant estimation method for each chapter is briefly presented in the following section.

Before moving to the section on the outline of the dissertation, an important issue for the empirical analysis, faced in this research, should be highlighted. This issue concerns the endogeneity problem, which arises due to omitted variable bias and reverse causality between family systems, gender equality and development (Kennedy 2008). Instrumental variables approach is used and various robustness checks have been carried out to deal with these issues empirically. Moreover, information from previous literature on the origins of family systems has been employed to place the reverse causality issue between family systems and development outcomes into perspective and support the claims from the empirical findings. However, this issue should be kept in mind while interpreting the results presented in this dissertation.

1.4. The Content of the Dissertation

The theoretical links highlighted in Figure 1.2 will be studied in the following structure:

Chapter 2 introduces macro level data on gender equality available for up to 129 countries starting from the beginning of the twentieth century and a composite index of gender equality, called the Historical Gender Equality Index (HGEI) available from 1950 onwards. Composite indices provide a straightforward way to evaluate countries' performances in terms of gender equality. The United Nations Development Programme (UNDP)'s Gender-Inequality Index (GII) and the World Economic Forum's Global Gender Gap (GGG) index are some of the well-known composite indices in the literature but all of them only cover the period after 1995. This chapter provides a global overview of how the position of women has changed compared to men over time and implications of this change for achieving more gender equal societies.

Chapter 3 provides insight into the explanations of the global patterns in gender equality in the long run. To answer this question, this chapter tests whether historical legacies are as important as economic development in explaining the global and historical disparities in gender equality. Macro level data available for 117 countries starting from the 1950s onwards has been analysed using an Ordinary Least Squares (OLS) regression analysis.

Chapter 4 tests the theories on the drivers of gender equality at the regional level by focusing on state level data from India. This chapter provides an overview of the regional patterns in different dimensions of women's empowerment and gender inequality in the late nineteenth and twentieth centuries. It tests whether the explanations from Chapter 3 are relevant in explaining the state level differences in India. To do so, data from 16 major Indian states available from the late nineteenth century has been analysed using an Ordinary Least Squares (OLS) estimation technique.

The second part of the dissertation focuses on the consequences of family institutions

related to female agency for development. In Chapter 5, not only the relevance of family system related to female agency for democratic development is investigated, but also further classifications of Todd's (1985) family systems are considered. It aims to answer the question to what extent do family systems play a role in explaining the long-term global gaps in democratic development? In *Explanation of Ideology*, Todd (1985) hypothesizes links between family systems and the political systems of societies at a global level. Chapter 5 tests his hypothesis by using a global dataset including information on 127 countries between 1849 and 2009, which is analysed by random effects panel data estimation. It also tests the role of family systems that shape female agency in the household as a historical institution in explaining why some countries have enduring democracy while others remained authoritarian despite the repeated global waves of democratization.

Chapter 6 provides an empirical test of the Sen-hypothesis historically, with data covering the last century and a half at the global level. It provides insight into the channels through which female agency matters for economic development. The main hypothesis tested in this chapter is that in societies where female agency is lower, the level of fertility would be higher and human capital formation and quality of democratic institutions would be lower. As a result, in societies where female agency is lower, the level of economic development would also be lower. To test this hypothesis, multilevel and structural equation estimation techniques are employed to analyse a dataset available for 92 countries between 1863 and 2003. The results and the implications of the dissertation are summarized and discussed in the last chapter.

PART I

THE DRIVERS OF GENDER EQUALITY IN THE LONG RUN

CHAPTER 2: GENDER EQUALITY IN A HISTORICAL PERSPECTIVE

with Sarah Carmichael and Auke Rijpma[25]

2.1. Introduction

"I do not wish them [women] to have power over men; but over themselves."
— Mary Wollstonecraft, *A Vindication of the Rights of Woman*

In 1792 Mary Wollstonecraft set out what she saw as the principles for emancipation of women: education of girls on the same footing as boys, an end to prejudice against women, and that women should be evaluated on their own merits rather than the achievements of their partners. As highlighted in the introduction, the past 200 years has seen marked improvements in these respects[26] as well as many that Wollstonecraft could never have foreseen. However, for all the progress that has been made, the elimination of discrimination against women is not yet fully achieved. Compared to men, women are often to do more of the domestic duties such as child-rearing, do lower status jobs, more involved in informal sector, less likely to be entrepreneurs, participate less in the political decision making process, paid less, more likely to experience violence and so on (OECD 2013, 2015).

In order to better understand where and how gender inequalities emerge and persist, it

[25] Parts of this chapter have been published in Jan Luiten van Zanden, Joerg Baten, Marco Mira d'Ercole, Auke Rijpma, Conal Smith &Marcel Timmer (Eds.), *How Was Life? Global Well-being since 1820* (pp. 217-248), OECD Publishing; in Joerg Baten (Eds.) *A History of the Global Economy: From 1500 to the Present*, Cambridge: University Press, and is under consideration for publication in *Feminist Economics* (revise and resubmit). Alterations have been made to the original text by the author.

[26] As discussed in the introduction, women have gained many legal rights, such as now near universal female suffrage, and the implementation of legislation in many countries to ensure equal inheritance for sons and daughters. Girls around the world have achieved vastly increased educational attainment both in absolute terms and relative to their male compatriots, and women everywhere can now expect to outlive men (World Bank 2011).

is necessary to find ways to measure gender inequalities over time. This chapter therefore seeks to address three interrelated questions. First, how can we measure gender inequality in a historical perspective and, second, using these measures, what trends do we observe in gender equality in the world economy over the last century? Lastly, to what extent does a relationship exist between gender equality and economic development in the long run? These questions are addressed by analysing a wide range of indicators of gender equality in the twentieth century, based upon indicators used in currently available gender equality indices.[27] Moreover, this chapter introduces a composite index of gender equality covering 129 countries between 1950 and 2003. This index evaluates women's position compared to men in four dimensions (socio-economic, health, household and politics).[28]

Even though the empowerment of women and closing the gap between the two genders have been widely acknowledged as important development objectives, finding "methods for systematically measuring and tracking changes in levels of gender equality" is not straightforward (Malhotra 2003). There have been numerous efforts by researchers and international bodies to develop accurate measures of gender equality. Because gender inequality is a multifaceted concept, measuring it is often done by considering multiple indicators. Looking at single indicators would show that while a country like China has achieved parity between the sexes in educational attainment, the ratio of girls to boys indicates a strong son-preference, and the related practice of sex-selective abortion. However, no single measure can hope to capture the wide variety of dimensions in which gender inequality can manifest itself.

To compare the overall performance of countries in achieving gender equality, it is also necessary to have a measure that can summarize multiple indicators. Combining data into a composite index means that different dimensions can be brought together into a single standardised value. These sorts of measures allow for insights into overall gender inequality at a national level (World Bank 2014). Therefore, the use of composite indicators has proved an attractive proposition, resulting in the development of a number of composite measures. The UNDP's Gender-related Development Index (GDI) and its replacement, the Gender Inequality Index (GII), are perhaps the best-known examples.[29] Most of these measures have aspects and variables in common, though some focus more on gender inequalities in outcomes (such as gender disparities in human capital), and some focus more on the social institutions underlying gender inequality.[30] One example of an index that focuses on the institutions underlying gender inequality is the Social Institutions and Gender Index (SIGI) compiled by the OECD's Development Centre (Branisa et al. 2009). This index looks at a wide range of institutional measures that capture different aspects of gender inequality, such as whether

[27] See Table A.1 for an overview of the available indices in the literature

[28] This justifies the corrections we make for life expectancy differences between men and women and sex ratios, which in part stems from biological differences.

[29] Others include the World Economic Forum's Global Gender Gap index, Dijkstra and Hammer's (2000) Relative Status of Women index, the African Gender Status Index, Social Watch's Gender Equality Index and the Women's Economic Opportunity Index produced by the Economist's Intelligence Unit. See Appendix A.1 for more information on the dimensions and variables in current composite indicators of gender equality.

[30] See Table A.2 in the appendix for an overview of the shared dimensions of gender equality indices.

women have the same rights of legal guardianship of their children during marriage, women's legal protection from rape, and women's legal access to land.

However, despite this proliferation of conceptualisations and measures, most studies are limited to the contemporary time period. None of the available indices start before 1995, meaning we lack the long-term perspective crucial for understanding progress towards gender equality. For instance, these indices would miss the gains made by women in terms of life expectancy in the period since the 1980s, as everywhere in the world women now live longer than men. Major improvements in human capital formation and labour force participation can only be observed in the long run (Dorius and Firebaugh 2010). Similarly, one can see the impact of China's one-child policy on *missing girls* only if the evolution of sex ratios are also analysed for the period before 1980 (World Bank 2011). In sum, the causes of gender equality and the prospects for improvement can be understood only by means of long-term, comparative analysis. This chapter aims to take a first step towards that goal. Though constrained by issues of data availability, we build on the ideas of the various gender indices available to choose variables that capture various aspects of gender inequality over time.

The chapter proceeds as follows: the next section discusses the concepts related to gender equality and the variables that are used to capture different dimensions of gender equality. Section 2.3 provides information on how the historical composite gender equality index is constructed and the limitations of the data. Section 2.4 then provides an overview of the long-term trends both in the single dimensions of gender equality and in the composite historical gender equality index. 2.5 provides a first look at whether a long term relationship exist between gender equality and economic development both by presenting graphs of the changes in correlations over time and by showing scatterplots of GDP per capita against the various indicators.

2.2. Description of the Concepts and Data used to study Gender Equality in the Long run

Description of the concepts used

Gender inequality manifests itself in many dimensions of daily life (from domestic violence in the household to unequal wage practices in the workplace, etc.) and results in unequal opportunities for participation in political and economic decision-making for men versus women (OECD 2013). Furthermore, discrimination can take place throughout a woman's life cycle, from birth (resulting from sex-selective abortions, such as in the case of China) to access to education (for instance in school enrolment rates) and continuing through the rest of their life course (e.g. labour force participation and life expectancy) (OECD 2013). For this reason, a range of indicators are selected that capture gender inequality at different stages of the life cycle. However, in choosing indicators of gender inequality, the analysis in this chapter is also constrained by the availability of historical data.

Despite constraints in data availability, there are theoretical and methodological

criteria behind the choice of the gender equality variables employed. First, the focus is on internationally comparable measures since the aim is to produce a global picture of gender inequality.[31] We follow an approach similar to that of Nussbaum (1995, 2000, 2003) who defines a list of capabilities that she defends as universally valid.[32] Second, the chapter aims to give an indication of gender disparities that result from institutional, cultural and social influences (OECD 2013). Branisa et al. (2013), for example, attribute cross-national differences in female schooling largely to the institutional structures affecting gender equality, in particular whether women can inherit. Another institutional indicator related to gender equality for which data is available is suffrage. If women have the right to vote, they should theoretically be able to defend their interests through elections. Beer (2004) finds that female suffrage significantly reduces the gender gaps in life expectancy and labour force participation. Third, the chapter focuses on measures that are available over long time periods, as the intent is to capture the progress that countries have made towards gender equality. However, fertility, which is a commonly used measure in composite gender equality measures (see, for example, the UNDP's Gender Inequality Index), is excluded as it provides only an indirect indication of women's position. In doing this, the chapter follows, amongst others, Donno and Russet (2004: 588) who argue that although low fertility may be indicative of the degree of female reproductive rights, it may also "reflect coercive population policies enforced on women".

Keeping these issues in mind, gender disparities are analysed along four dimensions, namely health, household, socio-economic and politics.

Health

First, there is the very basic issue of women's health. Women's very existence may be threatened by sex-selective abortions and neglect in medical care. More generally, whether women have the same opportunities as men to live a long and healthy life is of fundamental importance to equality and well-being (Sen 1999). The capability of life and physical health has two dimensions: being able to be born, and once born, being able to live a life of normal length in good health (Robeyns 2003). Sex ratios for different age groups give us an indication of the first dimension related to health. While there are no indications of gender bias in the chances of being born in Western societies, neither historically or today,[33] sex selective abortion and infanticide has led to millions of "missing girls" in societies (such as China or India) where son preference is strongly prevalent.

Gender differences in life expectancy at birth is another dimension where important changes took place over the course of the twentieth century (World Bank 2011). Although currently women outlive men, historically women had lower life expectancy (see the discussion below). This indicates that life expectancy is a historically relevant measure of

[31] One issue with internationally comparable indicators is that they have been criticized for not providing information on the socio-cultural environment, including culture and embedded social relationships (Malhotra, Schuler and Boender, 2002; Bartlett, 2004; Oxaal and Baden, 1997; Ibrahim and Alkire, 2007).
[32] See a critique of this approach in Robeyns (2003)
[33] See Lynch (2011) for an explanation

gender equality, which needs to be included to understand the progress that has been made in terms of gender differences in health.[34]

Autonomy within the household

Generally speaking, the household (with special reference to the married couple at the head of the household) is where many important decisions regarding education, marriage, and labour force participation relating to women's position are made (Klasen 1998: 437). Interfamilial relations are argued to play a central role in women's disempowerment (Malhotra 2003). Gender equality in the household is therefore important for women and children's wellbeing as well as their economic activities. This capability involves raising children and taking care of other dependents, especially the elderly, and it is highly gendered: women do more nonmarket care for children as well as for the frail, the elderly, and the sick (Robeyns 2003).

For this reason, the second field considered is the marital position of women. Child brides are, for instance, the most extreme example of limited female agency in the household. The World Bank (2014: xviii) observes that almost one in five girls in developing countries becomes pregnant before her 18th birthday. Complications during pregnancy and childbirth are the second most important cause of death for 15-19 year-old girls globally.[35] The lifetime opportunity costs of teen pregnancy have been estimated to range from 1 per cent of annual gross domestic product in China to as much as 30 per cent in Uganda, measured solely by lost income. Besides the high fertility rates, early marriage ages have other implications such as lowering life expectancy, and higher child and maternal mortality.

Socio-Economic Position

Third, the chapter looks at socio-economic standing. Access to knowledge is in itself important (Sen 1999), but increasing female education is also relevant for increasing women's capacity to make meaningful life decisions and development in general (Klasen and Lamanna 2009). The World Bank's (2014:xxii) "Voice and Agency report" highlights that around the world, better educated women are often better able to make and implement decisions and choices, even where gender norms are restrictive. In South Asia and the Middle East and North Africa, women with more education are less likely to have to ask their husband's or family's permission to seek medical care. Even when girls and boys have equal access to formal education, gendered social norms and traditions can make it more difficult for girls to acquire knowledge and obtain degrees. For instance, some parents might think a good job is more important for men than for women, and a good education can help young men secure better jobs (Robeyns 2003). Even in Western industrialized countries, where gender differences in education at the macro level have disappeared, young women are still less likely to choose Science, Technology, Engineering, or Mathematics (STEM) subjects as a field of study at the tertiary level. This later translates into occupational segregation (OECD,

[34] Robeyns (2003) argues that as in the case of the former USSR, life expectancy is still a relevant dimension for current day gender equality indices, as we can try to intervene so as to expand men's capability of life. A further discussion on gender differences in life expectancy is provided in section three.

[35] http://www.who.int/mediacentre/factsheets/fs364/en/

2013). Historically speaking, these gender differences were even more pronounced. Thus education is a relevant dimension to include in our index.

Next to education, employment is used as an additional indicator of women's socio-economic position because the income it generates gives women the ability to live their lives independently from men and strengthens their bargaining position in the household by strengthening their options beyond marriage and childbearing (Gray 1998; Sen 1990). This aspect is closely linked to the dimension of material resources. For example, Goldin (2014) attributes a major role to the employment of women in explaining the converging gender roles of men and women, which she describes as among the grandest advances in society and the economy in the last century.[36] The World Bank (2014) also argues that employment is a crucial contributor to women's agency. They show that in Bangladesh, for example, women working outside the home, both in formal and informal employment are more likely to vote. Moreover, on average women who work in wage employment have more control over household resources (World Bank 2014). Developing-country evidence shows that poor women devote the largest share of the financial resources they control to family rather than personal needs (see Agarwal 1997 for a review).

Political Power

Fourth, political power and representation are key to ensuring that women's voices are heard in determining a country's development path. In most countries, men have more influence in political decision-making processes because they are overrepresented in public office. This is therefore an arena where there is much to be gained in terms of gender equality. Despite improvements over the course of the twentieth century with respect to women's rights in politics, women's participation in national parliaments remains one of the major challenges in achieving gender equality globally: not even one-quarter of the world's parliamentarians are women (see Figure 2.7 below). Moreover, empowering women in the field of politics is not only important for intrinsic reasons, but also has consequences for the overall wellbeing of a society, as well as for the performance of women in other dimensions. For instance in India, in states where female parliamentarians have a larger share of seats levels of educational and health investments were also higher (Clots-Figueras 2012).

Data and Methodology

This section describes the data sources for the variables capturing different dimensions of gender inequality. Most of the measures go back to the beginning of the twentieth century. The exceptions are the data on education and labour force participation, which are available

[36] Views vary on whether income and labour force participation are relevant indicators related to women's well-being. Klasen (2004) argues that it is not immediately clear that gender inequalities in labour force participation should necessarily be seen as relevant for a well-being assessment, as it might be the result of a consensual division of labour within the household. However, we think that labour force participation is an important aspect of gender equality, as it reflects what one can actually do with better education, etc. The example of the Middle East and North Africa is a case in point. In this region, although the educational level of women increased significantly from the 1980s onwards, this did not translate into higher labour force participation.

from 1950 onwards. Table 2.1 presents an overview of the variables used in this chapter or in the composite index, along with their source and summary statistics.

Table 2.1. Gender Equality Indicators, coverage and summary statistics

Dimension	Indicator	Range	Mean (sd)	Countries	Years	Source
Health	Life exp. ratio	0.87-1.66	1.08 (0.05)	130	1900-2003	UN (2013); lifetable.de, Human Mortality Database; Preston (1975)
	Sex ratio	0.83-1.23	0.97 (0.02)	130	1900-2003	Mitchell (2007); UN (2013)
Household	Marriage age ratio	0.61-0.98	0.85 (0.07)	129	1900-2003	Carmichael (2013)
	Inheritance	0-1	0.56 (0.5)	159	1920-2000	Murdock (1976); Hallward-Driemeier et al. (2013)
Socio-economic standing	Av. years schooling ratio	0.03-1.46	0.73 (0.26)	130	1950-2000	Barro and Lee (2013)
	Lab. force part. ratio	0.02-1.29	0.6 (0.24)	130	1945-2003	ILO (2010)
Political	Parliament seats ratio	0-0.95	0.06 (0.1)	130	1900-2003	Paxton et al. (2008), online electoral archives
	Suffrage	0-1	0.35 (0.48)	152	1900-2000	Paxton et al. (2008); Przeworski (2009)

Before turning to the variables for which there is annual data and are used in the construction of the composite index, first an overview is given of gender differences in institutional structure that can be compared globally throughout the twentieth century. To start with, global patterns of inheritance practices are examined. These indicate the extent to which women could inherit and are available at three time points; 1920, 1980 and 2000. Information on inheritance practices at the start of the twentieth century comes from George Murdock's *Ethnographic Atlas* (1969), updated and turned into country- level variables by Jutta Bolt (2012). Murdock's *Atlas* includes information on 1 267 societies for the period 1850-1950. It provides information on the gender distribution of inheritance of land and inheritance of movable property. Both are split into 8 possible classifications: missing data, absence of individual property rights, matrilineal (sisters' sons), other matrilineal (youngest brothers), children with daughters receiving less, children equally, other patrilineal, and patrilineal (sons). To compare these to contemporary data available from the World Bank's Fifty Years of Women's Legal Rights database (Hallward-Driemeier et al. 2013), a dichotomous scheme

at the country level was created from the *Etnographic Atlas* where 0 indicates inequality and 1 equality. Next, data from the World Bank's legal rights database for the years 1980 and 2000 is used to show changes over time in gendered inheritance practices.

As a second measure of the institutional environment related to gender equality, data on the year women were granted the right to vote in national elections is employed. This data gives the year when legislation was introduced that allowed women to vote for the first time, even if they were granted this right on a narrower basis than men. The data comes from Paxton et al. (2008). Based on this information, a dummy variable was created where a score of 1 was given for the years where women have the right to vote. This information is then mapped for 1913, 1950 and 2000 to give an idea of changes in female suffrage over the past century. In order to have a better overview of gender inequalities related to suffrage, data on male suffrage has been gathered from Przeworski (2009). This can be used to compare the gap in years between when men and women respectively got the vote.[37]

To capture the gender differences in health, two measures, namely life expectancy and sex ratios are used. The data on life expectancy at birth comes from UNWPP (United Nations World Population Prospects) data for the post- 1950 period and from lifetable.de, Human Mortality Database and Preston (1975) for the earlier period. The ratio of women's life expectancy to men's is then calculated.[38]

Next, to further capture the health dimension, Sen's (1992) concept of missing women is used. The ratio of women to men for the age category between 0 and 5 is calculated. The focus is on this age category rather than later stages of life for two reasons. The first is that three-fifths of missing women go missing during birth and infancy/childhood. Second, missing girls at birth reflects discrimination in the household, resulting from the combination of strong preferences for sons combined with declining fertility and the spread of technologies that allow parents to learn the sex of the child before birth. Missing girls/women at later stages of the life cycle reflect not only discriminatory practices against women, but also poor institutions, such as lack of healthcare or water and sanitation infrastructure (World Bank 2011). Thus, the measure used here specifically focuses on a sex-selection bias in the period of early infancy, where the bias is caused by abortion, infanticide, and the possibility that young girls are systematically less cared for in early childhood (Anderson and Ray 2010). The data comes from Mitchell (2007) and the UN (2013).

As an indication of the gender differences at the household level, the ratio of female Singulate Mean Age at Marriage (SMAM) to male SMAM is taken. The data comes from

[37] The year men were granted the right to vote is defined as the year where universal suffrage took place, meaning all men could vote regardless of their income, ethnicity or any restrictions, whereas such a distinction has not been made for women.

[38] The UN uses a correction of five years because there is some evidence to show that at a biological level women have a greater life expectancy. This difference was corrected for in the composite index, but not used while presenting the actual life expectancy figures in this chapter. However, Klasen (2004) argues that, "[a]s no society, past or present, treated the two sexes equally and the two sexes did not differ in survival-related behaviours, it is hard to separate biology from behaviour. Thus it is hard to say whether females 'should' enjoy a longevity advantage of 3, 4, or five years."

Carmichael (2011), and is based on various resources, amongst which statistics from the United Nations, World Bank, Demographic Healthy Surveys, Hajnal (1965), De Moor and van Zanden (2010) and national censuses. The SMAM statistic was developed by Hajnal (1965) and is a calculation of the average length of single life expressed in years among those who marry before age 50 (United Nations 2008). On average men marry younger women; however, where the age gap between spouses is low it is more likely that the partnership will be an equal, companionate one. A large difference in marriage ages is therefore likely to reflect an unequal position of spouses, and even arranged and child marriages (Caldwell et al. 1983).

Differences in the socio-economic position of men and women are highlighted by looking at educational attainment. The data on educational attainment comes from Barro and Lee (2010), as their dataset – to the best of our knowledge – has the highest level of global coverage on human capital broken down by gender. Data on average years of schooling for the adult male and female population aged over 25 is employed.[39] To highlight the educational differences between men and women, the ratio of women's to men's average years of schooling is used. Labour force participation is included as an additional measure in the composite index to capture the socio-economic dimension of women's position. The gender gap in labour force participation is calculated based on data on the size of the labour force from the International Labour Organization (ILO 2010). First, the ratio of women actively participating in the economy compared to the total female population is taken. The same exercise is carried out for males to calculate the percentage of male labour force participation. Eventually, the ratio of female labour force participation compared to men is taken to measure the gender inequality in labour force participation.[40]

To capture the political position of women, the percentage of women in parliaments is used as an indicator. The data on the percentage of women in parliament comes largely from the Women in Parliament 1945-2003 dataset (Paxton et al., 2008). This data was extended back until 1907 when the first woman MP was elected in Finland. Supplementary data was collected on all the countries that had women in parliament for the time period between 1907 and 1945 from various online electoral archives.[41] Using the data on the percentage of women in parliament, the equivalent male value can easily be derived, and these two results were expressed as a ratio of women to men.

While presenting different dimensions of gender inequality we focus on gender-based gaps in outcomes in individual countries rather than the actual levels of resources and

[39] More information on the data can be found at Barro-Lee Educational Attainment Dataset at http://www.barrolee.com. The Clio-Infra human capital hub aims to create a database on education split by gender on a global basis extending back to the early 19th century. However, this project is not yet complete, and we therefore could not include this data in the current study.

[40] Goldin (1995) finds that higher levels of female labour-force employment tend to exist at lower income levels when agriculture dominates. However, this does not necessarily imply that women are equal to men in terms of their socio-economic position (Eastin and Prakash 2013). Ideally, therefore, we would have data on non-agricultural labour force participation. However, at the moment the data does not allow us to make this distinction.

[41] The information on the data sources for each country will be made available in Clio-infra website, www.clio-infra.eu, in the near future. In the meanwhile, this information is available upon request.

opportunities available to women. This is so as to evaluate the gender differences independent of a country's level of development. However, a discussion of how women are performing in absolute terms is included when relevant, as it is important to understand whether gender gaps are closing over time due to improvements in women's position or the worsening of men's position. In Eastern Europe, for instance, research shows that mortality for men in the region increased which is often attributed to life style factors, largely related to tobacco and alcohol (McKee and Shkolnikov 2001; Rehm et. al. 2007).

2.3. Construction of the Historical Gender Equality Index

As mentioned earlier, it is also of interest to consider how these different dimensions of gender inequality come together and develop in tandem. This is done by using a composite index of gender equality, the Historical Gender Equality Index (HGEI), which has been constructed by using the variables described above (excluding the institutional indicators).

Although the overview in Table 2.1 is based on non-imputed data missing data have been imputed to maximize the index's coverage. Before we describe the construction of the Historical Gender Equality Index (referred to as HGEI from here onwards), first we must address how missing values in the variables underlying the HGEI were dealt with.

Table 2.2. Overview and Descriptive of the variables after imputation (129 countries, 1950-2003)[42]

Sub-index	Variable	Range	Mean(sd)	Observations
Political	Parliament seats ratio	0-0.95	0.1 (0.13)	5249
Health	Sex ratio	0.83-1	1 (0.02)	5249
	Life exp. ratio	0.8-1	0.97 (0.03)	5249
Socio-economic	Av. years schooling ratio	0.03-1	0.73 (0.25)	5249
	Lab. force part. ratio	0.02-1	0.56 (0.29)	5249
Household	Marriage age ratio	0.61-0.98	0.84 (0.08)	5221

As highlighted in the previous sections, all the indicators included in the composite index capture important aspects of gender equality. Thus, rather than excluding the indicators, a multiple imputation technique was used to improve coverage. This was done using Amelia II, which estimates the missing values using a bootstrapping-based algorithm (King et al. 2001). Prior to multiple imputation, countries that had no observation at all for any of the six measures we used to create the composite index were dropped, so that we had at least one observation for each variable for each country before the values were imputed. This selection left us with 129 countries with information on all the dimensions. Because the data coverage on the socio-economic indicators becomes substantially better after 1950, the HGEI is limited to the period between 1950 and 2003. Nonetheless, this represents a substantial improvement

[42] See Table A.3 in the appendix for the descriptive statistics for the underlying variables of the Historical Gender Equality Index before the imputation and information on the number of observations available before the imputation procedure.

over previous composite indices of gender equality. The data coverage and the descriptive statistics of the variables after the imputation are provided in Table 2.2 above.

We aim to keep the composite index as simple as possible. As argued by Permanyer (2010), sophisticated techniques like latent variable models can produce ‘‘sophisticated results’’ that are however difficult for researchers and policy makers to interpret. The primary interest lies in having a composite measure that is easily comparable over time and between countries. A Principal Component Analysis (PCA) has been carried out to evaluate whether the single indicators tap into one single component, in this case, gender equality. The eigenvalue for the first component was above 1 (eigenvalue= 2.15), justifying the construction of a single measure of gender equality. The scale has internal consistency with a Cronbach's alpha of 0.64, which indicates moderate reliability of the index.

In constructing the HGEI, the footsteps of Hausman et al. (2012) who created the Global Gender Gap index (GGG) have been followed as the measures used here, similar to GGG, are also in ratios. A number below one indicates inequality biased against women, one reflects perfect equality, and a value above one would show inequality biased against men. In most of our indicators, namely educational attainment, labour force participation, life expectancy and sex ratios, women outperform men in some of the countries in a given year. For the ease of interpretation of the composite index, as a second step we set an equality benchmark for all the variables to be 1, except for sex ratio where the equality benchmark is set to be 0.944.[43] We also truncate the ratios at the equality benchmark for each variable. This assigns the same score to a country that has reached parity between men and women and one where women have surpassed men. Thus, as in the Global Gender Gap index, the HGEI assesses how women are performing relative to men, but does not penalize countries for having a gender inequality in the direction of men. This is justified by the fact we want to develop a measure of how far women have progressed towards equality rather than looking at empowerment or gender inequality. As a third step, the weighted averages in four sub-indexes (namely, health, socio-economic status, household, and politics) were calculated to avoid a single measure driving the variation in the sub-index. However, as our choice of variables is dependent on the availability of the historical data, household and politics are captured by single components, so no weighting procedure was necessary there.[44] Following the strategy of the Global Gender Gap index, we normalize the variables in each sub-index by first determining what a 1 per cent point change would translate into in the standard deviations (calculated by dividing 0.01 by the standard deviation of each variable).[45] The weights this procedure leads to are presented in table 2.3.

[43] See Klasen and Wink (2002, 2003) for a discussion on the "missing girls".

[44] Originally the ratio of years women have had the right to vote compared to men was included in the politics sub-index. However, principal component analysis revealed that suffrage captured a different characteristic of the gender equality (i.e., related to the institutional structure and opportunities) than our measures (i.e., mostly capturing outcomes). Therefore, the indicator on suffrage ratio was excluded from the composite index.

[45] For instance, average years of schooling has a standard deviation of 0.26. This means a value of 0.01 was divided by 0.26, giving a value of 0.04. Then the same procedure was carried out for labour force participation, meaning 0.01 was divided by the standard deviation of 0.24, giving a value of 0.04 again. This means that

Finally, once the value of each sub-index is calculated, an arithmetic average of the four sub-indices was been taken and multiplied by 100. Bericat (2012) suggest that ideally the arithmetic mean of the four sub-indexes should be calculated by taking the exponential function of these values as the ratio used on the underlying variables is a multiplicative function. However, we chose for a simple arithmetic conversion, as we would like to have an easily interpretable index over time, both in terms of the composite index and for single components in the index. Thus, our measure ranges between 0 and 100 where zero is complete gender inequality and 100 an equal or better position for women. However, no country in our dataset achieves a score of 100. Between the period 1950 and 2003, Sweden is the most gender egalitarian country with an mean score of 77 for the entire period and achieves the highest score of 94 in 2002, while Niger has the lowest mean score of 51 and gets the lowest value of 40 on the index in 1951.

Table 2.3. Weights for the historical gender equality index

Sub-index	Variable	Weight
Health	Life exp. ratio	0.09
	Sex ratio	0.16
Household	Marriage age ratio	0.25
Socio-economic	Av. years schooling ratio	0.12
	Lab. force part. ratio	0.13
Political	Parliament seats ratio	0.25

We plot how the HGEI performs when compared with the current day indicators, namely Gender Inequality Index (GII), Global Gender Gap (GGG), Social institutions related to Gender Inequality (SIGI), and Women's Economic Opportunity Index (WEOI) (appendix A.3). Despite the difference in the choice of measures and methodology in construction of the indices, overall our composite measure corresponds well with the current day indices.

Data quality and shortcomings

Issues of comparability and data limitations are unavoidable in creating and compiling a series of historical measure on gender equality on a global scale. So while this study does provide an overview of how gender inequality has changed since the early twentieth century, it does have limitations. First of all, although trends in a number of indictors from the early twentieth century onwards can be described, data coverage improves significantly from 1950 onwards. The geographic coverage is also a challenge, since historical data on gender equality is scarce for countries outside of Western Europe and a handful of other large countries. Furthermore, only an overview can be given for institutions related to gender equality in terms of inheritance and voting rights. It is, therefore, not possible to capture many other aspects that matter for gender equality, such as violence against women or freedom of movement, as the

average years of schooling got a weight of 0.12 which has slightly a higher standard deviation than that of labour force participation

OECD (Branisa et al. 2009) does for the SIGI. It is not possible to provide a full overview of the economic well-being of women, as historical data on indicators such as female wages or access to high paying jobs, are scarce or not systematically available on a cross-national scale (Kabeer 1999).[46] It is also not possible to capture the unequal allocation of time use in the home, which is closely related to the well-being of women outside the household, linked as it is to political participation and labour force participation (Verba et al. 1997; van der Lippe et al. 2011). While these dimensions are sometimes used in the current day composite indices, the limitations on historical data make it impossible to include these dimensions in the Historical Gender Equality index. What is lost in comparability with present-day indices, however, is made up for in the long-term perspective.

Another issue that has to be acknowledged here is that the size of the gender disparities in various dimensions described above is likely to differ between groups within countries, depending on socio-demographic and economic status (e.g. age group, health status, country of origin, income, urban-rural).

A further concern that should be noted is the comparability of these measures in a cross-national setting, which requires cautious use of the data. For instance, for the marriage indicator, a comparison can be made only based on legally documented marriages. Definitions of marriage differ in different contexts, muddying the data somewhat. Similar issues occur when one wants to measure women's political participation. The only comparable data on a global scale are on the date of suffrage and the percentage of female seats in parliament, which provide a very limited overview of gender disparities in politics. Because data on conventional forms of political participation (such as voting trends) are not available due to secret ballot systems and the difficulty of capturing unconventional forms of political participation, such as protesting, quantitatively, it is very difficult to measure other forms of women's political participation. A similar issue arises when using data on education. Although the chapter reflects on the overall performance in terms of closing the gender gap in average years of education, this measure hides any gender imbalances related to the choice of academic field (OECD 2013). The labour force participation indicator does not provide insight into occupational segregation. Furthermore, to achieve the greatest coverage in terms of time period, different data sources had to be employed, which sometimes come at the cost of jumps in the estimates.

Focusing on gender inequalities rather than attainment comes at the cost of not being able to say whether gender gaps are closing over time due to the improving position of women or worsening position of men. This is because achieving the necessary conceptual coherence prevents combining absolute and relative measurements of attainment in the same index (Bericat 2012). This is especially a limitation of the composite index.

[46] There has been valuable work on women's wages in the historical context for a handful of cases such as England and the Netherlands (see for example Humphries 2013, Horrell and Humphries 1995; Schmidt and van Nederveen Meerkerk 2012). However these studies are limited to a small number of cases, which makes them unsuitable for global comparison, the main focus of our study.

2.4. Long-term Trends in Gender Equality

This section presents trends in gender equality, first for the individual variables, and then moving to the composite index. The two measures of institutional inequality (which are not included in the composite measure), inheritance and voting rights, are presented in Figure 2.1 and 2.2. These measures give an idea of how the institutional/legislative environment is biased against women and thus of women's legal standing historically.

The three panels presented in Figure 2.1 show gendered inheritance practices for immovables in 1920 (from the Murdock data), 1980 and 2000 (from the World Bank). It becomes clear from the first map that gender equal inheritance systems were far from the norm in the early twentieth century. Inheritance systems where daughters receive equal shares can be observed in some European countries, Brazil and in a handful of countries in Southern Africa and Southeast Asia. By the 1980s substantial changes have taken place. A number of African, Eastern European, Central Asian and South American countries have shifted their legislation to require gender equal inheritance (possibly linked to the adoption of the Convention on the Elimination of Discrimination Against Women, CEDAW, by the UN General Assembly in 1979). Meanwhile, the countries that had gender egalitarian inheritance laws in the early twentieth century have generally maintained them. Indonesia is an interesting exception to this rule. This is likely due to the Islamisation of Indonesian law following independence (Cammack and Feener 2012; Lukito 2013; Salim 2008). By 2000, it can be observed that the majority of the world's countries for which there is data had equal inheritance rights, although the Middle East and North Africa (MENA) region remains as a belt of unequal rights.

Turning to a different dimension of institutional arrangements, namely suffrage, the next three maps shown in Figure 2.2 present the geographical distribution of countries where women had the right to vote in 1913, 1950 and 2000. It becomes clear from this figure that the world has come a long way in providing equal rights to women in politics. In 1913, only New Zealand, Australia, Finland and Norway had granted women the vote. The 1950 map makes clear that the interim period has seen a substantial extension of suffrage to women, as countries where women have the vote now outnumber those where only men could vote. The two big jumps in extending the vote to women came after the First and Second World Wars (see Figure A.3 in the appendix). Regional disparities are also present. All the countries in Western Europe and its Offshoots, except Switzerland, had granted women the right to vote by 1950, whereas this right was denied in most of the countries in the MENA and Sub-Saharan Africa. At the turn of the century, Qatar, Kuwait and Saudi Arabia were the only countries still denying this right to women. 122 years after the first country granted women the vote, gender equality in this measure across the globe will be achieved, as women in Saudi Arabia will participate in the 2015 municipal elections for the first time.

Figure 2.1 Countries with gender equal inheritance, 1920, 1980, 2000

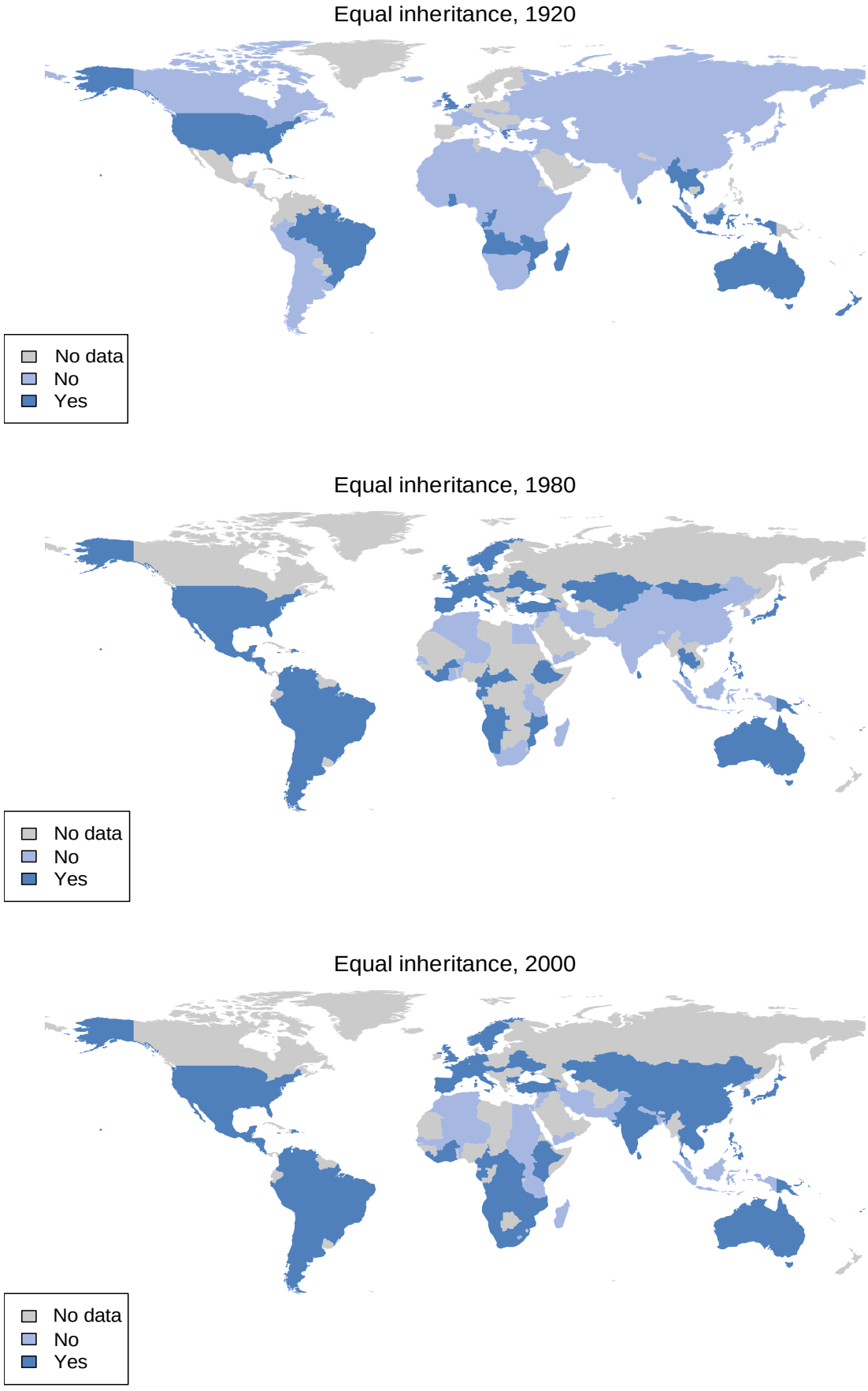
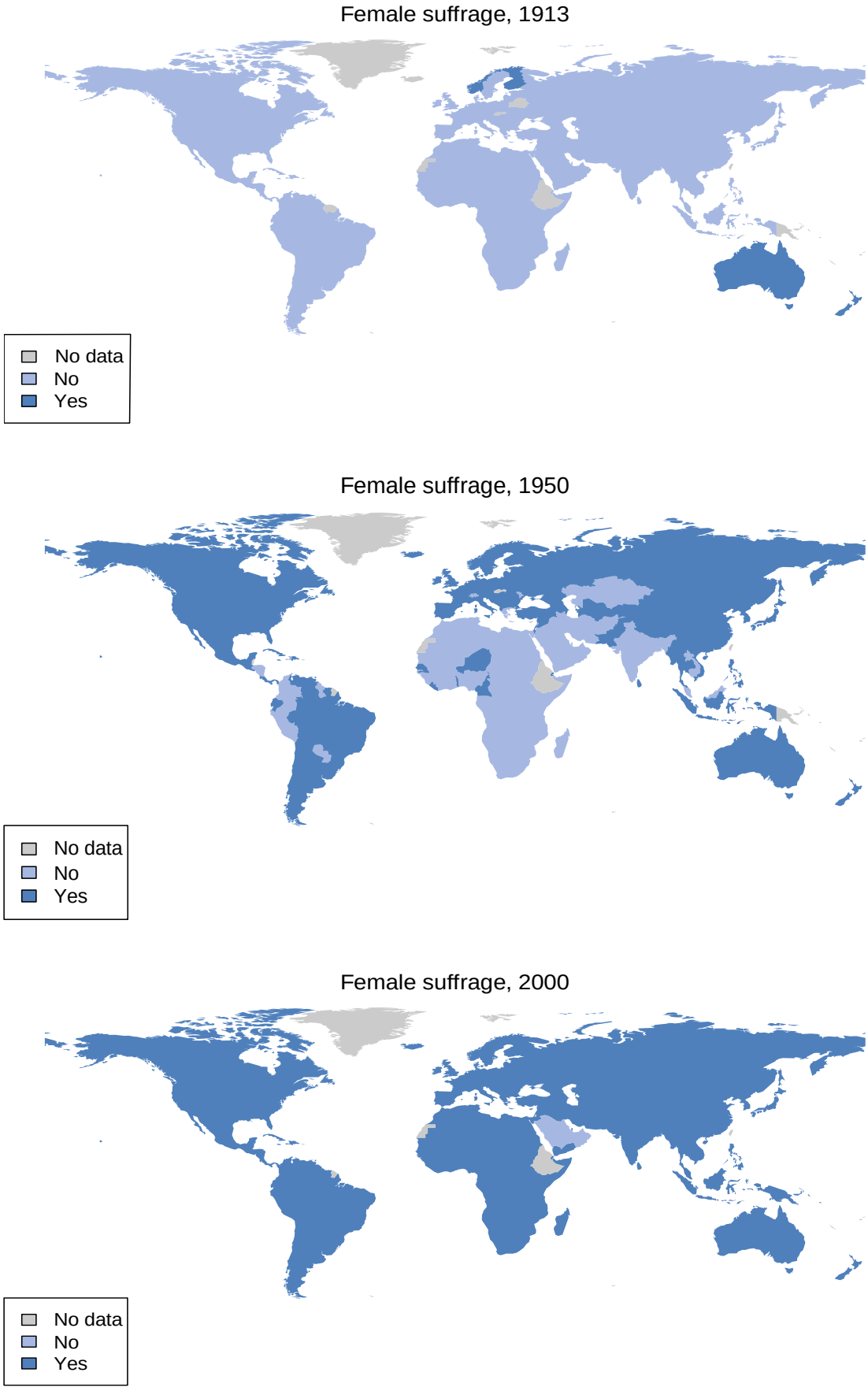


Figure 2.2. Countries with female suffrage



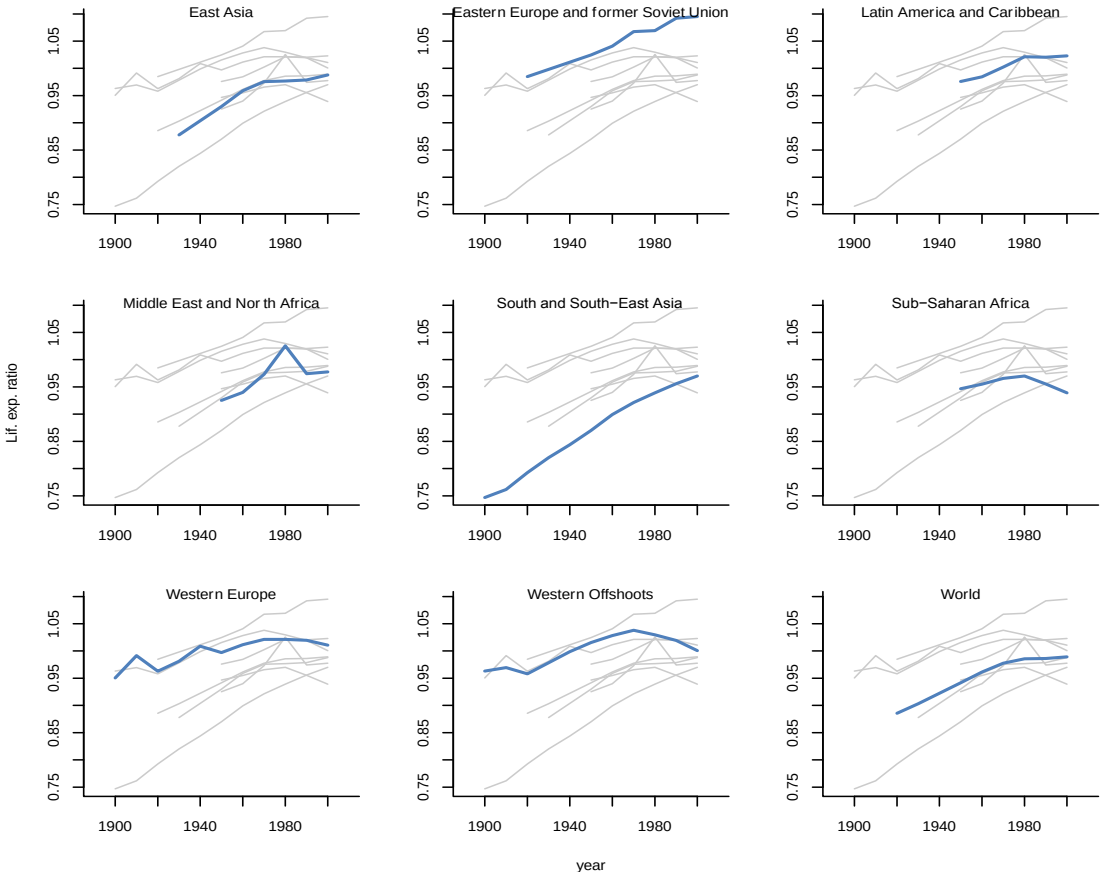
When considering the gap in years between when men and women received suffrage rights, the formal institutional structure and the overall inequality in a society are important explanatory factors. For instance, in Sub-Saharan Africa most of the post-colonial countries granted men and women the vote either simultaneously (for the first democratic elections) or in quick succession (such as in the case of Gambia);[47] whereas in Latin America and many Western European countries a large gap exists between when men and women got the vote (based on the data from Przeworski 2009). Some of these Western European countries (e.g. England) and its Offshoots (e.g. United States) had already established forms of liberal democracy in the early 19th century (Marshall et al. 2010). During most of the 19th century, however, countries that had a legislative election restricted the right to vote to adult men who owned property, had an income or paid taxes (Przeworski 2009; Sokoloff and Engerman 2000). Therefore, in these cases it is hard to argue that discrimination was primarily gender-specific. Yet the democratisation experience of some countries hints to the fact that gender-related institutions are also a relevant factor in explaining the gap in voting rights between men and women. For instance, in the case of Switzerland, although the first parliament was established in 1848 and universal suffrage to men was granted in 1879 (i.e. without any eligibility restrictions), women gained the right to vote only in 1971. Similar examples can be found in the MENA region where there is a large gap between when the extension of male and female suffrage occurred, as in the case of Saudi Arabia.

Turning now to the variables for which there are data that can be plotted over time, the next section presents trends across regions and the world in the ratios of the various indicators and highlights absolute outcomes where they are of interest.

There have been significant improvements in life expectancy in recent decades. Since 1960, countries such as Afghanistan and India, which were characterised by large gender differences in life expectancy, have almost closed the gap. Figure 2.3 shows that for Eastern Europe, Western Europe and the Western Offshoots, the ratio of women' to men' life expectancy has converged on a ratio in the 1.05–1.08 range. Some argue that the lower male life expectancy reflected in such a ratio is due to societal factors that encourage men to adopt riskier life styles, and hence reflects an inherent gender bias against men (Waldron 1967). However, the life expectancy difference is something that is found across mammal species, and there is evidence to show that it finds its origins in slower ageing by the female of the species and, at least in humans, to greater resistance to disease and lower mortality rates at all ages for women (Clutton- Brock and Isvaran 2007; Kalben 2000; and Austad 2006). The UNDP in its calculations of its gender equality indices assume that due to biological advantages women will live on average five years longer than men, and the Global Gender Gap report uses a ratio of 1.06 as its benchmark for equality. This makes sense if gender equality is seen as a situation where men and women achieve equal development outcomes insofar as there are no sound biological reasons for them not to do so (for more information see Anand and Sen 1993; Eskes and Haanen 2007; and Austad 2006).

[47]The exception is Namibia, where universal male suffrage was granted in 1926, while it was extended to women only in 1989, following independence.

Figure 2.3. Ratio of life expectancy at birth of women to men by region, 1900s-2000s

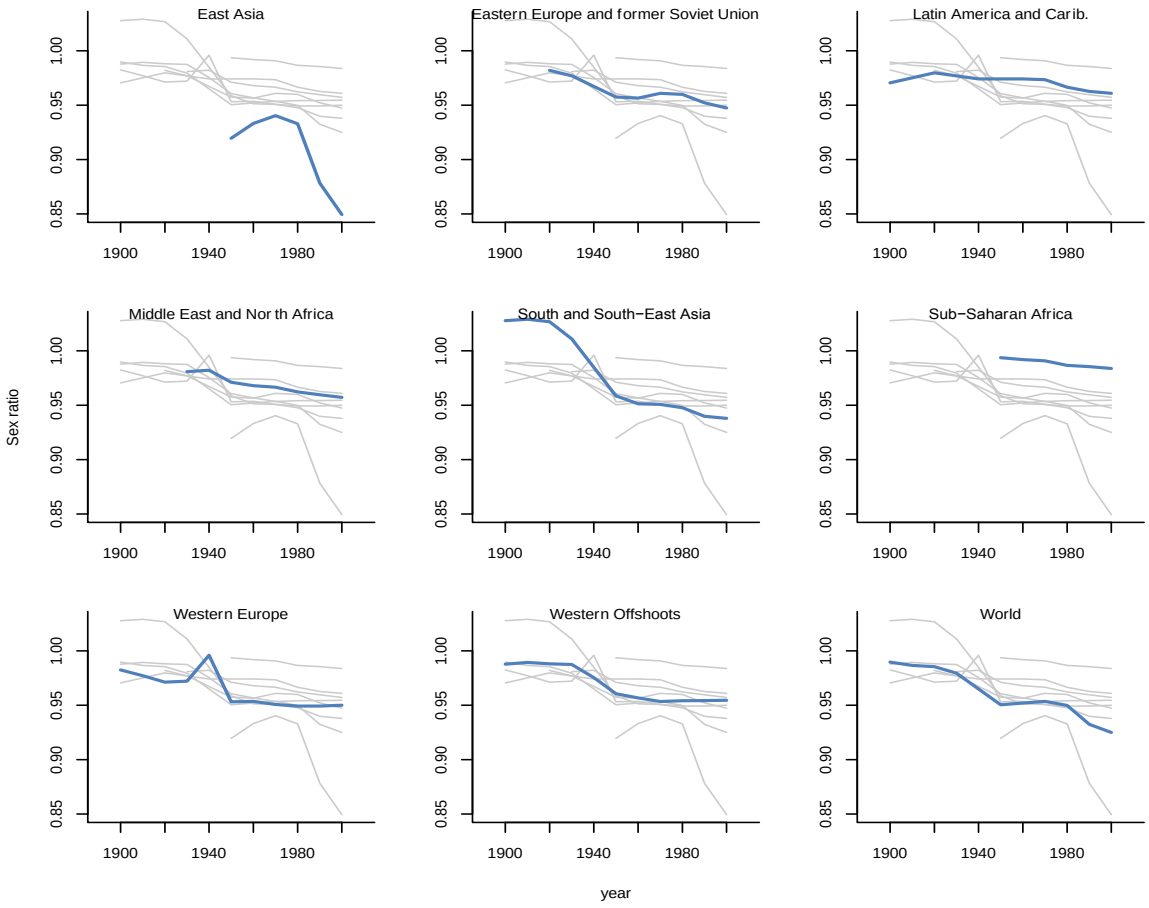


In the case of Eastern Europe this ratio has even been exceeded. Women in this region have made especially great progress in life expectancy, leading to one of those instances where gender inequality now even reflects a disadvantage for men, although male life expectancy has not fallen in this region. If we look at how the average life expectancy of Eastern European men (67.4 years in 2000) ranks against that of men in other regions of the world, only two regions score lower (Sub-Saharan Africa at 50.13 and South and Southeast Asia at 65.3). Western European men live almost ten years longer than their Eastern European counterparts, whereas the gap for women in the two regions is just under six years. This study would not be the first one to show that Eastern European men are at a heightened risk of mortality. The reasons for this are often attributed to life style factors, largely related to tobacco and alcohol consumption (McKee and Shkolnikov 2001, Rehm et al. 2007). All other regions (apart from Sub-Saharan Africa) have also made progress in closing the gap for this indicator, with South and Southeast Asia (SSEA) making the most marked progress. However the SSEA, the MENA and Sub-Saharan Africa have not managed to catch up with the rest of the world. Yet many of the world's regions can be observed to be converging towards a global average ratio of 1.05, reflecting a near-universal advantage of women in life expectancy.

When we look at sex ratios, a different picture emerges. For instance, the position of women in both India and China, when measured this way, has declined sharply. China saw its sex ratio fall rapidly after the introduction of the one-child policy in 1979, from 0.94 female infants for every male infant to 0.83 female infants for every male in 2003. In India, the

decline began in the 1930s, with a fall from 1.02 females to males at birth to 0.92 females to males in 2003. However, in other countries there was progress toward gender equality in terms of sex ratios. For instance, Brazil experienced progress starting from the 1870s, and Turkey started to close the gap in gender ratios from 1930 onwards. Both of these countries were initially below the world average.

Figure 2.4. Ratio of girls to boys aged 0-5 by region, 1900s-2000s

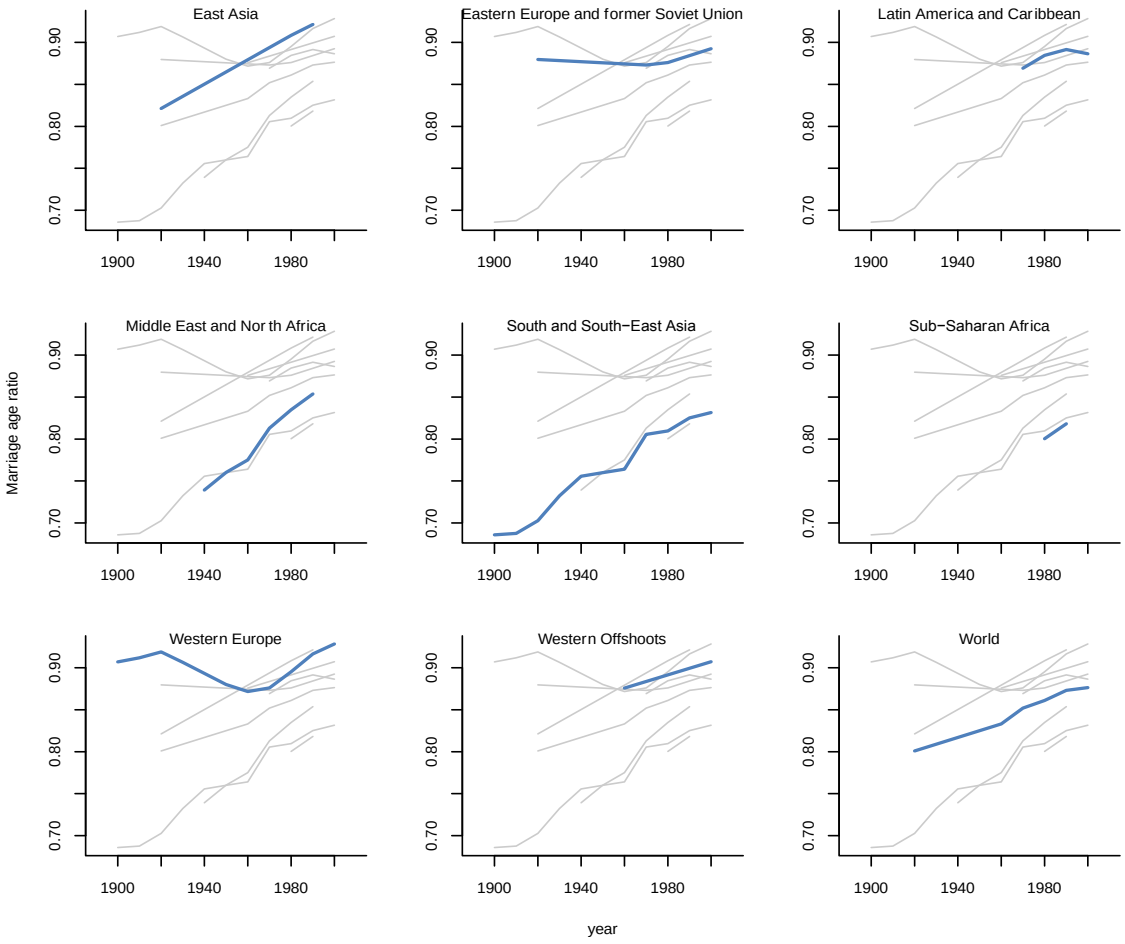


Turning to the regional graphs (Figure 2.4), two things become clear. First, in the modern literature it has been shown that at birth the ratio between females and males should be about 0.94. The data presented above is for infants aged 0-5. Therefore, presuming that the 0.94 ratio is a biological norm, what we see in the regional data is that in the early stages of development the higher sex ratios for children aged 0 to 5 illustrates that more boys than girls die in infancy. The arguments made as to why male-biased sex ratios at birth have emerged often revolve around higher male mortality in the early years of life. This aspect of the graphs is therefore not surprising, and the world average graph, to some extent, reflects the better survival chances of male infants thanks to modern medicine. However, the more important picture that emerges is the substantial worsening of sex ratios for women, reflected in the massive drops in East Asia, to a level where there are 85 girls for every 100 boys in the 0-5 age category, and the more moderate drop in South and Southeast Asia. This is driven by the behaviour in India and China described above.

Turning now to the ratio of marriage ages, there are large cross-national differences in the ages at which men and women marry on average. In the most recent observations, Gambia and Egypt have the largest gender differences in marriage ages, while the gap is smallest in Sweden and Japan. Moreover, although the cross-national differences seem to be the result of a long-term process, and progress towards gender equality has been limited, countries such as India, Japan, South Africa and Mexico have nevertheless made headway in this measure of equality.

The regional graphs (Figure 2.5) present a mixed picture. East Asia and the MENA have made headway in narrowing the age gap between husband and wife, while Western Europe experienced first a decline and then an increase for this ratio. We see that Sub-Saharan Africa continues to hang behind the other regions. Lastly, a large difference continues to exist between the various regions of the world. This observation coincides closely with the findings of Casterline et al. (1986), who demonstrate that spousal age gaps reflect underlying cultural preferences closely related to concepts of patriarchy, which likely explain the persistent gaps. At the same time marriage ages themselves are sensitive to economic developments and therefore fluctuate over time.

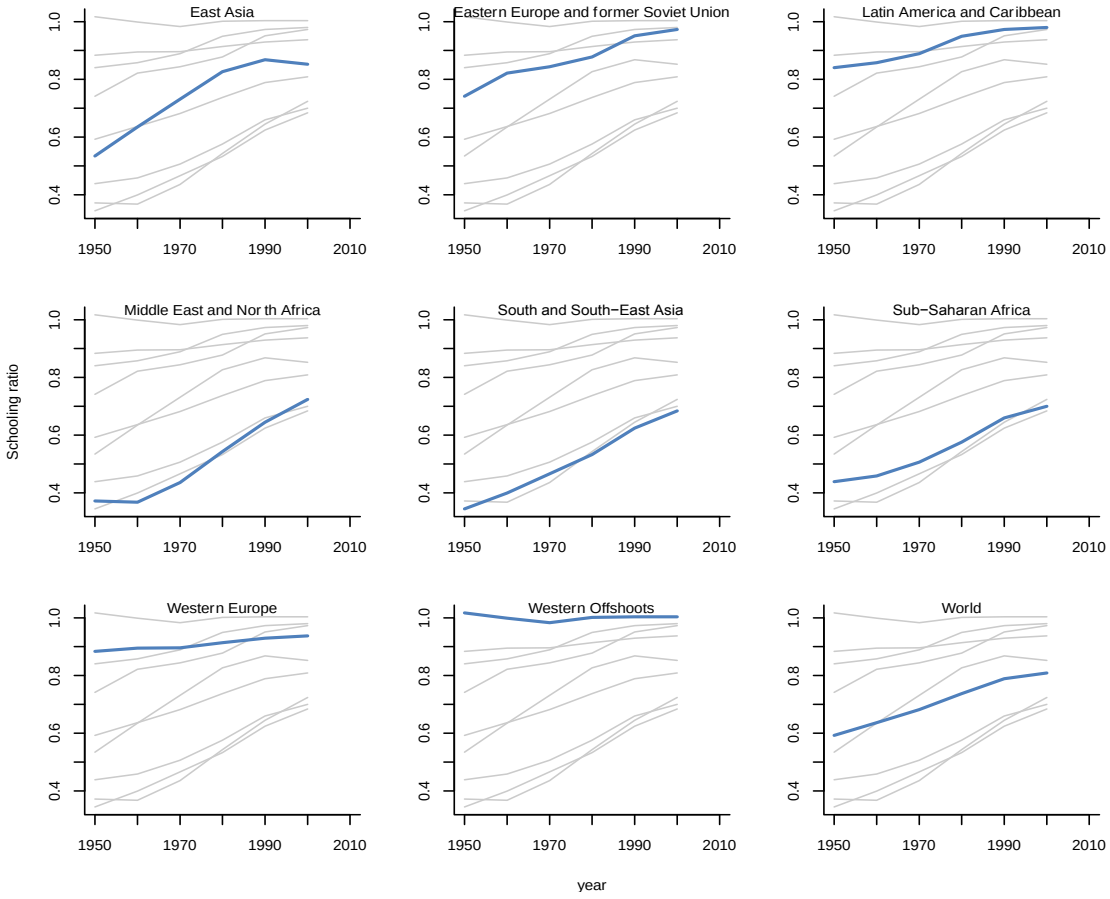
Figure 2.5. Ratio of ages at marriage between women and men by region, 1900s-2000s



Looking at gender inequalities in education (Figure 2.6), the last five decades have

witnessed significant improvements in terms of closing the gender gap, except in the Western Offshoots where there was no gender gap in the 1950s to begin with. The greatest progress in closing the gap was made in the MENA region, although the countries of Asia and Sub-Saharan Africa have also shown remarkable progress. The countries of the former USSR, Latin America and Western Europe have also closed the gender gap in education over the last 50 years. Moreover, since the 1990s there has been a trend for women's outcomes in education to surpass those of men, and in some countries women achieve higher levels of education than men. This is the case in parts of Western Europe (e.g. England, Sweden) and its Offshoots (e.g. Australia, United States). Among the developing economies, Kenya and India made substantial progress in catching up with developed countries in terms of gender equality. In the MENA region, Egypt also made great progress in closing the gender gap in education, but progress was limited in Yemen and Afghanistan.

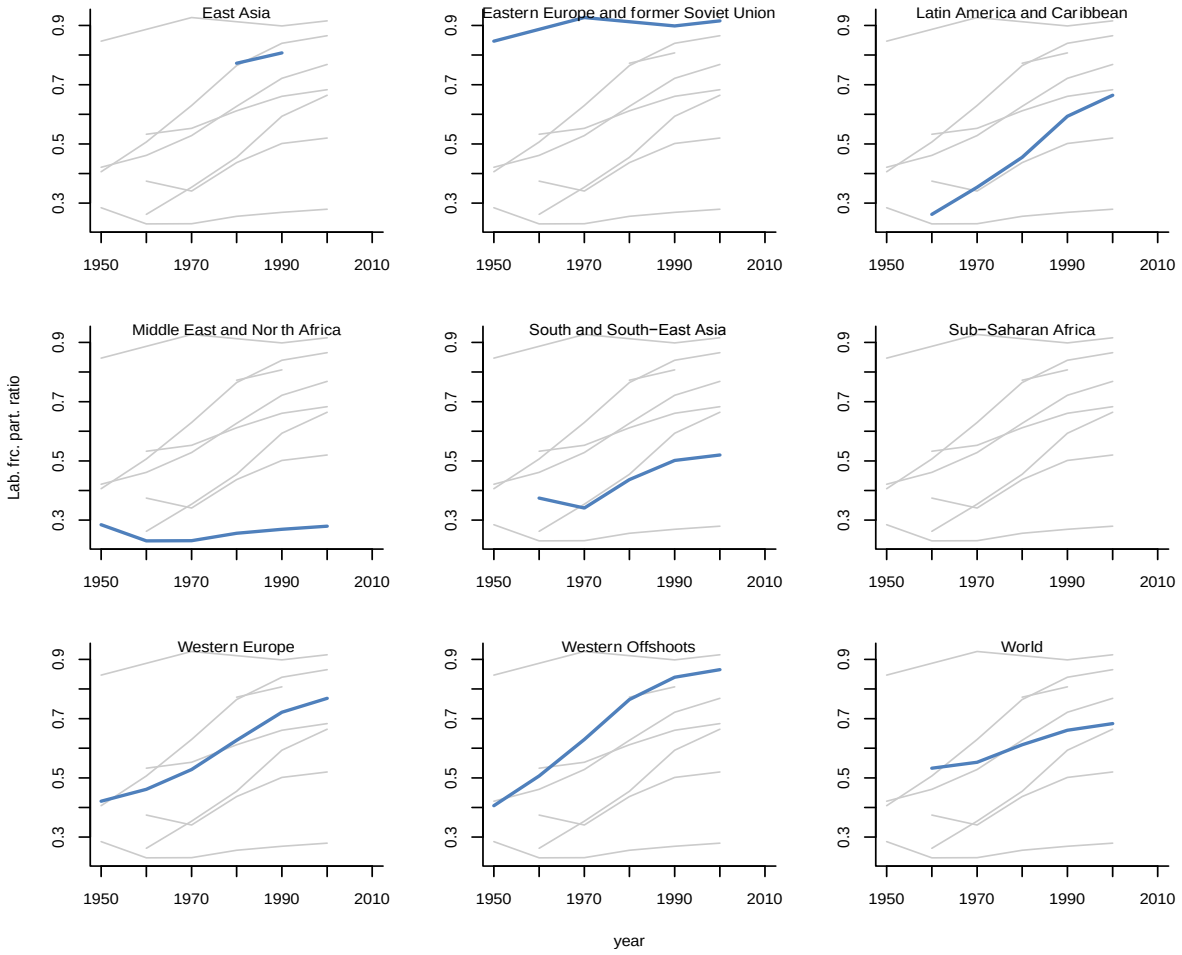
Figure 2.6.Ratio of average years of education between women and men by region, 1950s and 2000s



This progress toward gender equality in education is inextricably linked with the overall progress made in educational attainment, where inequality in years of schooling between and within countries is found to be rapidly decreasing (Morrison and Murtin 2013). Since 1950, the average years of schooling of the population aged 25 and above have increased substantially around the world. In South and Southeast Asia and the MENA, the average years of schooling has more than doubled since the 1980s. To take the example of

female education, in South and Southeast Asia, educational attainment for the female population aged 25 and above increased from an average of 1.43 years in 1950 to 3.45 years in 1980, and was at a level of 5.15 years by 2000. The MENA region made the most progress in increasing average female education attainment, from an average of 0.91 years in 1950 to an average of 5.71 years in 2000.

Figure 2.7.Ratio of labour force participation between women and men by region, 1950s and 2000s

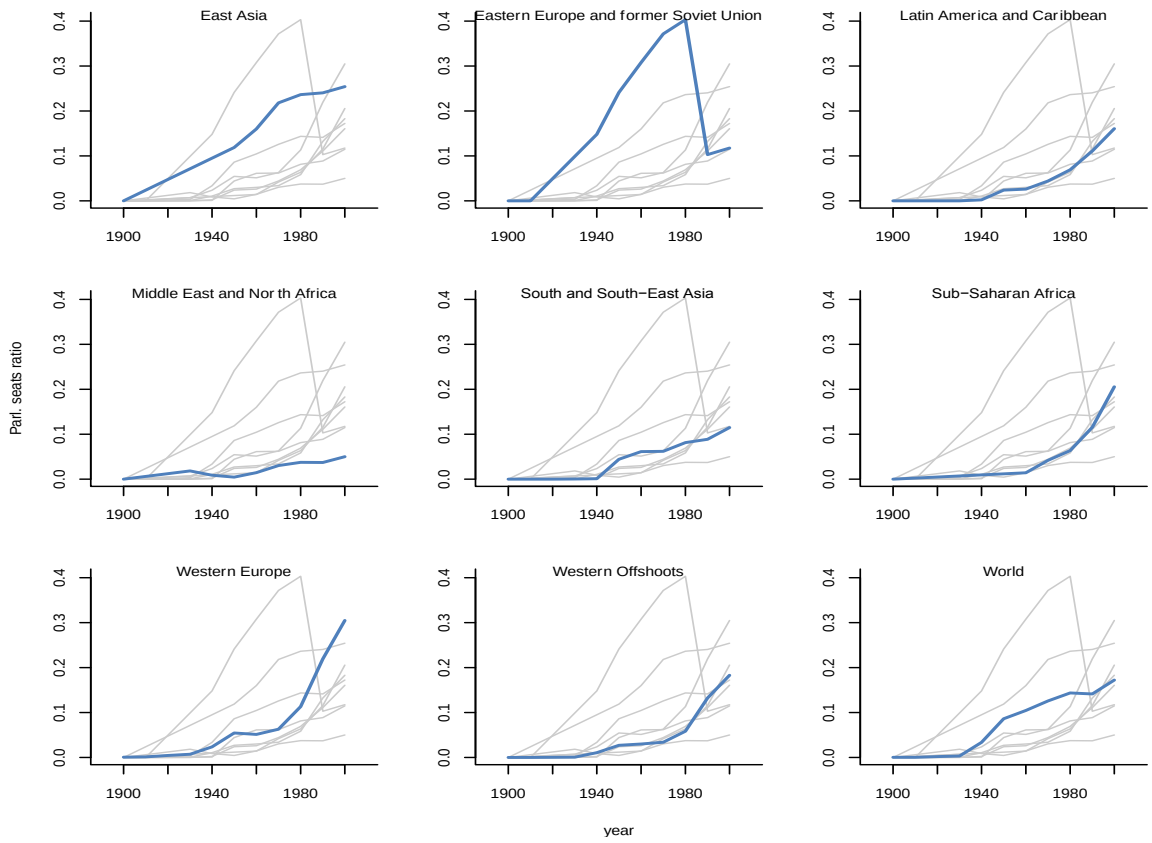


The picture for labour force participation is varied (Figure 2.7). Some regions, such as Latin America and the Caribbean, Western Europe and Western Offshoots have made substantial gains towards achieving equality in this measure. Eastern Europe and the former Soviet Union stand out as a region of long-lasting equality in this indicator. However, for the East Asia and South and South-East Asia progress has been decidedly less marked which is reflected in the fairly flat incline of the trend line for the world.[48] Middle East and North Africa hardly made any progress towards closing the gender gap in labour force participation and is characterised with the largest gender inequalities in the world. Thus, the gains in closing the gender gap in education has not translated into a higher labour force participation

[48] Sub-Saharan Africa has no trend line as its coverage did not meet the 40 per cent of the regional population coverage requirement set to make these graphs. There is substantial coverage for Africa indicating very high ratios of female to male labour force participation (in the range of 80 per cent)

for women in this region.

Figure 2.8. Ratio of Parliamentary seats held by women and men by region, 1900s-2000s



With respect to women's rights in politics, despite improvements over the course of the twentieth century, women's participation in national parliaments remains one of the major challenges in achieving gender equality globally: not even one-quarter of the world's parliamentarians are women (Figure 2.8). Despite this persistent gap, the past century has been witness to some considerable progress. The most progress can be observed in Western Europe, Eastern Asia and Eastern Europe and the countries of the former Soviet Union. The case of Eastern Europe and the former Soviet Union is particularly interesting, considering the sharp decline in female members of parliament after the collapse of the Union and the subsequent widening gender gap. Former Soviet countries, which were once near the top in the world rankings of female representation, have now fallen far behind Western Europe, and even behind many developing countries. This marked decline is due to the removal of the quota system implemented in Communist countries after the Union had collapsed (Saxonberg 2000). Other regions of the world have shown considerable progress on this measure from the 1950s onwards, except for the MENA. The quota system seems to be an important determinant of the position of women in parliament. This is exemplified in Rwanda, which achieved the highest percentages of women in parliament after the introduction of a quota system in 2002. With 44 per cent of its parliamentarians being women, Rwanda outperformed even Sweden, one of the few countries that has made continuous progress towards closing the gender gap in parliament (without a quota system).

Lastly, we provide an overall view of how countries are performing when the measures we describe above are evaluated together. This composite index is available from 1950 to 2003 (Figure 2.9). The good news is that after a slow start in the 1950s, the gender equality measure exhibits a steady trend upwards, which can be observed for all the world's regions. However, it should also be noted that global progress was limited. At a global average of 68 (out of a possible 100) in 2000, gender equality was still well short of the theoretical maximum. The regional averages reveal further failings in achieving gender equality. The figure shows that the highest gender equality scores are found in Western Europe, its Offshoots, and East Asia. Gender equality was substantially lower in other regions, particularly the Middle East and North Africa, Latin America and Southern Asia. Remarkably, Sub-Saharan Africa is in the middle of the group of world regions, a reflection of the fact that we are measuring equality between genders, rather than their absolute performance. Looking at some individual country examples, between 1950 and 2000, Sweden was the most gender egalitarian country, with a score of 91 in 2000, and Egypt the least egalitarian, with a score of 57.

Figure 2.9. Regional averages of the Historical Gender Equality Index (HGEI), 1950s-2000s

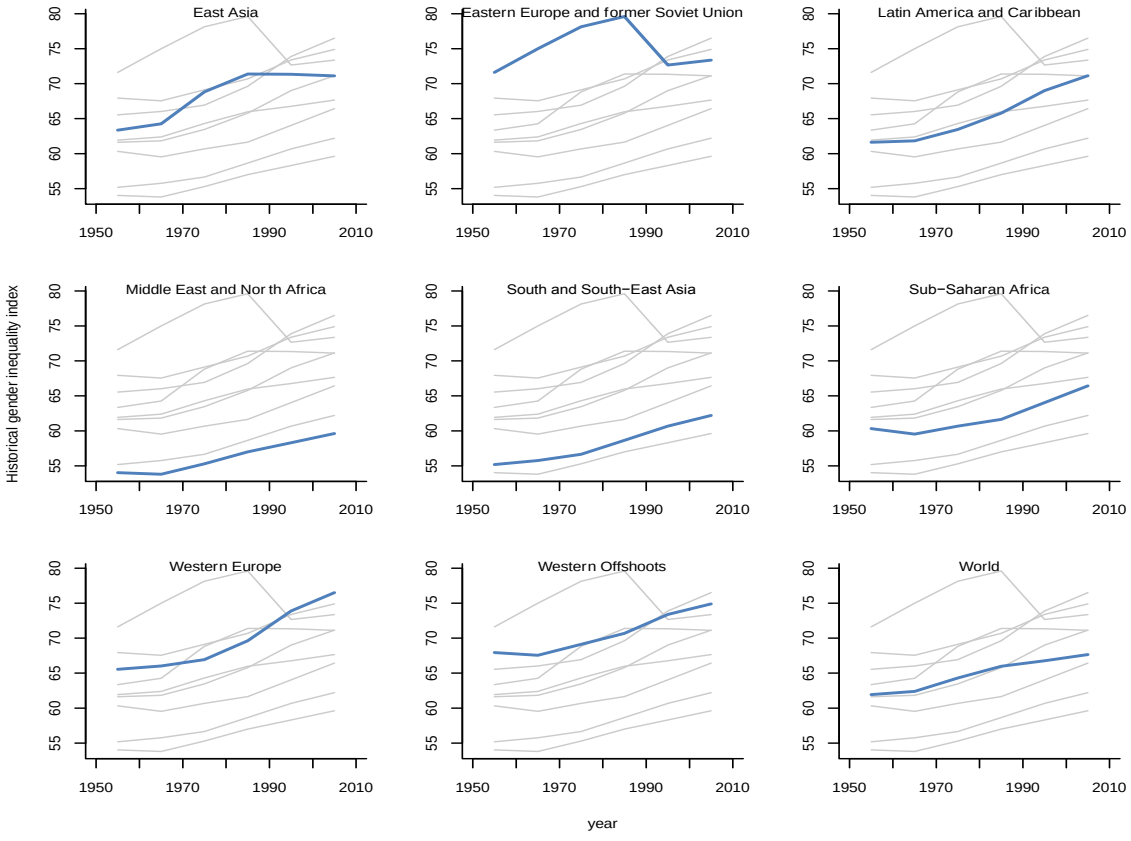
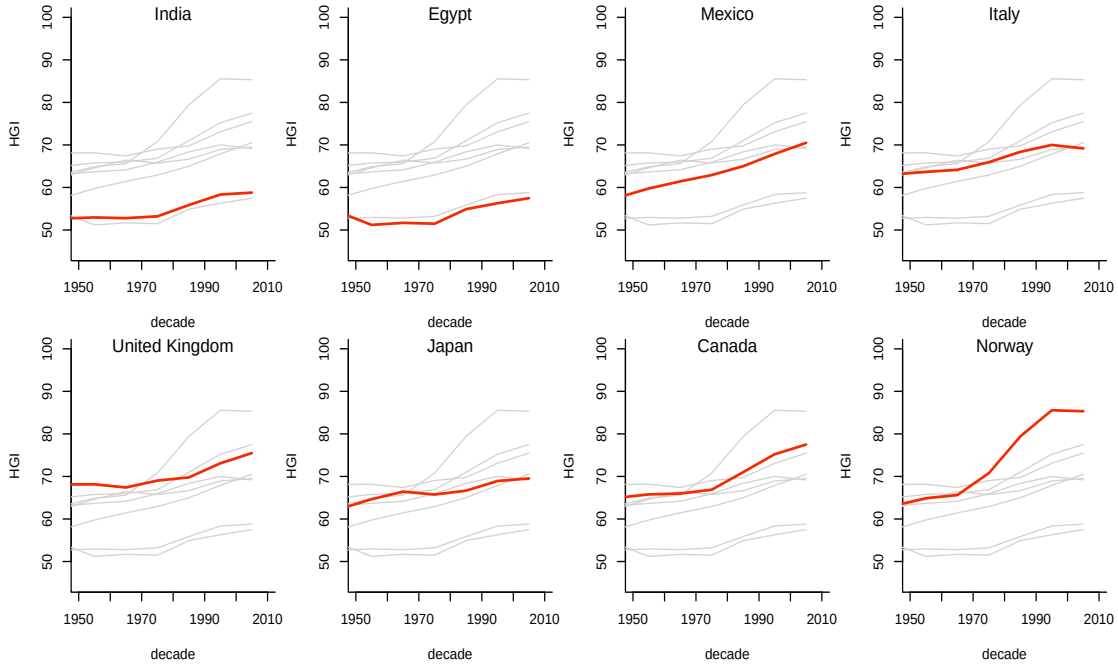


Figure 2.9 shows, as do the individual components, that there was progress in terms of gender equality everywhere, but that there were important regional differences. Between-region inequality was persistent, with only Latin America and the Caribbean closing the gap with Western Europe and its Offshoots. The MENA remained the least gender egalitarian

region throughout the 1950-2003 period. Furthermore, although East Asia and Eastern Europe made some progress towards gender equality, after the 1980s these regions experienced a reversal of this trend. Strikingly, though Sub-Saharan Africa is seen to make absolute progress towards gender equality over the period, the gap between it and the leading regions is increasing.

The figures presented above only provide an overview of the regional patterns whereas substantial variation exists within the different regions around the world. Below in Figure 2.10, we provide a further look at the individual trends of selected countries between 1950 and 2000 in the HGEI index, and compare the performance of these countries on the overall composite index to the individual dimensions used in the construction of the composite index in Figure 2.11. The aim of this exercise is to highlight that although composite measures provide an overview of the overall gender inequalities in a given society and enable general comparisons, the composite index may mask differences in some of the individual indicators. It is clear from Figure 2.11 that the problems each society face differ substantially from country to country despite the fact that they score the same on the HGEI.

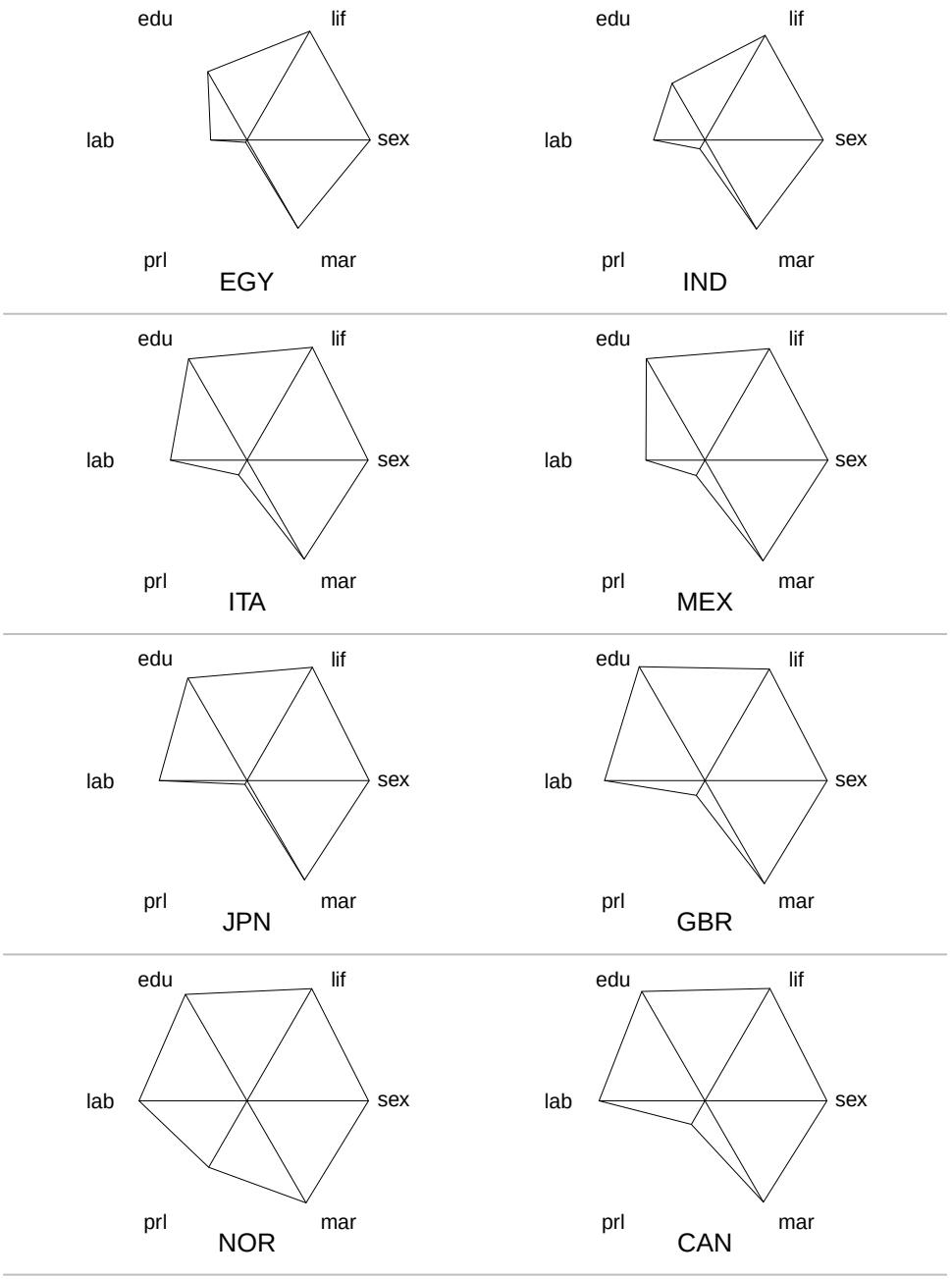
Figure 2.10. Selected country trends in the HGEI, 1950s–2000s



For example, according to Figure 2.10, India and Egypt start with similar values on the HGEI and although India has a slightly smaller gender gap compared to Egypt by 2000, overall they follow a similar trend. Looking at Figure 2.11, it becomes clear that the underlying indicators reveal further differences in countries' performance regarding different dimensions of gender inequality. For instance in Egypt, the gender inequalities are largest in dimensions such as labour force participation and parliamentary activity, whereas for India, schooling together with sex ratios are still the major issues. Similar differences exist between Mexico and Italy, which perform alike on the composite index, but gender inequalities in

labour force participation are a particularly relevant issue for Mexico. Lastly, United Kingdom and Japan, also have similar scores on the HGEI, but the gender inequalities in parliamentary activity are a more important problem for Japan. Thus, although composite indexes are useful to provide insight on the overall level of gender inequalities taking into account various dimensions, caution is necessary because issues of gender equality faced by each society can differ substantially.

Figure 2.11. Selected country performances in dimensions of the HGEI in the 1990s



2.5. Correlations with GDP per capita

This section provides an illustration of the relationship between gender equality indicators and economic development in the long run. As explained in Chapter 1, over the past 20 years researchers and policy-makers have started to pay more attention to gender equality as one of the core drivers of economic development. However, these studies mainly provide cross-national evidence rather than evidence over time. But has there been a positive association between gender equality and development, captured by GDP per capita, throughout the course of the twentieth century? In this section, we present the changes in correlations over time and by showing the scatterplots of GDP per capita against the various indicators of gender equality.

Figure 2.12 Correlations between gender equality indicators and GDP per capita, 1900s-2000s

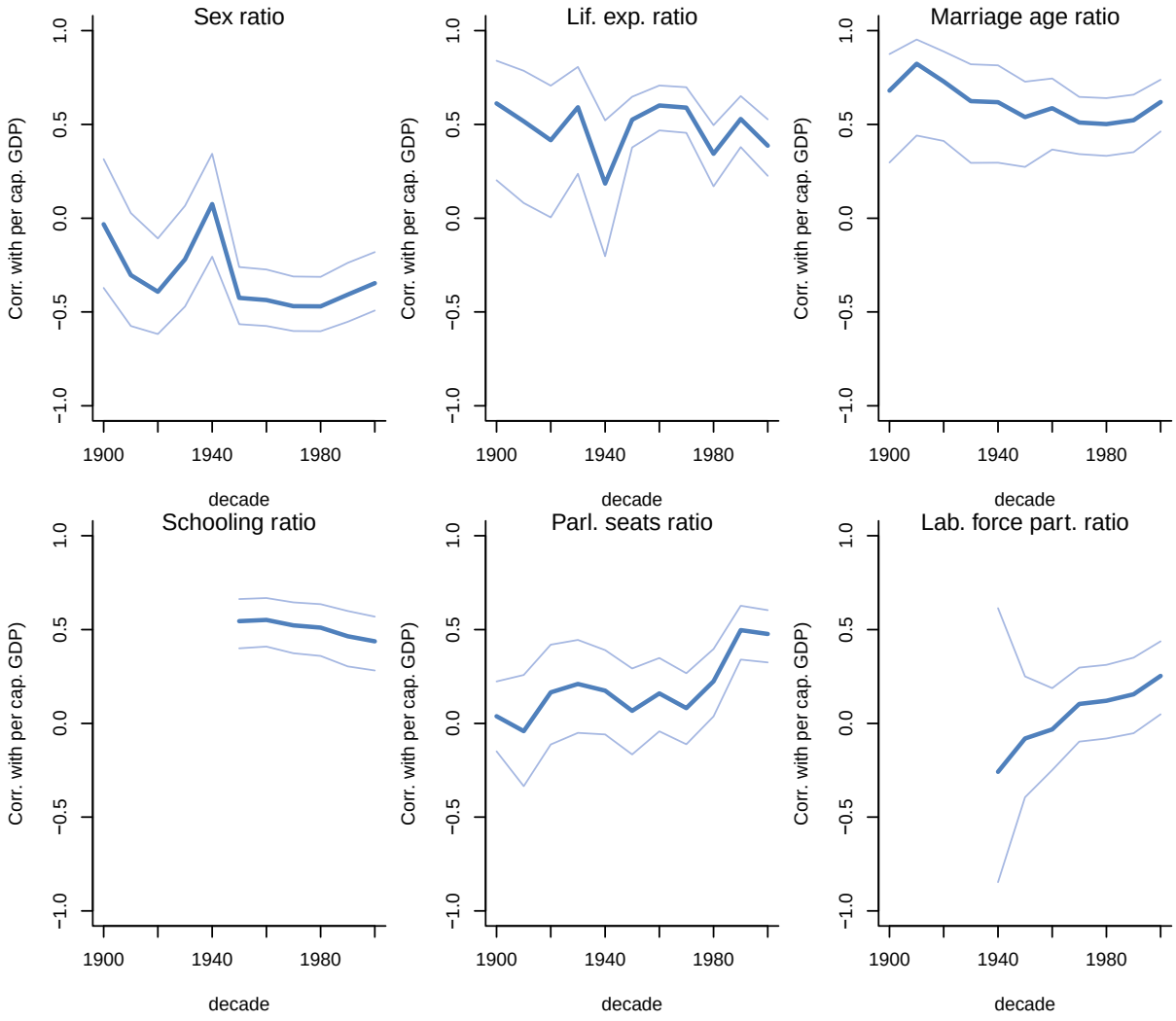
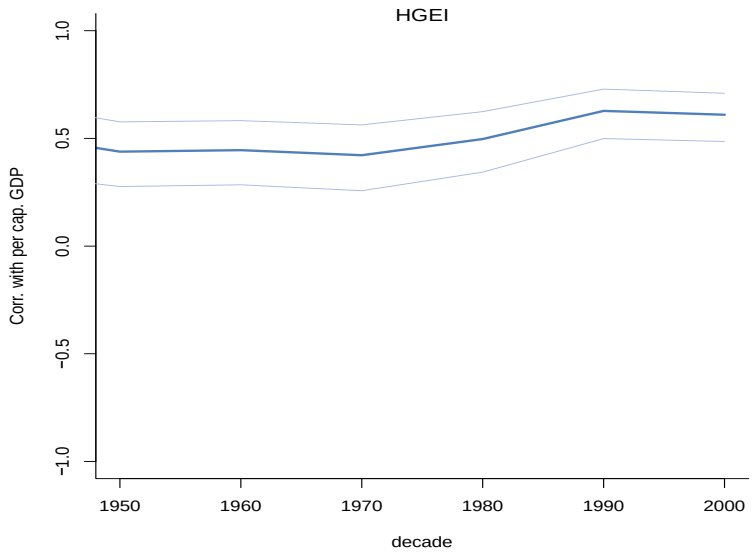


Figure 2.12 illustrates that the relationships between the single indicators of gender inequality and GDP per capita differ from each other and change over time. The relationship between sex ratios and GDP per capita became weaker over time, and even negative after the 1940s (for a discussion, see below). The reverse is true for the relationship between inequality in life expectancy and GDP per capita, which was positive and relatively strong from the early

twentieth century onwards. Among our indicators, marriage patterns seem to have the strongest persistent relationship with GDP per capita, starting from the 1850s onwards, with a positive link between the two remaining observable throughout the period. Gender equality in parliament also seems to be positively related to GDP per capita, but only after the 1970s. An explanation for this might be sought in the fact that the parliamentary activity of women remains limited everywhere. Similarly, the positive link between labour force participation and GDP per capita seems to get stronger over time. This may also be result of the increasing levels of female labour force participation in the second half of the twentieth century.

Looking at the relation between our overall composite index and GDP per capita (Figure 2.13), again the relation between the two seems to get stronger after 1970, which is likely to be partly driven by the improvements in gender equality in terms of education and parliamentary activity.

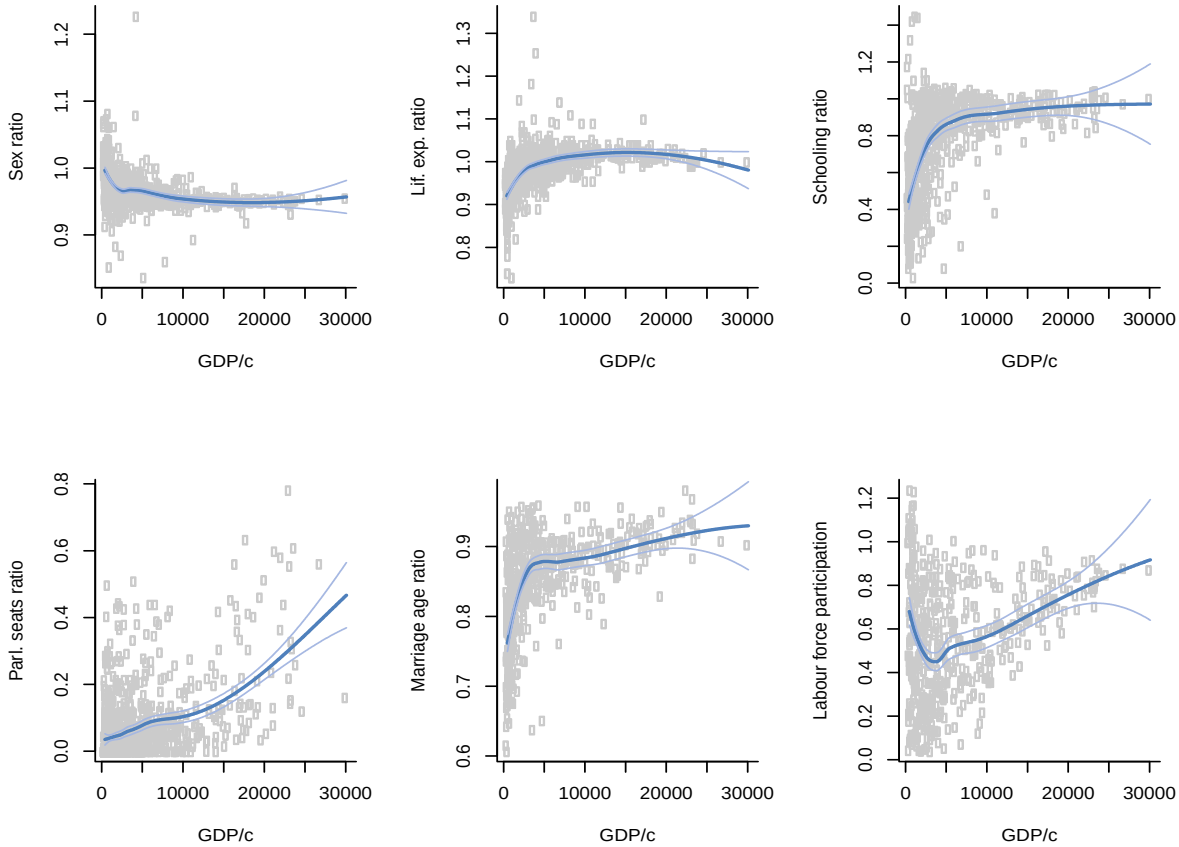
Figure 2.13 Correlations between the Historical Gender Equality Index and GDP per capita, 1950s-2000s



The relationships between the various indicators of gender inequality and GDP per capita are largely positive. The weakly negative association of sex ratios with per capita GDP is the one exception to this rule. The reason for this negative relationship between GDP per capita and the ratio of female to male infants may lie in improved paediatric care. The sex ratio at birth is generally around 1.06 male infants to every female infant. Historically this ratio was balanced out over the life course by the fact that young boys had a higher mortality due to their biologically determined vulnerability at young age. However, modern medicine eliminated this mortality bias. This relationship is also likely to be due to the practices mentioned above in countries such as India and China, where increased wealth and access to modern technology are used to achieve unequal gender treatment of infants before they are even born by means of sex selective abortion.

Another way of presenting the relationship of the various measures of gender inequality and GDP per capita is to plot them against each other directly. This excludes a direct visualisation of the time element, so is not a dynamic analysis, but it gives a sense of how the various measures of gender inequality relate to GDP per capita across different levels of development. The results of plotting the data this way are shown in Figure 2.14 and in Figure 2.15. These plots can also reveal any nonlinear relationship between gender equality and economic development (Mammen and Paxson 2000; Friesen et al. 2012), which are not directly evident from Figure 2.12 and Figure 2.13. This investigation of the underlying data reveals a number of non-linearities. For one, the relation between per capita GDP and gender inequality is often strongest at lower income levels (below 5000 dollars per capita). Life expectancy ratios, sex ratios, schooling ratios and marriage age ratios all have a strong association with per capita GDP in this range. The relationships level off substantially at incomes above 5000 dollars. Taking the logarithm of GDP can often capture this relationship well. The ratios of female to male members of parliament and labour force participation are exceptions and are characterised by positive linear relationships with GDP per capita.

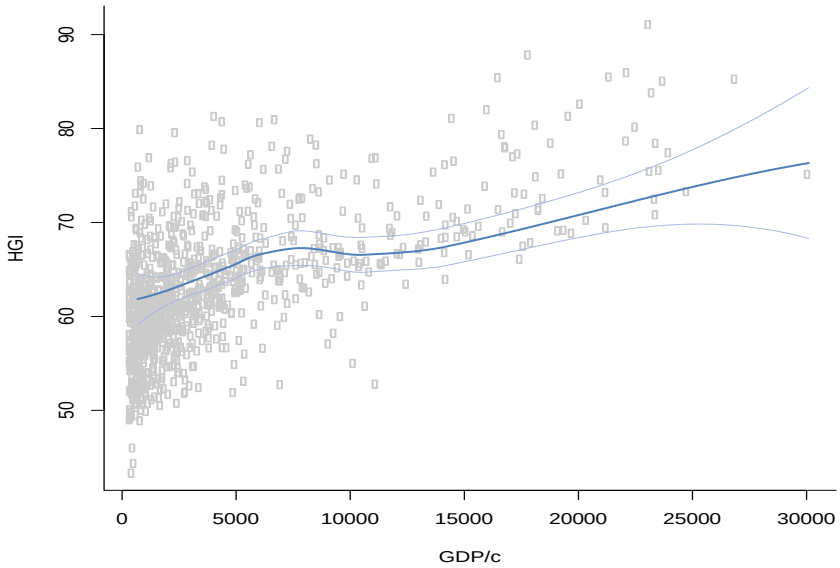
Figure 2.14 Various indicators of gender equality and GDP per capita, 1900s-2000s



The relation between per capita GDP and the composite index also shows some evidence for non-linearity (Figure 2.15). However, it is difficult to say anything conclusive about the relationship between economic development and gender equality solely based on correlations.

Therefore, this link is tested more formally in in an empirical specification the next chapter.

Figure 2.15 The Historical Gender Equality Index (HGEI) and GDP per capita, 1900s-2000s



2.6. Conclusion

This chapter has illustrated trends in gender equality across the globe over the past century. A long-term index, consisting of female to male ratios of life expectancy, sex ratios at age 0–5, average years of schooling, labour force participation, marriage ages and parliamentary seats, measuring gender equality from 1950 to 2003 has been introduced. An aggregation procedure was chosen that keeps the index comparable over time and is as transparent as possible, while also accommodating the structure of the data. The resulting index reveals that most regions and countries of the world made progress regarding gender equality over the past fifty years. Although we still live in a world where women are, on average, disadvantaged relative to men, the situation seems to have improved especially from the 1980s onwards. Looking at the dimensions separately, the good news is that gender equality has been achieved – and in some countries surpassed – in terms of life expectancy. Moreover, some progress has been made in closing the gender gap in marriage ages, although structural differences remain between different regions. In some developed countries, parity has also been achieved in educational attainment. However, there is still much scope for progress in all the other dimensions. Women's participation in politics remains a point of particular concern around the world, even for countries in Western Europe and its Offshoots. The lack of progress on this measure is even more striking once regional differences are taken into account. While worldwide average female parliamentary representation in 2010 stood at 17 per cent, the average for the MENA was only five per cent. Missing girls and the associated skewed sex ratios remain a

major challenge for China and India. Overall, two main messages can be taken from the current chapter. First, significant progress did take place over the twentieth century in terms of achieving gender equality, but there is still a long way to go as gender gaps persist in many dimensions.

Clearly, the availability of historical data plays a crucial role in influencing which dimensions this chapter could discuss. Areas where new data and analysis would be particularly useful include educational attainment disaggregated by gender before 1950 and female labour force participation. Another priority for future research is to collect data on female wages so as to have a better understanding of the socio-economic dimensions of women's position. Moreover, violence against women is one of the most crucial fields where gathering historical data is highly desirable. Although this aspect is harder to capture with quantitative data, mortality data, which indicate the cause of death, would be a good starting point to provide an historical perspective on this issue.

Geographical coverage is another issue that future research should ideally take into consideration, in particular for Sub-Saharan Africa. Generally, data only becomes available for Africa starting from the 1950s onwards, and data is scarce for many countries in this region. Similar issues of data scarcity exist for the East Asian and MENA regions. These regions are of particular importance as they are still poor performers in the various dimensions of gender equality highlighted in this chapter. A longer historical perspective would provide insights to help researchers and policy-makers better understand the drivers of these gender inequalities so as to achieve the goal of gender equality in these regions. Lastly, further valuable insights into gender equality could be gained by breaking down the national data on gender equality into indicators that reflect socio-demographic and economic status.

CHAPTER 3: ACHIEVING GENDER EQUALITY: DEVELOPMENT VERSUS HISTORICAL LEGACIES

with Sarah Carmichael and Auke Rijpma[49]

3.1. Introduction

This chapter seeks to provide an empirical assessment of the relative importance of economic development on the one hand, and the historical institutions of a country on the other, in determining gender equality. As highlighted in the previous chapters, historical measures are needed to understand how gender inequality is determined and to fully evaluate what progress has been made. Such data is also necessary for testing different theories on the determinants of gender equality. Long-term panel data can help in establishing the robustness and direction of causality of the link between gender equality and development (Doepke et al. 2012). Such a dataset also allows for the testing of the existence of a non-linear relation between gender equality and development (Boserup 1970; Goldin 1995; Eastin and Prakash 2013). To achieve this, the chapter will use long-term data on gender equality introduced in the previous chapter, namely the Historical Gender Equality Index (HGEI), using data on various aspects on gender equality from 1950 onwards.

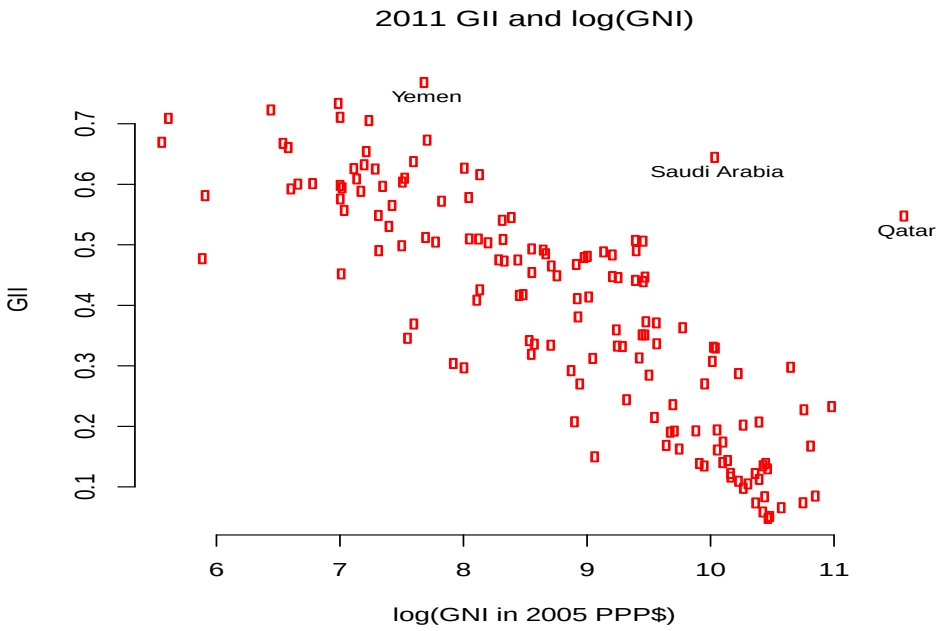
As shortly discussed in the introduction, broadly speaking, the literature offers two sets of explanations for cross-national disparities in gender equality: modernization (development) and institutions (including the informal institutions that shape norms and values). The modernization view argues that as countries become more economically developed, industrialized, democratic, and their populations more educated, the resources available to women increase and give them a better bargaining position (Inglehart and Baker 2000). An alternative mechanism through which modernization is expected to lead to gender equality is that it brings about shifts in the norms and values of societies, which promote more

[49] This chapter has been published in *CESifo Economic Studies*. The part of this chapter on convergence is under consideration for publication in *Feminist Economics* (revise and resubmit)

gender egalitarian attitudes (Inglehart and Norris 2003).

The cross-sectional correlation between income and gender equality in 2011 illustrated in Figure 3.1 broadly supports the modernization view. However, this figure also highlights some clear outliers. Most prominent are wealthy countries such as Qatar and Saudi-Arabia, which nevertheless perform poorly on measures of gender equality (UNDP 2011). Even among highly developed European countries, there are substantial differences in matters related to gender equality such as parental leave and labour force participation (Bruning and Plantenga 1999).

Figure 3.1. Gender equality and economic development in 2011.



One explanation for these counterexamples and the lack of an automatic link between gender equality and economic development lies in the role of long-lasting, historical institutions such as religion, family practices, and legal traditions that may disadvantage women. From this perspective, contrary to the predictions of modernization theory, the norms and values of a society are persistent and rooted in long-lasting institutions, rather than merely lagging behind the development process (Alesina et al. 2013; Branisa et al. 2013). For instance, the historical and cultural legacy of Islamic countries may partly explain what is observed in Saudi Arabia and Qatar (Spierings, Smiths, and Verloo 2009). Women are strongly disadvantaged by Islamic customs and laws concerning marital and inheritance practices (Htun and Weldon 2011). Likewise, polygamy is a persistent practice in sub-Saharan Africa and associated with greater gender inequality (Tertilt 2006; Bove and Valeggia 2009).

Similarly, the historical record suggests that gender equality is not solely determined by the level of development. In North-Western Europe, women had access to labour markets

well before the Industrial Revolution, when the region was still poor by current international standards (Horrell and Humphries 1995; De Moor and Van Zanden 2010). Taken together, these examples point to the fact that practices exist within countries or regions, which disadvantage women and are unique and long-standing. These practices will not necessarily change as a result of economic development.

This chapter will show that, while the development process betters the condition of women, long-lasting historical institutions are at least equal determinants of cross-national variation in gender equality. Furthermore, our results show that the relation between long-lasting institutions and gender equality is dependent on the level of development of a country.

Besides showing the relevance of economic development and institutional factors in determining the cross-national differences in the level of gender equality, this chapter will also evaluate whether there is global convergence towards gender equality. The reason for this exercise is that as discussed in the introduction, starting from the 1970s onwards, the world has witnessed many international attempts such as the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). Moreover, Goldin (2014) observes that a "Quite Revolution" took place in many dimensions of gender equality in the United States starting from the 1970s onwards as a result of the shift in the expectations among women about their career with the increase in the share of tertiary sector, providing more possibilities for female employment. If such a trend is visible in other countries as well, we can expect to find a global convergence towards gender equality. Therefore, we would like to see whether the less-gender equal countries have started to catch up in the last decades as a result of these international initiatives. Moreover, the rate of growth in gender equality can be independent of the level of gender equality. For instance, countries with low GDP levels per capita, often have a high growth rate, which tends to be attributed to what is known as the catch-up effect (Löfström 2009). Therefore, the predictors that are relevant to explain the level of gender equality may not be related to how rapidly the laggards catch up with the leaders in gender equality. The results of this exercise show that although there is substantial progress in gender equality, there is little evidence that the less-gender equal countries are catching up. Rather, the long-term institutional and historical characteristics of countries are the main obstacle for convergence.

The article is organized as follows: Section 3.2 will discuss the literature on the relationship between gender equality and development, history, and culture. Section 3.3 discusses the methodology and data. Section 3.4 presents the results on the determinants of gender equality, and section 3.5 evaluates convergence in the composite Historical Gender Equality index from 1950 to 2003. This section also tests whether there is evidence for convergence in gender equality conditional on the drivers of gender equality introduced in section 3.2.

3.2. Literature

As explained in Chapter 1, much of the literature on gender inequality suggests that as

countries develop economically, gender equality will increase. In a recent review of the literature on women's empowerment and development, Esther Duflo (2012) concludes that the two are closely, though not automatically, related. In an example of a study that examines links from development to gender equality, Doepke et al. (2012) present a model where women's rights are determined by their returns to education, in turn largely driven by technological progress. Similarly, Goldin (2006) argues that the growth in women's labour force participation in the US between 1930 and 1950 was due to the increase in service-sector jobs. The decline of footbinding in China provides another example of women's status improving with economic development. Bossen et al. (2011) claim that as mass-produced textiles replaced domestic production, women's household confinement was questioned, and with it the practice of footbinding.

A related idea is that over the course of the development process, the relationship between gender equality and economic progress may change. Claudia Goldin (1995) posits a U-shaped relation between married women's labour force participation and economic development. In the initial stages of growth, men move into higher productivity jobs outside family enterprises, and this income effect depresses women's labour force participation. However, eventually a tipping point is reached where women's wage-earning opportunities in the service sector outweigh the family income effect. Alternatively, initial gains in women's empowerment may temporarily reinforce norms that preclude the inclusion of women in life outside the household (Eastin and Prakash 2013). Das and Desai (2003) find that as economic development in India leads to improvements in a family's status, women from these families are less likely to work, as women working outside the household are viewed as a taint on family honour.

The idea that economic development will lead to gender equality fits with modernization theory. Proponents of this view argue that economic development leads to occupational specialization, rising educational and income levels, bringing about changes in gender roles, and declining fertility rates. In combination this leads to increased gender equality (Inglehart and Baker 2000). Higher income and education as well as greater control over reproduction provided by modern medicine is associated with lower fertility. Therefore, women spend less of their lifetime bearing and rearing children (Christy 1987; Inglehart and Norris 2003). Another argument is that modernization is associated with more general cultural change. Cavalli (1983), for instance, observes that industrialization encourages egalitarian ideals, such as aspirations for more equality between the two sexes and the idea that society should provide more egalitarian educational and occupational opportunities. Overall, we expect that *as countries are more socio-economically developed, they will have higher gender equality* (H1).

Although the modernization view suggests that development will bring about gender equality and cultural change, a growing body of literature claims that persistent norms, beliefs, and values matter. Inglehart and Baker (2000: 19) highlight that cultural change depends on the heritages of societies and these heritages have autonomous and enduring effects. Hence, besides economic development, the norms of a country are also likely to

matter for gender equality. Therefore, to fully understand gender outcomes these long-lasting institutions also have to be studied.

Examples in the literature confirming that norms matter are plentiful. This applies to development outcomes in general, as well as to those related to gender equality. Nunn (2012) argues the importance of taking into account values and beliefs when trying to explain the economic performance of countries. Spolaore and Wacziarg (2013) provide a review of literature showing that development outcomes are influenced by persistent traits that are culturally and genetically transmitted across generation.

Turning to gender outcomes, Branisa et al. (2013) find significant associations of (gendered) development outcomes with long-lasting norms, values, and codes of conduct related to gender equality. Another example is Almond, Edlund and Milligan's (2013) study of missing women, which shows that gender bias continues to exist among immigrants to Canada and can only be explained by taking into account their cultural background. Furthermore, Alesina et al. (2013) demonstrate a relationship between traditional agricultural practices and present-day gender outcomes. By analysing the children of immigrants, they identify culture as a transmission mechanism of attitudes to gender roles.

From a historical perspective, three types of institutions seem particularly important. First, religion is a cultural institution likely to affect gender equality. The religious traditions of the world vary strongly in their prescriptions on the proper role for women. For instance, controlling for the level of economic development, Donno and Russett (2004) found that the position of women is significantly worse in Islamic countries. Catholicism too is associated with less gender equality. Catholic cantons in Switzerland have been shown to have invested substantially less in the education of girls between 1860 and 1930 (Praz 2006).

The second long-lasting cultural institutions likely to affect gender outcomes, mentioned in the introduction, are the traditions and practices regulating family life. These institutions hold great weight for communities because they regulate their membership and transmit their values from generation to generation (Shachar 2001). One scholar who has looked at the importance of family ties is David Reher (1998). He considers family ties persistent, historical systems, and observes their impact on policy issues such as old- age care on a European-wide scale. Likewise, Galasso and Profeta (2011) used a family system classification scheme devised by Emmanuel Todd (1985) to explain current day pension system differences within Europe. Duranton, Rodríguez-Pose and Sandall (2009) also suggest that family systems have a lasting impact on regional disparities in many social and economic indicators in Europe. Alesina and Giuliano (2010) find that respondents in the World Value Surveys indicating strong family ties have significantly lower female labour force participation and more traditional views on gender roles. Finally, by using Italian data at the regional level, Bertocchi and Bozzano (2015) find that historical family structure matters for gender education gaps.

Lastly, the legal system of a country may influence gender equality. Htun and Weldon (2011) claim that family law 'shapes virtually every aspect of a woman's life', including

property rights, the ability to work outside the home, and freedom in marriage. They furthermore illustrate that family law and state-building histories have a substantial influence on present-day gender equality outcomes. For example, in many former British colonies, gender-biased family practices were codified. Moreover, countries where the state-building process required accommodating tribal and religious authorities could result in family law systems that disadvantaged women (Weldon and Htun 2012). Hallward-Driemeier et al. (2013) also look at women's legal rights over the past fifty years and show that the rights women hold are relevant for women's labour force participation, education, health condition, and representation in parliament.

Related to this point is the work on legal origins (La Porta et al. 1999, 2008). Although their work has been criticized for being too Europe-centric (Siems 2007), their concept of legal origins as a historically determined 'style of social control of economic life' is relevant for gender equality. For instance, educational reform, labour market access, and health care priorities, which improved the position of women as well, all required the active government styles that are associated with civil and socialist law countries (see also Hallward-Driemeier et al. 2013). A stronger legal position of women regarding divorce and property rights is also associated with better outcomes such as higher labour force participation and investment in daughters' human capital (Gray 1998; Deininger et al. 2013).

Thus, we expect that *in societies that are characterized by historical institutions related to religion, family, and legal traditions that are more supportive of the position of women, gender equality will be higher* (H2).

Overall, the literature suggests that both development as well as the historical and cultural legacy of a country matter for achieving gender equality. However, it should be noted that the interpretation of our results is limited by the fact that these two sets of relationships can suffer from endogeneity issues. For instance, there is the possibility that gender equality is both a cause and a consequence of economic development (Duflo 2012). Such reverse causality issues may also hold for the historical institutions, for instance in a situation where increasing gender equality influences family practices. However, because we are looking at slowly changing historical legacies, reverse causality issues are less of a concern for the latter set of variables (Nunn 2012). The next sections will discuss the data and our method for testing these explanations empirically.

3.3. Methodology

Global data were collected covering the period 1950 to 2003 to test the possible determinants of gender equality outlined above. The time period is determined based on the fact that the composite gender equality index becomes available from 1950s onwards. The discussion of the Historical Gender Equality Index (referred as HGEI) is provided in Chapter 2. Therefore, in this section, only information on the independent variables will be provided. The independent variables consist of two groups: the long-lasting (informal and formal) institutional factors and the economic characteristics of countries. The descriptive statistics of

the variables are shown in Table 3.1.

Table 3.1. Descriptive statistics (N=117, n= 5237).

	Minimum	Maximum	Mean	sd
HGEI	43.83	93.58	64.23	7.53
African fam.	0	1	0.13	0.34
Anomic fam.	0	1	0.14	0.35
Stem fam.	0	1	0.11	0.32
Egal. nucl. fam.	0	1	0.24	0.43
Endo. com. fam.	0	1	0.23	0.42
Exo. com. fam.	0	1	0.14	0.35
% Protestant	0	.99	0.17	0.19
% Catholic	0	.99	0.37	0.30
% Islam	0	1	0.30	0.29
Scandinavian/German C. code	0	1	0.09	0.29
English Common Law	0	1	0.28	0.45
French C. Code	0	1	0.49	0.50
Socialist/Communist Laws	0	1	0.13	0.34
log GDPPC	5.31	10.67	8.03	1.06
Polity IV	-10	10	0.32	7.55
% Education expenditures	.4	13.04	4.10	1.80
Inst. international women movement	7.19	33.89	17.24	8.63

To measure the long-lasting institutions of societies, we focus on religion (Maoz and Henderson 2013), legal origins (Teorell et al. 2013), and family systems (Todd 1985). While our measure of family systems is time invariant, data on religion and legal origins are available in panel data form from 1946 onwards. The variable, religion, is the percentage of the population that identifies as Muslim, Protestant, or Catholic and is taken from the World Religion Dataset (WRD). This dataset provides detailed information about religious adherence worldwide for every 5-year period since 1945.[50] As a measure of long-lasting formal institutions determining the style of governance, we include the legal origins of the countries from the Quality of Government dataset available annually from 1946 onwards. The legal origins variable has four categories: (i) common (reference category), (ii) French civil, (iii) Socialist, and (iv) Scandinavian/German civil law.[51] Family system is a categorical variable which classifies countries according to their egalitarianism in inheritance practices, the freedom they allow children in terms of spousal selection, and co-residence practices. Rijpma and Carmichael (2013) scrutinise Todd's classification of family systems by comparing Todd's classification of countries to a classification created based on the measures from Murdock's (1967) Ethnographic Atlas. We use six categories: (i) egalitarian nuclear

[50] The results are similar when religion is included in the analysis as a time-invariant categorical measure classifying countries as Muslim, Catholic, and Protestant.

[51] Besides the institutional variables, the effect of colonial origin on gender equality has been tested. As the effect of colonial origin on gender equality is not significant, this variable was dropped from the final analysis.

(reference category), (ii) stem, (iii) endogamous community, (iv) exogamous community, (v) anomic, and (vi) African families.[52]

To capture the effect of economic characteristics and development on gender equality, we include log GDP per capita (Maddison 2008; Bolt and Van Zanden 2014) and total public spending on education as a percentage of GDP (Wejnert 2007).[53] The Polity IV index (Marshall et al. 2011) is used to control for level of democracy, as democracy and gender equality have been shown to be related (Inglehart et al. 2002). The Polity IV index scores countries on the quality of their democratic institutions. It is based on three criteria: competitiveness of political participation, competitiveness of executive recruitment, and constraints on chief executive. The scale ranges from -10 (hereditary monarchy) to +10 (consolidated democracy). For ease of interpretation, the Polity IV index has been standardized to range between zero and one in which a higher score is a higher level of democracy.

We also include a global measure on the international institutionalised efforts to achieve equality (Paxton et al. 2006). It is measured based on three world-level indicators: (i) cumulative foundings of WINGOs; (ii) the cumulative count of international conferences, treaties, and groups related to women; and (iii) the cumulative count of countries ratifying the 1919 Maternity Protection Convention. Finally, we use a time trend and add regional fixed effects to control for the effect of omitted global and regional characteristics. The regional dummies are—(i) East Asia and the Pacific, (ii) Europe and the former Soviet Union, (iii) the Americas, (iv) the Middle East and North Africa, (v) South Asia, and (vi) Sub-Saharan Africa (reference category).[54]

As alternative dependent variables, two other gender equality measures are used. First, we used the GII from the UNDP (2011) for 2000, giving an indication of the inequality between men and women in health, empowerment, and labour market participation. It is designed to measure the shortfall in human development due to gender inequality. The index ranges between 0 and 1 and was rescaled so that a higher score on the index implies higher gender equality. The second alternative gender equality measure is the World Economic Forum's GGG (Hausmann et al. 2011). Although its data only start in 2006, it is conceptually closer to our index, as it measures the extent to which women have achieved equality to men in economic participation, economic opportunity, political empowerment, educational attainment, and health and well-being. Its earliest set of scores (2006) are therefore compared with our measure for the year 2000. Our measure has a correlation of 0.76 and 0.86 points

[52] More information on the operationalization of family systems can be found in Table B.1 in the appendix.

[53] We also tested for the effect of urbanisation and the size of the workforce employed in the industrial and service sectors. Because these variables are highly correlated with GDP, their inclusion did not provide additional information on the role of socio-economic development on gender equality. The effect of oil rents as a percentage of GDP was also tested and turned out to be insignificant.

[54] Although Sub-Saharan Africa largely coincides with the African family system, we keep this regional control in the analysis, as inclusion of this variable does not change the impact of the other variables in the regression analysis.

with the GII and GGG, respectively.

Estimation strategy

The bivariate relation between the independent variables and our HGEI is provided in the Spearman's correlation matrix in Table B2 in the appendix. The effect of institutions and development on gender equality is studied using the following panel data specification:

$$G_{it} = \alpha + \beta_k Z_i + \beta_l K_{it} + \beta_m X_{it} + \beta_n \vartheta_t + \varepsilon_{it} \qquad (1)$$

G is gender equality at time *t* for country *i*, α is the constant, *Z* represents the time-invariant institutional characteristics, namely family systems, for country *i*, whereas K represents time-varying institutional characteristics, religion and legal institutions for country *i*, at time *t*. *X* represents the time-varying economic and political characteristics for country *i* at time *t*. ϑ represents the year variable which is included to capture long-term growth in gender equality and ε is the error term. Since a number of variables of interest are either time-invariant or hardly change over time (i.e. religion and legal institutions), pooled OLS is used (clustering standard errors at the country level). Equation (1) is estimated in three separate models (Table 3.2). The first model includes only historical institutional variables, the second model takes into account time varying economic and political characteristics, and the third model includes regional dummies and a variable measuring the global institutionalization of women's equality. Additional model specifications and robustness checks are discussed in the following section.

Multiple imputation specifically designed for panel data was used to address missing-data issues (Honaker and King 2010).[55] Imputations are especially important here because calculating the composite index requires all underlying variables to be present. Linear interpolation has also been tried as an imputation strategy. Generally, this gave similar results, though some of the results considering developing countries separately are sensitive to the imputation strategy since missing data is most problematic for these countries.[56]

3.4. Results on Drivers of Gender Equality

The results show that countries characterized by family systems that are thought to be unfavourable to women and promote traditional gender roles indeed have lower gender equality, even after taking into account the differences in legal structure and religion. Compared with egalitarian nuclear families, we find lower gender equality in countries with African family systems, characterized by a tradition of polygamy; in countries with endogamous community family systems emphasizing large households and fraternal bonds; and in countries with anomic family systems. To illustrate, a country which is characterized

[55] Please refer to Chapter 1, data and methodology section for details on the multiple imputation.
[56] The results using interpolation can be obtained upon request.

by endogamous community family structures, mostly found in the MENA, is expected to score 6.9 points less on the HGEI compared with a country characterized by egalitarian nuclear family systems—a substantial difference on our index where about 90 per cent of the countries score between 50 and 75. Furthermore, countries characterized by anomic family and African family structures score 1.5 and 3.1 points less, respectively. No significant differences emerge between stem and egalitarian nuclear family structures. This contradicts Todd (1985) who argues that maternal authority in stem families is stronger than in the egalitarian nuclear family. In line with what has been presented above, there is a significant improvement in gender equality, as the time trend is positively significant.

Looking at religion, the results of the first model show countries that have a higher percentage of Protestants among its population have significantly higher gender equality, whereas a higher percentage of Muslims is associated with significantly lower gender equality. The percentage Catholics does not have a significant impact on gender equality. However, the effect of endogamous community persists even when we control for the effect of Islam on gender equality.[57] This finding implies that the disadvantageous position of women in the Middle East may be the result of family structure as well as Islam, which provides empirical evidence for the discussion in the literature related to the position of women in Islam (see for instance al-Hibri 1997).

Among the legal origins variables, countries with socialist legal origins score 5.5 points higher on the HGEI. This is not surprising considering the experience of former Soviet Union countries where gender equality was achieved in various dimensions by active policy implementation (Schalkwyk and Woroniuk 1999; Htun and Weldon 2011). Other legal origin measures do not seem to have a significant impact on explaining gender equality.

The second model also includes the development indicators. Religion and legal origins are still meaningful sources of explanation for gender equality even after accounting for differences in the level of development. The relation between gender equality with endogamous community families and Protestantism becomes weaker after taking into account the level of development in a country while the impact of socialism has strengthened. Regarding the development characteristics themselves, a 10 per cent increase in GDP per capita leads to a 0.15-point increase on the HGEI (a 1.5-point increase for each doubling of per capita GDP), whereas a one percentage point increase in the percentage of GDP spent on education leads to a 0.4-point increase on the HGEI. These findings are investigated further in Table 3.4.

[57] Refer to Table B.1 in the appendix for information on family systems.

Table 3.2. Results for OLS regressions of gender equality, 1950-2003

	(1)	(2)	(3)
African fam.	-3.16***	-0.18	-0.01
	1.11	1.23	1.7
Anomic fam.	-1.49**	-0.65	0.08
	0.72	0.69	0.76
Stem fam.	0.8	-0.83	-0.38
	1.59	1.27	1.55
Endo. com. fam.	-6.90***	-5.41***	-3.56**
	1.08	1.15	1.39
Exo. com. fam.	-0.15	0.08	0.41
	1.72	1.39	1.16
% Protestant	8.75***	5.34***	4.45***
	1.34	1.13	1.11
% Catholic	0.89	0.15	-0.38
	0.81	0.71	0.71
% Islam	-3.47***	-3.92***	-3.54***
	1.07	1.09	0.79
Scandinavian/German C. code	1.9	2.63*	1.2
	1.83	1.45	1.63
French C. Code	-0.66	-0.15	-0.73
	0.74	0.69	0.74
Socialist/Communist Laws	5.51***	6.74***	4.59***
	1.65	1.35	1.23
Year	0.17***	0.13***	0.03
	0.01	0.01	0.03
log GDPPC		1.49***	1.51***
		0.34	0.37
Polity IV		0.06	-0.01
		0.04	0.04
% Education expenditures		0.38***	0.46***
		0.1	0.1
Inst. international women movement			0.19***
			0.05
East Asia & Pacific			0.89
			1.83
Europe & Central Asia			1.94
			1.62
Americas			0.33
			1.56

Table 3.2 (continued)

	(1)	(2)	(3)
Middle East and North Africa			-3.05**
			1.26
South Asia			-2.77**
			1.32
Constant	59.85***	47.26***	46.56***
	1.09	2.95	3.31
Observations	5237	5237	5237

Notes: *** p<0.01, ** p<0.05, * p<0.1 (based on two tailed t-test). Standard errors (clustered at country level) are reported below coefficients.

In the third model, regional fixed effects are included as additional controls to account for omitted regional characteristics. Doing so has no substantial impact on the conclusions drawn from previous model.[58] We also include a measure that captures the international institutionalization of women's equality in the world.[59] While including this variable does not change the interpretation of our main interest variables, the institutionalization of women's equality on a global level is positively and significantly related to gender equality.

Table B.3 in the appendix provides cross-sectional specifications of other non-historical gender equality indices (the GII and the GGG). Generally, the models are similar, though the effects of educational expenses are no longer significant in the cross-sectional specifications. The most important difference between the cross-sectional models is that per capita GDP seems to have little predictive power for the GGG index. A further difference is related to the effect of religion. Unlike our index and the GGG, a larger share of Catholics is associated with higher gender equality according to the GII. The African family system also has a stronger impact on the contemporary indices. Furthermore, socialist legal origins are significantly related to our long-run gender equality index where they do not have an explanatory power regarding the cross-sectional results for the other indices. The lack of importance of socialist systems is probably due to the lack of long-term data in the contemporary indices. Many formerly socialist countries experienced a reversal in the trend towards gender equality after 1991, meaning current indices cannot pick up their achievements.

To judge the relative impact of the variables, we need standardized coefficients. Table 3.3 reports these coefficients for the most complete model (3) and shows that institutional

[58] As a geographical control, we tested whether inclusion of latitude and longitude influences the interpretation of our results, which was not the case and the results are therefore not presented.
[59] Since the 1975 declaration of the Decade of Women by the United Nations, achieving gender equality has become an issue on the international agenda, creating common interests and strategies for action in gender equality the world over (World Bank 2011).

variables clearly matter for gender equality. Socialist legal origins followed by endogamous community family have large effects among the explanatory variables. However, we emphasize that the development level of countries is as important for gender equality outcomes as institutional characteristics are. For instance, a one standard deviation increase in log GDP per capita is associated with a 0.21 standard deviation increase in the HGEI. The international institutionalization of equality also has a large positive impact on gender equality (β=0.21).

Table 3.3. Standardized coefficients based on model 3.

	Standardized coefficients
African fam.	-0.000
Anomic fam.	0.004
Stem fam.	-0.016
Endo. com. fam.	-0.196
Exo. com. fam.	0.019
% Protestant	0.110
% Catholic	-0.015
% Islam	-0.135
Scandinavian/German C. code	0.046
French C. Code	-0.048
Socialist/Communist Laws	0.206
log GDPPC	0.211
Polity IV	-0.014
% Education expenditures	0.110
Inst. international women movement	0.214
East Asia & Pacific	0.039
Europe & Central Asia	0.112
Americas	0.018
Middle East and North Africa	-0.141
South Asia	-0.085
Year	0.069
Observations	5237

To test whether the effect of our explanatory variables differs depending on the stage of development, we split our data into developed versus developing countries. For this classification, we adopt the World Bank definition of countries with a Gross National Income (GNI) less than $4,085 in 2011 classified as developing versus the developed countries with a higher GNI. Table 3.4 below shows that some of our indicators do seem to matter in different ways for gender equality in the two stages of development. For instance among our family systems measures, endogamous community family is detrimental for gender equality only in

developed countries. Another interesting finding is that socialist legal origin only matters significantly for developed countries. These results underline the conclusions drawn from Table 3.3 that both long-term institutional conditions and economic development are important drivers of gender equality and that they can work for or against gender equality together.

Table 3.4. Results for OLS regressions of gender equality, 1950-2003 by level of development.

	Developing	Developed
African fam.	1.46	
	1.9	
Anomic fam.	1.88	-1.43
	1.04	0.78
Stem fam.		-0.57
		1.51
Endo. com. fam.	-1.37	-5.19*
	1.86	2.26
Exo. com. fam.	3.59	-0.59
	2.38	1.01
% Protestant	1.76	4.82***
	1.78	1.13
% Catholic	0.71	-1.07
	0.89	0.91
% Islam	-3.81**	-2.83*
	0.99	1.12
Scandinavian/German C. code		1.35
		1.55
French C. Code	-0.35	-1.23
	1.12	0.93
Socialist/Communist Laws	1.71	4.45***
	1.55	1.22
log GDPPC	0.92	1.13*
	0.88	0.46
Polity IV	0.02	-0.05
	0.04	0.05
% Education expenditures	0.46*	0.40***
	0.16	0.11
Inst. international women movement	0.18*	0.20***
	0.07	0.06
East Asia & Pacific	4.69*	-2.32
	1.72	1.25
Europe & Central Asia	0.73	0.63
	2.49	1.38
Americas	-0.21	-0.11
	1.6	1.24

Table 3.4 (continued)

	Developing	Developed
Middle East and North Africa	-3.19*	-4.27
	1.46	2.6
South Asia	-3.30*	
	1.37	
Year	0.03	0.06
	0.05	0.03
Constant	49.35***	51.66***
Observations	2129	3108

Notes: *** p<0.01, ** p<0.05, * p<0.1 (based on two tailed t-test). Standard errors (clustered at country level) are reported below coefficients.

Table B.4 in the appendix provides further robustness checks on the development variables. First, in the literature, the relation between economic development and gender equality is argued to vary by level of economic development (Eastin and Prakash 2013). This U-shaped link has been tested by separately considering developing and developed countries (Table 3.4), and through a quadratic GDP per capita term. The joint significance of per capita GDP and its quadratic term provides weak evidence for a U-shaped relationship.[60] However, for the entire range of per capita GDP the effect of income is positive. To control for endogeneity due to unobserved time-invariant country characteristics, random and fixed effects model were estimated. Both are very similar to the pooled OLS specification, though the time-invariant family systems and legal origins cannot be estimated in the FE model. Finally, an instrumental variable model was used to assess reverse causality running from gender equality to economic development. Lagged GDP per capita and latitude were used as instruments (Gallup et al. 1999). This specification shows a minor diminution of coefficient on the per capita GDP variable, but it remains a statistically significant predictor of gender equality.

To see whether our explanatory variables have different explanatory power for different dimensions of gender equality, we regress our full set of explanatory variables on single components of the HGEI (see Tables B.5 and B.6). There are a few interesting results for the explanatory variables that had a robust relation with gender equality in the previous models. For instance, Protestantism seems to be particularly relevant for closing the gender gap in education and parliament, whereas Islam is especially associated with gender inequality in labour force participation and parliamentary activity. This finding is in line with the World Bank (2004)'s Middle East and North Africa (MENA) report finding that despite significant improvements both in overall human development and closing the gender gap in various aspects (e.g. life expectancy, education) in the MENA region, women's participation

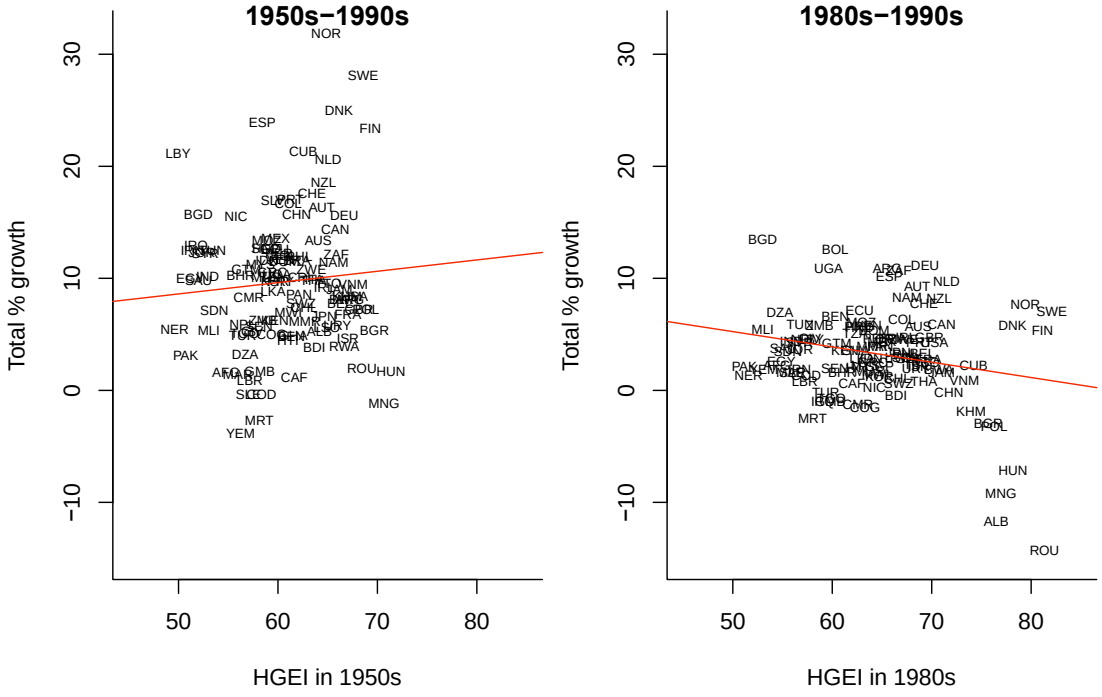
[60] While the results show joint significance at a p value lower than .01, the F statistics are only above the critical value of 10(F (2,48)=10.31), which indicates not a very strong U-shaped relationship between economic development and gender equality.

in the public sphere, both for labour force and political participation remains one of the main challenges in achieving gender equality (see also Baden 1992; World Bank 2013). Furthermore, socialist legal systems, which had a robust relation with gender equality seems to matter most for labour force participation, education, and participation in parliament. Thus, one can conclude that the institutional structure of countries seems to be particularly relevant for the gender gap in the public sphere. Economic development measured by GDP per capita seem to matter particularly for closing the gender gap in life expectancy and education. Moreover, estimating the models for the single components using non-imputed data does not change the interpretation of the results.

3.5. Characterising Trends in Gender Equality

Having tested the relative importance of the predictors suggested in the literature to explain the long-term cross-national differences in the level of gender equality, this section evaluates whether there is a convergence or divergence in gender equality in the second half of the twentieth century. The investigation is carried out based on decadal data. Figure 3.2 below provides the growth rate of the HGEI for each country compared to their starting value on the HGEI in the 1950s and 1980s.

Figure 3.2. HGEI levels and growth: 1950s–1990s and 1980s–1990s



Gender equality in the 1950s and its growth since display diverse patterns. Although Western Europe and its offshoots are generally the best performers, in the 1950s countries like Denmark, Canada and Australia had gender gaps similar to countries in Sub-Saharan Africa, Latin American and the former Soviet Union and Eastern European (e.g., Botswana, Uruguay, Hungary). Among these countries, while Denmark has made the most progress in closing the gap since the 1950s, Yemen made the least progress. Within regions there is also substantial

variation. Progress in the MENA region in closing the gender gap differs substantially from one country to the next. Libya, for instance, was the least gender equal in the 1950s, but made the most progress in the region (a similar growth rate to the Netherlands), whereas progress was much more limited in countries like Egypt. Also interesting are cases like Yemen and Mauritania, neither of which had strong gender inequality in the 1950s, but over time their gender gap actually grew.

More generally, the overall pattern from the 1950s to the 1990s seems to be divergence: countries that had a low score on the HGEI in the 1950s grew less than countries that had a high score. Only from the 1980s onwards can convergence be observed, in part driven by a fallback in gender equality in the former socialist countries in the 1990s (though it can also be observed when considering growth to the 2000s).

Whether the trends in gender equality are characterised by convergence or divergence is tested more formally in table 3.5. The growth rate in the HGEI per decade is regressed on the lag of the level of the HGEI. Progressively more controls are added to check for conditional convergence and to test the extent to which the results were driven by biases in fixed-effects models (Barro 2012; Croissant and Millo 2008).

There was no unconditional convergence in the HGEI over the entire 1950s–2000s period. If anything, there is slight divergence: countries scoring a point higher on the HGEI had a 0.05 percentage point higher decennial growth rate (Model 2). This would make only a very minor difference on the HGEI over the entire period. The fixed effect model (Model 3) too shows no sign of unconditional convergence.

Controlling for the level of economic development by including the log of GDP per capita makes only a small difference. The coefficient on the growth rate has become negative, indicating convergence, but the effect is very small (0.03 percentage points) and not statistically significant (Model 2). Only the fixed effect model displays significant convergence conditional on per capita GDP (Model 4), though estimating convergence this way is known to have a downward bias (Barro 2012).[61] Table B.8 in the appendix reports regressions for sub-periods, which show convergence conditional on economic development from the 1970s onwards (0.26 percentage points) and only slight unconditional convergence (0.13 percentage points) from the 1980s onwards.

[61] To check whether our findings are driven by the choice of the imputation method, the missing values are interpolated linearly and in the log form to take into account the non-linearity of the trend in gender equality. The results based on the latter form of imputation are reported in Table B.7 in the appendix. Overall, the interpretation of the results remains the same. One difference is that family systems, in particular endogamous community family, hamper the convergence process. Another difference from the results presented in Table 3.5 is that the magnitudes of the effect of the institutional variables are stronger in the model reported in Table B.7.

Table 3.5.Panel regressions of growth rate on lag of HGEI: 1950s-2000s

	(1)	(2)	(3)	(4)	(5)
	Pooled	**Pooled**	**FE**	**FE**	**Pooled w. hist/ inst. ctrs**
Intercept	-1.15	-1.76			8.04**
	(1.34)	(1.49)			(3.59)
HGEI_lag	0.05**	-0.03	0.05	-0.35***	-0.27***
	(0.02)	(0.03)	(0.04)	(0.08)	(0.06)
log(GDP)		0.75***		2.92***	1.04***
		(0.13)		(0.43)	(0.29)
Polity IV					-0.09***
					(0.03)
% Education expenditures					0.24**
					(0.10)
Inst. international women movement					0.12***
					(0.02)
% Protestant					3.34***
					(1.04)
% Islam					0.03
					(0.70)
% Catholic					-1.28
					(0.95)
Scandinavian/German C. code					-0.45
					(0.74)
English Common Law					0.35
					(0.51)
French C. Code					1.11
					(0.84)
African fam.					0.26
					(1.04)

Table 3.5 (continued)

	(1)	(2)	(3)	(4)	(5)
	Pooled	**Pooled**	**FE**	**FE**	**Pooled w. hist/ inst. ctrs**
Anomic fam.					0.51
					(0.36)
Stem fam.					0.97
					(0.59)
Endo. com. fam.					-0.47
					(0.73)
Exo. com. fam.					0.84
					(0.52)
East Asia & Pacific					0.50
					(0.97)
Europe & Central Asia					0.58
					(1.09)
Americas					-0.08
					(1.02)
Middle East and North Africa					-1.64*
					(0.87)
South Asia					0.49
					(1.01)
Adj. R^2	0.01	0.04	0.00	0.08	0.14
Num. obs.	857	644	857	644	543

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1 (based on two tailed t-test). Outcome variable is decennial % growth HGEI. Robust standard errors are reported between parentheses.

Moreover, the fixed effects model controls for the long-term institutional and historical characteristics of countries, which in themselves are important as a source of persistent difference in gender equality. Therefore, we have also estimated convergence controlling for historical and institutional characteristics that influence the level of gender equality significantly as shown in the previous section, such as religion, legal systems, and family systems. We also include the time varying variables from Table 3.5, such as educational expenditure, the Polity IV and the institutionalization of gender equality, which captures the effect of international initiatives such as CEDAW. Once these variables are controlled for, conditional convergence appears: countries with one point higher HGEI grow 0.27 percentage points per decade slower. However, at average growth rates and HGEI levels, this would still only lead to a half point increase in the HGEI over the entire period. In sum,

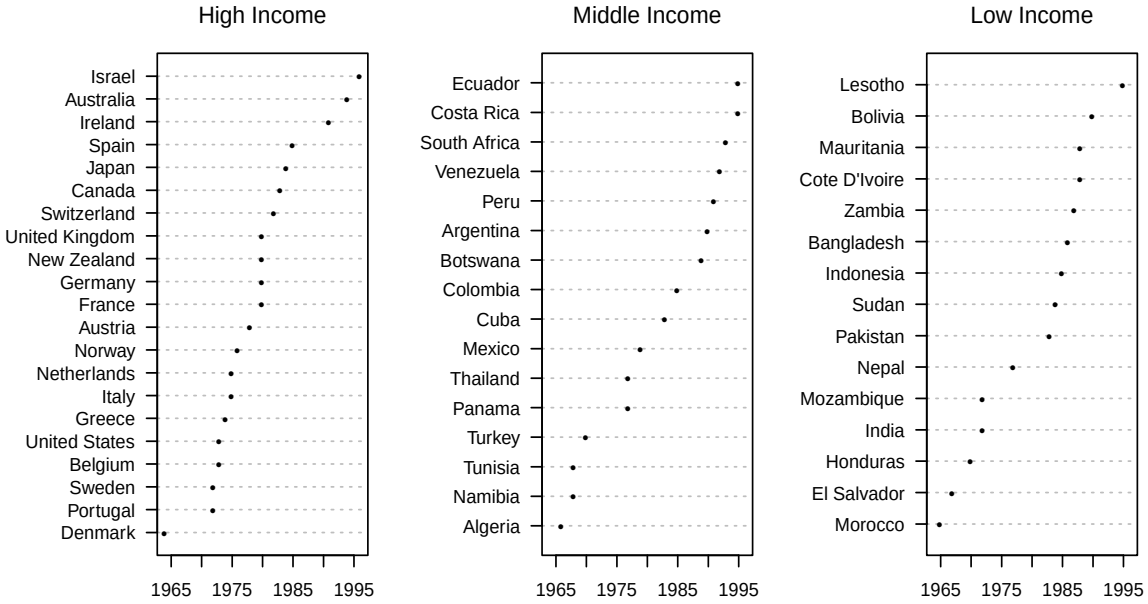
unconditional convergence is absent and conditional convergence is weak. Since the HGEI cannot be above 100 points, this is a striking result. Turning to the impact of the explanatory variables in Model 5, countries with a higher level of economic development, invest more in education and has participated in the international initiatives earlier in time are more likely to have a higher growth rate in the HGEI. The long-term institutional variables show less significant results while explaining the cross-national differences in the growth rate of countries.

Besides the importance of long-term characteristics of countries for progress towards gender equality, other mechanisms might be driving the lack of convergence as well. Claudia Goldin (2006) has pointed to the existence of a "quiet revolution" from the late 1970s onwards in a broad range of indicators of gender equality. These originated from changing expectations among women about their career, in turn due to three proceeding evolutionary phases of increasing female labour force participation in the tertiary sector. If these revolutions mostly occurred in developed countries, which already had high gender equality, this could obstruct convergence.[62]

To test for this possibility we have looked for breakpoints in the annual HGEI series by applying an F-test for linear models of a time trend on the HGEI before and after each year (Zeileis et al. 2002).[63] Figure 3.3 below shows the timing of breakpoints resulting in higher growth in the HGEI for countries broken down by income group (low, middle, and high).[64] Indeed, around 1980, many countries' growth rate in the HGEI increased. However, these breakpoints were not exclusive to developed countries and countries which already had a high HGEI. In fact, some of the earliest breakpoints actually occur in low-income countries. Breakpoints in these countries do occur at lower levels of the HGEI and their progress afterwards is less consistent. In sum, the HGEI series show some evidence for Goldin's quiet revolution. However, these breaks also occur in developing counties, making them an unlikely explanation for the lack of convergence.

[62] We have also tested for the existence of a U-shaped relation between gender equality and income (Goldin 1995) that could also contribute to divergence, but have found no evidence for it in the HGEI. It can be found for labour force participation, for which Goldin originally observed the U-shaped relation.
[63] To minimize the chance of finding a breakpoint as small as possible, the annual series used here was linearly interpolated rather than using the full multiple imputation procedure.
[64] Income groups from the World Bank: http://data.worldbank.org/news/2015-country-classifications.

Figure 3.3. breakpoint dates in HGEI, by income group



3.6. Conclusion

Over the past decades the idea that gender equality matters has steadily gained credence. The reasons for this are many, ranging from the intrinsic importance of treating women as equal to men, to 'smart economics'—the idea that improving gender equality is beneficial for development out- comes such as children's health, or for increased economic growth due to higher female labour force participation (World Bank 2011). Given the importance of achieving gender equality, this chapter explores the determinants of cross-national differences in gender equality outcomes between 1950 and 2003. The literature suggests that both development (modernization) and long-term, (in)formal institutions could matter for gender equality. To analyse these from a long-term perspective, we have used a new index of gender equality, the Historical Gender Equality Index.

We find that long-term institutions, especially religion and legal systems, are almost as important for gender equality outcomes as economic development. These results illustrate how gender equality is determined by a range of different factors. Furthermore, these long-term institutional factors continue to matter in different stages of development. This provides a better understanding of why countries that achieve economic development, such as China and India, still struggle to achieve gender equality. This is key to keep in mind when designing policy geared towards tackling gender inequality. The specific historical and cultural legacy of countries will mean that, when it comes to reducing gender gaps, there is no one size fits all policy. Even when simply trying to understand why gender gaps persist, a multifaceted approach is required. Moreover, while most regions and countries of the world made progress regarding gender equality over the past fifty years, there is remarkably little convergence in gender equality. The long-term institutional characteristics tested in this

chapter do not provide much insight in explaining the limited convergence. The explanations for this phenomenon are important for scholars interested in gender equality and development. At all times, however, it should be remembered that behind a composite index there can be great variation in the underlying indicators.

Our results also suggest avenues for future research on the determinants of gender equality. For one, there should be a closer inspection of the relative role of institutions and development at different levels of income. Simply breaking our sample in two sets of countries already revealed differences and it would be useful to analyse in-depth the interaction with development levels. Second, the dominant norms and values in a country can also be measured directly through surveys and this can sharpen our view of how long-term legacies matter. Finally, an even longer-term view on gender equality might be warranted. Progress towards gender equality and the development process go back to at least the nineteenth century.

CHAPTER 4: THE BEST THERMOMETER: A LONG RUN PERSPECTIVE ON GENDER INEQUALITY IN INDIA

with Lotte van der Vleuten and Sarah Carmichael[65]

4.1. Introduction

The best thermometer to the progress of a nation is its treatment of its women.
Swami Vivekananda, 1893

India, despite its success in building and consolidating a vibrant democracy (Hasan 2010), is still characterized by deep-rooted discrimination against women. This discrimination can be found in many features of daily life: in education, work, politics, and within the home (Das Gupta 1987; Vlasoff 1992; Chhiber 2002; Esteve-Volart 2004; Fuwa et al. 2006). In general, women are more likely than Indian men to suffer from the hardships of poverty and lack of access to resources. Maternal mortality remains high across the country, with India, taken together with Nigeria, accounting for over a third of global maternal deaths (Hogan et al. 2010). Child marriage is still prevalent, which has negative effects on schooling and health of girls, and associated with physical violence within the home (Jain and Kurz 2007). Discrimination against women also manifests itself in a more extreme form in violence against women and sex selective abortion resulting in many 'missing women' (Sen 1990). Klasen and Wink (2002) estimated that due to bias in the allocation of resources, a total of 39.1 million girls were missing in India in 2001.

However, the position of women varies significantly across the states of India. Various studies have observed that the position of women is substantially better in the South compared to the North (e.g., Dyson and Moore 1983; Kishor 1993; Basu and Das Gupta 2001). Kerala,

[65] Written as Chapter 5 in J.L. van Zanden, A. Rijpma and J. Kok (Eds.), *Agency, Gender, and Economic Development in the World Economy, 1850-2000:Testing the Sen Hypothesis*

the Southern state held up by Amartya Sen as being exemplary for development, is one of the top performers in a number of gender outcomes (e.g., literacy, maternal health, low violence against women) (Sen 1999). States in the North, such as Uttar Pradesh and Rajasthan, score very low on such indicators. Ghani et al. (2012) showed that the female business ownership rate is especially high in Karnataka, Kerala, and Tamil Nadu, in contrast to low female ownership shares in Delhi, Bihar, Haryana, and Gujarat. The 2007 National Family Health Survey III documented that even among recent cohorts of women aged 18–29, 52 per cent of the women were married by age 18 in Uttar Pradesh; corresponding proportions were 25 per cent in Tamil Nadu and 17 per cent in Kerala (Desai and Andrist 2010).[66] Bhaskar and Gupta (2007:222) found that the states of the North (Punjab, Haryana, Himachal Pradesh, Delhi, Uttar Pradesh) and West (Gujarat, Rajasthan, Maharashtra) show 'abnormally' high sex ratios biased against women compared to the states of the South (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Goa) and the East (Assam, Bihar, Orissa, West Bengal). Basu (1992) finds that, based on qualitative and quantitative data on migrants from Southern and Northern states to Delhi, that Southern women enjoy greater freedom of mobility and expression.

A number of studies focusing on the long-term trends in gender equality outcomes highlight that the state level differences in gender equality are not a new phenomenon but have historical roots. Gupta (2014) shows that the regional differences in sex ratios have persisted over the course of the twentieth century. She attributes the persistence of son preference in India to the existence of deeply rooted cultural values.[67] States in the South were historically characterized by lower marital fertility, later age at marriage, and more equal sex ratios compared to the North (Dyson and Moore 1983; Kishor 1993; Basu and Das Gupta 2001). In some states in the East and the South, bilateral or matrilineal inheritance practices were historically common for some communities, for example for the Nayars and Tiyyars in the state of Kerala (Gough 1961; Sen 2001). Taken together these examples point to differences across India in the position of women, which seem to have persisted over time.

This chapter seeks to map the regional patterns in different dimensions of women's position and gender inequality in the late nineteenth and twentieth centuries. We study to what extent the drivers of gender equality from Chapter 3 based on cross-sectional data, i.e. economic development and historical institutions, help explain the long term regional differences in gender equality observed in India. In line with Chapters 2 and 3, this chapter employs data on sex ratios, marriage ages and education calculated from Indian censuses, from 1881 to the present day as indicators of gender equality. In addition, data on parliamentary and voting activity, available from 1961 onwards are used to study gender inequality in politics.[68] The data is available for 16 Indian states, covering more than 95 per

[66] Data is based on International Institute for Population Sciences and Macro International (2007).
[67] In this, she follows in the footsteps of a body of literature devoted to this topic, ranging from the first observations in the 1901 General Report of the Census, to the seminal work by Karve (1953), and to more contemporary work like Miller (1981), Dyson and Moore (1983), Rahman and Rao (2004) and Gooch (2014).
[68] It is not possible to study the gender differences in voter turnout at the global level due to secret ballot system adopted by many countries in the world. India is one of the few countries in the world that provide voter turnout statistics by gender (see the website of IDEA for a list of countries for which this data is available by gender at: http://www.idea.int/gender/vt_by_country.cfm)

cent of the total Indian population (Clots-Figueras 2011). However, some of the dimensions introduced in Chapter 2, such as life expectancy and labour force participation cannot be captured due to a lack of data. We discuss both absolute levels as well as the female to male ratio of the indicators to evaluate women's position and women's position relative to men. These ratios are referred to as gender inequality measures.

To test whether economic development helps explain the differences between Indian states in terms of gender equality, we look at the level of urbanisation as a proxy of economic development, as this measure is the only available proxy available for the entire time period under investigation. Moreover, as discussed in the previous chapter, the differences between states in gender equality can be attributed to their long-term historical institutions. As indicators of historical institutions, we look at the constraints on female agency determined by the family systems, whether the state fell under direct British rule in the colonial period, and religion. By means of this investigation, we aim to gain a better overview of the root causes of the variation in gender inequality across India.

The main purpose of this investigation is twofold. First, at the sub-national level, the relationship between gender, development and historical institutions could be different from at the national or cross-country level due to inter-regional disparities. This, however, remains largely unexplored in the existing literature (Arora 2012). Therefore, we would like to test whether the explanations of gender equality, tested with national level data, are relevant in explaining regional differences as well. Second, studies focusing on India are either based on current-day data and lack historical perspective, or those with a long-term perspective are limited in geographical scope and in the dimensions of gender equality they study. For example, Rahman and Rao (2004), using a randomized household and individual level survey conducted in 1995 in the districts of Karnataka and Uttar Pradesh, show that village exogamy and public investment (i.e., number of roads, presence of schools) are positively associated with higher levels of gender equality. Arora (2012) tests the impact of globalization and economic development on gender inequality in Indian states using data available after 2000. He finds that at the sub-national level in India higher per capita income is accompanied by lower gender inequality. However, he also observes that some high-income states such as Punjab and Haryana also have high levels of gender inequality. Kubichek (2011) is one of the few studies to take long-term perspective, analysing district-level data from six Indian states for the period 1961-2001 to understand the roots of gender gaps in literacy and sex ratios. She finds that economic growth to be associated with a decrease in female to male child sex ratios and female to male literacy ratios, which aligns with Arora's findings, but concludes that as the main variations in sex ratios and literacy ratios are accounted for by the passage of time, other unaccounted for factors must be of importance. Vlassoff (2013) shows that in rural Maharashtra, between 1975 and 2005, economic progress (i.e., the transformation of agriculture from subsistence to cash crops) together with social expenditure in the region (i.e., improved sanitation, construction of schools and health centres) had a positive impact on female education and marriage ages. Despite this progress, she also found that traditional gender roles persist. For example, only 7 per cent of married women worked in 'white-collar jobs' such as teachers and office workers.

None of these studies provide insight into women's position from the colonial period to the present day. Difficulties in obtaining long-term data on both gender indicators and economic development underlie this lacuna. With new data, we would like to add to this literature by testing the importance of economic development and historical institutions in explaining regional differences in both colonial and postcolonial period, measured in terms of different dimensions of gender equality. At this point we should make explicit one feature of our dataset that the data is captured at state level. This means that we have had to, in very broad terms, project back current day state boundaries on to the historical data we had available. This is hardly ideal but is the only feasible way to paint, in broad strokes, a picture of the regional differences in the position of women and to explore in rough lines the changes over time. It is, though, important to note in what follows that the state boundaries shift over time, which may have implications for the analysis. This is particularly pertinent in the period 1950 to 1960 when many state boundaries changed. To reduce some of the concerns, we repeat the empirical analysis by using the data from 1880, 1960 and 2000. We also repeat the panel data regressions in the post 1960 period.

In addition, we evaluate whether Indian society is becoming more, or less gender equal over time, in other words, whether there is a convergence towards gender equality or not. The basic idea of convergence is that states with lower initial levels of gender equality in our indicators should grow at a faster rate than those states starting with a higher level of gender equality. As a result of national policies in the post-colonial period, states starting with lower levels of gender equality might be catching up with states that have high levels of gender equality. After independence, the Indian government took a number of actions to eliminate gender inequalities in various dimensions of wellbeing. For instance, within a year of Independence, the government under the leadership of Nehru enacted a number of progressive laws in relation to marriage and divorce (1955), and to succession and inheritance (1956) (Hasan 2010:942). In 1992 India became a signatory to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).[69] In September 1996, the Indian government passed a Bill that proposed reserving one-third of the seats in the Panchayats (local governments) for women (Clots-Figueras 2011:664).[70] The Government of India adopted a new national policy for the empowerment of women in 2001 to bring about gender justice, leading to important changes in the legal framework to increase women's rights concerning marriage, property and protection against domestic violence. As a result of these attempts by the national government, gender inequality in India is expected to decline and the long-term regional disparities in gender equality should become less prevalent (i.e., we expect to find convergence).

[69] http://www.un.org/womenwatch/daw/Review/responses/INDIA-English.pdf

[70] In September 1996, the Indian government introduced a Bill in Parliament that proposed reserving for women one-third of the seats in the Lok Sabha (Central Government) and in the State Assemblies. This proposal has since been widely debated in several parliamentary sessions, but no agreement has yet been reached (Clots-Figueras 2011:664).

However, the efficiency of the national attempts to eliminate gender disparities is unclear. Introduction of quota systems in local governments has helped increase women's political representation substantially. When the quota mandated that only women were permitted to run for seats in reserved districts, thereby removing competition by men, the random assignment of reservation indicated that there was an estimated 10-fold increase in women running for office (Rohni and Ford 2011). In addition, Clots-Figuras (2011) finds that female legislators favour "women-friendly" laws, such as amendments to the Hindu Succession Act, which was designed to give women the same inheritance rights as men and increase the education of individuals from their home districts. While female literacy in India has increased almost 12 percentage points from 2001 to 2011, the current female literacy rate of about 65 per cent is still lower than that of males, which is about 82 per cent (Kubichek 2011). The overall male labour force participation rate in India is 85 per cent, in stark contrast to 36 per cent female labour force participation. The female to male sex ratio in India, defined as the number of females per 1,000 males, has dropped from 972 in 1901 to 933 in 2001 (Kubichek 2011; Bhan 2001). We provide a systematic look at these trends in gender equality and test whether the gap between men and women has grown or declined from the late nineteenth century onwards.

To study these issues, we analyse our dataset using an Ordinary Least Square (OLS) regression technique. First, we test the relevance of the indicators in explaining the long-term regional differences in women's position and gender equality. Our findings highlight the relevance of urbanisation and the family systems constraining female agency as important factors in explaining the long-term regional differences in gender equality. As a second step in our analysis we look at the change (growth) towards gender equality in Indian states and whether the gap between the states is closing over time. The results show that except in literacy, there is convergence towards gender equality in India. However, the findings also highlight that is not a uniform process across Indian states. The convergence process is slowed down by regional differences in historical institutions and the urbanisation rate. Thus, our findings provide support for those of Shah (1998), who attributes the varying impacts of national policy to the different traditional family structures and religious composition across India.

The chapter proceeds as follows: Section 4.2 provides a discussion on the factors that may be relevant in explaining the position of women in Indian states. The aim is not to reiterate what has been said in the previous chapter, but discuss the relevant literature in the context of India. Section 4.3 then introduces the data sources and section 4.4 provides a description of how the position of women in Indian states changed over the course of the twentieth century. Section 4.5 presents the results of the empirical analysis on the determinants of gender equality in India whereas section 4.6 focuses on the results of the convergence model. Section 4.7 concludes.

4.2. Determinants of the Position of Women

The literature to date presents a number of factors as important in determining the North-South divide in terms of the position of women in India. Some scholars attribute the differences to economic factors. This strand of literature argues that the South has more labour-intensive crops than the North and correspondingly larger market for female labour (Bardhan 1974; Miller 1981; Foster and Rosenzweig 1996; Gooch 2014). Labour-intensive rice-cultivation in the South expands labour demand for women. As demand rises and her economic value increases, women's status goes up, especially when these women belong to the classes above the lowest economic strata of society (Boserup 1970: 69–75). Since the seminal work by Dyson and Moore (1983), cultural factors as shaped by family systems received substantial scholarly attention. The authors argue that differences in how women are treated are the result of long-term cultural preferences determined by the family structure. According to Irwati Karve (1953), these family systems are partly explained by the pastoral nature of Northern India, versus the crop agriculture of Southern India. In both of the explanations, geography seems to play an indirect role in explaining differences in the position of women, as the type of soil, and climate, plays a crucial role in determining the type of crop to be planted. A third approach attributes the differences to state policies designed to promote gender equality, which have been more proactively pursued in Southern states compared to the North (Jeffrey 1992; Rahman and Rao 2004). While our data does not allow us to study all the relevant explanations mentioned here, we review the literature on the determinants of gender equality below, which we are able to test in the empirical specification.

As mentioned, due to data availability, we use urbanisation as a proxy for economic development. We test the economic development thesis that as countries, or regions, become more economically developed, the bargaining position of women and overall gender equality will improve (Inglehart and Norris 2003). Urbanisation is intrinsically bound up with the process of economic development. As societies shift from agricultural or nomadic to non-agricultural activities, agglomeration in cities becomes economically efficient. The World Bank (2009) highlights the process of urbanisation as a source of growth, integration and specialization through its creation of scale economies. The generation and presence of scale economies in the mode of production is also a reason for the increasing importance of urban settlements. This process is most advanced in developed countries while it is still in an intermediate phase in many other parts of the world. The link between urbanisation and economic productivity can also be empirically demonstrated (Malanima 2005). As such, the inclusion of the variable urbanisation in the model specification is justified as a proxy for the larger process of "economic development". Urbanisation is expected to promote gender equality as it provides greater employment opportunities for women, and greater exposure to more gender egalitarian values (Kubichek 2011). Thus, we expect states with a higher level of urbanisation to perform better on the indicators of gender quality. However, while a number of studies using cross-national data, have observed that urbanisation significantly increases the level of gender equality in a society (e.g., Inglehart and Norris 2003; Carmichael 2011), the evidence in the literature on the role of urbanisation in promoting gender equality in Indian states is less conclusive. For instance, Kubichek (2011) finds that urbanisation leads to

a small increase in female to male literacy ratios, but has no impact on female to male child sex ratios.

In order to evaluate the idea that long-term norms and values matter, we test a number of historical institutional factors. These are family systems, religion, colonial rule and caste. The family and kinship systems, which often determine the rights of women in traditional societies, have been highlighted as one of the most important factors in explaining the historically persistent pattern of missing women in India (see for example Kishor 1993; Agarwal 1995; Das Gupta et al. 2003). As mentioned, Dyson and Moore (1983) argue the differences in gender equality are mainly the result of cultural factors, determined by family systems. They argue that the lower status of women in the North can be attributed to the widespread practice of exogamous marriage. However, their view on exogamy as being detrimental to the status of women has been challenged by Rahman and Rao (2004). Rahman and Rao (2004: 241) argue that marrying within the family may require wives to split their time and loyalty between two competing circles of kin. Moreover rules that prescribe marriage to an uncle or a cousin may limit women's freedom in choosing marriage partner, which may result in unequal bargaining power between spouses. Their empirical findings show no impact of exogamy on the position of women.[71] Beside exogamy, there are other dimensions of family systems relevant in determining the position of women, such as co-residence, how descent is defined and inheritance practices. However, as the influence of the family systems and other cultural institutions such as religion on the position of women has been explained in detail in earlier chapters of this book, we do not go into further detail here.

Overall, we expect that states with family systems which are less constraining to women's agency in the household would also have higher levels of gender equality. Moreover, as discussed in earlier chapters, the disadvantageous position of women in Muslim majority countries has been largely attributed to Islam (e.g., Fish 2002; Donno and Russett 2004). Therefore, we test whether states with a larger share of Muslim population historically also have higher levels of gender inequality and a lower status of women in the long run.

Colonial rule is used as an indicator of the influence of contact with foreign rule. Colonial India consisted of states under direct British colonial rule, and states with indirect rule, under the administration of Indian kings rather than the British Crown; these were known as the "native states" or the "princely states" (Iyer 2010).[72] Colonial rule may have an ambiguous effect on gender equality. While colonial administrators attempted to curtail such practices as female infanticide and child marriage, at the same time they imposed their own ideals on the countries they came into contact with, sometimes resulting in a shift from matrilineal forms of social organization towards patrilineal ones (Henderson and Whatley

[71] While exogamy and endogamy distinction is worthwhile testing in the empirical specification, we exclude this dimension of family systems from our measure due to the mismatch between the definition of exogamy in the context of India (i.e., has a broader definition which refers to marriage arrangements not with non-relatives but also members of other castes and villages) and the dataset we are using, which does not allow for such a distinction.

[72] Prior to national independence, some Indian states experienced elections under a highly restricted franchise, while others did not (Tudor and Zoegfeld 2010).

2014). For instance, the British colonial regime suppressed certain customs such as female infanticide and *sati*, but it did not make any serious effort to intervene in the institutions of family and marriage (Shah 1998: 149). Therefore, in areas ruled directly by the British, we may expect to find less son preference.

While studying the relevance of institutional indicators in gender equality, we will also take into account elements of the caste system, specific to India. Although formally abolished after independence, today the Indian government still recognizes some social groups historically disadvantaged on the basis of this normative system. The caste system was a closed system of social stratification, whose origins are entwined with those of Hinduism. The system is subdivided into four major categories, which are again divided into a number of castes.[73] Upward mobility was virtually impossible and certain occupations were historically tied to particular castes, such as priest, governor and farmer. Outside the four major categories was another fifth category, the untouchables, also called Dalit. This lowest caste was associated with "unclean" occupations, such as any involving leatherwork, butchering, or waste (O'Malley 2013: 141-143). Bidner and Eswaran (2013) demonstrate that endogamy (marriage only within castes) is one of the core features of the caste system and punishments for violations of endogamy are more severe for women than for men. This is because hypergamy (women marrying up) is more acceptable than hypogamy (women marrying down). The levels of gender equality and the position of women are expected to be lower in states with a larger share of Dalit population, as social inequality interacts with gender inequality.

The drivers of gender equality discussed here may also be relevant while characterizing the trends in gender equality in India over time. As a result of the national intervention, we expect the gender gap in India to decline and the regional differences between the states to get smaller over time. The decline in gender inequality, tough, may be slowed by state differences in urbanisation rates. Moreover, a decline in overall gender inequality in India could be held back by slower change in states with historical institutions that are detrimental to the position of women.

4.3. Data

To study the historical roots of women's position across India, regional level data was collected from primary and secondary sources for the time period between 1881 and 2001 for 16 states of India.[74] To provide an indication of the location and size of the states, Map 4.1 shows an overview of the state names referred to later on in the text.

[73] The major categories are (in descending order of social status): 1) Brahmans; 2) Kshatriya/Rajput; 3) Vaishya; 4) Shudra.

[74] These states are Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Haryana, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, and Jammu & Kashmir.

The changing boundaries of the states in the colonial and post-colonial period cause difficulty in combining the historical dataset from the censuses with the current day data.[75] The modern state boundaries in India are different from older native state or British province boundaries, mainly due to the 1956 reorganization of states on a linguistic basis (Iyer 2010). As a result, some states have been divided, and others have been newly created or have disappeared over the period under consideration. The state division from the 1990 census is used to combine historical data with supplementary data from secondary sources described below. We focus on state level analysis as the number of districts has increased substantially, especially since the 1970s (Banerjee and Somanathan 2007). Therefore, we are better able to capture women's empowerment over a long period when the measures used are at the state level rather than at district level. However, this choice of sampling comes at the cost of sample size, which limits the possibilities to apply complex empirical analysis.[76]

Map 4.1. Map of India - States and Union Territories

Source: http://commons.wikimedia.org/wiki/File:India_states_and_union_territories_map.svg

The historical measures of women's empowerment, namely sex ratio, marriage ages and literacy, were collected from the decadal Indian censuses available from 1881 onwards.[77] The sex ratio is calculated by taking the ratio of females to males for the age cohorts of 0-10, 10-15 and total population. In the modern literature, it has been shown that at birth the ratio of females to males should be about 0.94 (see chapter 2). Thus every value below 0.94 would indicate an inclination to son preference (Dyson 2012). Though we would prefer to use the

[75] For a list of states' names in different time periods, see appendix C1.
[76] This way of reconstructing the census data to match it to current day states means that the observations should not be construed as 100 per cent accurate but rather as somewhat rough measures of the historical situation.
[77] The census data is at the level of states with the possibility of disaggregating the data at the district level. However, to have a long-term insight on various indicators of women's empowerment, our focus is limited to the state level.

age category 0-1 or 0-5, the age category 0-10 is used, as the measure for age 0-5 is not available for the entire period. Also, unlike in 2010, son preference would historically not manifest itself as pre-birth sex selective abortion but rather in preferential treatment of male infants and/or female infanticide, which might be better captured by taking the age group 0-10.

Age at first marriage of women and men are calculated using the Singulate Mean Age at Marriage (SMAM) method, as described in the earlier chapters in this dissertation.[78] Lastly, the female and male literacy rates are the percentage of the population reported in the census data as being able to read and write.[79]

From the 1960s onwards, measures of the political empowerment of women become available. Our focus is on two indicators, namely the percentage of female seats in the state legislatures (Vidhan Sabhas) and the voter turnout rate by gender for the elections for state legislatures. The State Legislative Assemblies are directly elected bodies that carry out the administration of the government in the Indian states that have the freedom to decide the expenditure and budget allocated to development policies (Clots-Figueras 2011). The data is available from the reports published by the Election Commission of India (ECI).[80] To calculate the voter turnout, the ratios of the number of women and men who voted in the last election to the number of female and male eligible voters are taken.

While we study the trends in women's position, we also take the ratio of the indicators of women's position to that of men to evaluate not only the absolute position of women, but their relative position to that of men as well. The ratio indicator provides a better overview of the size of the gender gap, and thus a better indicator of gender inequality. We take the ratio of the measures on women's position only after missing values have been dealt with. Similar to the interpretation of the ratio measures employed in Chapter 3, a number below one indicates inequality biased against women, one reflects perfect gender equality, and a value above one would show inequality biased against men.

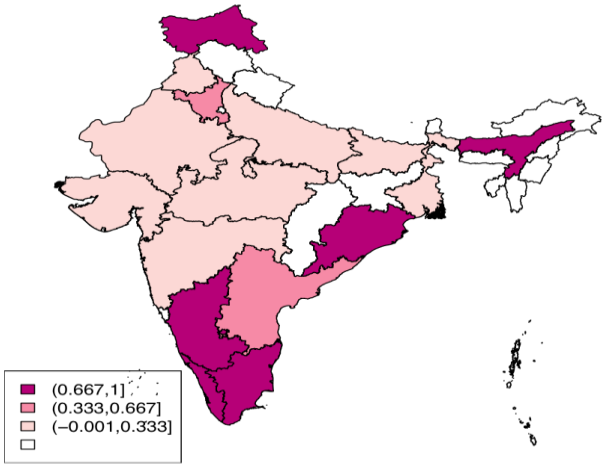
[78] The method works as follows: Using the never married category, percentages single can be calculated for every age band, and by weighting these by the number of years in each age band the mean age of the transition between single and married can be calculated. One subtracts the number of years spent single by those who never marry and arrives at the average number of years those who eventually marry spend in an unwedded state. Two issues with this calculation arise. Firstly the SMAM takes a single point in time and calculates the age at marriage by looking at the whole range of marital experiences of the population aged between 15 and 50. This can be different from the true mean age of marriage, which can be a cohort specific measure. The second issue arises due to the retrospective nature of the calculation that SMAM represents. This means the SMAM results are influenced by age and marriage specific mortality and by any in or out migration (Carmichael 2011:6).

[79] For 1881, 1931 and 1961 literacy is for ages 5 and up. For 1901, 1911 and 1921, literacy is for ages zero and up. Since 1981, literacy is for ages 7 and up. This may mean that for the period 1901-1921 the literacy data is downward biased by the presence of the under 5s in the statistics. The shifting boundaries may cause jumps between time periods.

[80] Although after independence, elections took place in the 1950s in Indian states, in the electoral reports women turnout rates started to be recorded only starting with the elections from the 1960s onwards

To study the role of economic development on gender equality, we use urbanization as a proxy, which is the percentage of the urban population to the total population.[81] Data on urbanisation comes from the census data as well and is available from 1881 onwards.

Map 4.2. Constraints on female agency defined by family systems



To capture family systems, we construct an index called constraints on female agency (CFA), made largely on the basis of Murdock's *Ethnographic Atlas*.[82] The information from Murdock's *Ethnographic Atlas* was supplemented with additional information from Karve (1953), who classifies Indian states according to family structures into a Northern, Central and Southern zone.[83] Using these two data sources, the constraints on female agency (CFA) index is constructed by taking into account different dimensions of family system, i.e. co-residence and how kinship is defined (patrilineal descent versus bilateral or matrilineal). Besides co-residence and kinship, we include the norms of premarital sexual behaviour of girls in the index.[84] The CFA index has a continuous scale on which a higher score indicates less constraint on female agency, thus being more female friendly. The distributions of the states

[81] In the censuses, urban population is defined as towns with above 5000 inhabitants.
[82] For more on the *Ethnographic Atlas* see Rijpma and Carmichael (2013).
[83] While Karve (1953) also provides a classification on family practices in India, we do not use her classification in the empirical specification, as Karve's zones do not map to state boundaries. She often describes geographical features as the separation between zones, which do not coincide with state borders. Our aggregation of states to have a long-term overview of the state's development in terms of gender equality causes difficulties in employing her classification. Therefore, we use her work as a complementary material to our measure on constraints on female agency.
[84] The way family systems are studied in this chapter differs from the rest of the chapters due to the limited information on Indian states in Murdock dataset. Therefore, it is not possible to test all the relevant dimensions of family systems related to female agency discussed in Chapter 1. We choose to add another dimension, namely whether it is socially accepted to have sex before marriage or not, which is not covered in the other chapters of this dissertation to have more information on long term historical practices limiting female agency in the household. Another shortcoming caused by the limited data availability is that we are not able to test the different dimensions of family systems separately.

according to the index on constraints on female agency are mapped below. Map 4.2 shows that while on average, the states located in the South seem to be more female friendly, a number of states located in the North and the East, such as Jammu and Kashmir, Assam, and Orissa show also less constraint on the female agency.

Data on religion is captured by the percentage of the population that is Muslim and Hindu measured in 1901. We employ a categorical measure of colonial rule with three categories, namely direct British rule (reference category), native rule and a mixed rule for states that had a combination of British and native rule. The mixed rule category was created due to changing boundaries of the states. This data comes from Iyer (2010). For caste we use the percentage of untouchables / Scheduled Castes in the state population, as it is the only caste traceable over the entire period.[85]

Table 4.1. Descriptive Statistics based on Non-Imputed Data

	Min.	Max.	Mean	sd	n
Sexratio 0-10	.81	1.10	.98	.05	105
Female SMAM	10.25	23.10	15.95	3.35	116
Female/Male SMAM ratio (Mar)	.57	.86	.73	.07	116
Female literacy	.00	.89	.17	.22	159
Female/Male Literacy ratio (Lit)	.00	.94	.32	.27	159
% Female Parliament	0	.11	.04	.02	80
Female/Male Parliament ratio (Parl)	0	.12	.05	.03	80
Women turnout	.33	.79	.57	.11	79
Female/Male turnout ratio (Turn)	.57	.99	.86	.10	79
Urbanisation	1.36	44.04	15.52	8.98	153
Constraints on Female Agency (CFA)	0	1	.44	.47	131
%Muslim 1901	.40	52.60	21.29	16.49	185
%Hindu 1901	13	91.90	65.75	22.59	185
Mixedr	0	1	.26	.44	211
Nativer	0	1	.25	.43	211
%Dalit	3	30	17.87	6.84	70

As Table 4.1 illustrates, the number of observations differs per variable. We made use of a multiple imputation technique, which estimates the missing values using a bootstrapping-based algorithm (King et al. 2001) and takes into account the panel data nature of the data, as described in Chapter 1. The data coverage and the descriptive statistics after the imputation are provided in Table 4.2.

[85] The caste groups are defined based on the following sources: The Constitution Scheduled Castes Order, 1950, http://lawmin.nic.in/ld/subord/rule3a.htm (8-7-2014)
The Constitution Scheduled Tribes Order, 1950, http://lawmin.nic.in/ld/subord/rule9a.htm (8-7-2014)
Annexure Ib, List of notified Scheduled Castes, Census of India Website, http://censusindia.gov.in/Tables_Published/SCST/ST%20Lists.pdf (29-07-2014)
Annexure Ia, List of notified Scheduled Castes, Census of India Website, http://censusindia.gov.in/Tables_Published/SCST/SC%20Lists.pdf (29-07-2014).

Table 4.2. Descriptive Statistics based on Imputed Data

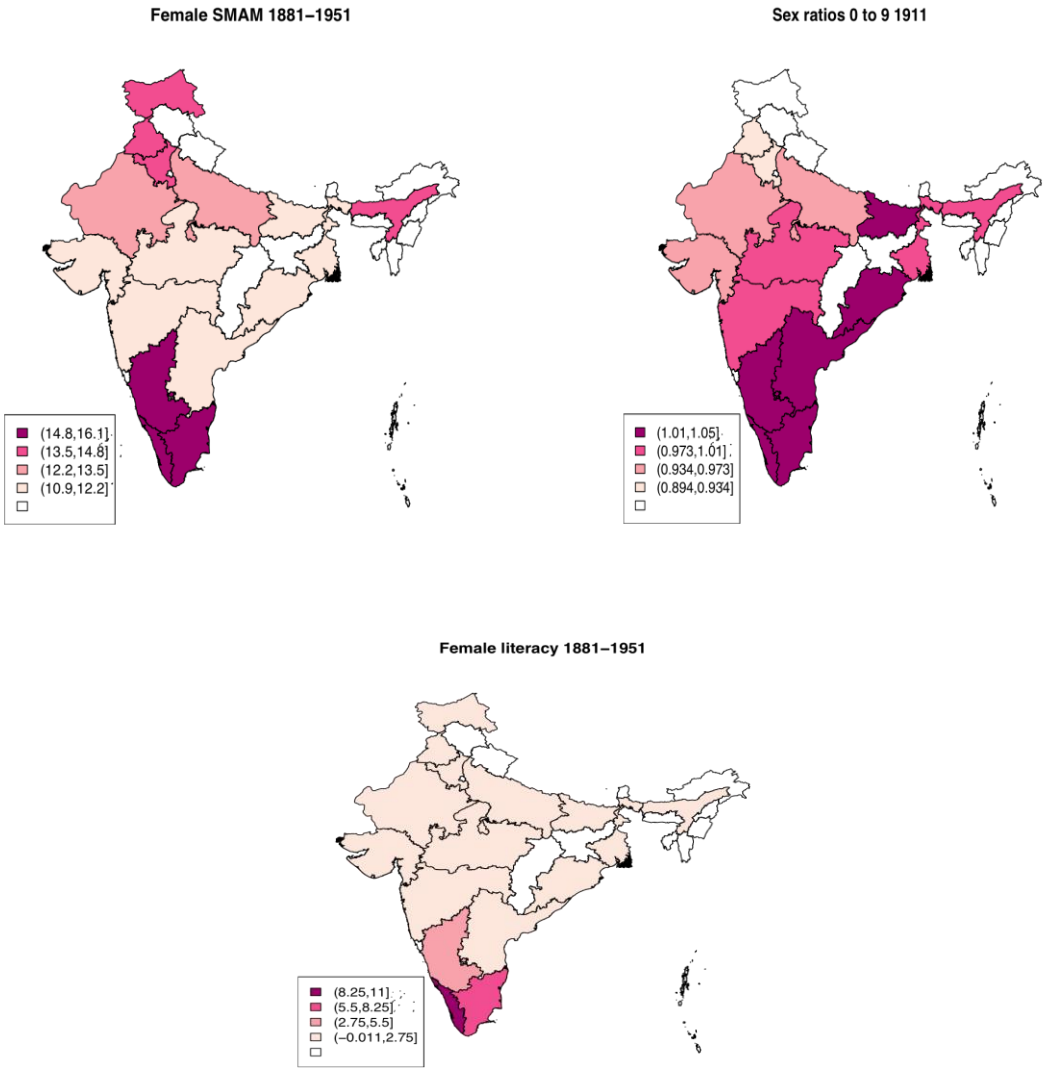
	min	max	mean	sd	count
Sexratio 0-10	.81	1.10	.98	.05	224
Femalesmam	10.25	23.10	16.07	3.41	224
Female/Male SMAM ratio (Mar)	.54	.89	.73	.08	224
Female Literacy	.00	.89	.19	.22	218
Female/Male literacy ratio (Lit)	.00	.95	.37	.28	218
% Female Parliament	0	.11	.03	.02	224
Female/Male parliament ratio (Parl)	0	.12	.03	.03	224
Womenturnout	.33	.79	.54	.10	220
Female/Male turnout ratio (Turn)	.57	.99	.81	.10	220
Urbanisation	1.36	44.04	16.72	9.72	224
Constraints on Female Agency (CFA)	0	1	.44	.43	224
%Muslim1901	.4	52.6	21.03	15.51	224
%Hindu1901	13	91.9	67.17	21.35	224
Mixed rule	0	1	.26	.44	211
Native rule	0	1	.25	.43	211
%Dalit	3	30	17.55	6.25	224

4.4. Trends in Various Indicators of the Position of Women

Before moving to the discussion of the explanations of gender equality in India, we first provide an overview of the position of Indian women over time. We start by providing an overview of the indicators of women's position in the colonial period for which we have data. Then we look at the development of women's position in Indian states over time. To investigate the historical origins of current day gender inequalities in India, we compare a selection of current day indicators of gender equality, namely maternal mortality rate, crimes against women, the share of female representatives in state legislatures and female marriage age in the 2000s.

As map 4.3 below illustrates, the historical pattern is relatively clear. For female literacy, sex ratios and female SMAM, the southern states of Kerala, Tamil Nadu and Karnataka are outperforming the vast majority of their northern cousins. This fits to some extent with Karve's (1953) female friendly southern family zone. However, Andhra Pradesh does not perform as expected, having an average SMAM of under 13 years between 1881 and 1951, and low literacy. Some argue that the female friendliness of the South is not so much about the Southern states, but rather about coastal zones in Southern India (Dyson 2014). Andhra Pradesh and Karnataka are, in such a model, likely to demonstrate less female friendly behaviour as they have more inland area relative to coastline than Kerala and Tamil Nadu.

Map 4.3. The historical position of women in India in three indicators



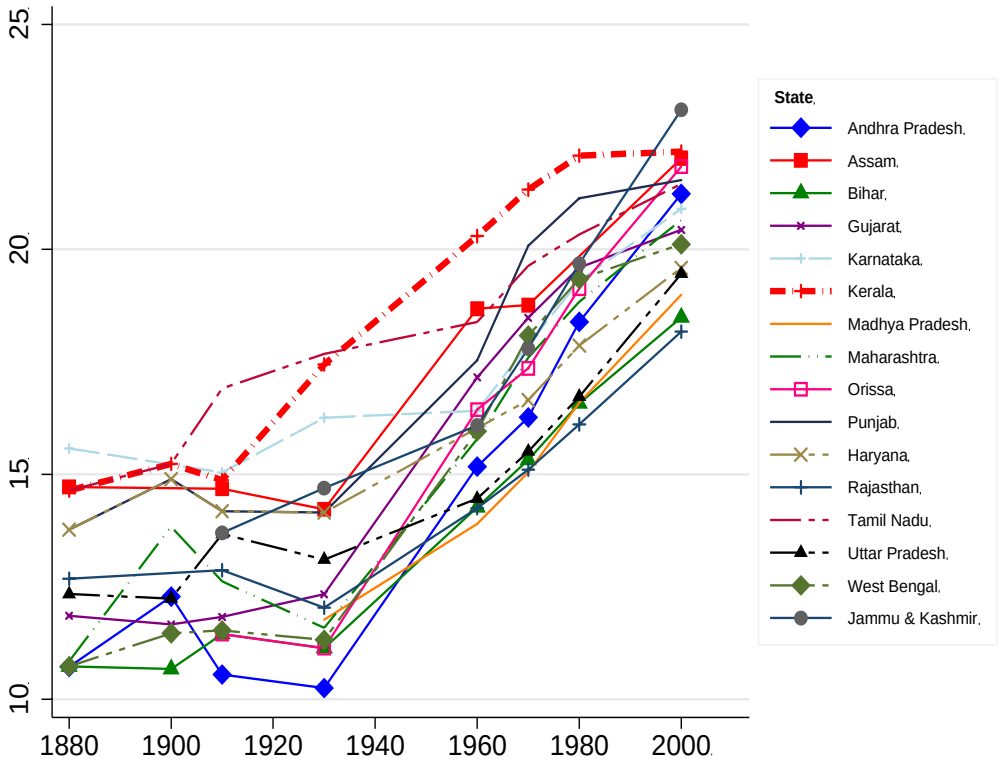
This map also highlights that in the Central and Northern regions the picture is more varied, except when it comes to literacy between 1881 and 1951, when only Southern states achieve a level of literacy of over 2 per cent for women. The picture when it comes to female SMAM is one in which the central states of Gujarat, Madhya Pradesh and Orissa[86] perform worst, along with the northern states of Bihar and West Bengal. Punjab, Haryana, Assam and Jammu and Kashmir display midrange SMAMs of between 14 and 15.[87] Despite having slightly higher SMAMs than their central state neighbours, Punjab and Haryana have some of the most male biased sex ratios for the whole of India in 1911. The sex ratio, of between .89 and .93, points towards the existence of a strong son preference. Similarly, Rajasthan and

[86] Until 1950 Orissa and Bihar were listed as one item in the summary statistics of the census. This likely biases this statistic somewhat as the change over time graph for female SMAM in the next section will show.
[87] In the case of Jammu and Kashmir, this may be because the data from this state only enters into the censuses from 1911 onwards, meaning that the average is not lowered by the earlier observations.

Uttar Pradesh, with sex ratios of between .93 and .97, are likely to have seen a substantial level of female infanticide or neglect of female infants leading to their premature demise. Madhya Pradesh is a borderline case in the sense that at birth a sex ratio of .94 to .95 is considered normal. However over the course of infancy, due to male infants heightened susceptibility to disease, this generally equalizes. Thus, for Madhya Pradesh an argument could be made that the recorded sex ratio reflects (limited) son preference and female infanticide.

The next question that we turn to is how the position of women and gender equality has evolved over the past 120 years in Indian states, which is illustrated in the figures below[88].

Figure 4.1. Female SMAM 1880 to 2001 (absolute values)



In the above graph a clear upward trend in marriage ages can be observed starting from the 1930s onwards in the majority of Indian states. This seems to coincide with the passing of the Sarda Act, the Child Marriage Restraint Act passed in 1930 throughout British India, making the legal female age at marriage 15. However, many contemporaries recognized this act as 'ornamental legislation', as not many violators of the act were prosecuted (Forbes and Forbes 1999: 108). In 1978, the legislation was amended to increase the female age at marriage to 18 (and men's to 21) (Lakshmanan 2008). No similar break can be distinguished in this time period. In addition, some of the states such as Kerala and Jammu and Kashmir, witnessed an increase in female marriage ages already from the early twentieth century

[88] The figures are based on non-imputed dataset.

onwards. Therefore, women's position captured by later marriage ages already started to improve in the colonial period. Some states, such as Andhra Pradesh, come from the lowest marriages ages in 1930 to mid-range SMAMs by 2001. Madhya Pradesh, Bihar and Uttar Pradesh, however, are three states that have amongst the lowest marriage ages in 1930 and still retain this position in 2001.[89]

The Southern states of Kerala, Karnataka and Tamil Nadu all start and end in the top half of the range, with Kerala in particularly pulling ahead of the other states between 1940 and 1990. However, it is interesting to note that the top four in 2001 are made up out of Kerala alongside Jammu and Kashmir, Orissa and Assam (two northern and one central state). In addition, the graph illustrates that the gap between those states with the highest and the lowest female age at marriage is around five years at both the beginning and at the end of the period.[90] A final point is that Indian women in 2001 are still marrying at relatively young ages (i.e., between 18.2 and 23.1).[91]

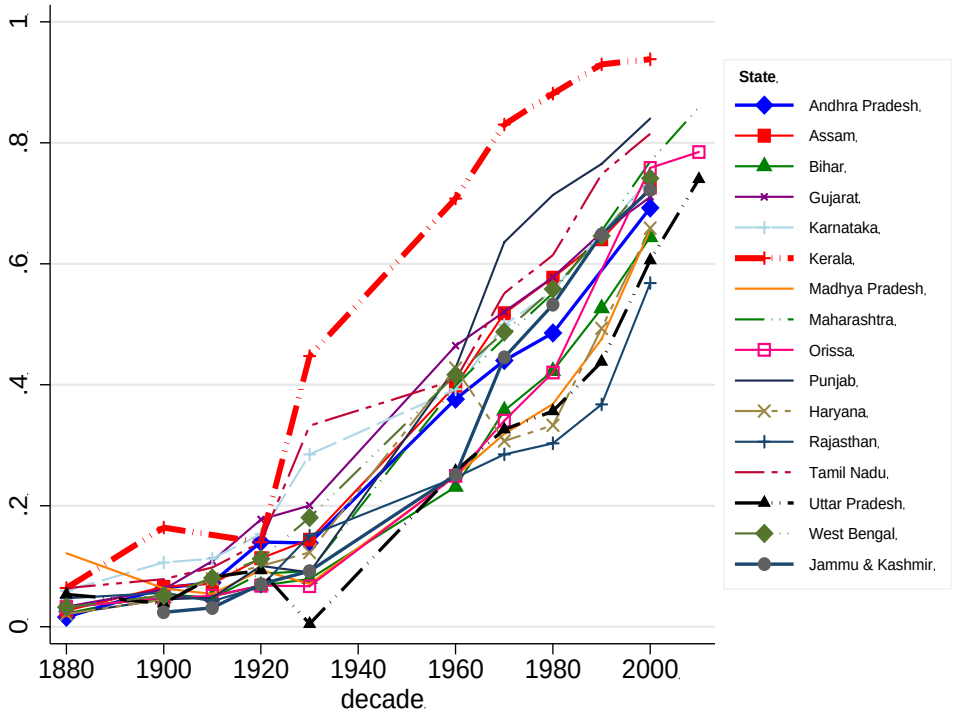
Figure 4.2 shows the ratio of female to male literacy rates. We see that in 1881 only Maharashtra had a ratio of above one literate woman to every ten literate men. Kerala makes early progress in this measure of the performance of women with surpassing the 0.4 ratio level by 1931. Kerala's performance may be related to the early adoption of an institutional schooling framework. Travancore and Cochin (both in what is now Kerala) were the first areas of India to issue legislation that would make the local government responsible for primary schooling costs, in 1817 and the 1890s respectively (Jeffrey 1992: 56). They were also the first to include girls in educational agenda even before the centralized education systems of the 1860s, which may partly be attributed relatively favorable position of women in the regional family system (e.g., Jeffrey 1992). From the 1930s onwards all Indian states experienced a push towards greater equality in this measure. Moreover, while progress towards gender equality in literacy is already visible in the colonial period, in the post-colonial period around the 1960s, this progress towards gender equality accelerated. By 2011, only Rajasthan has failed to reach a ratio of six women literate to every ten men, and Kerala has nearly achieved equality between the sexes.

[89] It is important to note that, due to the inconsistent form of the data in 1941 and 1951 there is a gap in the data between 1931 and 1961 so interpreting the break point as occurring in the 1930s is problematic. However, it cannot be denied that substantial changes have taken place between 1931 and 1961, particularly seeing as the SMAM statistic is calculated in a way that takes the marital experience of the whole population into account, thus meaning it is not prone to rapid change.

[90] Although in the intermediate period, the top and bottom ranking states have changed.

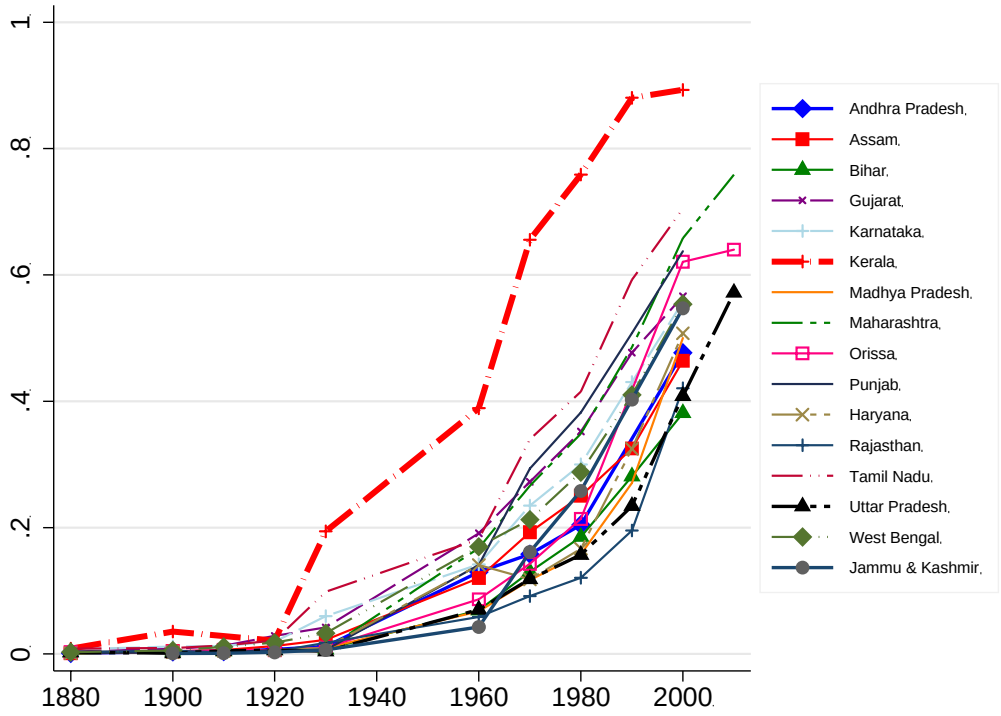
[91] These ages could, to some degree, be seen as upper bounds as it is likely that child marriages are censored from the statistics.

Figure 4.2. Ratio of female to male literacy 1881-2011



The trends in female literacy are somewhat similar for which the real take off is from 1960 onwards (Figure 4.3). This is before the introduction of the first post-independence national policy on education in 1968, which suggests the increase is not purely a result of policy at the national level. In the post-colonial period, female literacy improved substantially in all the states. During the colonial period until the 1930s, hardly any women were literate in India except in Kerala and Tamil Nadu. This picture shifts in the postcolonial period. Rajasthan and Bihar come in lowest in 2011 reaching 50 per cent literacy. Kerala is evidently ahead of the pack with Tamil Nadu and Maharashtra performing best of the remaining states. In the early 1990s the cumulative effect of gender and caste meant many women were still illiterate in educationally disadvantaged states. In the last few decades, literacy was boosted by low-cost non-formal 'educational centres' in rural areas where formal educational centres were lacking. The central government was first involved in the 1980s, but their involvement was a failure. More effective were, for example, Madhya Pradesh's community based attempts to bring schooling facilities within reach of the underprivileged (Drèze and Sen 2002: 169–170).

Figure 4.3. Female literacy 1881-2011



Finally, two measures of women's political empowerment are graphed below, from 1960 until 2001. Figure 4.4 shows the percentage of women in State Legislative Assemblies and Figure 4.5 shows male versus female voter turnout.

The trends in women's political empowerment are more mixed compared to the other indicators of women's empowerment in which states show diverse performances over time. Figure 4.4 shows that starting from the 1970s onwards, there has been some improvement in women's political representation in the Indian state assemblies. Only, Jammu and Kashmir shows a reverse trend in which the share of female seats has decreased from the 1970s onwards. This state also has the lowest number of female representatives in the 2000s, followed by Karnataka, which hardly makes any progress in increasing the share of female seats in the state assemblies. Gujarat and West Bengal, followed by Orissa have made the most progress in improving women's political representation.

However, while some progress in women's political representation is visible, politics remains an arena in which women are under-represented.[92] This low level of female representation is something that occurs even in states like Kerala, which is characterized

[92] To increase the representation of women in political life, since 1993 one third of the seats at the local government level have been reserved for women. In local governments, where there are reserved seats to women, they found female politicians with lower education levels (Singh, 2003). However this is not the case at the State and National government level (IDEA 2013, Clots-Figueras 2011).

by favourable treatment of women in other dimensions. Only in Tamil Nadu does women's representation reach a level above 10 per cent.

Figure 4.4. Women MPs in State Legislative Assemblies 1960-2001

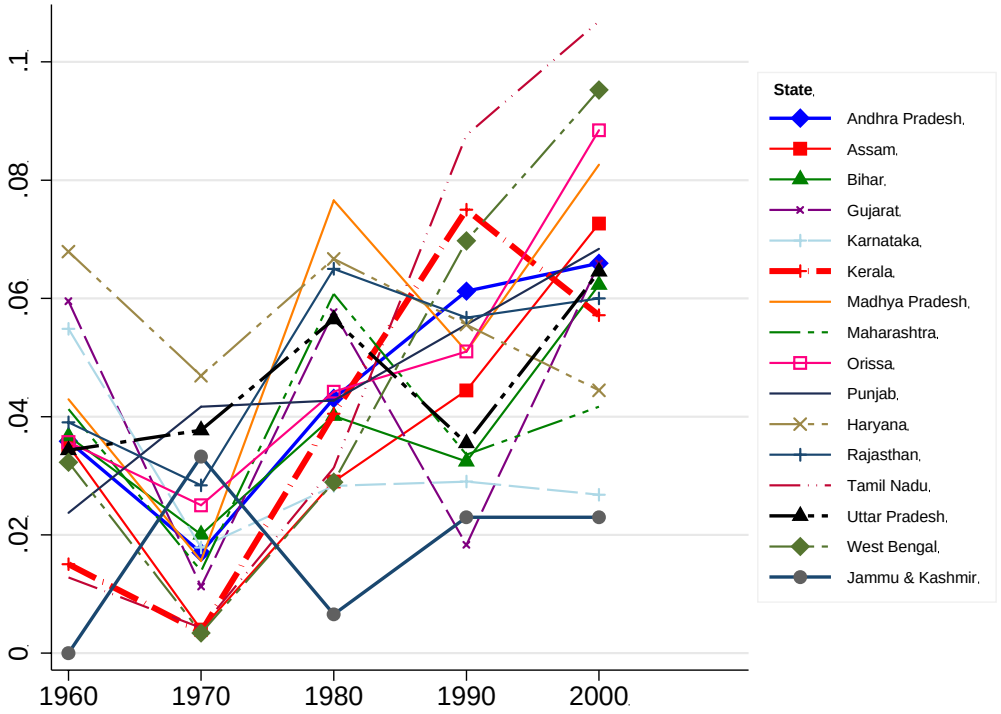
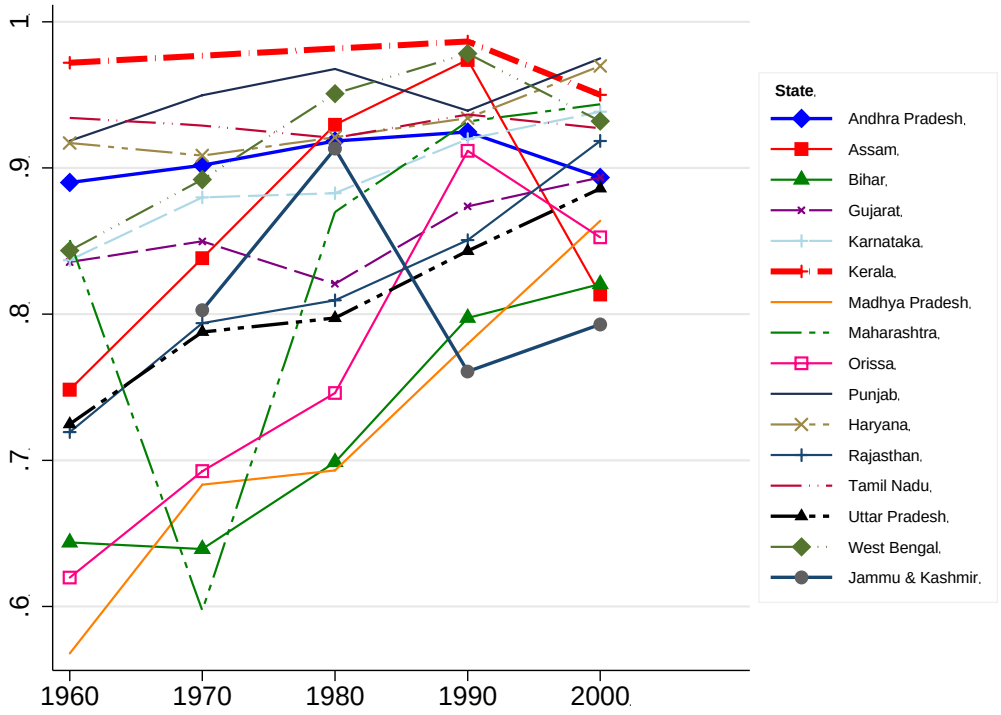


Figure 4.5 highlights large regional variations in the trends of gender gap in voter turnout. For some states such as Kerala and Tamil Nadu, the gender gap in voter turnout was small in 1960 and remains stable over the entire period. While Orissa, Madhya Pradesh and Bihar have the largest gap at the start of the period, these states also made the most progress in closing the gender gap.

Figure 4.5. Ratio of Female to Male Turnout 1960-2001

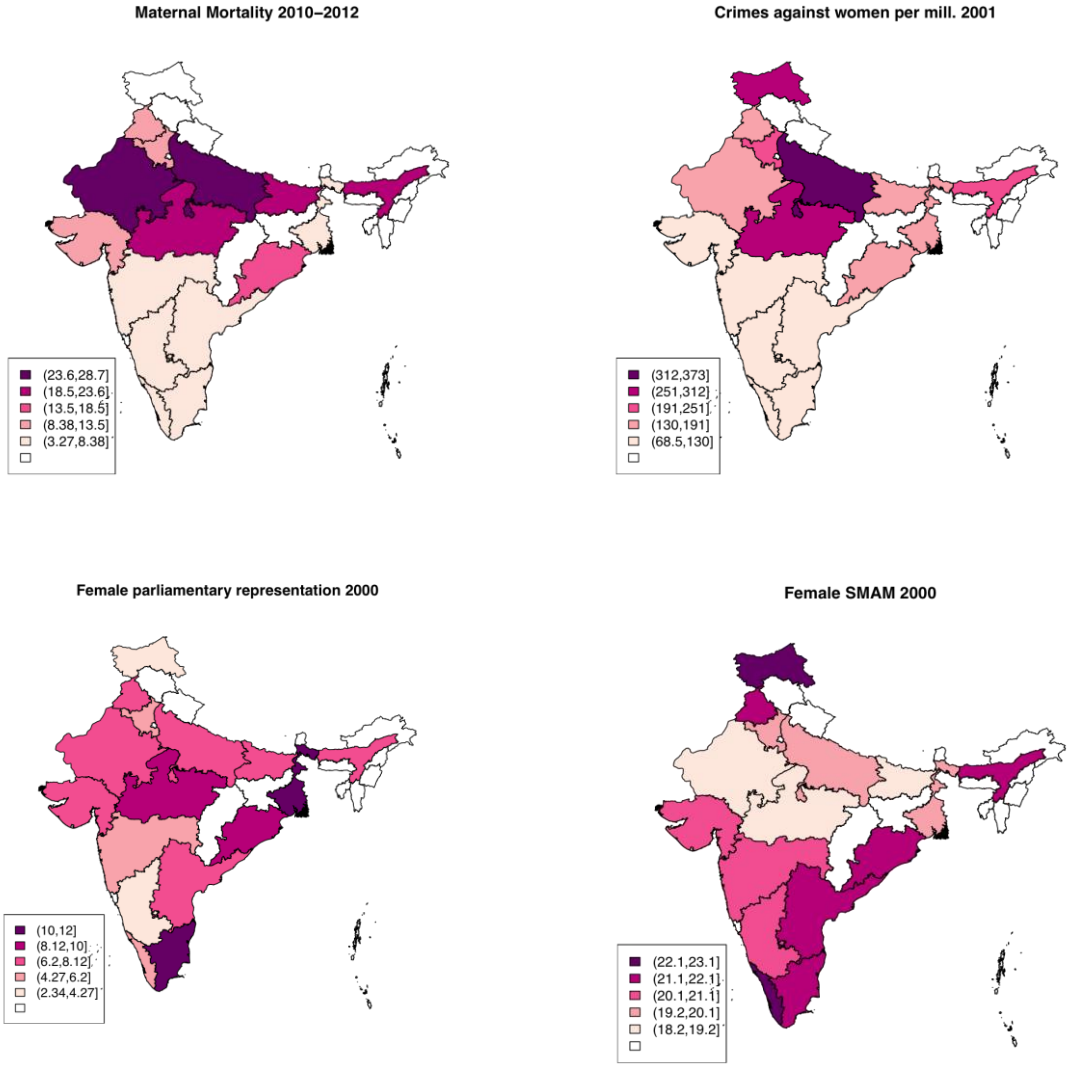


The regional differences described above are also visible in contemporary data. To highlight the persistence of these patterns, Map 4.4 shows data on maternal mortality and violence against women, captured by recorded crimes against women (two gender indicators for which we do not have historical data) as well as SMAM and female political participation. Gender inequalities extend beyond the fields measureable historically presented above, but the maps illustrate clearly that regional patterns in these indicators follow similar regional patterns as the historical ones sketched above.

The maternal mortality map shows one of the clearest divides between regions with Bihar, Rajasthan, Uttar Pradesh, Assam and Madhya Pradesh and to a lesser extent Orissa demonstrating substantially higher levels of maternal mortality than the rest of India. Crimes against women[93] also occur more frequently in the North with Uttar Pradesh and Madhya Pradesh exhibiting the highest levels.[94]

[93] Which here is the sum of rape, kidnap and abduction and dowry deaths (defined as the murder or suicide of married women caused by a dispute over her dowry in Oxford dictionary).
[94] Important to note here is that the statistics are based on persons arrested for various crimes rather than total crimes reported. Therefore, this statistics might be influenced by the state level differences in the efficiency of legal institutions (e.g. judiciary).

Map 4.4. Current day indicators on the position of women



Female representation in state assemblies in 2000 presents a patchy picture. Tamil Nadu and West Bengal are the two best performers, and on this measure many of the Northern and Central states outperform Kerala and Karnataka. Madhya Pradesh, for instance, is one of two states with the second highest level of political representation, which fits awkwardly with its high maternal mortality and crime statistics.

Although it is difficult to sum up all the various indicators presented above, a few general points can still be distilled. The first is that on many measures of the position of women the Southern states seem to be outperforming their fellow states (with Andhra Pradesh representing an intermediary case). However, the picture is not clear-cut, particularly for measures of political participation. The states of Assam and Jammu and Kashmir often do not fit into the regional patterns of the "North". A block of four states, Bihar, Rajasthan, Uttar Pradesh and Madhya Pradesh appear to demonstrate similarities in the way they fare on various measures. The following two sections will focus on the analysis of certain factors that may underlie these long-term patterns in Indian states.

4.5. Empirical Analysis of Determinants of Women's Position

In this section, we test empirically the relevance of the determinants of gender equality and women's positions discussed in Section 4.2 in explaining the long-term state level patterns in India. To do so, we first focus our analysis on the levels of gender equality and women's position found in the 16 states between 1881 and 2001 and estimate the following panel data specification:

$$Gender_{it=} = \beta X_{it} + \gamma Z_i + \theta_i + u_{it} \quad (1)$$

$Gender_{it}$ refers to our set of indicators on women's position and gender equality in state i at time t, namely sex ratio, female marriage age and the ratio of female to male marriage age, female literacy and the ratio of female to male literacy, female seats in the state legislatures and the ratio of the percentage of parliamentary seats by both genders, women's voter turnout and ratio of women's turnout to men's turnout in the elections.[95] X_{it} refers to the time varying explanatory variables, namely the level of urbanisation and share of Dalits in the population in state i at time t; and Z_i refers to the long term time invariant institutional characteristics, namely the constraints on female agency index, whether states had native or a combination of British and native rule in the colonial period, and the share of Muslim and Hindu population in 1901. Decadal fixed affects are included to control for any unobserved time effect. This equation has been estimated by using an ordinary least square (OLS) regression.[96] However, our results should be approached with caution and interpreted as robust relations rather than causal ones. In the empirical specification, we are not able to account for the fixed state effects due to the time invariant variables of interest, such as family systems. Thus our results are likely to suffer from omitted variable bias. These issues should be kept in mind, while interpreting the results presented in Table 4.3 below.

The results of Table 4.3 highlight a number of interesting findings. First of all, in line with the previous literature, in states with higher levels of urbanisation, women marry later (Model 3), have higher levels of literacy (Model 5), and participate more in the elections (Model 9), controlling for the other variables in the regression. For example, one percentage point increase in urbanisation increases the female marriage ages on average by .09 points. Considering the variation in the level of urbanisation between Indian states, the magnitude of the effect is moderate. For instance, if we compare Assam, which has an average of 6.81 per cent urbanisation rate for the entire period under investigation to Gujarat with an average urbanisation rate of 25.70, the difference in female age is equivalent to 1.69 (calculated as: (.09*25.70)-(.09*6.8)). Moreover, the size of the gender inequalities in literacy and voter turnout is also smaller in states with higher levels of urbanisation. Contrarily, urbanisation

[95] Different from Chapter 3, the analysis in this chapter does not only concern gender inequality in a number of indicators but also the absolute level of women's position. In indicators such as voter turnout, marriage ages and literacy, the small gender gap does not always indicate improvements in women's position but indicative of the lower status of men in the case of India.

[96] The time invariant nature of the institutional variables does not allow for fixed effects panel data estimation. However, we checked the robustness of this specification using a random effects model. As the interpretation of the results does not change substantially, we use the OLS regressions for the ease of comparability with section 4.6. The results based on random effects model are available upon request.

seems to lead to more skewed sex ratios biased against women. This can be explained by the availability of technologies in urban areas that enable sex selective abortions (Gupta 2014). Furthermore, urbanisation does not seem to be a relevant explanation of the ratios of female to male marriage ages or parliamentary activity. Therefore, urbanisation has mixed effects in promoting gender equality and does not seem to always translate into higher levels of gender equality.

Turning to the institutional explanations of gender equality, the results show that in states characterized by family systems with less constraint on female agency historically, son preference is less prevalent (Model 1), women get married later, have higher literacy rates and participate more in the elections (Models 3, 5 and 9). The gender gap is smaller in literacy (Model 4) and voter turnout of women is higher (Model 7) in states with family systems that have higher female agency as measured through the family system. However, the constraints on female agency index does not seem to be a significant predictor of gender inequalities in marriage ages and parliamentary activity.

The results concerning the effect of religion reveals that having a larger share of Muslim population historically leads to more skewed sex ratios biased against women in the long run (Model 1). Contrarily, in states with a larger share of Muslim population, the gender gap in voter turnout is smaller. However, as this finding is only present for the ratio variable, which evaluates the relative position of women compared to men rather than the position of women, it highlights the fact that in these states with higher levels of Muslim population such as Punjab and Bihar, the voter turnout rates for both men and women are low. While Mitra (2014) highlights that Muslim population in overall India had the lowest female literacy rates compared to the other religious groups in the country, our results do not show support for a detrimental effect of Muslim religion in explaining state level differences in female literacy rates in India. We find no significant effect of Hinduism on any of our gender indicators.

Turning to colonial rule, our analysis shows that states that had historically native rule have more skewed sex ratios biased against women and a lower position of women, in terms of education and politics, compared to the states with direct British rule. The realisation of the underlying scale of female infanticide prompted the British to pass the Infanticide Act in 1870, making infanticide illegal (Patel 1996). States which had a combination of British and native rule, classified as mixed rule[97], are characterized by higher female literacy compared to states with direct British rule. In terms of the effects of caste, we find that in states with a larger share of Dalit population, women marry younger. However, we do not observe any significant effect of the caste system on any of other gender indicators.

[97] These states are Maharashtra, Orissa, Punjab and Kerala

Table 4.3 OLS Regressions on the Determinants of Women's Position in Indian States

	1	2	3	4	5	6	7	8	9
	Sex ratios 0-10	Spousal Age Gap	Female SMAM	Literacy ratios	Female literacy	Ratios Parliamentary Participation	Female Parliamentary participation	Turnout ratios	Female turnout
Urbanisation	-0.002***	0	0.092***	0.007**	0.007***	0.033	0	0.007***	0.006***
	0.001	0.001	0.023	0.002	0.001	0.041	0	0.001	0.002
CFA	0.013*	-0.01	2.733***	0.092**	0.070***	-0.005	-0.005	0.066***	0.088***
	0.008	0.012	0.276	0.038	0.012	0.005	0.005	0.021	0.027
Mixed Rule	0.003	0.023*	0.426	0.078**	0.078**	0.001	0.001	0.007	-0.032
	0.009	0.013	0.376	0.038	0.023	0.006	0.006	0.031	0.041
Native Rule	-0.014*	0.012	-0.24	-0.039	-0.042***	-0.013*	-0.011*	-0.030^	-0.046^
	0.007	0.013	0.335	0.033	0.017	0.007	0.006	0.021	0.031
Hindu1901	0.000	0	-0.002	0.001	0.001	0	0	0	0
	0.000	0	0.008	0.001	0	0	0	0.001	0.001
Muslim1901	-0.001***	0.001	0.012	0	0	0	0	0.002**	0.001
	0.000	0	0.01	0.001	0	0	0	0.001	0.001
Dalit	0.001	0	-0.057**	0	0	0.001	0.001	0.001	0.001
	0.001	0.001	0.025	0.003	0.002	0.001	0	0.002	0.003
Constant	1.004***	0.634***	12.210***	-0.093	-0.125**	0.006	0.008	0.54***	0.330***
	0.030	0.045	1.158	0.089	0.039	0.016	0.017	0.078	0.092
Decadal FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	211	211	211	203	203	83	83	79	79

Notes: *** p<0.01,** p<0.05, * p<0.1 (two tailed t-test), ^p<0.1 (one-sided t-test). Robust standard errors are reported under the coefficients.

Furthermore, except for native rule in colonial period, none of the other indicators included in the analysis help to explain the state differences in parliamentary activity. This comes as no surprise as in developing countries, including India; quota systems have been shown to be the most effective way to increase female seats in the parliaments (Dahlerup 2005, Clots-Figueras 2011). Moreover, women's lower levels of education and labour force participation, together with their domestic obligations have been shown to be relevant factors in explaining the regional variation of women's political engagement in India (Chibber 2002). However, as our focus here is not on how each dimension of gender equality is related with each other, this remains as an avenue for future research. Our model also fails to explain the long-term state level differences in spousal age gap. A possible reason for this is that legislation regarding the age at marriage is different for men and women. Men are allowed to marry after 21 years, but women already at 18 years (Lakshmanan 2008). Thus some level of spousal age gap seems to be institutionally maintained. In cross-country regressions, Carmichael (2011) found that spousal age gaps are not determined by urbanisation but by variables which capture family systems or historical institutions. Similarly Casterline et. al.(1986) find that spousal age gaps seem to be determined by cultural preferences. The fact that we fail to find any relationships between our explanatory variables and spousal age gaps could mean that we have not been able to capture the relevant cultural variables in our model, or that the variation across India is not as large as between countries.

To check the robustness of our findings, we also regress the same empirical specification above on cross sectional data from 1880, 1960 and 2000. This can provide better insight into the differences between the colonial and post-colonial period and whether the effects of our indicators change between these two time periods. These results are reported in Table C.2 in the appendix. The results from this exercise indicate that the impact of urbanisation on sex ratios becomes strongly significant only in 2000.[98] Two factors may be driving these results. Abortion was legalized only in 1972 in India. Moreover, the infrastructure that provides possibilities for sex selective abortions such as ultrasound technology became affordable after 1990 (Akbulut-Yuksel and Rosenblum 2012). States, which score high on the constraint on female agency index, are also significantly related with higher female marriage ages both in the colonial and postcolonial period. This highlights the persistent effect of family systems on gender equality in the long run, which is in line with the findings from Chapter 3. Moreover, the differences between states in terms of gender gaps in literacy and electoral turnout are particularly associated with differences in family systems in the postcolonial period.

4.6. Characterising Trends in Gender Inequality in India

In this section, we evaluate the progress that has been made towards gender equality in India. In other words, the empirical analysis in this section focuses on whether we can find any type of catch-up effect (convergence) in the gender indicators. The analysis in this section also provides insight into whether indicators which are shown to explain different levels of gender equality between Indian states are also relevant in explaining the progress states has made

[98] $p<.10$ (one-sided t-test)

towards gender equality.

Following a similar strategy to Chapter 3, to test whether the trends in gender equality are characterised by a convergence or divergence, we regress the growth in gender equality indicators per decade on the lag of the level of gender equality indicators using an Ordinary Least Square (OLS) technique.[99] If this correlation is significantly negative without including any other predictors in the regression model, there is unconditional beta (β)-convergence. We then include the variables tested above to see whether there is conditional convergence, and to evaluate their relevance in the process towards gender equality. The results are presented in Table 4.4.

The results of Table 4.4 below indicate that some of the coefficients of the lagged gender equality indicators on the growth rate of gender equality are significantly negative. This indicates unconditional beta convergence. In particular, states that have a higher level of gender inequality in terms of marriage ages, literacy ratios and politics in the past are moving significantly faster toward gender equality than states with a lower level of gender inequality.[100] However, convergence for female literacy is not observed. The interpretation of this finding could be that male literacy has stagnated, meaning that even a small increase in female literacy in some states causes convergence in the equality measure without convergence in the absolute level. Moreover, as a higher growth rate in sex ratios indicates more bias against women, the results show that there has been unconditional convergence towards more skewed sex ratios biased against women. Thus, over time son preference became more prevalent in every state, even in those that did not exhibit initially skewed sex ratios biased against women.[101]

We estimate the convergence model again including the level of urbanisation, family systems, colonial rule and religion. Here we test whether urbanisation and long-term institutional factors help explain the growth in gender equality, which might be relevant in understanding the convergence process observed in Table 4.4. The results for this model are reported in Table 4.5 below. With the inclusion of these predictors the estimated convergence coefficients (in other words, the coefficients of the lag of gender indicators) increase substantially compared to the coefficient presented in Table 4.4. For instance, with the inclusion of historical institutional characteristics and urbanization rate, the coefficient of the lag of sex ratio changes from -.21 to -.47. Moreover, there is evidence for convergence towards higher levels of female literacy conditional upon urbanization and long-term institutional characteristics.

Turning to the impact of the explanatory variables in explaining the growth in gender

[99] We also estimate the convergence model with fixed effects, which takes into account the time-invariant characteristics of the states. In the fixed effects model, the estimated convergence coefficients always increase in size compared to those presented in Table 4.3. These results are available upon request.

[100] The large coefficient of the lag of female political representation is probably caused by the big jumps in the level of female political representation between decades moving from no women in the state legislatives to a substantial number of women entering parliament.

[101] Excluding the outlying state Kerala from the regression analysis does not change the interpretation of the results. These results are available upon request.

equality, urbanisation seems to contribute to the progress made towards higher female marriage ages and higher female turnout rates. States with family systems that constrain female agency also seem to make more rapid progress towards higher levels of female marriage ages and literacy rates. Moreover states with a higher score on the constraints on female agency index are closing the gender gap in voter turnout more rapidly. States with native rule compared to the states with direct British rule in colonial period make significantly slower progress towards gender equality. In states where the Muslim population is higher, the sex ratios are becoming more rapidly skewed biased against women over time.[102] We do not find any significant differences in growth rate of states towards gender equality based on caste.[103]

[102] Once Muslim variable is excluded from the model, there seems to be a significant difference between North and South family zones, which suggests a close link between religion and the family zones.

[103] Another way of studying convergence is by looking at sigma convergence. Even if beta-convergence holds, states may fail to converge in real data as long as random shocks to the growth process are large (Rodrik 2011; Cherodian and Thirlwall 2013). Moreover, beta convergence only focuses on average values in the reference time period (Dvorokova 2014). The literature on convergence highlights that beta convergence is an insufficient condition for sigma convergence (Young et al. 2008). Therefore, we estimate directly the evolution the coefficient of variation (CV) for 16 Indian states from 1881 onwards, which is presented in Table C. We also tested evidence for sigma convergence by including a time trend and including the variables from Table 4.4. As the overall conclusions remain the same, the results are not reported separately but available upon request.

Table 4.4. Unconditional Beta Convergence Panel Specification

	1	2	3	4	5	6	7	8	9
	%grsexr	%grmar	%grfsmam	%grlit	%grflit	%grparl	%grparl	%grturn	%grhfturn
lagsexratio010	-0.19***								
	0.07								
lagmar		-0.66***							
		0.15							
lagfmam			-0.01*						
			0.00						
laglit				-8.32*					
				4.42					
lagflit					0.13				
					0.22				
lagparl						-9.76**			
						4.08			
lagfparl							-10.56***		
							4.12		
lagturnout								-0.47***	
								0.13	
lagfturnout									-0.76***
									0.15
Constant	0.18***	0.50***	0.13***	4.38	0.19	0.57**	0.57**	0.42***	0.45***
	0.07	0.11	0.05	2.27	0.068	0.23	0.24	0.11	0.10
Observations	195	195	195	179	133	69	70	78	78

Notes: *** p<0.01,** p<0.05, * p<0.1 (two tailed t-test), ^p<0.1 (one-sided t-test). Robust standard errors are reported under the coefficients.

Table 4.5. Conditional Beta Convergence Panel Specification

	1	2	3	4	5	6	7	8	9
	%grsexr	%grmar	%grfsmam	%grlit	%grflit	%grparl	%grfparl	%grturn	%grhfturn
urbanisation	-0.002***	0.003***	0.01***	0.16	0.02***	0.02	0.02	0.01**	0.006*
	0.00	0.00	0.00	0.17	0.01	0.011	0.011	0.00	0.00
CFA	0.00	0.00	0.07**	0.18	0.17^	-0.04	-0.10	0.04^	0.07
	0.01	0.02	0.03	1.51	0.12	0.20	0.19	0.03	0.06
Mixedr	-0.00	0.02	0.00	1.28	-0.10	0.06	0.09	0.00	-0.04
	0.01	0.02	0.021	1.91	0.16	0.21	0.21	0.031	0.07
Nativer	-0.00	-0.01	-0.04*	-2.78	-0.19^	-0.35*	-0.42*	-0.02	-0.04
	0.01	0.02	0.02	2.98	0.12	0.22	0.22	0.02	0.05
Hindu1901	-0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.001	0.08	0.00	0.01	0.01	0.00	0.00
Muslim1901	-0.00***	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00
	0.00	0.001	0.001	0.04	0.00	0.01	0.01	0.00	0.00
%Dalit	-0.00	0.00	0.00	0.03	-0.00	0.03	0.03	0.00	0.00
	0.00	0.001	0.00	0.17	0.01	0.02	0.02	0.00	0.01
lagsexratio010	-0.45***								
	0.09								
lagmar		-0.88***							
		0.20							
lagfsmam			-0.02***						
			0.01						
laglit				-12.13^					
				7.55					
lagflelit					-0.62*				
					-0.36				

Table 4.5 (continued)

	1	2	3	4	5	6	7	8	9
	%grsexr	%grmar	%grfsmam	%grlit	%grflit	%grparl	%grfparl	%grturn	%grhfturn
lagparl						-15.21***			
						4.41			
lagfparl							-14.47***		
							4.73		
lagturnout								-0.78***	
								0.19	
lagfturn									-1.05***
									0.24
Constant	0.49***	0.54***	0.23**	-0.68	-0.21**	-0.44	-0.49	0.47***	0.41**
	0.10	0.11	0.07	6.36	0.33	0.61	0.58	0.15	0.17
Observations	195	195	195	179	133	69	70	78	78

Notes: *** p<0.01,** p<0.05, * p<0.1 (two tailed t-test), ^p<0.1 (one-sided t-test). Robust standard errors are reported under the coefficients.

4.7. Discussion and Conclusion

Our study has provided a long-term look at gender inequality in India by focusing on various indicators related to women's wellbeing. In line with the literature, we see a North-South divide in almost all our indicators of gender equality and women's position, and find that a band of states in the centre -which includes Bihar, Rajasthan, Uttar Pradesh and Madhya Pradesh- exhibit similar patterns in female inequalities. These state differences in gender equality can be attributed to states' level of urbanisation and the dominant family system (measured using marriage, residence and inheritance patterns), religion and colonial rule. Thus, the findings of this chapter are supportive of the ones presented in Chapter 3.

We also evaluate whether there is a convergence towards gender equality. From our convergence analysis we discover a catch-up of poor performing states the early frontrunners in all gender indicators. Although progress has been made in the course of the twentieth century especially in women's marriage ages, gender inequalities are still present in all the indicators we assess. The progress towards gender equality seems to take off especially in the post-colonial period. Progress has, however, been limited especially in women's political representation in the state legislatives. States have also converged to the sex ratios more biased against girls. This is a worrisome trend and shows the persistence of a clear son preference likely being consolidated by the availability of sex selective abortion.

Urbanisation and family systems related to female agency also explain the growth in gender equality. However, the impact of urbanisation on gender equality is mixed as urbanisation leads to more skewed sex ratios biased against women by making modern technologies more accessible. Our findings support those of Rahman and Rao (2004), that economic factors are powerful in explaining state differences in the position of women in India. However, our results are contradicting with their conclusions that economic factors are more important that kinship structures, as we find that our indicator on family systems have a lasting impact on the gender equality measures.

Our empirical investigation, however, is limited by the availability and scope of historical data to study the exact mechanisms through which the long-term drivers of gender equality operate, and how the persistent gaps in gender equality can be eliminated. Urbanisation provides only limited insight into how economic development can translate into gender equality, as Indian society is still largely rural. Gathering better data on economic development remains an ambition for future studies.

This chapter focuses on the different historical factors that may influence various indicators of gender equality. What is needed for further research is an investigation into the interrelations between the different dimensions of gender equality. For example, some literature shows that there is a relationship between age at marriage and educational attainment (Jain and Kurz 2007). Increases in indicators such as marriage ages and literacy could in turn affect gender gaps in political participation and the labour market. This leaves plenty of scope for future research to tease apart the interrelations between the various indicators.

PART II

THE LONG-TERM CONSEQUENCES OF FAMILY SYSTEMS RELATED TO FEMALE AGENCY FOR DEMOCRATIC AND ECONOMIC DEVELOPMENT

CHAPTER 5: FAMILY SYSTEMS, FEMALE AGENCY AND THE HISTORICAL ROOTS OF GLOBAL GAPS IN DEMOCRACY

5.1. Introduction[104]

Today, around 35 per cent of the world population lives under the rule of authoritarian regimes, denied of (basic) civil and political liberties (Freedom House 2014).[105] Next to the direct importance of democracy in enabling citizens to express their needs (Sen 1999), New Institutional Economics (NIE) highlights the role of democratic institutions in improving countries' ability to generate innovation, wealth, and growth (North and Weingast 1989; Acemoglu and Robinson 2012) and the living standards of the citizens (Gerring et al. 2012). Therefore, understanding the conditions that maintain, consolidate, and promote (national) democracy has been one of the central questions in social sciences (Gorodinchenko and Roland 2013).

So far, socio-economic and international factors have received substantial attention in the democratic development literature. A first school of thought, based on modernization theory, has suggested that as countries become more economically developed and obtain higher levels of educational attainment, they would eventually adopt democracy as a political regime (Lipset 1959; Inglehart 1997; Murtin and Wacziarg 2013). Alternatively, the "third wave" of democratization, which took off after the end of the Portuguese dictatorship in 1974 and was followed by a spread of democracy in Latin America (Doorenspleet 2000), has alerted researchers about the relevance of geography and international factors in promoting

[104] To be published in *Economic History of Developing Regions* (forthcoming).
[105] See Map D.1 in the appendix for a global illustration of the political regimes. This map is based on the Polity IV index, for which information is provided in the following section.

democracy.[106] Based on these explanations, the possibility of "exporting" democracy to sub-Saharan Africa and the Middle East drove the agenda of the policy makers in the 1990s (Berendsen 2008; Finkel et al. 2007). Yet, despite efforts by the United States and the Western European countries[107], today the Middle East is still largely ruled by autocracies. Similarly, China, despite being surrounded by democratic states and experiencing remarkable economic growth in the past three decades, has not experienced a democratic transition to this day.[108]

A historical perspective draws attention to the deeper causes of democratic development. In the eighteenth and nineteenth centuries, many societies of Central and Latin America, and Asia were ruled by a small group of elite, whereas the power to rule was more equally distributed in Europe, North America and Australia (Acemoglu et al. 2001a: 1). The seminal work of North and Weingast (1989) on the "Glorious Revolution" emphasized how the English introduced constraints on the executive starting from the late seventeenth century onwards. Van Zanden, Buringh, and Bosker (2012) highlighted different levels of parliamentary activity within medieval and early modern Europe. According to the authors, in the early-modern period, parliaments declined in influence in southern and central Europe and further gained in importance in the Netherlands and Britain between 1500 and 1800. To a certain extent, these historical differences in state development seem to be reflected in current day outcomes in terms of democratic rule (see Map D.1 in the appendix).

Historical conditions are argued to have set in motion divergent evolutionary paths, leading to cross-national differences in development outcomes (Nunn 2009). For instance, Engerman and Sokoloff (2005) argued that to attract migrants, Europeans extended suffrage to the larger share of the population much earlier in less populous areas such as in the United States, Argentina and Uruguay. According to the authors, these historical institutions colonizers have set up help explain the divergent patterns of political development in America in the long run (see also Acemoglu et al. 2001). Likewise, to explain the high number of authoritarian regimes in the Middle East and North Africa (MENA) today, Kuran (2013) points to the importance of Muslim inheritance laws and charitable organizations (*waqf*), both having origins going back at least to the tenth century. The interplay between culture and formal institutions has been suggested as a key mechanism to understand how these historical conditions can have such a long-term impact on current day outcomes (Nunn 2009, 2012).

This study contributes to the literature on the historical predictors of democratic development by providing empirical evidence on the impact of family systems, as devised by Emmanuel Todd (1985). A number of philosophers and political scientists have

[106] According to proponents of this view, countries democratize in clusters of geographical regions. For instance, the third wave includes the democratic transition of Southern European countries in the 1970s, Latin American countries in the 1980s, and Soviet bloc countries in the 1990s (Wejnert 2005). Lipset (1959) described this as the snowballing effect. The diffusional pattern suggested that the likelihood of a transition in a country depends on the events in other states (Wejnert 2005).

[107] See Finkel et al. (2007) for a review on democracy promotion programs

[108] In China, civil liberties are argued to have improved significantly with three decades of sustained economic growth; however an evaluation of this claim is beyond the scope of this study (Ginsburg 2007).

acknowledged a plausible link between family organization and political development. For instance, Aristotle writes in *The Politics* that experiences of ruling and being ruled in the household are essential preparations for citizenship.[109] A recent study by Fukuyama (2011) attributes a central role to the dissolution of the tribal kinship system in explaining the emergence of the modern state with a central authority and a military power to protect its territory. Among these scholars, Todd (1985) was the first one to suggest a systematic link between the family systems and their impact on the political development of societies at a global level. He argued: "family relations – those between parents and children, between husband and wife provide a model for political ideology and for the relation between the individual and the authority" (p. 6). According to him, the way parent-child relations are organized within the household (i.e., based on co-residence practices) determine the attitude towards liberal or authoritarian ideologies, while egalitarian inheritance practices between brothers lead to egalitarian ideologies. He uses these differences in ideology to explain why communism triumphed in China and Russia and not in England and the Netherlands.[110]

This chapter aims to test Todd's hypothesis empirically; therefore, his classification of family systems has been employed.[111] Panel data analysis of a global data set covering the time period between 1849-2009 reveals a number of interesting findings. First, empirical support is present for Todd's (1985) hypothesis: countries, characterized by nuclear family systems, have significantly higher levels of democracy compared with countries that have community family systems. Moreover, the implications of family systems related to female agency for democratic development have been tested. The results suggest that patrilineal societies, a family system in which an individual's descent is solely defined through the father's line, are significantly less likely to experience democratic development in the long run. Polygamy is also detrimental to democratic development and helps explain why Sub-Saharan Africa lags behind in the democratization process. Thus, the position of women in the family compared to men is a relevant factor in explaining the long-term cross-national differences in democratic development. While this is a dimension overlooked by Todd (1985), Fukuyama (2011) has acknowledged that the breakdown of patrilineal descent was an important contributor to the emergence of modern day political institutions such as higher accountability of the government and the introduction of the rule of law in Europe. Norms and values that are conducive to democratic development, gender equality, and experience with local democracy are plausible mechanisms to explain the persistent impact of family systems on national level democracy. Overall, the current study supports the idea that there is a primary role of historical conditions in understanding the current global differences in

[109] As cited in Mitterauer and Sieder (1982).

[110] While a number of studies have suggested presence of a theoretical link between the family organization and democratic development, the empirical evidence on this link between family systems and democratic development is scarce. An exception to this is the study by Lane and Ersson (2005), which considers the relevance of family values for democracy. However, the authors use the family classification by Todd (1985) only to rank countries on a individualism scale and their analysis is limited to the recent time period. A similar study on the implications of family systems for democratic development through norms and values has been provided by Eckstein (1966), focusing on Norway as a case study.

[111] As an alternative to Todd's model, Therborn (2004) offers a geo-cultural definition of the family systems on a global level, however his model does not highlight within regional differences, and therefore is not ideal for cross-national level analysis.

development.

5.2. Global Historical Trends in Democracy

Definition and Measurement of Democracy

Many definitions and measures of democracy are available in the literature.[112] Nevertheless, there seems to be broad agreement on a number of basic criteria to define a state as democratic. These criteria are the existence of free, fair, and competitive elections; and the ability of its citizens to formulate and signify their preferences by the presence of political rights (Dahl 1971).[113] These dimensions capture the basic criteria of democracy: all people are given the opportunity to take part and exert influence in the political process, through elections and by other means. The definition of democracy in the current study, therefore, refers to a form of governance in which these basic criteria exist and is related to the political institutional structure in a given country. In this sense, the terms democracy and democratic institutions are interchangeably used. Democratic development, then, refers to a continuum with countries embracing some or all of the elements of this system of governance (Wyndow et al. 2013).

In line with the definition above, the main indicator of democracy (at the national level) used here is the Polity IV index, covering all independent states that have a total population of 500,000 or more in a given year from 1800 onwards (Marshall, Jagger, and Gurr 2014).[114] The index gives a score to the countries' performances based on three basic criteria; (i) the competitiveness of political participation and (ii) executive recruitment, and (iii) constraints on the chief executive.[115] The scale ranges from -10 (hereditary monarchy) to +10 (consolidated democracy). For ease of interpretation, the Polity IV index has been standardized to range between 0 and 1 in which a higher score means a higher level of democracy.[116] The Polity IV index is preferred over other available indices of democracy as it is the most commonly used measure in the literature and is highly correlated with the rest of the democracy indices.[117] In addition to the level of democracy in a given year, Gerring et al. (2005) argue that democracy should be understood from a historical perspective in which a country's history of regime type is considered. For instance, one in five countries that had experienced a transition to a democratic regime during the third wave of democratization process in the 1990s either reverted to authoritarianism or saw a significant erosion of

[112] See Bollen (2009) for a discussion on the issue.
[113] Dahl (1971) uses the term "polyarchy" rather than democracy because for him, democracy is an unachievable ideal type (Fish 2002).
[114] While the Polity IV index is available from 1800 onwards, we limit the time period to 1849 onwards, as the data coverage for the variables included in the analysis become substantially better starting from the second half of the nineteenth century.
[115] Universal suffrage is not one of the dimensions covered in the Polity IV index, for which it has been commonly criticized (e.g., Bollen 2009, Paxton 2000). To address this issue we employ the Freedom House index as an alternative indicator of democracy.
[116] A continuous measure of democracy is preferable over a dichotomous measure of democracy, which groups countries as being democratic or not. In a dichotomous measure, a large share of the variation both within and between countries is lost (Bollen 2009).
[117] The correlation of the Polity IV index with other democracy indices in the literature created by Bollen (1980), Arat (1991), Vanhanen (1990) and Gasiorowski (1993), ranges between .85 and .93 (Jagger and Gurr 1995).

democratic institutions in the first decade of twenty-first century.[118] Therefore, to capture the stock of democracy, a "duration of democracy" measure is constructed based on the Polity IV index, which counts the number of years of uninterrupted democratic rule in a country, ranging from a minimum value of 0 to a maximum of 209 years.

The existence of these basic criteria, however, does not provide insight about the quality of democracy as, for instance, actual political participation (voter turnout) or the responsiveness of the executive power can be disappointing even when these basic criteria exist (Hadenius and Teorell 2005: 89; Altman and Pérez-Liñán 2002). For instance, the average turnout statistics since 1945 from the International IDEA database reveal that while the average voter turnout in Switzerland, scoring high in the democracy measures in the literature, is 56.5%, many countries in Africa such as Angola, Burundi or in Asia such as Singapore, with low democracy scores, have participation rates in their elections above 85% (López Pintor et al. 2002). Neither the definition nor the measure of democracy in the current study provides insight into dimensions related to the quality of democracy. The interest here lies in the institutional structure of democracy; therefore, this aspect on the quality of democracy remains as an ambition for future studies to investigate.

To check the robustness of the findings, the Freedom House Index has been employed as an alternative measure of democracy, which ranks 194 countries on a 7-point scale based on existence of political and civil liberties and is available from 1972 onwards (Freedom House 2011). The original freedom house index was recoded, so that a higher score on the index means a higher level of freedom. Like the Polity IV index, both "duration of democracy" and the Freedom House index are rescaled to range between 0 and 1.[119]

Moreover, additional analyses have been carried out using the underlying measures of the two composite indices, the Polity IV and the Freedom House index, and other measures on governance, in particular, government accountability, effectiveness, stability, and rule of law as dependent variables. The measures on governance come form the Worldwide Governance database by Kaufman et al. (2009). Lastly, a measure concerning the institutional structure related to the security of property rights have been employed, which is based on Gwartney et al.'s (2012) Economic Freedom of the World Data.[120] This exercise has been carried out to evaluate for which dimensions of democratic development family systems are particularly relevant. Fukuyama (2011) argues that while modern state formation, a transition from a kinship based political rule to a centralized state authority, is a necessary condition for a successful democracy, it is not a sufficient condition. According to him, a successful modern liberal democracy combines three sets of political institutions: the state, rule of law, and governmental accountability. The presence of one of these institutions does not guarantee

[118] As cited in Fukuyama (2011:4), from Diamond (2011), "The Democratic Recession: Before and After the Financial Crisis", in Nancy Birdsall and Francis Fukuyama, (Eds.), *New Ideas in Development After the Financial Crisis*.

[119] The standardization of the scales has been done by dividing each index by their maximum value. For the Polity IV index, we first recoded it to range between 0 and 20 and then diving it by 20.

[120] The measures on the quality of governmental institutions have been combined into a single dataset by Teorell et al. (2013), which is used in the current study. More information on the data can be found in Table D.1 in the appendix.

that the other ones are also present. For example, in Afghanistan, democratic elections has been held since 2004, but it is characterized by a weak state, which is not able to uphold laws in much of its territory. Russia has a strong state and holds democratic elections, however its rulers are not always constrained by the rule of law.[121] Therefore, while family systems might be relevant in explaining modern state formation, they might be less relevant for the development of the other sets of democratic institutions. This is a possibility to be tested in the empirical analysis.

Global Trends in Democracy

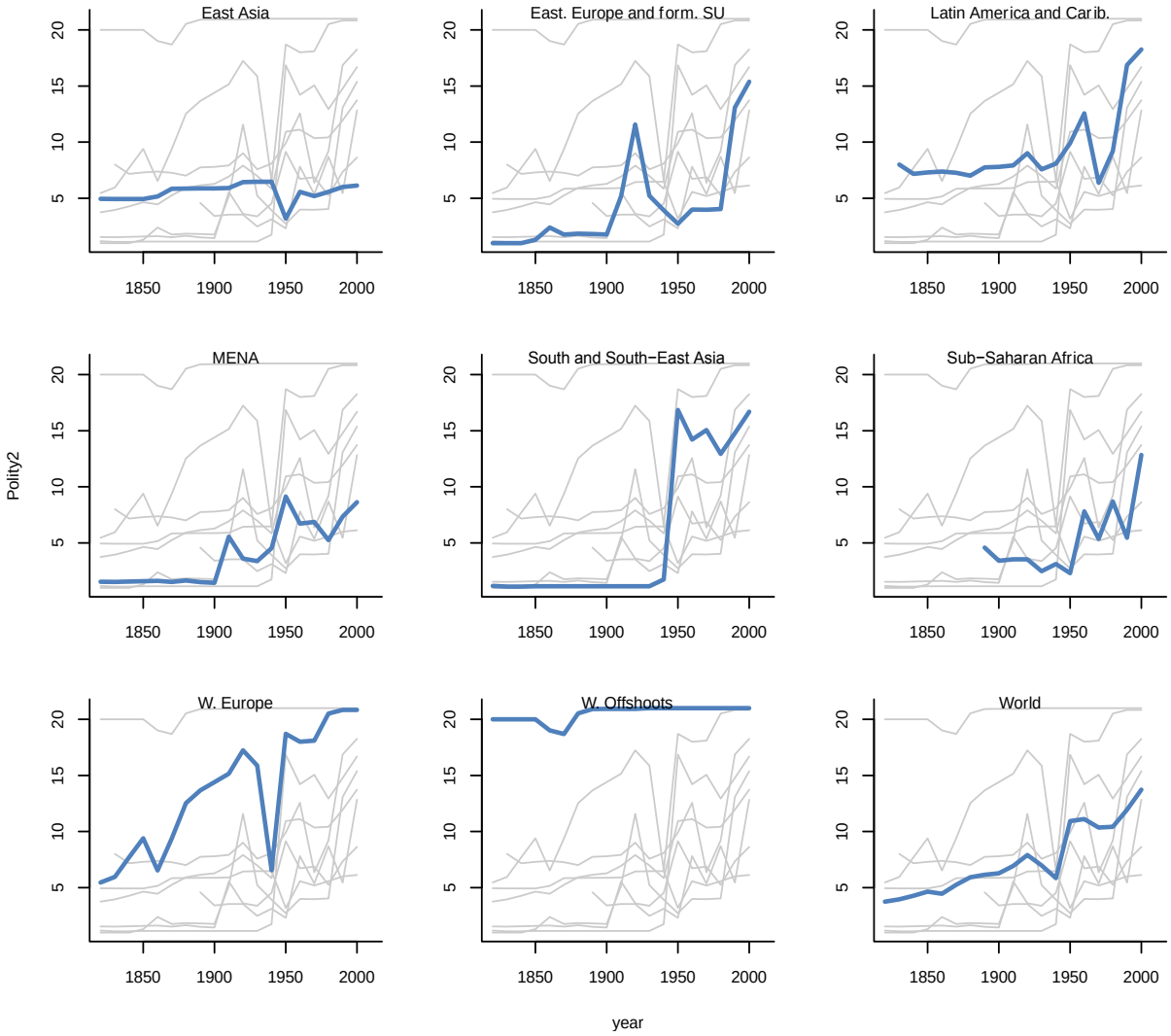
Figure 5.1 illustrates the trends in the Polity IV index in the form of unweighted regional and world averages of country scores between 1849 and 2009. According to Figure 5.1, there has been a global trend towards democratic rule since the 1850s. The Western offshoots – the United States, Canada, Australia and New Zealand – have been the pioneers in the democratic transition and have had stable democracies since the mid-1850s. From the early nineteenth century until the 1920s, there was a major wave of democratic transitions among the Western European countries. However, some of the newly emerging democracies of this time period such as Germany, Italy, and Portugal collapsed in the turmoil of two World Wars, visible by the sharp decline in Figure 5.1. The 1950s were characterized by the spread of democracy to Southern Asia, followed by the democratic transition in many countries in Asia and Latin America in the mid-1970s. In the late 1980s and early 1990s, a democratization process took place in former Soviet Union countries and in Sub-Saharan Africa.[122] However, despite these global patterns in democratic development, convergence was limited. Since the 1970s, Western Europe receives a perfect score of 1 on the rescaled Polity IV index whereas the Western offshoots are defined as full democracies since the late nineteenth century. Yet, even today, the Middle East, Eastern Asia and Sub-Saharan Africa are falling far from the ideal score of 1. These regions have also witnessed various democratic breakdowns during the course of the twentieth century.

While the figure is presented in the form of regional averages, differences exist within regions regarding countries' democratic development. So what does the picture look like when we descend to the level of the individual country experiences? There too strong differences are found. For instance, the ideal of democracy was not internalized by Belarus, Turkmenistan or Azerbaijan after the collapse of Soviet Union. During the third wave of democratization between 1977 and 1994, 15 out of 16 Latin American countries moved to democratic rule, but totalitarian Cuba remains an exception in the region (Jones 2012). Lebanon, a former French colony, has been the only democracy since independence in the MENA region. Turkey experienced interruptions in the democratic rule with three military coups in the second half of the twentieth century. While Spain, Portugal, and Greece had long histories with dictatorships, Northwestern European countries such as the United Kingdom and Belgium had long experiences with democracy (Huntington 1991). The focus in this

[121] Fukuyama (2011:15).
[122] For a detailed description of the democratization waves that took place since the early nineteenth century, see Huntington (1991).

study will be to understand the drivers behind these long-term cross-national differences in democratic development.

Figure 5.1. Democratic Development over the World



5.3. Literature Overview

Previous Explanations of Democratic Development

Why do some societies adopt and develop democratic institutions earlier and are better in consolidating these democratic institutions than others? What are the causes of the persistent cross-national differences in democratic development? So far, a number of explanations have been suggested to answer these questions.

Modernization theory predicts that an increase in countries' socio-economic resources (i.e., education and income) stimulates political mobilization and increases demand for democratic governance (Huntington 1991; Glaeser, Ponzetto, and Shleifer 2007; Inglehart and Welzel 2003). Improvements in living conditions of a society tend to encourage savings and

investment and greater thought is given to matters of justice and social equity as citizens' concern with the future increases (Bloom and Canning 2001; Dyson 2013). However, according to Przeworski and Limongi (1997), if the economic development thesis was true, dictatorships should not have flourished and endured in Singapore, Taiwan, USSR, Spain, Bulgaria, Argentina, and Mexico, which had higher levels of per capita income than Austria, Belgium, France, Netherlands, and Norway in 1950. The authors predicted that income only played a role in the consolidation of the democratic regimes in countries with a GDP per capita of $ 6,000 or more.[123] Similarly, based on an empirical analysis of a global dataset available between 1960-2000, Acemoglu et al. (2009) showed that once the omitted characteristics of the countries were taken into account, the income evidence on the likelihood of transitions to and from democratic regimes disappeared. The authors concluded these omitted characteristics to be the historical junctures of European colonization, which led to divergent paths of political and economic development. Oil-rich states in Central Asia and the Middle East have shed doubt on the modernization hypothesis as well.

Geographical and international factors, such as whether a country has oil reserves or is surrounded by democratic neighbours, received empirical support in the literature as well (e.g., Wejnert 2005). As these indicators do not tend to change rapidly over time compared to the indicators of economic development, they can provide more insight into explaining the persistent global inequalities in democratic development. However, these explanations also have their shortcomings. While the resource curse, having oil reserves, has been commonly used to explain the democracy gap in the MENA region, Haber and Monaldo (2011) found no evidence of a negative link between resource reliance and democracy for 168 countries between 1972-1999.

The recent experience of the Arab spring was to a certain extent supportive of the view that the likelihood of a transition to democracy in a country depends on the events in other states (Wejnert 2005); however, Tunisia turned out to be the only case of successful transition to a democratic regime in the region.[124] The geographical explanation fails to give a good account why in Scandinavia, democracy and a strong rule of law have taken place whereas Russia, subject to similar climatic and geographic conditions, was ruled with unconstrained absolutism for large parts of the twentieth century (Fukuyama 2011:11). This highlights that while international and geographical factors might play a role, their effect is rather marginal and the internal conditions of a country deserves more attention.

Culture has received attention as an alternative explanation of the persistent nature of democratic institutions (Maseland 2013:109). In particular, self-expressive values[125], gender egalitarian attitudes (Inglehart 1997; Inglehart and Welzel 2003; Inglehart and Norris 2003), trust (Putnam 1993), support for democracy as a political regime (Almond and Verba 1963), and individualism (Greif 1994; Lane and Errson 2005; Tabellini 2008; Gorodnichenko and

[123] An exception to this rule discussed by the authors is Argentina.
[124] http://www.washingtonpost.com/world/middle_east/tunisias-islamists-get-sobering-lesson-in-governing/2014/11/20/b6fc8988-65ad-11e4-ab86-46000e1d0035_story.html
[125] These values include social toleration, life satisfaction, public expression and an aspiration to liberty.

Roland 2013) have received substantial empirical support. The reasoning behind the link between culture and democracy is that norms and values define what is preferable in social relations, and as a result, they decrease the costs for developing, justifying and sustaining the formal institutions underpinning a regime (Licht, Goldschmidt, and Schwartz 2007; Nee 2005). Therefore, each polity, whether traditional, democratic, or authoritarian, is argued to have one form of culture that is congruent with its own structure (Almond and Verba 1963). These cultural traits stabilize democracy by "providing an enduring base of mass support" (Inglehart 1997: 164). However, Alesina and Giuliano (2014) argue culture and formal institutions to be endogenous variables, both determined by historical conditions. Below we review the literature on the relevant historical conditions, arguably relevant both for formation of culture and formal institutions related to democracy.

Historical Institutions and Democracy

A large body of research, emphasizing a path dependency in the development process of societies, has put forth empirical evidence showing that historical events have long-term impacts on current day development outcomes (see Nunn 2009, 2012 for a review). The "colonial origins" thesis, put forward by Acemoglu, Johnson and Robinson (2001b) is possibly one of the best-known arguments in the literature. Acemoglu et al. (2001b) hypothesized that in colonies where Europeans could settle, they adopted more inclusive institutions and the impact of these colonial institutions on current national polity outcomes lasts until today. Glaeser et al. (2004) extended the "colonial origins" thesis further and argued that European settlers brought also their values regarding freedom, liberty, equality, and the appropriate role of government with them, which also determined the type of institutions they set up. Yet, the colonial origins thesis is mainly of use for the political development in the Americas and Oceania, characterized by massive migration of European settlers (Gorodnichenko and Roland 2010).

An older explanation that relates historical legacy, culture and development of countries to each other goes back to Max Weber (1930), who argued in "The Protestant Ethic and the Spirit of Capitalism," that Protestantism provided the moral foundation for a modern market-based economy. The Protestant religion has also been linked to the early emergence of political democracy in Western Europe and its offshoots (Huntington 1991; Woodberry and Shah 2004; Tusalem 2009). Similarly, an extensive debate exists regarding the compatibility of Islam and democracy (Spierings et al. 2009). To explain the democracy gap in the MENA region, Huntington (1996) attributed a major role to the norms inherent to Islam, which he thinks lack values supportive of democracy. In a recent study, Blaydes and Chaney (2014) challenged this view that the cultural legacy of Islam is the cause of the lack of democracy in the region and seek an explanation in the historical institutions of the region, in particular the system of military recruitment. They argued that the political divergence between the MENA region and Western Europe could be traced back to the medieval period. According to the authors, feudal institutions served as the basis for military recruitment by European monarchs, which gave rise to increased constraints on the executive and political stability. On the

contrary, Muslim sultans relied on mamlukism, the use of military slaves imported from non-Muslim lands, which limited the bargaining strength of local notables vis-à-vis the sultan and thus hindered the development of institutions that limit the power of the rulers. Besides religion and colonial institutions, Putnam (1993) hypothesized that the regional differences in Italy regarding political development are a function of whether the given region had experienced the institution of free cities (dating back at least as far back as the 12th century). According to him, free cities developed a form of early participatory democracy, generating a feeling of belonging to a polity.

Family Systems as a Predictor of Democracy

While the relevance of historical institutions for democratic development is becoming more acknowledged in the literature, less attention has been paid to family systems as a plausible explanation. Todd (1985) is one of the few to hypothesize a systematic link between family systems and democratic development that is empirically testable. Therefore, to understand how family systems can relate to democratic development, the broader literature on family and political outcomes is reviewed. While scarce, a number of studies have examined the relevance of family organization for politics. For instance, according to Banfield (1958), amoral familism, an extreme version of strong family ties, is a major determinant of political underdevelopment in Southern Italian villages. He argued that in a social equilibrium of amoral familism, people do not trust non-family members, which leads to low political participation and a lack of confidence in political institutions. Alesina and Giuliano (2011) tested Banfield's hypothesis at a larger scale of European countries and showed that while in Northern European cultures, family ties seemed to be relatively weak and as a result of this, social capital, trust and political participation are high; the opposite was true for Southern European cultures. They concluded that in societies where trust is built overwhelmingly on the family, modern democracy would face long-lasting challenges as these negative attitudes towards politics are arguably transmitted from one generation to the next. Reher (1998) discusses that family ties help explaining the differences in the care system for elderly in Europe. Before the emergence of modern pension systems, in Mediterranean Europe, strong family ties meant that the care for the elderly fell almost exclusively on the family. In Northwestern European countries on the other hand, with weak family ties, the ultimate responsibility for the wellbeing of the elderly fell to the collective, for instance through the Poor Laws. Galasso and Profeta (2010) provided empirical evidence on this link, showing that Todd's family systems are significant drivers of current day pension system in Europe.

To test whether the variation in the way family is organized is relevant to explain the cross-national differences in democratic development, this study focuses on family systems, as devised by Emmanuel Todd (1985) in *The Explanation of Ideology*.[126] Frederic Le Play was the first scholar to define two main characteristics related to family systems, co-residence

[126] This classification of Todd (1985) has been used in Chapter 3 as well. However, as Chapter 3 studies the implication of family systems for gender equality and here the interest lies in their relevance for democratic development, an overview of Todd's classification is provided here as well.

and inheritance practices. Relying on these two dimensions suggested by Le Play, Todd (1985) has argued that co-residence and inheritance practices shape two crucial values related to the political ideologies of societies: individual liberty and equality. While individual liberty is determined by co-residence practices (i.e., whether children continue to live with parents once they reach adulthood), egalitarianism is based on inheritance practices (i.e., whether inheritance is distributed equally among the children, thus asymmetrical vs. symmetrical). Todd has combined these two dimensions by Le Play, which resulted in four types of family systems providing insight into the family systems and the ideological structures of countries mostly in Western Europe, its offshoots and Latin America (see Table 5.1). Todd then hypothesized the political rule to be reflective of these ideologies produced in the family. According to him, democracy is most likely to flourish in areas characterized by the absolute nuclear family as he thinks individual liberty is the core value of liberal democracies. The equality dimension, on the other hand, is particularly relevant for the socialist ideology, which emphasizes the equal distributions of resources at the societal level. He further links the community family system with communist political ideology, the stem family system with aristocracy and empires, and the egalitarian nuclear family with social-democratic ideology.

Table 5.1. Individual Liberty and Equality, combining Le Play's dimensions of family systems (co-residence and inheritance)

	Liberty	**Authority**
Equality	Egalitarian Nuclear	Community
Inequality	Absolute Nuclear	Stem

Source: Todd (1985: 10)

Todd (1985) extended the typology of family systems, by adding marriage arrangements (i.e., whether consanguinity is permitted, thus exogamous versus endogamous) as a third dimension of family systems to provide more insight into family practices outside of Europe.[127] Inclusion of the third dimension resulted in seven types of family systems covering the entire world. An overview of Todd's family systems and their characteristics is provided in Table 5.2, while Map D.2 in the appendix illustrates the distribution of the family systems over the world. While Todd (1985) is not clear on the implications of marriage arrangements for political rule, the role of marriage arrangements in democratic development is worthwhile testing for two reasons. First, groups in conflict tend to practice less exogamy with each other. This leads to even more rigid boundaries between the groups, which arguably facilitates (or at least results in no barrier to) further conflict (Horowitz 1998:18). For instance, exogamy has been argued to play a role in mitigating conflict and can contribute to political stability as disputes over resources or territories between groups can be smoothed through the exchange of brides. An example for this is European monarchs using marriage alliances for political purposes (Fukuyama 2011:55). It has been claimed that civil war and conflict environment is inherently more favourable to dictatorship than to democracy as the creation of stable political

[127] While Le Play considered the two dimensions of family systems independent of each other, Todd (1985) combined these two dimensions, which resulted in four different family systems (as presented in Table 5.1). Adding a third dimension on marriage increased the four types of family system classification, which mainly covered Europe, to seven types of family systems covering the entire world, discussed in Table 5.2.

order, not the promotion of democratic process, then becomes the first priority (Huntington 1968; Jung 2008). Second, in societies with exogamous family systems, women's decision-making power in the household is argued to be higher (Carmichael 2015; Rahman and Rao 2004). As more gender egalitarian societies are also found to be more democratic (Wyndow et al. 2013; Inglehart et al. 2002), marriage arrangements may have consequences for the democratic development of societies indirectly and are therefore, relevant to test.

Table 5.2. Overview of the Family Systems and their Characteristics

Family Type	Main characteristics	Examples
Absolute Nuclear	Children become independent from parental authority at an early age. Exogamous marriage, meaning choosing marriage partner outside of the family, is promoted. There are no strict rules regarding inheritance. Inheritance rules are based on wills. Therefore, while in theory unequal inheritance is an accepted practice, it is not unusual to see inheritance to be divided up equally between children. Liberalism is strongly promoted in this family type. Equal weight is given to paternal and maternal authority.	United Kingdom, the United States, Canada, New Zealand, Australia, the Netherlands and Denmark
Egalitarian nuclear	No cohabitation, total emancipation of children in adulthood. Equal division of inheritance among male heirs. Despite the egalitarian inheritance practice between brothers, inequality of the sexes is a general norm. This system encourages the persistence of slightly stronger relations between parents and children until the inheritance is completely divided after the death of the parents. Exogamous marriage is practiced.	France, Switzerland, Poland, Romania, Italy, Greece, Spain, Portugal, parts of Latin America
Stem	Cohabitation of male heir with the parents. Unequal transfer of inheritance between siblings is an accepted practice. Female successors are quite common in this type of family.	Germany, Austria, Belgium, Norway, Sweden, Israel, Japan, and Korea
Endogamous Community	All sons can get married and bring their wives to the family home. Equality among male children in inheritance and marriage between the children of brothers is frequent. Next to the parents, custom also play a role in the choice of marriage partner	Arab world, Turkey, Afghanistan, Iran, Pakistan, Azerbaijan, Turkmenistan, and Uzbekistan

Table 5.2 (continued)

Family Type	Main characteristics	Examples
Exogamous Community	Same as endogamous community, except marriage between the children of two brothers is strictly forbidden	Russia, Yugoslavia, Slovakia, Bulgaria, Hungary, Albania, China, India and Cuba
Anomic	Uncertainty about the inheritance, cohabitation and partner choice; egalitarian inheritance in theory, but flexible in practice; children would not cohabitate with the parents in theory but is accepted in practice; flexible in terms of practicing cousin marriage	Burma, Thailand, Laos, Philippines, Cambodia, Malaysia, Indonesia, Madagascar, Sri Lanka
African	Instable household and polygyny is commonly practiced	Large part of Sub-Saharan Africa

Source: Duranton et al. (2009) based on Todd (1985)

The Link Between Family Systems and Modern Day Democracy: Hypotheses

This section elaborates on the paths through which family systems can matter for democratic development in the long run and based on this insight, hypothesizes on the expected democracy outcomes of societies for each family system. Family systems as a historical institution can matter for the development and persistence of democratic institutions through four paths: by influencing cultural attitudes that are conducive to democracy, by leading to higher gender equality, by transforming structural conditions such as economic development that serve as prerequisites for democratic development and by promoting historical local democracy practices. Although influenced by Todd's (1985) main hypothesis discussed above, the current study departs from his study in three ways by considering: (1) how the position of women in the family and marriage arrangements are related with democratic outcomes; (2) the paths through which family systems influence democratic development; and (3) egalitarianism as a universal value for democratic culture. While Todd does not consider egalitarianism to be a relevant factor for democratic rule, for many political philosophers, equality should exist next to liberty as a crucial value of democracy. For instance, in Aristotle's definition, democracy means merely rule of the many, or rule by the people, a

regime that seeks its justification in the principle of equality (Lom 1999:3).[128]

Boix (2003) claims that political regimes are a mechanism employed to aggregate individual preferences. If this argument would hold, family systems are expected to influence the political outcomes as social relations, norms and values observed originally in the context of family are anticipated to transfer to superordinate social forms, in particular to the state (Mitterauer and Sieder 1982; Fish 2002). For instance, the unquestioned dominance of the father in the family is argued to replicate itself in a broader society, creating a culture of domination, intolerance and dependency in political life (Fish 2002:30). According to Fish (2002), individuals who are used to hierarchal relations in the family would then be less prone to resist the patterns of authority in politics and relatedly, "solutions imposed from above" would be supported (Mamadouh 1999). When the norms and values of the most basic unit in a society – the family – are not in agreement with the idea of democracy, political democracy would not be supported by the society in question (Lane and Errson 2003: 125). This would increase the costs of developing, justifying and sustaining democratic institutions. The cultural differences between societies concerning trust and individualism have been explained by the differences in family systems (e.g., Alesina and Giuliano 2010, 2011; Lane and Errson 2005). Therefore, culture can be one of the plausible channels to explain the relevance of family systems in democratic development.

Alternatively, family systems are relevant for women's position and gender equality and therefore may help explain why family systems matter for democratic development. Gender equality is an important driver of democracy (Beer 2004). For instance, Fish (2002) attributed a central role to the disadvantageous position of women to explain why the MENA, characterized by the highest share of authoritarian regimes in the world, has been a "laggard" in democratic development, compared with the other regions in the world. Recently, Wyndow et al. (2013) showed that female empowerment, captured by educational attainment, fertility rates and labour force participation, has stimulated democratic development between 1980 and 2000 around the world. Moreover, the way family is organized has implications both for women's position in the household and the overall gender equality in a society (see chapter 3 for a discussion). For instance, the European Marriage Pattern (EMP)[129], a demographic system involving late marriage ages for women, high proportions of female celibacy, and a nuclear household structure, has been argued to have higher levels of decision-making power for women in the family (De Moor and van Zanden 2010). A vast literature has found that the condition of women in the household is one of the main reasons for the gender gap in the field of politics (see for instance Verba et al. 1997, Coffé and Bolzendahl 2010). As shown in Chapter 3, endogamous family systems have a significantly lower level of gender equality whereas stem and absolute nuclear family systems have higher levels of gender equality in the long run. Therefore, societies with family systems that are more detrimental to the position of women are also expected to lag behind in the democratic development process.

[128] There are contradictory views on whether a tension exists between the two principles of democracy, liberty and equality. However this discussion is beyond the scope of current study. Please see Lom (1999) for a discussion on this topic.
[129] As devised by Hajnal (1965)

Family systems' role in structural conditions could be a third path to explain the role of family systems in democratic development. For instance, it has been argued that the relative independence of the children in nuclear families, and their habit of leaving home early for economic opportunities, made them a far more mobile labour force and prepared conditions for the industrial revolution in Western Europe compared to the regions characterized with communitarian or stem families (Greif 2006). Therefore one can expect to find higher levels of economic development in regions with nuclear family systems. While equality can be a relevant norm for democratic development, the impact of this dimension on structural conditions is mixed. According to Greif (2006), inegalitarian family systems may urge the need to educate or develop a rule of law protective of equal rights among citizens. The findings of Duranton et al. (2009) are supportive of Greif's (2006) argument, showing that in Europe regions with absolute nuclear families had higher levels of education and economic development compared to regions with egalitarian nuclear families.[130]

Moreover, the way family systems were historically organized may have led to different patterns of democratic practices on a local level and thus explain the long term global differences in democratic development. In a recent study, Giuliano and Nunn (2013) suggested that a tradition of village-level democracy in the past affects the stability of democratic institutions at the national level today by increasing the democratic capital in a given society (Persson and Tabellini 2009). In a similar vein, according to Greif and Tabellini (2010), while the nuclear family type in Western Europe has led to the emergence of institutions such as guilds and universities, the communitarian family structures of China resulted in the emergence of social institutions based on kinship relations (also in Greif 2006). Thus, in line with Giuliano and Nunn's (2013) hypothesis, family systems may have shaped local conditions that are favourable for democratic development at the national level in the long run.

In Table 5.3, an overview of how each family system is related with the paths, discussed above, is presented. Information on the indicators can be found in Table D.1 in the appendix. Table 5.3 provides an unweighted average of these indicators by each family type and based on this information, the expected democracy outcomes at the national level for each family system are hypothesized.[131]

[130] Todd's family systems have also been shown to matter for pension system (Galasso and Profeta 2010), intimate-partner violence (Tur-Prats 2014), fertility (Rotering 2013), human capital formation (van der Vleuten 2014), and gender equality (see Chapter 3).

[131] The differences between the family systems on intermediary channels presented in Table 5.3 are also statistically significant, taking into account the same set of control variables described in section 5.4. As these results are not the main interest of this study and therefore excluded, these results are available upon request. Moreover, the majority of the variables concerning the intermediary channels are available only at one point in time (mostly current day data, except for structural characteristics), limiting possibilities for a structural equation modelling. While it is possible to carry out such an investigation for the structural characteristics of societies, these links are of interest in Chapter 6 as well. The data used in chapter 6 is more suitable for a formal test of these intermediary channels as the dependent variable in Chapter 6, GDP per capita, shows more variation over time, allowing for an analysis to be carried out based on annual data. The findings of Chapter 6 also support the claims presented here.

Table 5.3.Family Systems, Their Link with Factors Related to Democracy and Expected Democracy Outcomes at the National Level

	Self-expression	Trust	Supportive of Democracy	Individualism	Gender Equality Index	(log) GDP	Education	GINI	Local Democracy	Hypothesized Democracy Outcome
Abs. nuclear	1.08	0.47	3.75	83.29	0.83	8.69	8.14	37.50	0.01	High and stable
Egg. Nuclear	0.15	0.22	2.97	44.82	0.71	7.80	4.13	40.89	0.01	Relatively High and stable
Stem	0.66	0.38	3.80	56.5	0.85	8.45	7.03	37.88	0.00	Relatively High and stable
Exog. Com.	-0.28	0.27	2.32	46.75	0.65	8.01	3.55	35.29	0.08	Low and unstable
Endo. Com.	-0.52	0.29	2.56	31.6	0.47	7.91	1.41	41.05	0.07	Low and unstable
Anomic	-0.17	0.20	1.72	17.28	0.49	7.54	2.49	48.53	0.01	Low and highly unstable
African	-0.49	0.12	3.00	-	0.37	6.89	1.07	47.55	0.49	Low and highly unstable

Note: Teorell et al. (2013) constructed the first three variables at the country level based on the World Values Survey data. Information on the variables and data sources is provided in Table D.1 whereas Table D.2 provides the descriptive statistics. In a nutshell, a higher value in each column should be interpreted as: (1) more importance given to self expressive values, (2) higher level of trust; (3) more supportive of democracy as a regime; (4) more individualistic culture; (5) higher level of gender equality; (6) higher level of economic development; (7) higher income inequality; (8) less experience with local democracy.

The table shows that while countries with absolute nuclear family systems, followed by stem family systems favour cultural attitudes such as self-expression values, trust, support of democracy and individualism the most, these values are least valued in countries with an anomic family type. The absolute nuclear family also has the highest expected level of gender equality and socio-economic development. Contrarily, African and endogamous community types, characterizing mainly the Middle East and Africa regions, are the worst performers. Moreover, the appointment of local leaders through patrilineal heirs rather than an election was especially common in countries where the African family system is dominant.[132] Considering these differences presented in Table 5.3, the highest level of democracy is expected to be found in countries with absolute nuclear family followed by stem and egalitarian nuclear families, whereas endogamous community and African family type are likely to have the lowest level of (national) democracy.

Methodological issues as to the link between Family Systems and Democratic Development

Before moving to the empirical specification, a word of caution on the direction of relationship between family systems and democratic development is necessary here. As discussed in Chapter 1, one of the established hypotheses on the origins of family systems concerns the role of the feudal nobility. The argument is that feudal nobility sought to maintain their feudal holdings intact through indivisible inheritance, which led to the formation of stem family systems.[133] This may imply a historical mutually reinforcing relation between state formation and family systems and shed doubt on the findings that any observed effect of family systems on democratic development could be result of a third factor, in this case feudalism. For instance, according to Fukuyama (2011), feudalism, which was unique to Europe, led to the emergence of representative assemblies that placed executive constraints on the rulers and therefore, may be more relevant in explaining the historical experience with democratic rule in this region (see also Blaydes and Chaney 2013). While this possibility is difficult to eliminate empirically due to the lack of historical data, a few points can be made to support the argument of this chapter on a robust relation running from family systems to democratic development. First, it is hard to determine the extent to which feudal institutions played a role in shaping historical family practices. Goody's (1983) influential study *The Development of the Family and Marriage in Europe* emphasizes the Catholic Church in Europe as the main institution in shaping the rules related to marriage and inheritance practices (i.e., forbidding close kin marriage and divorce). Second, family systems have been shown to change more slowly over time compared to the political institutions due to the generational transmission process within the family (Alesina and Giuliano 2010). Roland (2004:109) too argues that while institutions like family systems are prime examples of slow moving institutions, political institutions are typical cases of fast-moving institutions. He argues that while political institutions do not change very often, they can change very rapidly,

[132] The figures on local democracy measure might be driven by the fact that Murdock's Ethnographic Atlas has better coverage for Africa compared to other regions of the world (Rijpma and Carmichael 2013).
[133] See Tur-Prats (2014) for a discussion.

sometimes overnight, whereas institutions related to the norms and values in a society only change gradually. Most importantly, the focus in this study is on democratic development, which took place in the last two centuries, while family systems are argued to originate centuries earlier, making these concerns less worrisome.

5.4. Empirical Evidence

Empirical Specification

The hypotheses, summarized in Table 5.3, are tested in a systematic manner by using the following panel specification:

$$D_{i,t} = \alpha + \varphi D_{it-1} + \beta_s F_i + BX_{i,t} + \gamma_s(F_i X_{i,t}) + \varepsilon_{i,t} \quad (1)^{134}$$

In equation (1) D is the democracy score, captured by the Polity IV index in a country *i* at period *t*. F is the type of family system in country *i*, excluding egalitarian nuclear family as the reference category; X is a set of control variables, namely log of GDP per capita, average years of education, fertility[135], income from oil, a dummy for former British colonial heritage, dummies controlling for countries with the largest share of the population that have Muslim, Protestant or Catholic religious denominations[136]; and lastly (FX) refers to interaction terms between family systems and socio-economic development measures. The first lags of the continuous independent variables are included in the regression to achieve the proper length of time it takes to affect the dependent variable at time *t* (Finkel 1995). The items of primary interests are the vector of coefficients β_s, thus the direct effect of family systems on democracy and the vector of coefficients γ_s capturing the changing effect of family systems on democracy conditional on the level of development. In all the models, a set of regional and period dummies is included to control for regional and decadal effects.[137] In the panel data specification, a period is defined as 10 years. The lagged value of democracy is included as an explanatory variable which "provides a simple way to account for historical factors that cause current differences in the dependent variable that are difficult to account for in other ways" (Wooldridge 2006: 310). The model has been tested using random effects estimation since the main variable of interest, "family systems" is time-invariant. Additional model specifications and robustness checks are discussed in the following section.

A word of caution is necessary here. In equation 1, the error term ε_{it} captures any omitted variable that may influence the level of democracy and is assumed to be uncorrelated

[134] It is not possible to include country fixed effects because of the time invariant nature of family systems.
[135] Inclusion of measures on income inequality and industrialization do not change the interpretation of the findings. As the number of observations on income inequality is relatively smaller compared to the rest of the indicators in the model and industrialization measure is highly correlated with log GDP per capita, they were excluded from the models presented here.
[136] Religion is also included as percentage of the population that have Muslim, Protestant or Catholic religious denomination in 1900, 1970 and 2000, and conclusions that could be drawn from this specification remains the same.
[137] These regional and time fixed effects also capture the existence of "diffusional pattern" and "democratic waves".

with the variables included in the equation. If this assumption is violated for family systems, then the results on family systems can only be interpreted as partial correlations rather than as causal effects.[138] Different model specifications and robustness checks have been carried out to eliminate some of the concerns. However, only a valid instrument for family systems can eliminate the issue of endogeneity completely. As it is difficult to find an instrument for family systems that would satisfy the exclusion restriction assumption,[139] the empirical findings should be interpreted as a first step to provide empirical evidence on whether family systems are related with democracy in the long run, rather than a conclusive causal relation. However, considering the theoretical and empirical evidence on family systems as a persistent historical institution, having roots long before the emergence of modern day liberal democracy, we are confident that the results are indicative of a robust relation between family systems and democratic development.

5.5. Results

In Table 5.4, Model 1 shows that except anomic family system, family systems included in the regression model perform significantly different in terms of democratic development than egalitarian nuclear family structure. In particular, countries with endogamous community, exogamous community and African family systems score 0.16, 0.05 and 0.10 points less on a 0 to 1 democracy scale compared to the countries with egalitarian nuclear family systems. Thus, part of the long-term regional differences in the level of democracy between some of the Western European countries such as France (where egalitarian nuclear family system is common), the Middle East (characterized by endogamous community families), Eastern European countries, South and South East Asia (where the exogamous family system is common), and Sub-Saharan Africa (dominated by the African family system) can be attributed to the ways families were organized in the past. Absolute nuclear and stem families score 0.08 and 0.07 points more on the Polity IV index compared to the egalitarian nuclear ones. Thus, family systems are of use in explaining the differences in democratic development not only between regions, but also within regions, especially in Europe, showing large variation when it comes to family practices according to Todd (1985). For instance, the differences between egalitarian and absolute family system may help explain why some South European countries, Spain and Portugal (with egalitarian nuclear family system) experienced

[138] Endogeneity issue can also rise due to reverse causality and the measurement error. The reverse causality issue is discussed in the previous section. While this issue of reverse causality cannot be eliminated completely, based on the secondary literature, it is more plausible to expect a relationship running from family systems to democratic development rather than the other way around. Moreover, as the family systems measure is only available at the national level, within-country variation could be a source of a measurement error. However as the main dependent variable, democracy is captured at the national level, this is not a major concern. Another issue is the time invariant measure of family systems. Table 5.5 presents the results when family systems are assumed to change due to economic development or other drivers. Under a set of different assumptions, family systems remained as a robust predictor of democracy.

[139] Two issues make it particularly difficult to find an instrument in this chapter. The first reason is mainly due to the suggested historical relation between family systems and state development, therefore any instrument is likely to be correlated with our democracy measure as well. More insight is needed on the origins of family systems to be able to find a relevant instrument. A second issue concerns finding an instrument that would be valid for each seven categories of family systems that have different characteristics from each other.

a transition to democratic regime only in the 1970s and have less experience with democracy whereas the Northwestern Europe have long histories with parliamentary rule (with absolute nuclear family system) (North and Weingast 1989). Both in Western Europe and at a global level, countries that have stem family system such as Sweden, which has a long history with democratic role, also perform significantly better compared to countries with egalitarian nuclear family system.[140]

The findings on the differences between egalitarian nuclear and absolute nuclear family support Todd's (1985) view that liberalism is a more crucial value than egalitarianism for democratic development. In the second model, a set of variables related to development is included. An alternative explanation for the observed differences between different family types could be that stem and absolute nuclear family systems are related with higher levels of socio-economic development compared to egalitarian nuclear family system as discussed in section 5.3. However, even when socio-economic indicators are controlled for (Model 2 in Table 5.4), stem and absolute nuclear families still perform better than egalitarian nuclear family system on the Polity IV index. The fact that the coefficients of family systems hardly change between the first and the second model also highlights cultural transmission as a more plausible path to understand the long-term effect of family systems on democratic development. To check whether the observed effect of family systems is due to other omitted time invariant characteristics of the countries, Model 3 includes historical and geographical characteristics. Overall, inclusion of religion, colonial origin and oil do not change the results regarding family systems. An important finding is that countries with endogamous community families are significantly less democratic even when the effect of Muslim religion is taken into account. Moreover, no evidence was found regarding Islam being incompatible with democracy. This means family systems are a more plausible explanation of why many Muslim majority countries are lagging behind in the democratic development process rather than religion. Looking at the control variables, countries that rely more on oil for their income tend to be less democratic which is in line with the findings of previous literature (Barro 1999; Doorenspleet 2004; Ross 2001).

The standardized coefficients based on Model 3 which are presented in Table 5.4 (Column 4), indicate that among the family systems, absolute nuclear family has the highest level of democracy, providing support for Todd's hypothesis. Moreover, among all the predictors included in the analysis, the level of democracy in the previous time point (10-year interval) has the strongest explanatory power, highlighting the persistent nature of democratic development. Family systems, in particular the endogamous community system, have the second strongest explanatory power in the empirical model.[141] Exclusion of Sub-Saharan

[140] An exception to this rule is arguably France that has an egalitarian nuclear family system and has one of the longest modern democratic traditions in Europe. The ideology of popular participation in political decision-making stretches back to the Revolution of 1789 in France. There was, for example, the right to vote for the vast majority of adult males during the revolutionary years of the 1790s. However, while being the host to the French Revolution of 1789, arguably, a stable democratic regime did not emerge in France until after the Second World War, with the establishment of the Fifth Republic (Heywood 2004:921).

[141] Inclusion of these indicators on development and historical characteristics in Model 2 and Model 3 also do not lead to a substantial change in R2 (see Table 5.4).

African (Model 5) and MENA (Model 6) countries from the estimation model, which largely coincide with African and endogamous community family types, do not change the interpretation of the findings from the previous models.

Table 5.4. Random Effect Model on the Relation between Family Systems and Democracy

	(1)	(2)	(3)	(4)	(5)	(6)
	M1_ onlyfamily	M2_ Develop.	M3_ historical	Std.	Exc._ SSA	Exc._ ME
Democ t-1	0.72***	0.72***	0.71***	0.70***	0.74***	0.71***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Absolute nuclear family	0.08***	0.08***	0.08***	0.04***	0.08***	0.10***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Stem family	0.07***	0.07***	0.05**	0.03**	0.05**	0.07***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Endogamous community family	-0.16***	-0.16***	-0.16***	-0.15***	-0.17***	
	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)	
Exogamous community family	-0.05*	-0.04	-0.05*	-0.04*	-0.03	-0.02
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Anomic family	0.00	0.01	0.01	0.01	0.01	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
African family	-0.10***	-0.09***	-0.08***	-0.08***		-0.04
	(0.02)	(0.03)	(0.03)	(0.03)		(0.03)
Eastern Asia	-0.10***	-0.10***	-0.08***	-0.07***	-0.07**	-0.08***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Latin America	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Middle East	0.02	0.02	0.05	0.05	0.04	
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	
Southern Asia	0.02	0.03	0.06*	0.03*	0.08**	0.02
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.04)
(log)GDPpc t-1		0.02	0.02	0.04	0.03	0.03
		(0.02)	(0.02)	(0.04)	(0.02)	(0.03)
Edu t-1		0.01	0.01*	0.06*	0.01	0.01*
		(0.01)	(0.01)	(0.03)	(0.01)	(0.01)
Fertility t-1		-0.01	-0.01	-0.02	0.00	-0.00
		(0.01)	(0.01)	(0.03)	(0.01)	(0.01)

Table 5.4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	M1_ onlyfamily	M2_ Develop.	M3_ historical	Std.	Exc._ SSA	Exc._ ME
(log)Oil t-1			-0.00**	-0.05**	-0.00**	-0.00*
			(0.00)	(0.02)	(0.00)	(0.00)
Britishcolon			-0.04*	-0.06*	-0.08**	-0.04
			(0.02)	(0.03)	(0.03)	(0.03)
Muslim			0.01	0.01	0.05	-0.03
			(0.03)	(0.03)	(0.05)	(0.03)
Protestant			0.03	0.02	0.03	0.02
			(0.02)	(0.01)	(0.02)	(0.02)
Catholic			0.01	0.01	0.03*	0.01
			(0.01)	(0.02)	(0.01)	(0.02)
Constant	0.29***	0.27***	0.26***	-0.01	0.18***	0.22***
	(0.03)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
Year Fixed Effects	yes	yes	yes	yes	yes	yes
Observations	732	732	732	732	587	664
Number of Countries	127	127	127	127	90	111
Overall R-squared	0.77	0.78	0.78	0.78	0.79	0.76

Notes: ***<.01, ** p<0.05, * p<0.10 (based on two tailed t-test). Robust standard errors, clustered at the country level, are reported in the parentheses. Development measures are centred at their group mean to reduce multicollinearity issues. Sub-Saharan African (SSA) dummy is excluded as it coincides largely with African family structure. Model 5 excludes Sub-Saharan African (SSA) countries and Model 6 excludes the MENA countries completely from the estimation model.

In Table 5.5, the underlying variables of Todd's have been employed from Rijpma and Carmichael (2013).[142] The results presented in Colum 1 in Table 5.5 show that while countries with community family system have significantly lower levels of democracy, the equal inheritance principle between brothers is not a significant predictor of democracy. This provides further evidence on Todd's hypothesis that individualism linked with the nuclear family system is the most relevant dimension for democratic rule, rather than the equality principle between brothers. However, Todd's typology (1985) does not consider the implications of the equality principle between daughters and sons or between wives and husbands for democratic development and thus lacks a gender perspective. Family institutions related to female agency may help explain the cross-national differences in democratic development. To test this possibility, measures of family systems that have been argued to be reflective of women's decision-making power in the household, have been employed for

[142] All the measures on family systems have been employed from this dataset (See appendix D, table D.1). Rijpma and Carmichael (2013) use not only the family systems classification by Todd but also employ data from Murdock's (1959) Ethnographic Atlas to check the validity of Todd's classification. Bolt (2012) has aggregated the measures at the ethnic level from the Murdock dataset to the country level. A detailed description of how Murdock's data has been aggregated to the macro level and Todd's underlying variables has been tested against Murdock's data is provided in Rijpma and Carmichael (2013). Table D.1 also provides information on the underlying family systems measures.

which the results are presented in Column 2 (see the discussion in Chapter 1). This data comes from Rijpma and Carmichael (2013) as well, except for time varying gender equal inheritance practices and early marriage dummies which are based on data introduced in Chapter 2.[143] The results reveal that countries where polygamy is exercised have on average 0.10 points less on the Polity IV index, ceteris paribus (column 2). Moreover, in countries where kinship is defined only through the father's line (patrilineal descent), the level of democracy is significantly lower (Column 3). However, no significant effect of gender egalitarian inheritance practice and early marriage on democratic development of countries was found. Therefore, not all the dimensions of family systems related to the position of women seems to matter for democratic development directly.[144]However, the investigation here provides only limited insight into the importance of institutional arrangements that determine the position of women for democratic development. Other dimensions of institutions related to female agency (e.g., whether women can set up business, whether they have the freedom to move freely) are worthwhile investigating in the future.

Table 5.5. Random Effects Model on Underlying Variables of Family Systems Related to Female Agency and Democratic Development

	(1)	(2)	(3)
	Underlying_ Todd	Familysys._ femaleagency	Other Familysyst_ femaleagency
Polity t-1	0.73***	0.70***	0.74***
	(0.04)	(0.04)	(0.03)
Community	-0.11***	-0.13***	-0.10***
	(0.03)	(0.04)	(0.02)
Asyminheritance_eoi	-0.00		
	(0.02)		
Exogamous_eoi	0.06	0.06*	0.06*
	(0.04)	(0.03)	(0.03)
Polygamy_eoi	-0.10**	-0.09*	-0.10**
	(0.05)	(0.05)	(0.04)
Female_uninherit		0.01	
		(0.02)	
Earlymar		0.02	
		(0.02)	
Patrilineal Descent			-0.04*
			(0.02)

[143] A detailed discussion on how these indicators on family systems related to female agency is provided in Chapter 6.

[144]The principal aim here is to test the model of Todd (1985); therefore, the variable on asymmetrical inheritance practices is kept in the analysis rather than the patriarchal inheritance variable.

Table 5.5 (continued)

	(1)	(2)	(3)
	Underlying_ Todd	Familysys._ femaleagency	Other Familysyst_ femaleagency
(log)GDPpc t-1	0.00	0.01	0.02
	(0.02)	(0.03)	(0.02)
Edu t-1	0.01**	0.01*	0.01
	(0.01)	(0.01)	(0.01)
Fertility t-1	0.00	0.01	0.01
	(0.01)	(0.01)	(0.01)
(log)Oil t-1	-0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)
Britishcolon	-0.06**	-0.07***	-0.06***
	(0.02)	(0.02)	(0.02)
Muslim	-0.00	0.02	0.00
	(0.02)	(0.03)	(0.02)
Protestant	0.04	0.02	0.03
	(0.03)	(0.03)	(0.02)
Catholic	0.01	-0.01	-0.00
	(0.02)	(0.02)	(0.02)
Eastern Asia	-0.05	-0.06*	-0.03
	(0.03)	(0.03)	(0.03)
Latin America	-0.07***	-0.07***	-0.05**
	(0.02)	(0.02)	(0.02)
Middle East	0.03	0.01	0.06
	(0.04)	(0.05)	(0.04)
Southern Asia	0.06	0.05	0.08**
	(0.04)	(0.04)	(0.04)
Sub-Saharan Africa	0.01	-0.01	0.03
	(0.04)	(0.05)	(0.04)
Constant	0.22***	0.23***	0.21***
	(0.06)	(0.07)	(0.06)
Year Fixed Effects	yes	yes	yes
Observations	562	489	601
Number of Countries	105	84	108
Overall R-squared	0.81	0.8	0.79

Notes: ***<.01, ** p<0.05, * p<0.10 (based on two tailed t-test). Robust standard errors, clustered at the country level, are reported in the parentheses.

So far, based on the evidence from the previous literature, family systems have been treated as slow changing institutions. Todd (1985) argues these family types to originate in peasant societies. Thus once societies become more urbanized, one can argue these family

systems to adapt to the changing socio-economic structure. Under this assumption, the role played by family systems on national democracy may change depending on the stages of development a country is in. To test this assumption, Table 5.6 looks at the interaction between family systems and socio-economic development measures. The results show that the impact of absolute nuclear and stem family structures on national democracy is weaker in societies with higher levels of economic development, educational attainment, urbanization and reduced fertility levels. However, this is not the case for the impact of the endogamous community system. Since the 1980s, significant advances took place in health (such as declining child mortality and fertility), income and education in the MENA region (UNDP 2011). Yet, these transformations do not seem to lead to a change in the norms and values characterizing endogamous community family system, as the negative relation between endogamous community family and democracy only gets stronger in later stages of development. This finding can be attributed to the fact that when family systems are characterized with stronger family ties, they may be more resilient to change compared to the weaker family ties of the absolute nuclear and stem family structure. In the latter, the individual moves out from the household once he/she reaches adulthood and thus relies more on the services provided by the society rather than the family. Thus members of the family systems with weak ties would have more incentive to adapt to the changes in a society, including the shift in societal norms and values (Alesiana and Giulano 2010; Alger and Weibull 2007).

Next to the results presented above, a number of robustness checks have been carried out for which the results are presented in Table D.3 and D.4 in the appendix. Model 1 in Table D.3 shows that countries' history with democratic rule is shorter in countries, characterized by endogamous community and African family systems and is longer in countries, characterised with absolute nuclear and stem family systems. Model 2 tests further interaction terms of underlying characteristics of family systems with geographical predictors of democracy namely per capita income from oil. The results show that the negative effect of polygamy on democracy is less strong in countries that have a higher income from oil. This finding is of use to explain the cross-national differences within Sub-Saharan Africa such as between Nigeria and Gambia. A further investigation of the link between religion, family systems and democracy (Model 3 in Table D.3) reveals that Islam has a negative impact on democracy only in countries that have a communitarian and polygamy family practices. This finding may provide insight in explaining the large variation within Muslim majority countries in terms of democratic rule, such as neighbour countries Mali and Niger that have a similar level of development and religious legacy but different democracy outcomes. As an alternative measure of democracy, the Freedom House Index is used in Model 4 in Table D.3. While the conclusions that can be drawn from this model are similar to the ones outlined above, there are differences. For one, countries with anomic families are significantly and negatively different from egalitarian nuclear families in terms of political and civil liberties, whereas the significant differences between egalitarian nuclear, stem and absolute nuclear family structures are less prevalent. Testing Model 3 from Table 5.4 in a cross sectional specification, based on data from 2000, also does not change the interpretation of the results (presented in Model 5 in Table D.3).

Table 5.6.Random Effect Model on Family Systems and Democracy under Different Stages of Development (N=127, n=732)

	(1)	(2)	(3)	(4)
	Gdp^	Urbanisation^	Education^	Fertility^
Democ t-1	0.72***	0.72***	0.72***	0.74***
	(0.03)	(0.03)	(0.03)	(0.03)
Absolute nuclear family	0.10***	0.09***	0.08***	0.09***
	(0.02)	(0.02)	(0.02)	(0.02)
Stem family	0.06***	0.06***	0.05**	0.06***
	(0.02)	(0.02)	(0.02)	(0.02)
Endogamous community	-0.15***	-0.18***	-0.16***	-0.13***
	(0.04)	(0.04)	(0.04)	(0.04)
Exogamous community	-0.05*	-0.05**	-0.05**	-0.05*
	(0.02)	(0.02)	(0.02)	(0.02)
Anomic family	0.00	-0.01	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)
African family	-0.08**	-0.11***	-0.10***	-0.08***
	(0.03)	(0.03)	(0.03)	(0.03)
(log)Oil t-1	-0.00**	-0.00**	-0.00**	-0.00**
	(0.00)	(0.00)	(0.00)	(0.00)
Britishcolon	-0.04	-0.04	-0.07***	-0.04
	(0.02)	(0.02)	(0.03)	(0.02)
Muslim	0.01	0.02	0.02	-0.00
	(0.03)	(0.03)	(0.03)	(0.03)
Protestant	0.03	0.04*	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Catholic	0.02	0.02	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.01)
(log)GDP pc t-1	0.06*			
	(0.03)			
Urban t-1		0.00		
		(0.00)		
Educ. T-1			0.02***	
			(0.01)	
Fertility t-1				0.02
				(0.01)
Interactions				
Absolute nuclear family^	-0.10***	-0.01***	-0.03***	-0.05***
	(0.02)	(0.00)	(0.00)	(0.02)
Stem family^	-0.07***	-0.00**	-0.02**	-0.03*
	(0.02)	(0.00)	(0.01)	(0.02)

Table 5.6 (continued)

	(1)	(2)	(3)	(4)
	Gdp^	Urbanisation^	Education^	Fertility^
Endogamous community^	-0.07	-0.00*	-0.03**	-0.04**
	(0.05)	(0.00)	(0.01)	(0.02)
Exogamous community ^	0.01	0.00	-0.01	-0.03
	(0.05)	(0.00)	(0.01)	(0.02)
Anomic family^	0.01	-0.00*	-0.01	-0.03
	(0.04)	(0.00)	(0.01)	(0.02)
African family^	-0.04	0.01	0.03*	0.05
	(0.10)	(0.00)	(0.02)	(0.04)
Constant	0.26***	0.27***	0.25***	0.27***
	(0.04)	(0.03)	(0.03)	(0.04)
Year Fixed Effects	YES	YES	YES	YES
Regional Fixed Effects	YES	YES	YES	YES
R2	0.78	0.79	0.79	0.78

Notes: ***<.01, ** p<0.05, * p<0.10 (two tailed t-test). Robust standard errors, clustered at the country level, are reported in the parentheses. Model specifications are the same as in Table 4. ^ Refers to interaction terms between each family system and development measures. The scale of fertility measure has been reversed to later stages of development for the ease of comparison with other models. In Model 2, the results are based on 126 countries, 726 observations.

Lastly, in Table D.4, the underlying measures of the Polity IV index, the Freedom House Index and governance [145] have been employed to evaluate Fukuyama (2011)'s argument related to different aspects of democratic development, described in section 5.2 and test the relevance of family systems for these different dimensions of democratic development. The results show that countries with African family systems have significantly less constraint on the executive, regulation on chief executive recruitment, open and competitive in executive recruitment process. African family systems also score significantly lower in all the measures related to the quality of the governance. The differences in the quality of governance, captured by a number of indicators ranging from governance accountability to protection of property rights are also significant between the absolute nuclear, stem, endogamous and egalitarian nuclear family systems. However, these differences are less prevalent for the underlying indicators of the Polity IV index.

5.6. Conclusion

This study has provided a systematic investigation on the role of historical legacies in explaining the persistent cross-national disparities in democracy by focusing on family systems. Overall, the findings of this paper show support for Todd's hypothesis that countries that were characterized by family systems that promote liberal values at the level of the household also have a longer history of democracy at the national level. Thus, the way

[145] More information on these measures can be obtained from Table D.1 in the appendix.

families have been organized in the past with regard to co-residence practices provides insight into why some countries, especially those located in the Middle East and Africa, face challenges in democratic development even today while Western European countries and its offshoots have a long history with democracy. Moreover, equality principle between brothers does not seem to be a crucial contributor to the democratic development of societies.

However, while studying the relevance of family systems as root determinants of democratic development, one needs to consider the position of women within the family as well, which is a dimension that has been largely overlooked in the previous literature including Todd (1985). The results of the current study show support for the relevance of family systems related to female agency for democratic development. Incorporating a gender perspective while studying the relevance of family systems for democratic development is crucial as women can be important agents of political change. For instance, in the case of Latin America, women's grass root movements played a major role in challenging the authoritarian rulers in the late 1970s and thus were a key element in the successful democratic transitions. However, this was not the case either in Eastern Europe in the 1990s or in Arab Spring in 2011 (Alvarez 1990; Waylen 1993; Jaquette 2001; Tripp 2001). Family systems can be relevant in explaining these differences. As chapter 3 has shown, family systems have implications for different dimensions of gender equality and determine the extent to which women can make independent life choices. In societies with more gender egalitarian family systems, women would have more chance to be politically active, for instance as a result of more time availability (e.g., Verba et al. 1997; Christy 1987; Coffé and Bolzendahl 2010).

Family systems also help explain why common determinants such as oil or religion have led to different political outcomes in terms of democratic rule. Another interesting finding is that family systems characterized by weak ties becomes less relevant for explaining democracy in later stages of development, whereas, contrarily, family systems with strong ties have a persistent and even stronger impact on democracy in later stages of development. A further investigation of this finding remains as an ambition for future research. Thus, the main conclusion drawn from this study would be similar to that of Duranton et al. (2009: 21): "Whatever interpretative framework is used, it is reasonable to conclude that family systems deserve to be a fundamental component of the society and community debate."

CHAPTER 6: THE DEEP CAUSES OF ECONOMIC DEVELOPMENT: FAMILY SYSTEMS AND FEMALE AGENCY

6.1. Introduction[146]

Only recently have economists and policy makers started to treat female agency as a key contributor to the development process. While economic development has been shown to be relevant in promoting gender equality and female agency[147], the main interest here is to study the direction of the relationship running from female agency to economic development. As discussed in Chapter 1, (female) agency can be defined as individuals' capacity to make meaningful life choices and act upon them to reach a desired outcome. This chapter will study whether systematic patterns of female agency in the household, operationalized by family systems, help to explain the diverging paths of economic development in the world economy? Sen (1999) was one of the first to hypothesize that increasing the decision making power of women, thus their agency, is a key tool to promote development.[148] The World Bank (2011, 2014) too sees increasing female agency as an instrument for economic development. By studying the relevance of female agency for economic development of societies historically, using data covering the last century and a half at the global level, the aim of this chapter is to provide an empirical test of the Sen hypothesis.

[146] Written as Chapter 6 in J.L. van Zanden, A. Rijpma and J. Kok (Eds.), *Agency, Gender, and Economic Development in the World Economy, 1850-2000:Testing the Sen Hypothesis*

[147] Please refer to the first part of this dissertation for the direction of the relationship running from economic development to gender equality.

[148] As mentioned, according to Sen, development is a multidimensional concept that goes beyond GDP per capita and should also provide insight in different dimensions such as health, education as well. The focus here is on economic development. The reason is that education is included in the multidimensional measures of development such as the HDI and here is used as an intermediary channel to understand how family systems related to female agency play a role in economic development.

A handful of scholars have discussed the presence of a historical link between female agency at the household level and development. For instance, the European Marriage Pattern (EMP) has received scholarly attention as one of the key contributors to the economic success of north-western Europe in the late medieval and early modern period (Edlund and Lagerlöf 2006; De Moor and van Zanden 2010; Foreman-Peck 2011). The proponents of this view argue that the EMP contributed to economic development by increasing the bargaining position of women in the household, which resulted in higher female labour force participation and restricted fertility. Recently, however, Dennison and Ogilvie (2014) tested this hypothesis on the EMP for 39 European countries between 1500 and 1900 and found that the most extreme manifestations of the EMP were associated with economic stagnation rather than growth. Empirical evidence on the historical link between female agency and economic development is, therefore, far from being conclusive.

Moreover, insufficient attention has been paid to historical institutions related to female agency and their relevance for the development process. Since the work of Douglass North, New Institutional Economics (NIE) highlights the importance of institutions, such as protection of private property rights or placing constraints on the executive, in explaining societies' divergent patterns of economic development. In their influential work, *Why Nations Fail*, Acemoglu and Robinson (2012) argue inclusive political (i.e., democratic rule which provides possibilities for the larger share of population to participate in the political decision making process) and economic institutions (i.e., protective of individual economic freedoms creating incentives for investment and innovation)[149] to be indispensible for sustained long-term economic development. A large body of literature has provided empirical evidence on this view (see Jütting 2003 for a review). Given the importance of the institutional structure to ensure inclusiveness for economic development, it is surprising that the majority of these studies lack a gender perspective.[150] Evaluating the relevance of institutional arrangements that discriminate against women can improve our understanding of the causes of the cross-national differences in economic development.

The objective here is to contribute to the literature by providing a systematic analysis of the link between family institutions related to female agency and economic development based on a global dataset available for 92 countries between 1863 and 2003. This data is analysed by a multilevel model and a multilevel structural equation estimation techniques, making it possible to test various links at the same time.. First, the empirical investigation concerns whether a robust relation exists between family institutions related to female agency and economic development over the long run. Second, three channels, namely fertility, human capital formation, and political institutions, are considered through which female agency in the household may have influenced long-term economic development.

[149] Acemoglu and Robinson (2012) define the inclusive economic institutions as "secure property rights, law and order, markets and state support (public services and regulation) for markets, open to relatively free entry of new businesses; uphold contracts; access to education and opportunity for the great majority of citizens", In their view, inclusive political institutions allow for broad participation, pluralism and place constraints and checks on politicians (definition available at : http://economics.mit.edu/files/7850).

[150] Exceptions to this statement are the studies by Jütting et al. (2008); Morrison and Jütting (2005) and most recently Branisa et al. (2013), using the Social Institutions and Gender Index (SIGI) to provide some insight on this link. However, this data is only available from 2009 onwards.

Overall, the results reveal lower female agency, especially determined by gender inegalitarian inheritance practices, early marriages, and polygamy, to be negatively related with economic development. A large proportion of the effect of female agency in the household on development runs through its role in fertility patterns and human capital formation, providing also evidence in support of Unified Growth Theory (UGT) and the Quantity-Quality tradeoff. Overall, the results highlight the importance of taking into account historical institutions related to the family while studying the disparities in current development outcomes (see, for instance, Greif 1994; Greif 2006; Giuliano and Nunn 2013). Moreover, there is a necessity of addressing the "gender lacuna" in the institutional economics literature (Baldez 2010); thus incorporating a gendered perspective into development theory (Wyndow, Li, and Mattes 2013; Branisa, Klasen, and Ziegler 2013)

6.2. Previous Findings on Institutions and Economic Development

A substantial gap exists between average income levels of the world's richest and poorest nations, which differ by a factor of more than 100 in GDP per capita (Rodrik et al. 2004:132).[151] A vast literature tries to understand why some countries are poor and the other ones are rich (see for example Barro 2003; Acemoglu and Robinson 2012). Broadly speaking, geographical factors (e.g., factor endowments, natural resources, climate, disease, transport costs), human capital formation, technological innovation, and international trade have been suggested as plausible determinants of economic development.[152] Moreover, as mentioned, since the seminal works of North (1989,1990), institutions have received substantial scholarly attention in explaining the (persistence of) income differences around the world (see Jütting 2003 for a review and Chapter 1).

As part of the NIE literature, family institutions, with their primary role in transmission of culture and behaviour between generations (Bisin and Verdier 2000, 2001), have started to receive attention as a plausible factor of development (see Alesina and Giuliano 2010 for a review). Todd's (1985) typology of family institutions available at a global level can be of use in understanding the deep roots of persistent global gaps in economic development. For instance, as discussed in the previous chapter, it has been argued that the relative independence of the children in nuclear families, and their habit of leaving home early for economic opportunities, made them a far more mobile labour force and prepared conditions for the Industrial Revolution in Western Europe compared to regions characterized by communitarian or stem families (Greif 2006). Duranton et al. (2009) provided empirical evidence for the links between family systems and regional disparities in household size, educational attainment, social capital, labour participation, sectoral structure, wealth, and inequality in Europe. However, within this literature only a number of studies have explicitly considered the gender dimension of family institutions. Tertilt (2006) suggests that enforcing a ban on polygyny would increase output per capita by 170 per cent in Sub-

[151] The authors use the data for 2000 from the World Bank. According to the GDP per capita estimates from World Bank (2015), Luxemburg was the richest country in the world with an average income of 90,790 $ whereas Democratic Republic of Congo had the lowest income of 747 $ in 2014.
[152] See Rodrik et al. (2004) for a review

Saharan Africa.[153] Doepke et al. (2012) considers equal inheritance rights would favour investment, and thus promote economic development. A study by Branisa et al. (2013) is among the few to provide an empirical test at the macro level showing how social institutions related to gender equality, especially those regarding family system, are associated with a higher level of female education, and lower levels of child mortality, fertility, and corruption in developing countries. Their analysis, though, is limited to current data available after 2009 and focuses on other dimensions of development as outcomes.

However, it is crucial to incorporate a historical perspective to have a better understanding of the role institutions play in promoting economic development. The empirical literature on economic growth and development has moved from the study of proximate determinants to the analysis of deeper, more fundamental factors, rooted in history (Spoalore and Wacziarg 2013: 325). For instance, a number of scholars have argued that the changes in the political and economic institutions in the past, such as the end of colonial rule in Latin America, the enfranchisement of former slaves in the US South, and the democratization of British politics during the nineteenth century have led to significant changes in economic outcomes (Acemoglu and Robinson 2008). This study aims to contribute to this line of literature by focusing on the historical institutional arrangements that shape the position of women and their consequences for the economic development of societies.

6.3. Theoretical links between Family Institutions related to Female Agency and Economic Development

The following links between family institutions related to female agency and economic development exist theoretically. First of all, improving the institutional structure to promote female agency would help to improve women's position in fields such as labour force participation, human capital formation and political participation that are relevant for economic development (e.g., World Bank 2001, 2011; Klasen 2002; Klasen and Lamanna 2009). The World Bank (2014:24) highlights that 'reform of discriminatory laws, particularly in the realm of family, inheritance, and property law, is an important first step for advancing women's position'. For instance, Deininger et al. (2010) showed that the introduction of the Hindu Succession Act Amendment of 2005 enforcing equal inheritance rights for girls and women is related to higher household investment in girls, lower dowry payments as well as higher age at marriage in Maharashtra and Karnataka. Second, family institutions related to female agency may promote a cultural environment that is favourable for economic development. For instance, the nuclear family type arguably leads to an individualistic culture, which has been related to higher levels of economic development (Roland and Gorodnichenko 2011). Third, removing gender inegalitarian practices in the institutional structure may contribute to the other dimensions of development (e.g., human capital formation), as argued by The World Bank (2011,2014) and Sen (2000), and result in sustained economic development. For instance, polygamy has been cited as a possible contributor to Africa's low savings rates (Tertilt 2005), widespread incidence of HIV (Brahmbhatt et al.

[153] She also predicts an increase in the savings rate by 70%.

2002), high levels of child mortality (Strassmann 1997), and female depression (Adewuya et al. 2007).[154] In the current study, the focus will be on the third theoretical link.[155] To do so, this chapter studies three paths that have received attention as the crucial drivers of economic development: fertility, human capital formation and political institutions.

Figure 6.1. Theoretical Model

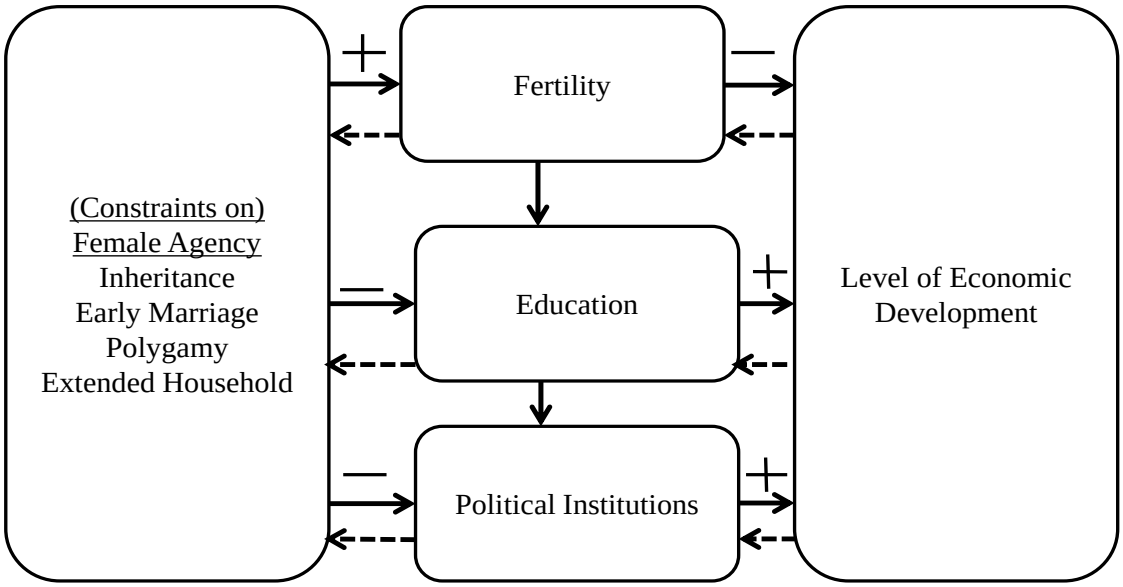


Figure 6.1 below summarizes the theoretical model to be explored in the empirical specification. While the solid lines in the figure represent the relationships explored in this chapter, the dashed lines illustrate the suggested links in the literature, which are not explored in the current study. The overall hypothesis is that in societies where female agency is lower (determined by whether inegalitarian inheritance between sisters and brothers exist, whether girls marry earlier than the age of 23[156], whether the extended household is the dominant co-residence type and whether polygamy is practiced), the level of fertility would be higher and human capital formation and quality of political institutions would be lower. As a result, the level of economic development is expected to be lower.

[154] See Fenske (2013) for a further review.
[155] The aim here is to bring a long-term perspective to the link between female agency and economic development. Therefore, the availability of long-term historical data is an important reason for the focus on the third channel for which data extends back to the nineteenth century. While Chapter 2 introduces long-term measures on gender equality, some of these measures such as education become available only from 1950 onwards. These gender measures are also closely related with the intermediary channels tested here, which make it impossible to test all these channels in one model.
[156] See the methodology section for information on the construction and justification of this threshold.

Female Agency and Fertility

No developing country, except oil-producing countries, has attained medium income levels without going through a fertility transition beforehand (Voigtländer and Voth 2013; see also Chesnais 1992). As summarized in Klasen (2002: 353; see also Van der Vleuten and Kok 2014: 51-52), lower fertility could affect economic development in four different ways. First, lower fertility[157] reduces population growth and thus facilitates investments being used for capital deepening (more capital per worker) rather than capital widening (equipping new workers with capital). Second, reduced fertility lowers the dependency burden, increasing savings rates in an economy. Third, lower fertility will, for a limited period of time, increase the share of workers in the population. Fourth, if growth of the labour force is absorbed through increased employment, per capita economic growth will rise even if wages and productivity remain the same. This is because more workers will be sharing their wages with fewer dependents, boosting average per capita income. The demographic transition which took place in the nineteenth and twentieth centuries – a period in which fertility, mortality and population growth dropped – has been argued by Unified Growth Theory (UGT) to be part of a shift from a Malthusian dynamic to a modern growth era with sustained technological progress. UGT highlights that in the context of rapid technological progress, having children became relatively more costly with respect to investments in children's education (Murtin 2012).

Women's decision-making power in the household is particularly expected to play a crucial role in fertility decisions (see Janssens 2007a and Janssens 2007b for a review of this link historically)[158] and contribute to economic development as women bear the highest opportunity costs of high fertility (Becker 1965; Diebolt and Perrin 2013). So far, the literature has paid attention particularly to the socio-economic position of women in determining their fertility decisions. For instance, Galor and Weil (1996) propose that a reduced gender gap in earnings lowers fertility whereas Lagerlöf (1999) shows that initial gender inequality in education can result in high fertility and low economic growth. However, Mason (2001) highlights the importance of taking into account family institutions related to female agency for understanding the timing of the onset and rapidity of the fertility transition as well. She argues fertility to be much higher in regions such as Sub-Saharan Africa due to the prevalence of clan family institutions in which the burden of caring for children is distributed among lineages.

[157]One word of caution is necessary here. While marital fertility is the main interest variable in which female decision-making power is expected to play a role in determining the number of children in a household, the analysis can only been carried out based on Total Fertility Rate (TFR) as a measure of fertility. To my knowledge, this is the fertility measure with the most global and historical coverage.

[158]Janssens (2007:48) argues that "fertility outcomes are never the result of individual choice or individual action, they are the result of specific relations between men and women, and between husbands and wives, in specific historical contexts". According to her, the agency of men in fertility decisions also deserves attention. As the measures employed in this study does not allow for such an investigation, this remains a possibility for future studies to investigate.

Female Agency and Human Capital Formation

As a second path, human capital formation is studied, which is widely accepted as a source of economic development (Galor 2011; Glaeser et al. 2004; Barro 1991, 2003). Many arguments have been put forward in the literature on the role of education in promoting economic growth. One of the best-known arguments is that education raises people's productivity and technological innovation (Aghion et al. 2009). As highlighted by Unified Growth Theory, with the Industrial Revolution, the demand for education increased significantly.[159] The Quantity-Quality tradeoff between the number of children and the human capital invested in each child—i.e., between fertility and education—is a crucial ingredient of Unified Growth Theory (Galor 2005). This literature highlights the household as a key decision making unit (Diebolt and Perrin 2013). For both fertility preference (discussed above) and investment in human capital, the agency of women in the household is of particular importance (Jejeebhoy 1995).

The traditional division of labour, in which women specialize in reproduction, child care and related domestic activities, may reduce the incentives to invest in the education of female offspring as women would face lower wages and limited job opportunities in the labour market (Becker 1985).[160] Explanations of why women are less likely to participate in the labour market range from the use of different forms of agricultural practice, different per capita incomes and specialization in female-friendly industries, to differences in cultural beliefs about the appropriate role of women in society.[161] Among these factors, the role of female agency in the household has received substantial empirical support to explain the gender differences in educational attainment (see for example Handa 1994; Bertocchi and Bozano 2014; Van der Vleuten 2014). Moreover, the household position of women not only leads to gender differences in education but also has implications for the overall human capital formation. The reason is that women usually tend to favour children in their resource allocation behaviour compared to men (Eswaran 2014), thus leading to higher investments in the human capital of the next generation. Based on the nineteenth and early-twentieth century census micro-data, from Western and Eastern Europe and its offshoots, Carmichael et al. (2014b) showed that more female bargaining power within the household increased the likelihood of school enrolment of children in the United States significantly. For Asia, King et al. (1986) found that mothers had the least influence on the completion of their children's education in Pakistan, where women have limited agency; whereas the opposite was true for the Philippines, where women had a strong bargaining position in the household. Todd (1987) also illustrated at a global level how literacy rates are much higher in countries characterized by family systems in which women have more decision-making power in the household.

[159] However, there are opposing views in the literature on the relevance of education for economic growth. It has been argued that industrialisation raised the demand for unskilled labour, referred to as the deskilling hypothesis (e.g., Nicholas and Nicholas 1992).

[160] See Murdock and Provost (1973) for a cross-national study on the traditional division of labour and the factors playing a role in this division of labour based on sex.

[161] Empirical evidence on these explanations has been provided by studies such as Alesina et al. (2013), Fernández and Fogli (2009), Goldin (1995), Iversen and Rosenbluth (2010).

Female Agency and Political Institutions

As discussed earlier, the quality of political institutions has been shown to be a crucial contributor to economic development. One way to study the quality of political institutions has been to look at the presence of democratic institutions in societies. For example, with the exception of oil rich countries in the Middle East, the richest countries in the world are democratic (Minier 2001: 85). This positive correlation between democracy and economic growth has been observed by many studies (e.g., North et al. 2009; Boix 2005; Persson and Tabellini 2007; Przeworski et al. 2000). A number of paths have been suggested explaining why democratic institutions would be good for economic development. In *Why Nations Fail*, Acemoglu and Robinson (2012) argued that in societies with democratic institutions, inclusive economic institutions such as secure rights would be promoted. Democracy provides the checks and balances that make it difficult for states to transfer funds to less productive activities (Minier, 2001). In a democratic society, there would also be more investment in human capital (through social spending), a crucial element for economic growth.[162]

Chapter 5 has shown that the persistent cross-national gaps in democratic development could be partially explained by family systems (i.e., co-residence practices, in other words whether children continue to cohabitate with their parents once they reach adulthood or not, gender egalitarian descent and absence of polygamy practice). Therefore, as a final mechanism, the role of institutions related to female agency in economic development arguably runs through their impact on political institutions.

Methodological issues as to the link between Family Institutions related to Female Agency and Economic development

Before moving to the empirical analysis, a word of caution is necessary here. Similar to the methodological issues in Chapter 5, a major concern for the analysis is related to the simultaneity issue running between family institution related to female agency and economic development, which may shed doubts on the interpretation of the findings. For instance, Fernandez (2014) shows the extension of women's inheritance rights coincided with the economic development in the United States. This may create issues concerning reverse causality between family institutions related to female agency and economic development.

As highighted in the first section of this dissertation, economic development is not the sole predictor of gender equality. The emergence of institutions that are detrimental to the position of women today has been attributed to traditional agricultural practices. For instance, Giuliano (2014) claims polygamy to be more common in societies with shifting cultivation, which is more labour-intensive, as a man with more than one wife can cultivate more land

[162] Opposing views are also present of course on this matter. One of the arguments is that democracies can be harmful to growth because of the redistributive policies (e.g., Acemoglu and Robinson, 2006; Engerman and Sokoloff, 2008). Moreover, authoritarian regimes would be able to implement the kinds of policies better that are critical for rapid economic growth and to create the conditions necessary to support development process as well (Sirowy and Inkeles, 1990: 130). China and Singapore are just two examples showing economic development is possible without the introduction of democratic institutions. This discussion, however, is beyond the scope of this paper.

than a man with only one wife. Similarly, Fenske (2012) finds no consistent effect of education on polygamy, showing that the educational expansion in Nigeria and Zimbabwe does not lead to a decline in polygamy. In his analysis, long-term predictors such as the slave trade and the historical importance of women in agriculture have more explanatory power than economic development in explaining polygamy in Sub-Saharan Africa. Alesina et al. (2013) show the descendants of societies that traditionally practiced plough agriculture today have less female participation in the workplace, politics and entrepreneurial activities and less equal gender-role attitudes (see Chapters 1 and 2 for a further discussion).

Therefore, the evidence in the literature discussed above gives confidence that the results provided here on the role played by family institutions related to female agency in the development process of societies can be interpreted as robust. Furthermore, in the economics literature, the simultaneity issue is usually solved by employing an instrumental variable approach in the empirical model (Wooldridge 2000). This issue is elaborated in section 6.6.

6.5. Data, Measurement and Empirical Specifications:

Data and Measurement

To test the theoretical links summarized in Figure 6.1, global data has been collected for 92 countries between 1863 and 2003.[163]

The dependent variable is the level of economic development, captured by the log of Gross Domestic Product (GDP) per capita. The data comes from Clio-Infra (2014), which is largely based on Maddison (1995) estimates.

The indicators on family systems related to female agency are similar to those discussed in chapter 2 and chapter 5. The measure of inheritance is in dichotomous form, where 0 indicates equality between female and male children and 1 indicates inequality (for more information, please see Chapter 2). The continuous, female age at first marriage variable, presented in Chapter 2, was recoded to create a dummy variable *early marriage* in which 1 refers to singulate mean age of marriage below 23 and 0 above 23. This threshold is determined by taking the European Marriage Pattern as a reference point.[164] Such a categorical specification of marriage ages was chosen for the ease of comparison with the other family systems variables related to female agency. Co-residence practices are captured by a dichotomous measure, where 1 refers to countries with an extended household structure, capturing whether children continue to cohabitate with their parents after reaching adulthood, whereas 0 refers to nuclear and stem family types. Polygamy is a dichotomous variable with 1

[163] See Table E.1 in the appendix for a list of countries included in the analysis.

[164] Grouping countries based on an age limit of 18 as a classification of early marriage limits the variation in this measure substantially, creating problems for an empirical estimation. Moreover, the hypothesis in the literature concerns the role of the EMP in economic development. Therefore, the threshold for the average early female marriage age was set up to 23, which characterizes the EMP (Levine 1977).

indicating countries where polygamy is practiced and 0 otherwise.[165]

A measurement model on the family system predictors has been carried out to evaluate whether the four indicators should be evaluated together or separately. Both the goodness of fit tests of different measurement model specifications and a polychoric principal component analysis (PCA) indicated that these indicators on the institutions related to female agency should be modelled separately in the estimation model rather than creating one factor variable combining the four measures. Another advantage of treating these underlying variables separately is that it provides the possibility to determine which of the family institutions related to female agency matters the most for economic development.

Table 6.1. Descriptive Statistics (N=92, n=5189)

	min	max	mean	sd
Log (GDP)	5.31	10.30	8.03	1.01
Uninherit	0	1	0.34	0.47
Earlymar	0	1	0.65	0.48
Extended household	0	1	0.32	0.46
Polygamy	0	1	0.15	0.35
Colonized	0	1	0.49	0.50
Muslim	0	1	0.17	0.37
Protestant	0	1	0.13	0.33
TFR	1.14	8.29	4.26	1.94
Education	.03	12.80	5.40	3.06
Polity IV	-10	10	1.91	7.46
Log (Oil)	-6.91	9.12	-2.43	5.19
East Asia & Pacific	0	1	0.15	0.35
Middle East and North Africa	0	1	0.09	0.29
South Asia	0	1	0.05	0.23
Americas	0	1	0.21	0.40
Sub-Saharan African	0	1	0.17	0.38

To capture the intermediary channels, three indicators are used: fertility, human capital and political institutions. This data is the same as presented in Chapter 5 for which detailed information can be found in Table D.1 in the appendix. Fertility is measured by the Total Fertility Rate (TFR), which is the average number of children that would be born to a woman over her lifetime if she were to live to the end of her childbearing and bear children in accordance with age-specific fertility rates.[166] Human capital is measured by average years of

[165] While patrilineal descent can also be a relevant factor worthwhile investigating, especially due to its significant and negative link with democratic development, as shown in the previous chapter, its relevance for economic development is not straightforward based on the discussion in the literature and is therefore excluded from the empirical model. Moreover, this indicator is closely related with the (patrilineal) inheritance indicator, which included in the empirical specification.

[166] This measure includes non-married women in the calculations.

schooling among the adult population age over 25 and comes from the Clio-Infra project (2014). Political institutions are captured by the Polity IV index, described in the previous chapter. The index is constructed based on three criteria; competitiveness of political participation, the competitiveness of executive recruitment, and constraints on chief executive. The scale of the Polity IV index ranges from -10 (hereditary monarchy) to +10 (consolidated democracy).

Next to the main variables of interest, dummies on Protestantism and Islam based on data from Barro (2008), a dummy on whether countries have been colonized in the past from Hadenius and Teorell (2005), the log share income of GDP from oil based on data from Haber and Monaldo (2011), and fixed effects for regions and year are included as control variables. Table 6.1 provides the summary statistics of the variables included in the analysis.

Empirical Specification

To establish a link between family institutions related to female agency and economic development, the following equations are estimated:

$$log\ (GDPpc)_{it=} = \beta Gender_{it} + \gamma X_{it} + \partial Z_{it} + \mu_t + \theta_i + \varepsilon_{it} \quad (1)$$

$$TFR_{it=} = \beta Gender_{it} + \gamma X_{it} + \mu_t + \theta_i + \varepsilon_{it} \quad (2)$$

$$Education_{it=} = \beta Gender_{it} + \gamma X_{it} + \mu_t + \theta_i + \varepsilon_{it} \quad (3)$$

$$PolityIV_{it=} = \beta Gender_{it} + \gamma X_{it} + \mu_t + \theta_i + \varepsilon_{it} \quad (4)$$

As a first step, the focus is on equation 1 in which log GDP per capita of country *i* at time *t* is regressed on the institutions related to female agency measures (*Gender*), namely unequal inheritance between male and female siblings, early marriage practice, polygamy, and extended household structure; the control variables (*X*) include income from oil, religion captured by Muslim and Protestant dummies, and colonial heritage dummies; *Z* are the intermediary channels, including total fertility rate (TFR), average years of education and polity IV; μ and θ are the regional and year fixed effects; and ε is the error term. The variables are included in four steps to see how the effect of the indicators on female agency changes by inclusion of additional variables. Model 1 includes only the variables related to female agency, Model 2 includes the control variables, Model 3 includes the intermediary channels and Model 4 includes regional fixed effects. Year fixed effects are included in all the models. The results for this equation are presented in Table 6.2. Additional model specifications and robustness checks are discussed in the following section.

Equations 2, 3 and 4 study the effect of the institutions related to female agency on intermediary channels separately. The control variables, including the regional and year fixed effects, from equation 1 are also included in these models. Equation 2 includes total fertility rate (TFR) as the dependent variable. Equation 3 includes average years of education as the dependent variable. Lastly, Equation 4 includes political institutions as the main dependent variable. The results of these models are reported in Table 6.3.

The equations above have been analysed by using a multilevel model.[167] The results of the multilevel model provide empirical evidence on the link between the indicators of female agency and development outcomes, including the intermediary channels.[168] Once a robust link is established, an additional analysis estimating Equations 1 to 4 simultaneously has been ran, using a multilevel structural equation model, also referred to as multilevel path modelling, by using the MPLUS statistical package. With the inclusion of structural equation model, empirical evidence on the paths running from family systems related to female agency to economic development is provided. This estimation method can also differentiate the relevance of each mechanism for economic development, by evaluating the magnitude of the direct and indirect effects.

A word of caution is necessary here. This study focuses on the long-term cross-national associations between family institutions related to female agency and economic development. As a result of this choice, all the indicators used here are available at the national level. This means that while a within country variation may exist in the measures depending on the rural-urban setting or the geographical location, the indicators employed here do not reflect these differences. Despite these concerns, the results still provide a valuable insight, as it is the first attempt to provide historical evidence on both the direct and the indirect channels running from the institutional structure that determine female agency in the household to economic development.

6.6. Results

The results of Model 1 in Table 6.2 show that countries with unequal inheritance practices between sons and daughters on average have a lower GDP per capita by 6.76 per cent compared to countries with gender egalitarian inheritance practices. Moreover, countries characterized by early marriage age on average have significantly lower GDP per capita by 14 per cent. Having polygamy and extended household structure reduces log incomes by 1.44 and 0.76 respectively. In Model 2, with the inclusion of the controls, the coefficient of extended household reduces from 0.76 to 0.29 whereas the coefficient of polygamy falls from 1.44 to 1.17. This implies that part of the effects of extended household and polygamy on economic development is due to the omitted country characteristics in the first model, accounted for by religion, colonial origin and income from oil. Moreover, while countries with a colonial heritage and Muslim religion have lower levels of economic development, countries with Protestant religion have a higher level of GDP per capita. Model 3 includes the intermediary channels, namely total fertility rate, education and political institutions. The

[167] The advantages of a multilevel analysis are to account for issues related to the hierarchal (panel) structure of the dataset as in a random effects model, heteroskedasticity and the unbalanced nature of the panel data (Hox 2002).

[168] The choice of multilevel model provides possibilities for comparison between the results obtained from equations 1 to 4 estimated separately to those obtained from the multilevel structural equation modelling, in which these equations are estimated simultaneously. This is the reason why the estimation method slightly differs from those presented in earlier chapters. However, a multilevel model is very similar to random effects model. The main difference of a multilevel model from a random effect model is that it allows for a varying intercept and a slope model.

general conclusions drawn from this model are in line with those from Model 2. Inclusion of these variables reduces the coefficients of early marriage from 0.14 to 0.11. Based on the theoretical model, this already hints at an indirect effect running from early marriage through one of the three channels.

Table 6.2. Family Institutions related to Female Agency and Level of Economic Development (N=92, n= 5189)

	(1)	(2)	(3)	(4)	(5)
	onlyfamily	family_ controls	family_ channels	family_ region	M4_ Std. Coeff.
Dependent Variable:Log (GDP)					
Uninherit	-0.06***	-0.07***	-0.07***	-0.07***	-0.03***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Earlymar	-0.14***	-0.14***	-0.11***	-0.11***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Extended household	-0.76***	-0.29*	-0.29*	-0.04	0.01
	(0.19)	(0.18)	(0.17)	(0.15)	(0.07)
Polygamy	-1.44***	-1.17***	-1.09***	-0.57***	-0.20***
	(0.22)	(0.20)	(0.19)	(0.21)	(0.08)
Log (Oil)		0.01***	0.01***	0.01***	0.05***
		(0.00)	(0.00)	(0.00)	(0.01)
Colonized		-0.69***	-0.66***	-0.65***	-0.24***
		(0.17)	(0.16)	(0.19)	(0.08)
Muslim		-0.59***	-0.51***	-0.61***	-0.21***
		(0.20)	(0.19)	(0.18)	(0.07)
Protestant		0.40	0.39	0.36*	0.07
		(0.26)	(0.24)	(0.20)	(0.04)
TFR			-0.05***	-0.05***	-0.10***
			(0.01)	(0.01)	(0.01)
Education			0.05***	0.05***	0.18***
			(0.01)	(0.01)	(0.02)
Polity IV			0.00***	0.00***	0.03***
			(0.00)	(0.00)	(0.01)
East Asia & Pacific				-0.43**	-0.12
				(0.22)	(0.08)

Table 6.2 (continued)

	(1)	(2)	(3)	(4)	(5)
	onlyfamily	family_ controls	family_ channels	family_ region	M4_ Std.
Dependent Variable:Log (GDP)					
Middle East and				0.41	0.17
				(0.28)	(0.0
South Asia				-0.98***	-
				(0.30)	(0.0
Americas				0.21	0.13
				(0.24)	(0.0
Sub-Saharan				-0.73***	-
				(0.28)	(0.1
Constant	8.86***	9.15***	8.84***	8.87***	-
	(0.13)	(0.13)	(0.13)	(0.13)	(0.0
Random intercept variance between countries					
Constant	0.72**	0.49***	0.43***	0.29***	0.26
	(0.05)	(0.04)	(0.03)	(0.02)	(0.0
Random intercept variance within countries					
Constant	0.06***	0.06***	0.06***	0.06***	0.06
	(0.00)	(0.00)	(0.00)	(0.00)	(0.0

Notes: Standard errors are reported in parenthesis. ***<.001,**<.05,*<.10 (based on two tailed t-test), ^<.10 (based on one tailed t-test). All models include year fixed effects, but are not reported to save space.

In line with the previous findings, while a higher level of total fertility rate is related with a lower level of GDP per capita, higher education and more democratic institutions is positively associated with economic development. Model 4 includes regional dummies. While the coefficients on early marriage and inheritance remain unchanged, the coefficient on polygamy is reduced almost by half. Thus part of the effect of polygamy in the previous model is due to omitted regional characteristics. Some of the dummy variables for Sub-Saharan Africa and South Asia are significant, suggesting that the estimation model is not picking up all the effects that account for lower economic development in these regions (see also Klasen 2002; Barro 1991). In Model 5, the standardized coefficients of the results from Model 4 are presented. Polygamy has similar explanatory power to that of education, the colonization dummy and Sub-Saharan Africa, whereas the magnitude of inheritance and early marriage dummies are similar to that of oil and larger than the impact of the Polity IV on economic development.

Table E.2 in the appendix presents the results of robustness checks. Model 1 and Model 2 test whether the effect of the predictors change depending on the stage of

development a country is in.[169] As in Chapter 3, the data is split into developed versus developing countries. For this classification, the World Bank's definition is adopted: countries that have a Gross National Income (GNI) less than $4,085 in 2011 are classified as developing versus the developed countries with a higher GNI.[170] The general conclusions that could be drawn from this exercise are similar to the ones presented above. However, some of the indicators do seem to matter in different ways for economic development in the two stages of development. While unequal inheritance has a stronger explanatory power among the developed countries[171], early marriage seems to hamper economic development more in the developing group of countries. Model 3 includes latitude and longitude, sex ratio between the age group 0 and 5, and a dummy for the years after countries have introduced compulsory education as additional controls to reduce some of the concerns related to omitted variable bias.[172] Inclusion of these variables also does not change the overall conclusion drawn from Table 6.2.

To control for endogeneity due to unobserved time-invariant country characteristics, a fixed effects model is estimated (Model 4). The results are similar to the ones reported in Table 6.2, though the time-invariant family systems, polygamy and extended household cannot be estimated in the FE model. Finally, an instrumental variable approach was used for inheritance to assess reverse causality running from economic development to family institutions related to female agency.[173] Gender inegalitarian inheritance practice was instrumented by historical rice production and legal origin (reported in Table E.2, Model 5).[174] This specification shows an increase of the coefficient on inheritance and it remains

[169] A list of the countries included in the analysis depending on the stage of development is provided in Table E.1.

[170] Available at: http://data.worldbank.org/about/country-and-lending-groups

[171] One explanation for this finding is data-related as historical data coverage is better for developed countries. However, by 1980 all countries in the developed group adopted equal inheritance rights (see also the map on inheritance practices presented in Chapter 2). Once the data sample is limited to the time period before1980, the magnitude of the effect of inheritance on economic development in developed countries (Model 1) gets closer to the one from developing countries (Model 2). A second explanation could be due to the lower variation in level of log GDP in the developing group of countries. The link between the institutions on inheritance practices and economic development may be much stronger for other indicators such as agricultural productivity or child mortality.

[172] A remaining factor for which cannot be controlled for here is the role of state policy on fertility due to data limitations. For instance in China, the government introduced the one child policy in 1978. Family friendly state policies have been introduced in Western industrialized societies to tackle the issue of aging populations (see for instance McDonald 2006). However, year fixed effects should partially account for issues arising due to the omission of this variable.

[173] I also considered state antiquity as a potential instrument for women's inheritance rights (also employed in Hansen, Jensen, and Skovsgaard 2012). Various studies carried out by Putterman and his co-authors (e.g.,Borcan et al. 2014, Putterman and Weil, 2010) showed that state antiquity has an independent positive effect on long term economic development. The rise of the urban state has also been linked with the decline in women's status (e.g., Engels 1884). While the multivariate regression supports this hypothesis, additional analysis shows that state antiquity has an independent significant effect on GDP per capita even when female agency indicators are included in the regression. In line with the studies of Alesina et al (2013) and Giuliano (2014) the institutional variables related to female agency were instrumented with plough use. However, similar to state antiquity, plough use is also significantly and positively related with the long-term log GDP per capita, even when women's inheritance right is included in the regression, thus not meeting with the exclusion restriction criteria.

[174]In the current research, the instrumental variable approach could only be carried out for gender inegalitarian practices as none of the instruments tried for early marriage, extended family structure and polygamy turn out to be valid according to the empirical tests. Therefore, the findings related to female agency on GDP per capita

statistically significant predictors of economic development. Lastly, the sample was limited, using only data from 2000 (Table E.2, Model 6). The results from this model show that early marriage, polygamy and extended household family system are significantly related with current day outcomes, supporting the view that family systems' have persistent effects on societies' development outcomes (e.g., Alesina and Giuliano 2010; Duranton et al. 2010; see also Chapters 3 and 6).[175]

Table 6.3.Family Institutions related to Female Agency and Intermediary Channels (N=92, n= 5189)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	TFR	TFR_std	Educ.	Educ._std	Polity IV	Polity IV_std
Uninherit	0.06^	0.01^	-0.64***	-0.10***	-0.38^	-0.03^
	(0.04)	(0.01)	(0.05)	(0.01)	(0.27)	(0.02)
Earlymar	0.25***	0.05***	-0.05^	-0.01^	-0.77***	-0.04***
	(0.02)	(0.00)	(0.03)	(0.00)	(0.16)	(0.01)
Extended household	0.08	-0.05	-0.84**	-0.13**	-1.27	-0.09
	(0.20)	(0.05)	(0.41)	(0.06)	(1.22)	(0.08)
Polygamy	0.62**	0.10*	-0.54	-0.00	-2.41	-0.13
	(0.29)	(0.06)	(0.58)	(0.06)	(1.72)	(0.09)

should be interpreted with caution. Rice production has been linked with higher female agency compared to regions where dry-field plough agriculture, which decreases the demand for agricultural labour of women (Gooch 2014; Rahman and Rao 2004). Rice production data comes from Goldewijk (1995) and is measures agricultural output based on rice in thousands of hectolitres or metric tons, which is based on Mitchell's historical estimates. The data is available for 108 countries between 1890 and 1975. Based on this information we grouped countries into three categories, with 0 referring to countries that have either no rice production or a rice yield smaller than 200, values between 200 to 1325 into a value of 0.5 for medium rice producers and any value above this to high rice producers coded as 1. The same data has been entered in continuous form by taking the log of rice data as well. The legal origin variable comes from La Porta et al. (1999) and is in a dummy variable form to capture countries that have a socialist legal origin, which has been shown to significantly matter for gender equality (see Chapter 3). While La Porta et al. (2008) has shown that legal origin indicators are correlated with the economic outcomes, two regressions were run to test he validity of legal origin as an instrument for gender egalitarian inheritence indicator. First, legal origin was regressed on unequal inheritance, including the set of variables defined in equation 1. Second, the unequal inheritance and legal origin variables are regressed on GDP per capita. In this model, legal origin had an insignificant effect on GDP per capita. Without unequal inheritance variable in the model, the effect of legal origin is significant. Therefore, the effect of legal origin on GDP per capita seems to run through gender unequal inheritance practices. However, this result should approach with caution as legal origins influence a broad range of rules and regulation (La Porta et al. 2008) and it is not possible to guarantee all relevant rules are included in the model.

[175] Next to the results presented here, the Human Development Index by the United Nations in year 2000 has been employed. In this specification, it is particularly polygamy and community (extended) family systems, which have significantly lower levels of human development. Moreover, a set of interactions between the family systems measures and religion are tested. While no significant effect was found for an interaction between Protestant and family system indicators, the interaction between Muslim and unequal inheritance variable seems to be positively significant. This finding is in the opposite direction than what we would expect from the theory. It can be attributed to presence of the oil rich Muslim countries such as Saudi Arabia included in the analysis.

Table 6.3 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent	TFR	TFR_std	Educ.	Educ._std	Polity IV	Polity
Education	-0.28***	-0.44***				
	(0.01)	(0.02)				
TFR			-0.87***	-0.52***		
			(0.01)	(0.01)		
(log) Oil	-0.00	0.00	0.11***	0.19***	0.02	0.02
	(0.00)	(0.01)	(0.00)	(0.01)	(0.03)	(0.02)
Colonized	0.89***	0.10*	-1.54***	-0.13*	-1.44	-0.07
	(0.26)	(0.06)	(0.52)	(0.07)	(1.79)	(0.09)
Muslim	0.94***	0.17***	-0.90*	0.00	-3.21	-0.13
	(0.26)	(0.05)	(0.52)	(0.06)	(2.37)	(0.10)
Protestant	-0.43	-0.02	0.88	0.04	1.56	0.04
	(0.28)	(0.03)	(0.56)	(0.04)	(2.49)	(0.07)
East Asia &	0.88***	0.10*	-0.76	-0.02	0.98	0.05
	(0.30)	(0.05)	(0.60)	(0.06)	(2.01)	(0.11)
Middle East	1.12***	0.11**	-1.63**	-0.07	-2.68	-0.16
	(0.39)	(0.06)	(0.80)	(0.07)	(2.35)	(0.14)
South Asia	1.49***	0.08*	-2.60***	-0.08*	-2.94*	-0.19*
	(0.41)	(0.04)	(0.84)	(0.05)	(1.54)	(0.10)
Americas	1.10***	0.17**	-1.19*	-0.05	-3.22**	-0.18**
	(0.33)	(0.07)	(0.68)	(0.08)	(1.54)	(0.08)
Sub-	2.22***	0.36***	-2.24***	-0.07	3.73**	0.12**
	(0.39)	(0.08)	(0.79)	(0.09)	(1.66)	(0.05)
Constant	2.12***	0.25***	8.27***	0.06	5.88***	-0.30***
	(0.19)	(0.04)	(0.34)	(0.05)	(1.02)	(0.07)
Random intercept variance between						
Constant	0.54***	0.13***	2.24***	0.18***	19.41***	0.38***
	(0.04)	(0.01)	(0.17)	(0.01)	(1.47)	(0.03)
Random intercept variance within						
Constant	0.34***	0.09***	0.67***	0.07***	18.52***	0.36***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.18)	(0.00)

Notes: Standard errors are reported in parenthesis. ***<.001,**<.05,*<.10 (based on two tailed t-test), ^<.10 (based on one tailed t-test). All models include year fixed effects, but are not reported to save space.

In Table 6.3, the results of the empirical estimation of Equation 2 to 4 are presented, where the intermediary channel variables, total fertility rate, human capital and the Polity IV

index are regressed on the same set of variables from Table 6.2. Model 1 in Table 6.3 shows that countries with equal inheritance rights between men and women also tend to have lower total fertility rates, whereas polygamy leads to a higher level of fertility (in line with the study of Tertilt 2006). Moreover, a unit increase in average years of education leads to 0.28 points decrease on the total fertility rate. In Model 3, the explanatory variables are regressed on average years of education. While countries with equal inheritance rights between female and male siblings have a higher level of educational attainment, countries with an extended family structure seems to have a lower level of educational attainment (in line with the findings of Duranton et al. 2009). Fertility is also negatively related with educational attainment: a one unit increase in the total fertility rate leads to a 0.87 points decrease in average years of educational attainment. Thus, the results provide evidence for the Quantity-Quality tradeoff.[176] Model 6, in which the Polity IV index is the dependent variable, shows that women's inheritance is only significantly related with higher levels of democratic institutions at the 10 per cent level.[177] Polygamy on the other hand is negatively linked with the quality of political institutions. Thus, there is some evidence that the indirect effect of institutions related to female agency runs through its' link to promoting democratic institutions.

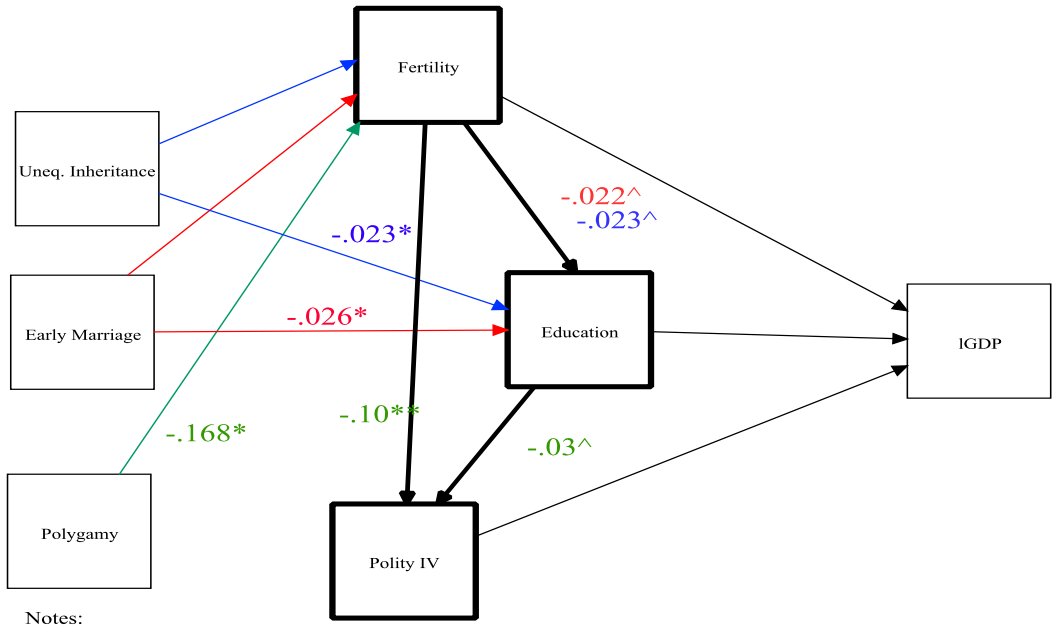
Next to the results presented above, equations from 1 to 4 are estimated simultaneously in a multilevel structural equation model. Figure 6.2 shows the standardized coefficients of the paths from family institutions related to female agency to economic development.[178] For both early marriage and inheritance, approximately a quarter of their negative impact on log GDP per capita can be attributed to their impact on fertility and education, providing evidence for the Quantity-Quality tradeoff. Furthermore, another quarter of their impact on development runs directly through education, implying that female agency in the household has an independent effect on educational attainment. This provides insight for cases such as Kerala or Zambia, where half of the male and female population achieved literacy before the fertility decline took place (Nair 2010). Thus, the findings are supportive of Sen (2000) and Drèze and Sen (2013) who attribute a crucial role to the high female agency in the household in explaining the high human development of Kerala. Lastly, polygamy raises fertility, which in turn lowers the level of educational attainment and the quality of political institutions and therefore is detrimental to economic growth.

[176] The findings on the link between education and fertility are in line with the study of Becker et al. (2010) on the nineteenth century Prussia, which after carrying out various empirical analyses, including an instrumental approach, finds a mutual causation between education and fertility. In the structural equation model, however, the focus is only on the relation running from fertility to education to test the Quality-Quantity tradeoff. While there is indirect evidence on a path running from education to fertility as well, only a direct channel from female agency to education is included to not overcomplicate the structural equation model.

[177] In Chapter 5, the effect of women's inheritance on the Polity IV index is found to be insignificant. Considering that the model in Chapter 5 also included development measures education, log GDP and TFR, the findings here are not contradictory to those from Chapter 5. Moreover, the sample and the analytical approach between the two chapters are different from each other, which may be another reason for the differences in results between the two chapters.

[178] Figure E.1 in the appendix reports all the indirect and direct effects of the multilevel structural equation estimation model based on standardized coefficients. The results of the overall estimation model on which the figures are based are available upon request. They are similar to the ones obtained from the multilevel estimation model, therefore are not reported here separately. The results presented here are based on the multilevel estimation, as data management and model specifications tools in MPLUS are more limited compared to STATA.

Figure 6.2. Multilevel Structural Equation Model with Indirect and Direct Effects from Family Systems related to Female Agency to Economic Development



Notes:
Two-sided p-values ***<.001,**<.05,*<.10 ,one sided p-values ^<.10 .
Blue color refers to the indirect effect from inheritance to lGDP:(Total effect:-.076, direct:-.046)
Red color refers to the indirect effect from early marriage to lGDP: (Total effect:-.067, direct:-.035)
Green color refers to the indirect effect from polygamy to lGDP: (Total effect:-.611, direct:-.250)

While inheritance and early marriage are modelled in within country level, community and polygamy are modelled to explain between level. Community is not reported as no robust relationship extist between this family type and economic development. The figure reports standardized coefficients and includes the control variables discussed in the text.

The figure also shows that approximately one third of the total effect of polygamy is directly linked with economic development, whereas half of the total effects of inheritance and early marriage are due to their direct impact on economic development.[179] This means the three paths studied here do not completely explain why countries with family systems related to higher female agency would also have higher levels of income. Gender inequalities in labour force participation, as illustrated by Klasen (2002) is an important contributor of economic growth and thus can be an alternative path to explain the remaining direct effects of these three indicators. The results from Chapter 3 also support this argument. Culture can be a second potential path, which has been linked with the family institutions in the literature (Roland and Gorodnichenko 2011; Greif 2006; Alesina and Giuliano 2010). However, the female labour force participation data becomes available only after 1950 onwards and does not provide insight into female labour force participation broken down by sectors. While current day datasets such as the World Values Survey (WVS) provides such a possibility to study the role of culture in current day outcomes, they only become available from 1981 onwards. Currently these channels remain beyond the scope of this research and remain as ambitions for future studies to explore. Moreover, the measure of polygamy is available at the cross-national level, a dominant characteristic of Sub-Saharan countries. To have a better

[179] Figure 6.2 illustrates that for polygamy, the total effect is predicted as .611 whereas the direct effect is calculated as .250. For inheritance, the total effect is .076, whereas .046 is predicted for the indirect effects. For early marriage dummy, the total effect is .067 out of which .035 is referring to the indirect effect.

understanding of how polygamy is related to economic development, a further investigation at the regional level employing individual level data would be desired which is beyond the scope of the current study. Fenske (2012) provides a good starting point for such an approach. He follows a novel strategy to understand the drivers of the rise and decline in polygamy practices in Sub-Saharan Africa by employing data from the Demographic Health Survey.

6.7. Conclusion and Discussion

Over the past two decades, women have started to gain greater prominence in the development agenda both as a result of the contributions of policy makers and academic researchers. Women achieving equality to men is important in its own terms, but several researchers have also pointed out that improvements in women's position are also relevant for the economic development and improvement in well-being of societies. However, the historical evidence on this empirical link is scarce. This chapter provides a systematic empirical investigation of the link between female agency and economic development in the long run.

The results show that family institutions positively related to female agency are associated with higher levels of economic development, educational attainment, democratic institutions and a lower level of total fertility rate in the long run. This demonstrates the importance of gender equal inheritance rights and female marriage ages in understanding the long-term cross-national differences in income levels. Thus the findings in this chapter are complimentary to Branisa et al. (2013) who provides an investigation of the link between social institutions related to gender inequality and various current day gendered development outcomes. The findings also provide evidence for the negative impact of polygamy on economic development, as predicted by Tertilt (2006).

Overall, the findings of the current study highlight that next to the geographical, political and economic predictors of economic development, one has to consider the role of institutions related to female agency to better account for the differences in important development outcomes. Fertility, education and political institutions provide partial insight into why a persistent relationship exists between family institutions related to female agency and economic development in the long run. A historical investigation of the role of family in the transmission of norms and values that are favourable to economic development would be desired to improve our understanding of the link between female agency and economic development. While current day datasets such as the World Values Survey (WVS) provides such a possibility to study the role of culture in current day outcomes, they only become available from the 1980s onwards.

Another challenge faced in this study was limited historical data on female agency. Female agency is a multidimensional concept and in order to capture all these different dimensions, further historical data is required. It is also important to have an historical overview of the institutions that determine the position of women. The Social Institutions and Gender Index (SIGI) is such a measure (OECD 2009), but is only available from 2009

onwards. Collecting historical data on the dimensions covered by SIGI would be a good starting point. Moreover, while this dissertation collected gender equality measures historically (Chapter 2), data on women's economic empowerment such as occupations and wages broken down by gender are particularly desirable to study the direct consequences of gender inequalities for economic development in the long run. Another aim for future research could be to improve the time scope of the Historical Gender Equality Index.

This study also brings up questions regarding the necessary changes to escape the disadvantageous position of family structures for countries in Africa, the Middle East and Asia. Doepke et al. (2012) highlight the role of technological and cultural change as two potential contributors to extension of women's rights in industrialized countries; however, the authors acknowledge that these explanations do not seem to hold in developing countries today. Further explanations on the determinants of institutional structure related to gender equality are desired which remain as an ambition for future studies to investigate.

CHAPTER 7: CONCLUSION

This dissertation focused on the long-term link between gender equality and development. It has investigated the question *to what extent is there a relationship between family systems and gender equality on the one hand and democratic and economic development on the other hand in the long run?* The first section of the dissertation studied the global progress that has been made towards gender equality from the late nineteenth century onwards and the causes behind this process. The debate on why some societies are characterized by larger gender inequalities compared to the others continues to this date. Many solutions have been suggested on how to improve the position of women. During the 1960s, developmental theories held that economic growth would alleviate the problems women face in poorer societies (Norris and Inglehart 2003). In the last two decades, the importance of norms and values for gender equality has started grab more attention among scholars. The first section of the dissertation contributes to this line of literature on the cultural explanations of gender equality by studying the relevance of historical indicators. The core argument of this study is that norms and values that shape family life, referred to as family systems, plays a role in explaining the (lack of) global progress towards gender equality. More recently, scholarly attention has been directed towards the consequences of gender inequalities for development process of the societies. This link has been evaluated in the second part of the dissertation. By investigating the consequences of family systems that discriminate against women for the democratic and economic development of societies, this thesis has provided empirical evidence on the hypothesis that empowering women is 'smart economics' in the long run, as put forward by the World Bank (2011).

Chapter 2 introduced quantitative measures of gender equality in the fields of health, household, socio-economic position and politics and based on these indicators, a discussion

on the global history of women's position in the last two centuries. This data shows that the position of women has improved substantially throughout the world over the last century. For instance, two centuries ago, women were denied political rights allowing them to participate in the national political agenda whereas today this legal restriction has been removed globally. While women could inherit property only in a handful of Western European countries at the turn of the twentieth century, today gender egalitarian inheritance practices are the norm in many corners of the world, except in a number of MENA and Sub-Saharan African countries. Family laws in many countries were liberalized during the twentieth century to promote sex equality and expand individual rights (Htun and Weldon 2011). Next to the important gains in women's legal rights, global progress in other dimensions such as life expectancy, marriage ages and education is visible starting from the 1970s onwards. Jackson (2006:215) summarises these achievements in the following words: "If a young woman from the early nineteenth century could be whisked into our own time, she would surely be stunned by the improvements in women's status. Women voting, running for the political office, attending college, choosing their occupation, owning business, and travelling by themselves". However, this progress has been too limited to speak of a gender equal world. Despite this progress, women are still disadvantaged with regards to labour force and political participation, and in extreme cases are even denied the right to live.

Chapter 3 studied the explanations behind the global trends in gender equality. The results of Chapter 3 highlight that a number of explanations are relevant to understand progress towards gender equality. In line with the modernization view, economic development partly explains later marriage ages, higher levels of education and improvements in life expectancy of women in which global progress started to become visible from the 1970s onwards. Next to economic development, international forces such as CEDAW and the United Nations help explain the timing of these improvements in women's position. However, the economic development thesis fails to give a full account for the trends in female labour force participation and political representation of women. This finding could not be explained by the suggested U-shaped relationship between economic development and gender equality in labour force participation. Instead, historical institutions, in particular the legal systems countries have adapted in the past and family systems, seem to be relevant in explaining why economic development does not have a significant effect on gender equality in labour force participation and why the gains in achieving gender equality in political representation are limited over time and space. Supportive of the findings reported by Paxton, Hughes, and Green (2006), institutional arrangements such as the introduction of the quota systems are more relevant in ensuring the equal representation of women in the field of politics. Clear evidence for the role of historical institutional factors is visible in the MENA region, where a high level of gender equality in education is achieved in the last three decades, but which still has the lowest female labour force participation in the world (see also World Bank 2013).

Therefore, while economic development is relevant to promote gender equality, it is not enough: historical legacies are as important. Among these historical institutions, family systems matter for gender equality, which has hardly received attention in the previous

literature. This chapter also tested whether there is a convergence towards gender equality as a result of the international attempts such as CEDAW in eliminating gender inequalities. However, the findings show that the long-term institutional and historical characteristics of countries are the main obstacles to convergence.

In Chapter 4, the drivers of gender equality were investigated at the state level of India. The findings of this chapter show that the roots of gender inequalities in India can be traced back to the early colonial period, but they extend beyond that as well. The deep-rooted institutions, such as the family systems and the rights and roles women have within such structures, play a role in explaining these historical differences between the Indian states. Strong empirical evidence for urbanisation is found in explaining the state level differences in the position of women. This chapter also looks at whether the gap between the states in terms of gender equality has started to close over time in the post-colonial period as a result of the political unification and the introduction of central national policies in India. Evidence was found both for unconditional and conditional convergence for marriage ages and political activity, as measured by percentage of the female representatives in the parliament and voter turnout. However, while gains have been made in some aspects of gender equality, sex ratios became more biased against women over time. The availability of technologies allowing for sex selective abortions, especially in the urban centres, seems to be an important driver of this phenomenon.

The second part of the dissertation studied the relevance of family systems that shape the female agency in the household for democratic and economic development. The results of Chapter 5 provides empirical evidence for Todd's (1985) hypothesis that countries that were characterized by family systems that promote liberal values at the level of the household also have a longer history of democracy at the national level. However, while Todd emphasizes the importance of family systems for democratic development, he overlooks how gender relations within the family matter for democratic development. The investigation here therefore incorporates a gender perspective to this link. The results reveal that polygamy practice and patrilineal lineage, a family system in which an individual's descent is solely defined through the father's line, are found to be detrimental for the democratic development of societies. Socio-economic development, cultural transmission and the historical local practices are plausible channels to understand the long-term relevance of family systems for democratic development.

Chapter 6 evaluated the relevance of family systems that discriminate against women for the economic development of societies. The results of Chapter 6 reveal that lower female agency, especially as measured by gender inegalitarian inheritance practices and early marriages, is negatively related with economic development. It also provides evidence on the channels through which family systems related to gender equality matter for economic development. In particular, fertility, education and political institutions provide partial insight into why a relationship exists between family institutions related to female agency and economic development in the long run.

7.1 Summary and Implications of the Dissertation

Overall, this dissertation, by providing a historical perspective to the debate on the link between gender equality and development, adds to the current literature in a number of ways. The first contribution concerns the importance of incorporating a historical perspective while studying the patterns in gender equality to have a better understanding of the causes of the gender inequalities today and to come up with better strategies for policy makers to eliminate these inequalities. The historical experiences of societies, which made progress towards gender equality, can provide important insight into the challenges faced in other societies, which still struggle in improving the position of women. However, the uniqueness rooted in the historical context of societies should be kept in mind while making policies to eliminate gender inequalities.

A second contribution concerns moving beyond religion as a standard explanation of cultural practices that shape the treatment of men and women in a society. So far, Islam received the most substantial attention in the literature as a cultural explanation for the disadvantageous position of women in this region (e.g., Inglehart and Norris 2003). While empirical evidence was found that Islam is significantly related to the composite gender equality index in the long run, the magnitude of the effect of Islam is comparable with that of family systems. Therefore, family institutions that shape to the extent that women can make independent life choices in the household deserve as much attention as religion as a long-term driver of gender equality.

The second part of the dissertation highlights the instrumental role of achieving gender equality for the development process. The findings of Chapter 5 and 6 show that removing the factors that discriminate against women would favour democratic and economic development as well. For instance, countries characterized by nuclear family systems have significantly higher levels of democracy compared with countries that have community family systems. This is in line with the argument that in the nuclear family type, women (as well as men) have higher decision-making power as they leave the sphere of parental authority once they reach adulthood. Family systems related to decision-making power of women are also relevant to explain the long-term cross-national differences in economic development. Moreover, the effect of family systems on democratic and economic development also seems to persist over time even when societies go through different stages of development. Thus, removing the constraints women face in the household is smart economics in the long run. The findings are also supportive of the line of research highlighting development outcomes to be largely influenced by persistent traits that are culturally transmitted across generations (see Spolaore and Wacziarg 2013 for a review).

Overall, the conclusions that can be drawn from this dissertation are relevant for two lines of inquiry in the literature. First, they highlight the importance of taking into account historical institutions that operate at the micro level to understand disparities in current development outcomes. This study argues that we should focus on the smallest unit of society, the relations within the family to explain these disparities. Second, the New Institutional Economics literature has paid little attention to the gender dimension. As the

findings of this study highlights, institutional arrangements regarding the position of women deserves particular attention as a meaningful driver of economic and democratic development.

7.2. Limitations and Directions for Future Research

This study also brings out a number of issues that remain as a research agenda for future studies to investigate. First, one of the questions concerns what the necessary changes to escape the trappings of family systems for countries in Africa, in Middle East and Asia are. This is a central question to assess the likelihood of success of reforms that change rules within a country (Giavazzi, Ivan, and Schiantarelli 2014). As mentioned earlier, family systems can be seen as regional norms and values regulating family life. In the literature, there are two contending schools of thought on whether norms and values change over time. The first school of thought, based on modernization theory, holds that cultural attitudes can change rather quickly in response to changes in economic incentives and opportunities, in technology, and in political institutions (e.g., Inglehart and Baker 2000, Fehr 2009, Giavazzi et al. 2014).[180] For instance, based on the data from the World Values Survey, Inglehart and Norris (2003) show that in post-industrial societies the attitudes towards women are much more egalitarian compared to industrial and agricultural societies. If this view would hold, family systems are also expected to change as societies move from agricultural to industrial and from industrial to post-industrial societies. The findings of this study show some contradictions to this view, as the impact of some of the family systems, such as endogamous community system, on development indicators is increasing in later stages of development.

Several scholars show that values and beliefs are deeply rooted in the country or ethnic group to which a person belongs and evolve very slowly over time (e.g. Roland 2004; Guiso et al. 2006). This strand of the literature argues that social norms are a durable trait transmitted from one generation to the next through socialization (Helliwell, Wang, and Xu 2014). For instance, Putnam (1993) observed that democratic institutions function best in societies with a civil society culture, which existed before the nineteenth century. Studies focusing on migrant groups in the United States show persistence in the family related behaviour of the second-generation migrants (Guiso et al. 2006; Alesina and Giuliano 2010). Giavazzi et al. (2014) found that norms such as family and moral values to be very persistent across the generations for the immigrant groups in the United States. Fernandez and Fogli (2009) also study immigrants to the U.S. and find that a woman's fertility is predicted by the average fertility in her country of origin; a similar pattern holds for her labour force participation.

The long-term approach in the current study also shows support for the second school of thought highlighting persistence in societies' traits of culture. However, the time invariant nature of the majority of the indicators on family systems limits the conclusions that could be drawn from the current study. Moreover, even if culture is resistant to change as a result of economic development, "critical junctures" as exogenous determinants of cultural change in

[180] http://www.voxeu.org/article/culture-persistence-and-evolution

the family structure deserve special attention (see Katznelson 1997). For instance, De Moor and van Zanden (2010) attributed a crucial role to the Black Death in the emergence of the European Marriage Pattern. Moreover, a direct policy approach could try to change the gender related attitudes, by creating role models through public means, such as media (Jayachandran 2015). Despite not having this explicit goal, commercial television appears to have reshaped women's views, for example about a smaller family size, in Brazil and India (Jensen and Oster 2009; La Ferrara Chong, and Duryea 2012;). Thus, future research should investigate the relevance of economic development versus historical events and legacies in understanding why family systems emerge and how they are sustained over time. To allow for such an analysis of when and how family systems change, historical data that captures the family system characteristics related to gender equality over time is required. For this study, inheritance and marriage ages are two of the few dimensions for which such a historical data was available.

Moreover, the links explored here at the macro level should be re-examined at the regional and individual level. For instance, some evidence has been found for the relevance of polygamy in societies' economic and democratic development; however, this evidence is inconclusive as there is limited variation in polygamy at the national level whereas a large variation exists within Sub-Saharan African countries. Similarly, according to Todd (1985) endogamous community family system, which is related to low gender equality and democratic development, characterizes the majority of the MENA region countries. However, a number of studies looking at the census data from Egypt, Jordan, and Syria concluded that Arab family structure was large, including on average five to seven family members, but nuclear especially in urban settings (Al-Thakeb 1985). Thus, better measures of family systems, taking into account the within-country differences, are desired.

Lastly, the size of the gender disparities in various dimensions described above is likely to differ between groups within countries, depending on socio-demographic and economic status (e.g. age group, health status, country of origin, income, urban-rural). However, although a within-country comparison on gender equality between different socio-economic groups might shed further light on the causes of and mechanisms perpetuating gender inequality, the point of this study is to analyse such trends at the macro level. People are members of more than one community at the same time, and can simultaneously experience oppression and privilege. For instance, the experience of a black woman in Cape Town is qualitatively different from that of a white in that same location.[181] Therefore, future studies should develop analytical tools, which can take these differences in women's experiences into account. Individual or group level analysis is beyond the scope of the current study, and so it is left to others to take up this gauntlet in future research. Furthermore, more direct measures of (female) agency over time, are needed. While Todd's (1985, 1987) family systems have been used as an indirect measure of female agency, more relevant measures such as violence against women or freedom of movement that can give an indication of the historical position of women's position are desired.

[181]https://lgbtq.unc.edu/sites/lgbtq.unc.edu/files/documents/intersectionality_en.pdf

NEDERLANDSE SAMENVATTING

Deze dissertatie onderzocht de lange termijn relatie tussen seksegelijkheid en economische ontwikkeling. De hoofdvraag die werd daarbij werd gesteld is als volgt: In hoeverre is er een relatie tussen familiesystemen en seksegelijkheid, en hoe weerhoudt zich dat tot democratische en economische ontwikkelingen op de lange termijn? Om deze vraag gedegen te kunnen beantwoorden, is er in eerste instantie empirisch onderzoek verricht naar de mondiale trends in sekseongelijkheid over de laatste tweehonderd jaar, waarbij voornamelijk de oorzaken achter het proces zijn getoetst. Het wetenschappelijke debat omtrent dit onderwerp heeft zich sinds de jaren zestig sterk ontwikkeld, waardoor er theorieën tot stand zijn gekomen die een verklaring bieden voor de grote verschillen in sekseongelijkheid. Tijdens de jaren zestig werd bijvoorbeeld verondersteld dat economische groei de positie van vrouwen in ontwikkelingslanden zou verbeteren (Norris en Inglehart 2003). De laatste twintig jaar zijn er echter theorieën opgekomen die zich meer focussen op de waarden en normen in samenlevingen die dit proces beïnvloedden. Het eerste hoofdstuk van de dissertatie heeft aan dit debat bijgedragen door deze culturele verklaring, en met name de historische determinanten daarvan, te analyseren. De conclusie die hier uit voort kwam was dat normen en waarden die zich uitkristalliseren op het microniveau van de familie, een belangrijke determinant zijn voor de mondiale verschillen in seksegelijkheid. Meer recentelijk onderzoek heeft zich toegespitst op de negatieve gevolgen van sekseongelijkheid voor economische ontwikkeling. Het tweede deel van deze dissertatie heeft bijgedragen aan dit debat door de relatie tussen de relatief vrouwonvriendelijke familiesystemen en economische groei te toetsen. Uit deze empirische analyse is duidelijk naar voren gekomen dat verbeteringen in de positie van vrouwen een positief effect kan hebben op de economische ontwikkeling van een land : een bevinding die door de de Wereld Bank (2011) recentelijk al werd verondersteld.

Hoofdstuk twee heeft antwoord gegeven op de vraag hoe seksegelijkheid op de lange termijn gemeten kan worden, en hoeverre er wereldwijd vooruitgang is geboekt op het gebied van seksegelijkheid in de afgelopen decennia. Hierbij zijn in dit hoofdstuk kwantitatieve indicatoren van seksegelijkheid op het gebied van gezondheid, huishoudens, sociaaleconomische positie en politiek geanalyseerd. Gebaseerd op deze indicatoren werd er daarnaast een overzicht gegeven van de veranderende positie van vrouwen over de eeuwen heen. De trends die werden weergegeven in hoofdstuk 2, toonde aan dat de positie van vrouwen wereldwijd substantieel is verbeterd in de afgelopen decennia: Vrouwen hadden twee eeuwen geleden nog nergens in de wereld passief kiesrecht, maar vandaag de dag is dat slechts in een aantal landen nog het geval. Bovendien hadden vrouwen aan het begin van de twintigste eeuw slechts in enkele West-Europese landen het recht om bezit te erven, waar het heden ten dage de norm is geworden (met uitzondering van enkele MENA en Sub Sahara Afrikaanse landen). Het personen- en familierecht is in veel landen geliberaliseerd tijdens de twintigste eeuw om daarmee seksegelijkheid te stimuleren en de individuele rechten uit te breiden (Htun en Weldon 2011). Naast de belangrijke vooruitgang op het gebied van de wettelijke rechten van de vrouw, is er wereldwijd vanaf de jaren zeventig vooruitgang gemaakt op het gebied van de levensverwachting en het onderwijsniveau. Jackson (2006:215) vat deze prestaties samen met de woorden: "If a young woman from the early nineteenth century could be whisked in our own time, she would surely be stunned by the improvements in women's status. Women voting, running for the political office, attending college, choosing their occupation woing business, and travelling by themselves". Echter is de vooruitgang te mager gebleken om te spreken van volledige seksegelijkheid. Ondanks de vooruitgang, worden vrouwen nog steeds benadeeld op het gebied van de arbeidsmarkt en de politieke participatie.

De tweede onderzoeksvraag, welke onderzocht is in hoofdstuk drie van deze dissertatie, ging in op de onderliggende factoren van verschillen in seksegelijkheid. Zoals in de jaren zestig al was verondersteld, draagt economische ontwikkeling bij aan een toename van de huwelijksleeftijd, een beter opleidingsniveau, en een hogere levensverwachting. Naast de economische ontwikkeling, hebben ook internationale organisaties als de CEDAW en de Verenigde Naties hun bijdrage geleverd aan het verbeteren van de positie van de vrouwen. Een kanttekening die hierbij geplaatst moet worden is dat de economische ontwikkeling niet heeft bijgedragen aan de arbeidsparticipatie en de politieke vertegenwoordiging van vrouwen. Dit kan waarschijnlijk toegeschreven worden aan de 'U-vormige' relatie tussen economische groei en seksegelijkheid; een verband dat al eerder was aangetoond door economen. Daarentegen lijken de historische instituties, in het bijzonder de familiesystemen en de juridische structuren die landen hebben aangenomen in het verleden, relevant bij het verklaren waarom economische ontwikkeling geen significant effect heeft op de seksegelijkheid in de arbeidsparticipatie. Als er gekeken wordt naar de geografische trends maken diezelfde verklaringen ook duidelijk waarom de vooruitgang op het gebied van de politieke participatie beperkt is. Ondersteunend aan de bevindingen van Paxton, Hughe en Green (2006) spelen institutionele voorzieningen zoals de introductie van het quotum-systeem een rol bij het garanderen van gelijke politieke vertegenwoordiging tussen mannen en vrouwen. Duidelijk bewijs voor de rol van historische instituties is zichtbaar in de MENA regio, waar veel

seksegelijkheid bereikt is op het gebied van opleidingsniveaus in de laatste drie decennia, maar waar vrouwen wereldwijd nog steeds het minst participeren op de arbeidsmarkt (zie ook World Bank 2013).

Samenvattend lieten de resultaten in hoofdstuk drie zien dat economische ontwikkeling relevant is voor het stimuleren van seksegelijkheid, maar dat dit niet resulteert in volledige gelijkheid. Historische instituties zijn minstens zo belangrijk. Van deze historische instituties maken familiesystemen een wezenlijk verschil voor seksegelijkheid, terwijl die nauwelijks aandacht krijgen in de wetenschappelijke literatuur. Dit hoofdstuk heeft daarnaast ook empirisch getoetst of er sprake is van convergentie in de richting van seksegelijkheid als een gevolg van internationale inspanningen zoals die gedaan door CEDAW bij het verminderen van sekseongelijkheid. De resultaten lieten zien dat de institutionele en historische kenmerken van landen een van de belangrijkste belemmeringen vormen voor verdere convergentie.

In hoofdstuk vier werden de drijvende krachten achter het proces richting seksegelijkheid in India onderzocht. De bevindingen in dit hoofdstuk laten zien dat de kern van de ongelijkheid tussen mannen en vrouwen in India kan worden gevonden in het koloniale verleden, en soms zelfs nog verder terug in de tijd. Diep gewortelde instituties, zoals de familiesystemen, het recht om te stemmen en de rol van vrouwen binnen die structuren, spelen een rol bij het verklaren van verschillen in seksegelijkheid tussen verschillende staten in India. Bij het verklaren van verschillen in de positie van vrouwen werd een sterk verband met urbanisatie gevonden – een vaak gebruikte indicator voor het niveau van economische ontwikkeling. Dit hoofdstuk heeft daarnaast ook aandacht aan de vraag of de verschillen tussen staten als gevolg van de politieke centralisatie en de introductie van nationale beleidsmaatregelen tijdens de postkoloniale periode in India over de tijd minder sterk zijn geworden. Bewijs werd gevonden voor zowel onvoorwaardelijke als voorwaardelijke convergentie op het gebied van de huwelijksleeftijd en politieke activiteiten, die gemeten werden als percentage van de vrouwelijke vertegenwoordiging in het parlement en de stemopkomst. Hoewel er vooruitgang is geboekt op sommige gebieden van de seksegelijkheid, zijn de sekseratio's bij geboorte schever geworden over tijd. De beschikbaarheid van technologieën die mensen in staat stellen om sekseselectieve abortus te plegen lijkt de belangrijkste verklaring te zijn voor dit fenomeen.

In het tweede deel van deze studie werd de invloed familiesystemen die betrekking hebben op het zelfbeschikkingsrecht van vrouwen binnen het huishouden op de democratische en economische ontwikkeling van landen onderzocht. De resultaten van hoofdstuk vijf geven een empirische onderbouwing voor Todd's (1985) aanname dat politieke systemen gereflecteerd worden in de familiesystemen. De resultaten tonen dat landen die gekenmerkt worden door een verleden met een nucleaire structuur van het huishouden en een seksegelijke organisatie van het verwantschap, ook meer democratische landen zijn geworden op de lange termijn. Polygamie wordt daarnaast gezien als van invloed op het proces van democratisering van samenlevingen. Bovendien spelen familiesystemen die betrekking

hebben op het zelfbeschikkingsrecht van vrouwen een matigende rol op de invloed van religie en de aanwezigheid van olie op democratische ontwikkeling. Derhalve zijn familiesystemen die betrekking hebben op het zelfbeschikkingsrecht van vrouwen niet alleen belangrijk bij het verklaren van cross-nationale verschillen in seksegelijkheid maar ook bij het verklaren van de democratisering van samenlevingen op de lange termijn.

Het laatste hoofdstuk onderzocht of de verschillen in familiesystemen die betrekking hebben op het zelfbeschikkingsrecht van vrouwen ook de mondiale verschillen in economische ontwikkeling kunnen verklaren. De resultaten van hoofdstuk zes laten zien dat minder zelfbeschikkingsrecht voor vrouwen, vooral gemeten met behulp van sekseverschillen op het gebied van het erfrecht en vroege huwelijken, negatief is gerelateerd aan economische ontwikkeling. Dit hoofdstuk voorziet ook in het bewijs voor de manieren waarop familiesystemen die betrekking hebben op seksegelijkheid invloed hebben op economische ontwikkeling. Het langetermijneffect van familiesystemen die betrekking hebben op het zelfbeschikkingsrecht van vrouwen op ontwikkeling kan worden verklaard door hun rol bij het verlagen van de vruchtbaarheidscijfers, het stimuleren van onderwijs en het versterken van waarden als individualisme. Derhalve zijn de bevindingen ondersteunend aan de onderzoekslijn die benadrukt dat de uitkomsten van ontwikkeling met name worden beïnvloed door constante bedreigingen die cultureel zijn overgedragen over generaties (zie Spolaore en Wacziarg 2013 voor een review).

7.1 Implicaties van dit proefschrift

Dit proefschrift heeft op verschillende manieren inzichten toegevoegd aan de bestaande literatuur door vanuit een historisch perspectief te kijken naar het debat over de relatie tussen seksegelijkheid en ontwikkeling. De eerste bijdrage betreft het belang van een historisch perspectief bij het bestuderen van patronen van sekseongelijkheid om daarmee beter de redenen van bestaande sekseongelijkheid te begrijpen. Deze bevindingen kunnen beleidsmakers helpen bij het vinden van nieuwe strategieën waarmee die verschillen verkleind kunnen worden. Historische ontwikkelingen van samenlevingen die vooruitgang boekten op het gebied van seksegelijkheid, geven belangrijke inzichten over de uitdagingen waarmee andere landen die nog steeds bezig zijn die positie te verbeteren, geconfronteerd worden. Bij het nadenken over beleidsmaatregelen moet echter de uniciteit van elke historische context van een land in ogenschouw genomen worden.

Een tweede bijdrage betreffen de inzichten die voorbij gaan aan religie als de standaard verklaring voor culturele gewoontes die vorm geven aan de relatie tussen mannen en vrouwen binnen samenlevingen. Tot nog toe kreeg vooral de Islam substantiële aandacht in de literatuur als culturele verklaring voor de benadeelde positie van vrouwen in bepaalde regio's (Ingehart & Norris 2003). Zowel de theoretische discussie en empirische bevindingen van de bestaande studies laten zien dat behalve religie, familiesystemen evenveel aandacht verdienen. Terwijl er empirisch bewijs werd gevonden dat de Islam significant van invloed is op de 'composite gender equality index' op de lange termijn, is de grootte van het effect van de Islam vergelijkbaar met die van familiesystemen. Daarom verdienen de familie instituties

die bepalen hoeveel vrijheid vrouwen ervaren en de mate waarin vrouwen onafhankelijke beslissingen kunnen nemen, net zo veel aandacht als religie als een invloed op seksegelijkheid in de lange termijn.

Een derde bijdrage is het benadrukken van de instrumentele rol die het nastreven van seksegelijkheid kan hebben voor het ontwikkelingsproces. De resultaten in zowel hoofdstuk 5 en hoofdstuk 6 laten zien dat de hobbels die genomen moeten worden voor het bereiken van seksegelijkheid ook relevant zijn voor democratische en economische ontwikkelingen. Zo hebben landen die gekenmerkt worden door een nucleaire familiestructuur significant hogere democratische standaarden dan landen die gekenmert worden door samengestelde huishoudens. Deze conclusie is in lijn met het argument van de nucleaire familie dat stelt dat vrouwen (alsook mannen) meer besliskracht hebben als ze de invloed en omgeving van het ouderlijk gezag achter zich laten aan het einde van de adolescentie. Familiesystemen die betrekking hebben op het zelfbeschikkingsrecht van vrouwen zijn ook belangrijk bij het verklaren van cross-nationale verschillen op het gebied van economische ontwikkeling. Het effect van familiesystemen op democratische en economische ontwikkelingen lijkt nog steeds relevant te zijn over tijd zelfs wanneer samenlevingen door verschillende fases van ontwikkeling gaan. Derhalve kan het wegnemen van beperkingen voor vrouwen binnen de huishoudens ‘smart economics’ op de lange termijn zijn.

Tot slot zijn de bevindingen relevant voor twee richtingen van onderzoek in de literatuur. In de eerste plaats benadrukken ze het belang van historische instituties die opereren op het micro niveau om hedendaagse verschillen in de mate van ontwikkeling te begrijpen. Deze studie meent dat we zouden moeten focussen op samenlevingen op het laagste niveau, namelijk de relaties binnen de families om die verschillen op ontwikkelingsgebied te kunnen begrijpen. Daarnaast hebben wetenschappers binnen de Nieuwe Institutionele Economie weinig aandacht geschonken aan de gender dimensie. Zoals de resultaten van deze studie laten zien dat institutionele voorzieningen op het gebied van de positie van de vrouw specifieke aandacht verdienen als betekenisvolle stimulans van economische en democratische ontwikkeling.

7.2 Beperkingen en richtingen voor verder onderzoek

Deze studie benoemt verschillende onderwerpen die op de wetenschappelijke agenda zouden moeten blijven om verder onderzocht te worden. Ten eerste moet onderzocht worden welke veranderingen nodig zijn om de belemmeringen van de familiesystemen in Afrika, het Midden-Oosten en Azië weg te nemen. Dit is een centrale vraag om te kunnen bepalen wat de kans op succes is bij hervormingen in landen (Giavazzi, Ivan & Schiantarelli 2014). Zoals eerder genoemd kunnen familiesystemen gezien worden als regionale normen en waarden betreffende het gezinsleven en de familie. In de literatuur zijn er twee conflicterende richtingen van gedachte over de vraag of normen en waarden betreffende het gezins- en familieleven veranderen over tijd. De eerste gedachterichting, die gebaseerd is op de modernisering theorie, stelt dat culturele houdingen relatief snel kunnen veranderen als reactie

op economische prikkels en kansen, ontwikkelingen in de technologie en politieke instituties (b.v. Inglehart & Baker 2000, Fehr 2009, Giavazzi et al. 2014). Inglehart en Norris (2003) laten, met behulp van data van de World Value Survey bijvoorbeeld zien dat in postindustriële samenlevingen de houdingen ten opzichte van vrouwen veel gelijker zijn in vergelijking tot industriële en landbouwsamenlevingen. Als dit inzicht zou blijven staan, zou moeten worden verwacht dat familiesystemen ook veranderen wanneer samenlevingen zich ontwikkelen van een landbouwsamenleving naar een industriële samenleving en van een industriële samenleving naar een postindustriële samenleving. De bevindingen van deze studie laten enkele weerleggingen van dit inzicht zien omdat de invloed van sommige familiesystemen, zoals het "endogenous community" (familie)systeem, op ontwikkelingsindicatoren toeneemt in latere stadia van de ontwikkeling.

Verschillende wetenschappers tonen dat waarden en overtuigingen diep geworteld zijn binnen landen of de groep waartoe een persoon behoort en dat die maar langzaam veranderen over tijd (bv. Roland 2004; Guiso et al. 2006). Deze tak van literatuur meent dat sociale normen een duurzame bedreiging voor ontwikkeling zijn en dat die worden doorgegeven van de ene op de ander generatie door middel van socialisatie (Helliwell, Wang en Xu 2014).[182] Putnam bijvoorbeeld observeerde dat democratische instituties het best functioneren in samenlevingen met de cultuur horende bij een burgermaatschapij (civic culture), zoals die van voor de negentiende eeuw. Studies die focussen op migrantengroepen in de Verenigde Staten laten continuïteit in familie gerelateerd gedrag zien van tweede-generatie migranten (Guiso et al. 2006; Alesina en Giuliano 2010). Giavazzi et al. (2014) concludeerde dat normen gebaseerd op familie en morele waarden veel continuïteit lieten zien tussen verschillende generaties migrantengroepen in de Verenigde Staten. Fernandez en Fogli (2009) bestudeerden ook migranten in de Verenigde Staten en concludeerden dat de vruchtbaarheid van vrouwen voorspeld kan worden met behulp van de gemiddelde vruchtbaarheid in het land van oorsprong; Eenzelfde geldt voor de cijfers over de arbeidsparticipatie van vrouwen.

De lange termijn benadering van de huidige studie ondersteunt de richting van gedachte van wetenschappers die culturele continuïteit benadrukt. Echter de tijdsonafhankelijke oorsprong van de meerderheid van de indicatoren over familiesystemen beperken de conclusies die getrokken kunnen worden op basis van deze studie. Bovendien verdienen zelfs als cultuur onveranderlijk is onder invloed van economische ontwikkeling, kritische momenten (critical junctures) als exogene determinanten van culturele verandering specifieke aandacht (zie Katznelson 1997).De Moor en Van Zanden (2010) zagen bijvoorbeeld in de pestepidemie een cruciale rol van invloed op het ontstaan van bepaalde trouwpatronen in Europa. Daarnaast zouden beleidsmakers kunnen proberen sekse gerelateerde opvattingen en houdingen te veranderen door middel van het creëren van rolmodellen via de media (Jayachandran 2015). Ondanks het niet hebben van een dergelijk specifiek doel, lijkt de commerciële televisie de houdingen van vrouwen in landen als Brazilië en India over bijvoorbeeld het hebben van een kleiner gezin, te hebben veranderd (Jensen en Oster 2009; La Ferrara Chong en Duryea 2012). Derhalve zou toekomstig onderzoek de

[182] http://www.voxeu.org/article/culture-persistence-and-evolution

relevantie van economische ontwikkeling versus historische gebeurtenissen en erfenissen moeten belichten bij het willen begrijpen waarom familiesystemen ontstaan en hoe zij zich continueren over tijd. Om zo'n analyse over de vraag hoe en waarom familiesystemen veranderen mogelijk te maken, zijn historische longitudinale data nodig die een beeld geven van de kenmerken van familiesystemen die betrekking hebben op sekseverschillen. Voor deze studie waren ervingsrechten en huwelijksleeftijden twee van de weinige dimensies waarvoor historische data beschikbaar was.

Daarnaast zouden de verbanden op macroniveau die hier zijn uitgelicht opnieuw getoetst moeten worden op een regionaal en individueel niveau. Er is bijvoorbeeld enig bewijs gevonden voor het verband tussen polygamie en de economische en democratische ontwikkeling van landen. Echter, dit bewijs is niet sluitend omdat er in het algemeen maar beperkte variatie is in polygamiecijfers op landenniveau terwijl er juist wel veel variatie bestaat tussen Sub-Sahara Afrikaanse landen. In overeenstemming hiermee, wordt de meerderheid van de MENA-regio landen gekenmerkt door endogene 'community' familiesystemen die verband hebben met grote sekseverschillen en democratische ontwikkeling. Daarentegen concludeerden een aantal studies die keken naar censusdata uit Egypte, Jordanië en Syrië dat de Arabische gezinsstructuur groot was, soms bestaande uit vijf tot zeven familieleden, maar ook nucleair met name in stedelijke regio's (Al-Thakeb 1985). Daarom zijn betere data die familiesystemen kunnen meten en rekening houden met cross nationale verschillen wenselijk.

Tot slot zullen de sekse ongelijkheden per beschreven dimensie verschillen tussen landen, afhankelijk van de sociaal-demografische en economische status (bv. Leeftijdsgroep, gezondheid, land van geboorte, inkomen en stad-platteland). Een studie naar sekseverschillen tussen sociaaleconomische groepen binnen de context van een land, zou meer inzichten kunnen geven over de oorzaken en mechanismen die zorgen dat ongelijkheid blijft bestaan. Het doel van deze studie was echter om dergelijke trends te analyseren op een macro niveau. Mensen zijn lid van meer dan één groep of 'community' op het zelfde moment en kunnen daarom tegelijkertijd zowel beperkingen als voorrechten ervaren. Een ervaring van een donkere vrouw in Kaapstad is significant anders dan die dan een blanke vrouw in diezelfde stad.[183] Daarom zouden toekomstige studies zich moeten richten op het ontwikkelen van een analytisch instrument dat die verschillen in de ervaringen van vrouwen in ogenschouw kan nemen. Deze studie gaat voorbij aan analyses op individueel of groepsniveau en die worden daarom overgelaten aan toekomstig onderzoek. Bovendien zijn meer directe indicatoren van voor het zelfbeschikkingsrecht van vrouwen nodig. Terwijl nog steeds Todd's (1985, 1987) familiesystemen worden gebruikt als indirecte indicatoren van het zelfbeschikkingsrecht voor vrouwen, zijn meer bepalende indicatoren die inzicht kunnen geven in de positie van vrouwen gewenst. Te denken valt aan bijvoorbeeld indicatoren die inzicht geven in de mate van geweld tegen vrouwen en de vrijheid van organisatie.

[183] https://lgbtq.unc.edu/sites/lgbtq.unc.edu/files/documents/intersectionality_en.pdf

APPENDICES

Appendix A: Introducing the Historical Gender Equality Index

Appendix A.1: Composite Indicators overview

Table A1. Dimensions and variables in composite indicators of gender equality

Index	Compiling Agency or author	Variables/Dimensions	Coverage
Gender-related Development Index (GDI)*	UNDP	life expectancy, adult literacy, school enrolment, and logarithmic transformations of per-capita income (measures gaps between men and women in these variables)	1995-2009
Gender Empowerment Measure (GEM)*	UNDP	women's relative economic income, participations in high-paying positions with economic power, and access to professional and parliamentary positions.	1995-2009
Social Institutions and Gender Index (SIGI)	OECD	Family Code, Civil liberties, Physical integrity, Son preference, and Ownership rights	2009-onwards
Gender Inequality Index (GII)	UNDP	Captures the loss of achievement, within a country, due to gender inequality, and uses three dimensions to do so: reproductive health (maternal mortality rate and adolescent fertility), empowerment (share of parliamentary seats held by each sex and female and male population with at least secondary education), and labour market participation (female and male labour force participation rates)	Appears in 2010 HDR, data for 2008 onwards

Table A.1 (continued)

Index	Compiling Agency or author	Variables/Dimensions	Coverage
Global Gender Gap (GGG)	World Economic Forum	Wage levels, labour market participation, and access to highly skilled employment, access to both primary and further education (primary, secondary, tertiary and literacy), measures of the ratio of women to men in ministerial positions and, if relevant, parliamentary roles, ratio of women to men in terms of the number of years spent in executive office in the past 50 years, differences between men and women in terms of life expectancy, sex ratios at birth.	2006-onwards
Women's Economic Opportunity Index (WEOI)	Economist Intelligence Unit	26 variables falling into the following categories: labour policy and practice, access to finance, education and training, women's legal and social status, general business environment	Pilot 2009
Relative Status of Women	Dijkstra and Hammer	Same dimensions as GDI	
GEQ	Whyte	GDI/HDI	
Standardised Index of Gender Equality (SIGE)	Dijkstra	Education, health and labour force participation	
Gender Inequality (GI)	Forsythe	(HDI – GDI)/HDI	

Appendix A.2: Shared dimensions of Gender Equality

All of the gender indices discussed in the text try to capture different dimensions in which gender inequality can occur. These dimensions can vary between measures, but the eight dimensions listed in Table A.I. are those, which appear regularly in the gender equality measurement literature.

Table A.2. Shared dimensions of Gender Equality

Dimension	Which variables used to measure	Where does it appear
Political Power	Voting rights, percentage of women and men at different levels of government (national, municipal, unions, etc.)	GEM, GII, GGG, SIGI
Autonomy within the household	Freedom to marry and divorce, right to custody in divorce, right to assets and decision making power within the household	SIGI
Employment and income	Distribution of paid and unpaid work, wage differentials, formal and informal labour	GDI, GEM, GII, WEOI, (SIGI)
Social Resources	Access to health and education	GDI, GII, GEM, WEOI
Material Resources	Access to land, houses and credit	SIGI
Time	Relative access to sleep and leisure	OECD (2009) – http://www.oecd.org/berlin/42675407.pdf
Gender Identity	Cultural issues such as socialisation of boys and girls and how rigid sex divisions of labour are	None
Autonomy of the body	Gender based violence, control over sexuality, control over reproduction	SIGI

Notes: This table is partially based on Dijkstra (2002: 318), which in turn draws upon Wieringa (1997).

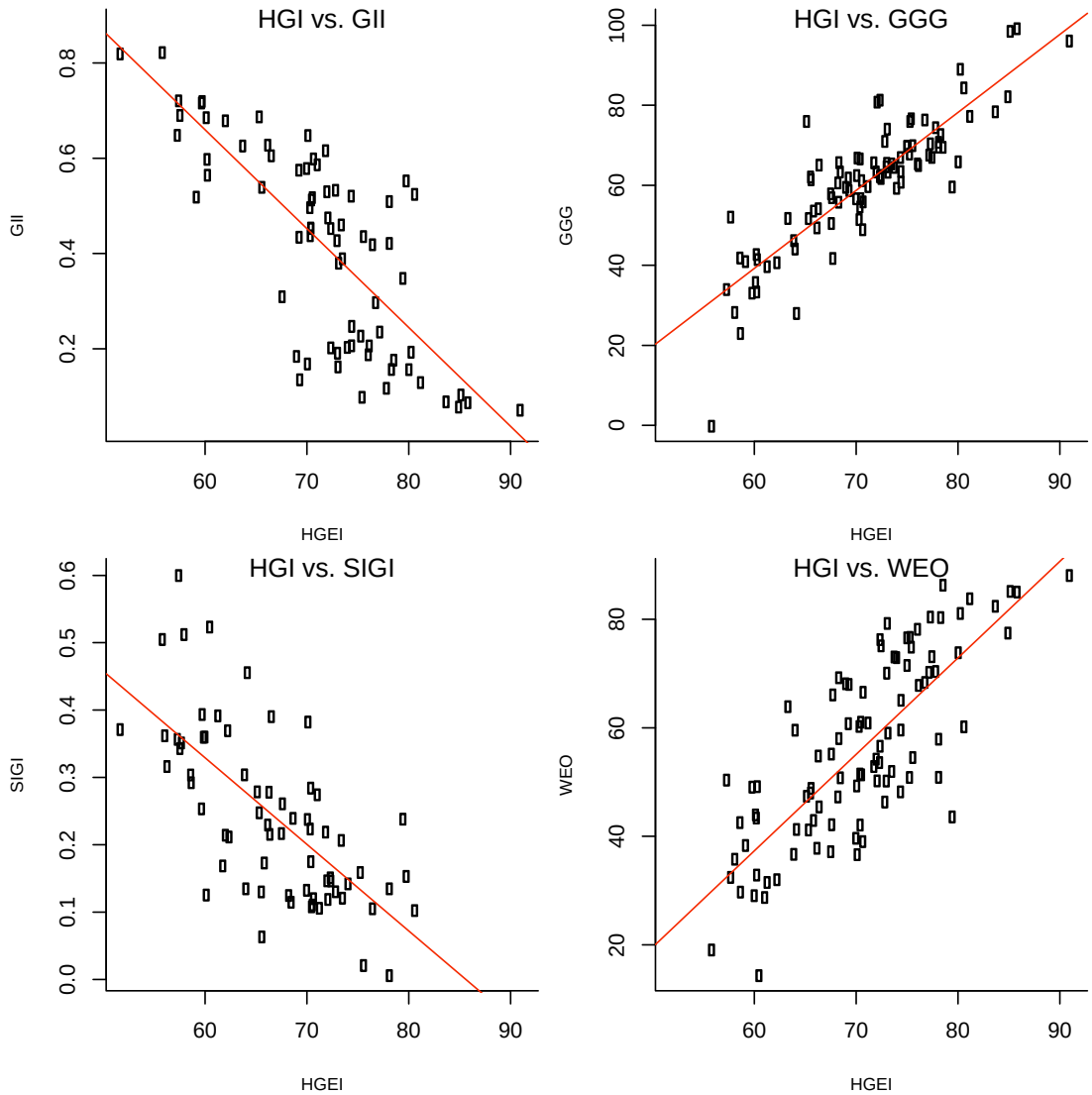
Table A.3. Descriptive Statistics and Number of Observations before Multiple Imputation

Variable	Sub-index	Range	Mean(sd)	Observations	Cum. Observations
Parliament seats ratio	Political	0-0.95	0.1 (0.12)	5066	5066
Sex ratio	Health	0.83-1.16	0.97 (0.02)	6519	5060
Life exp. ratio		0.8-1.48	0.99 (0.05)	2062	1668
Lab. force part. ratio	Socio-economic	0.02-1.29	0.6 (0.24)	1580	632
Av. years schooling ratio		0.03-1.46	0.73 (0.26)	1397	341
Marriage age ratio	Household	0.61-0.98	0.85 (0.06)	527	106

Appendix A.3: Comparison with current composite indices

In this section, we outline the comparability of our index with a number of gender equality measures. Previous indices differ in the aspects they choose to focus on regarding gender equality. The figure below illustrates to what extent our historical gender equality index is correlated with the Gender Inequality Index (GII), the Global Gender Gap Index (GGG), Social Institutions and Gender Index (SIGI), and the Women's Economic Opportunity Index (Economic Intelligence Unit, IE"I).

Figure A.1. Correlation of the HGEI with other indices



Notes: Data comparison with the Gender Inequality Index is done based on the year 1995 and for the period between 1995 and 2005. Data for the Global Gender Gap Index (GGG) and Women's Economic Opportunity Index are based on 2009 and is compared with the data for the Historical Gender Equality Index in year 2000. The Pearson's correlations have been presented, except for the relation between our index and the SIGI. To compare these two indexes, first the average of the Historical Gender Equality Index for the time period between 1995 and 2000 was then taken and then compared with the SIGI index, of 2009, based on Kendall's tau-b.

Overall our historical measure is reasonably related to the current gender equality measure. Our measure is strongly related to the Global Gender Gap index, whereas the association between our index and SIGI is weak. While SIGI aims to capture the long-term institutions that cause the gender gaps in various development outcomes, our measure aims to capture these disparities themselves. A further explanation for the lack of association is likely that the SIGI focuses only on non-OECD countries, thereby reducing the number of observations shared with our index. Further differences are apparent from the figure. For instance, South Africa, and Greece are but two of a number of outliers present in the correlation between our HGEI and the GII. These differences between the two indexes could be result of the choice of the underlying variables and the method used to construct the index. For instance we exclude fertility from our index, which is included in the GII, and instead include differences in political empowerment and marriage patterns which are not captured by GII. And while the GII is a complex index featuring non- linear transformations, we keep all our measures in ratios and create our composite index as a linear combination of these. A second reason for the differences could be that the GII is strongly driven by the overall development level of a society (i.e. a high correlation between GII and UN Human Development Index) whereas this is not the case for our index. The association between the Historical Gender Equality Index and the Women's Economic Opportunity Index is moderate, which is likely driven by the fact that while our measure captures inequalities in various dimensions, the latter focuses only on the gender differences in labour force participation.

Appendix A.4: sensitivity to weights

Composite indicators are commonly critiqued in the choice of their weights. The weights to any composite indicator are open for discussion and it is conceivable that the results would change if different weights were used. To see the extent to which our index is sensitive to the choice of weights, the overall trends were recalculated using a wide set of weights. Figure A.2 below shows the results of halving the weights of either one or two of the six indicators constituting the composite indicator. As can be seen, most choices of weights do not significantly alter the regional trends.

Figure A.2. Shifting Weights of HGEI

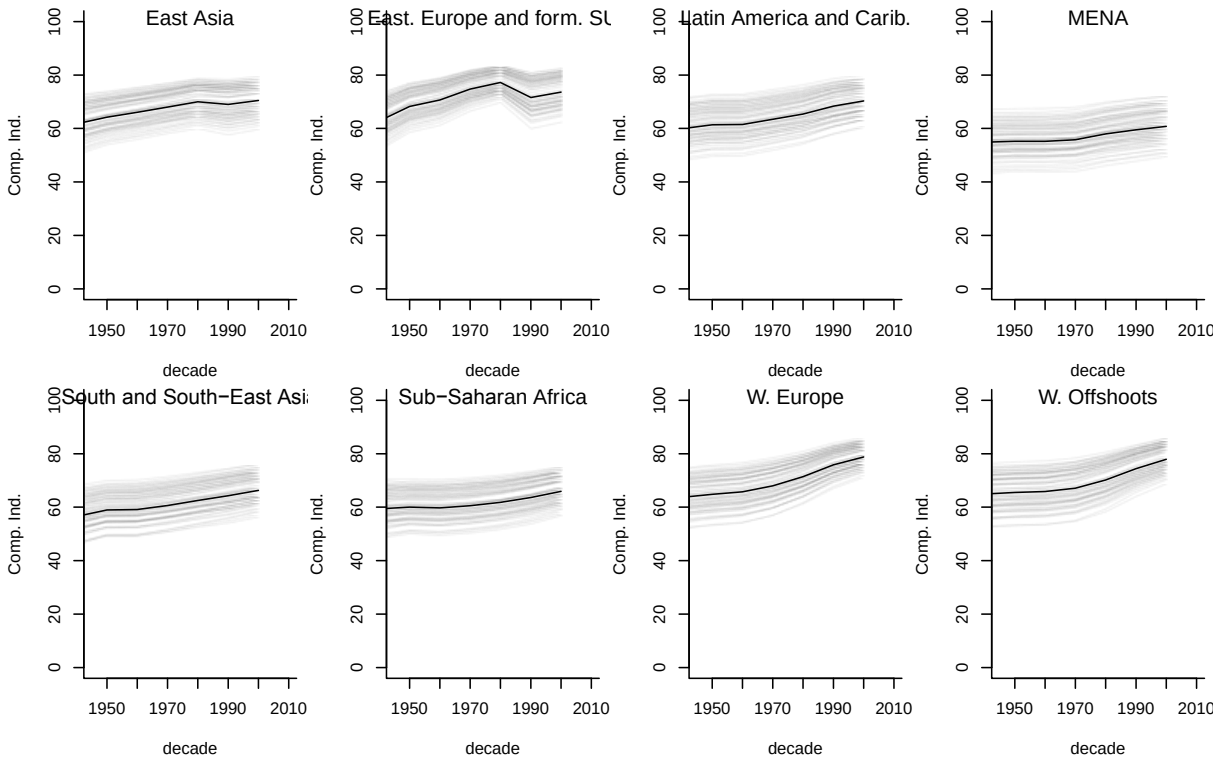
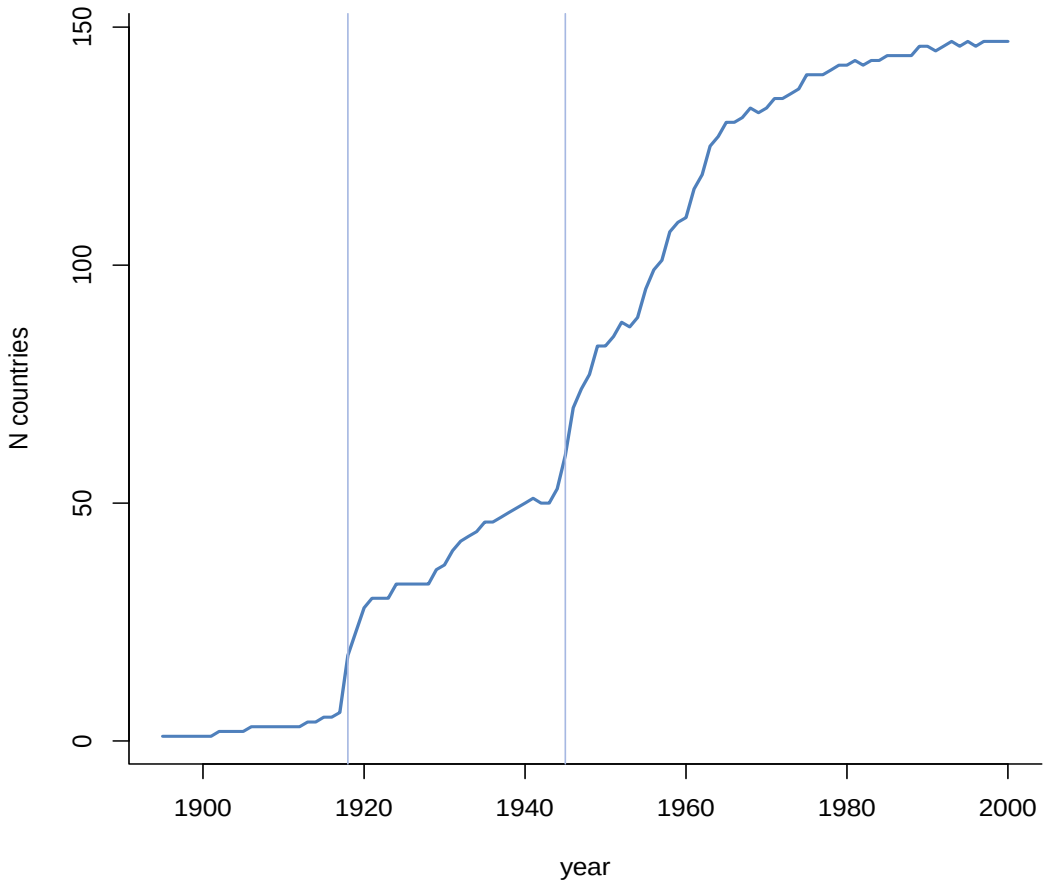


Figure A.3 Female suffrage, 1895-2000 (Number of Countries)



Appendix B: Achieving Gender Equality

Table B.1. Todd's Family Systems

Family Type	Attitudes to liberty (defined by co-residence and type of spouse selection)	Attitudes to symmetry (defined by inheritance)	Country Examples
Egalitarian nuclear family	Free, with obligatory exogamy	Symmetry	France, Switzerland, Poland, Romania, Italy, Greece, Spain, Portugal, parts of Latin America
Exogamous community family	Parents	Symmetry	Russia, Yugoslavia, Slovakia, Bulgaria, Hungary, Albania, China, India and Cuba
Endogamous Community Family	Custom	Symmetry	Arab world, Turkey, Afghanistan, Iran, Pakistan, Azerbaijan, Turkmenistan, and Uzbekistan
Anomic Family	Free, without obligatory exogamy	Indifference	Burma, Thailand, Laos, Philippines, Cambodia, Malaysia, Indonesia, Madagascar, Sri Lanka
Stem Family	Parents	Asymmetry	Germany, Austria, Belgium, Norway, Sweden, Israel, Japan, and Korea
African Family	Indifference, generally strong prohibitions of consanguinity	Indifference	All Africa except Northern African countries and South Africa

Table B.2. Spearman's Correlation Matrix between Variables

HGEI	1																					
African fam.	-0.04	1																				
Anomic fam.	-0.02	-0.15	1																			
Stem fam.	0.25	-0.14	-0.15	1																		
Endo. Com. Fam.	-0.57	-0.21	-0.22	-0.20	1																	
Exo. Com. Fam.	0.28	-0.16	-0.17	-0.15	-0.22	1																
% Protestant	0.28	0.16	-0.11	0.20	-0.23	-0.06	1															
% Catholic	0.17	-0.05	0.33	-0.02	-0.37	-0.13	0.04	1														
% Islam	-0.44	-0.09	-0.16	-0.17	0.61	-0.04	-0.16	-0.34	1													
Scand./German C. code	0.25	-0.12	-0.13	0.77	-0.17	-0.03	0.31	-0.11	-0.17	1												
French C. Code	-0.35	-0.09	0.25	-0.29	0.20	-0.3	-0.25	0.31	0.14	-0.31	1											
Socialist/Communist Laws	0.38	-0.15	-0.08	-0.12	-0.21	0.61	-0.09	-0.07	-0.11	-0.13	-0.39	1										
log GDPPC	0.45	-0.42	-0.04	0.39	-0.20	0.02	0.23	0.15	-0.17	0.36	-0.09	-0.05	1									
Polity IV	0.43	-0.15	0.07	0.42	-0.36	-0.14	0.31	0.18	-0.34	0.37	-0.19	-0.16	0.50	1								
% Education expenditures	0.28	0.01	-0.13	0.24	-0.02	0.04	0.24	-0.07	-0.01	0.20	-0.21	-0.01	0.41	0.27	1							
Inst. Internat. Women mov.	0.33	0.10	-0.05	-0.04	0.03	0.05	0.08	-0.02	0.01	-0.04	-0.04	0.07	0.17	0.16	0.18	1						
East Asia & Pacific	0.13	-0.15	0.08	0.06	-0.21	0.08	0.01	-0.17	-0.07	0.09	-0.25	0.16	-0.04	0.02	-0.16	-0.03	1					
Europe & Central Asia	0.47	-0.23	-0.24	0.38	-0.27	0.31	0.17	0.05	-0.18	0.37	-0.23	0.36	0.48	0.37	0.21	-0.00	-0.23	1				
Americas	0.03	-0.20	0.51	-0.19	-0.29	-0.14	-0.05	0.55	-0.27	-0.17	0.38	-0.13	0.10	0.10	-0.12	-0.08	-0.20	-0.31	1			
MENA	-0.4	-0.16	-0.17	-0.06	0.62	-0.09	-0.20	-0.30	0.50	-0.13	0.19	-0.16	0.10	-0.36	0.21	0.00	-0.16	-0.25	-0.22	1		
South Asia	-0.26	-0.10	0.03	-0.09	0.25	0.03	-0.12	-0.17	0.10	-0.08	-0.16	-0.10	-0.29	-0.01	-0.21	-0.02	-0.09	-0.15	-0.13	-0.10	1	
Year	0.33	0.10	-0.05	-0.04	0.03	0.05	0.08	-0.02	0.01	-0.04	-0.04	0.07	0.17	0.16	0.18	1	-0.03	-0.00	-0.08	0.00	-0.02	1

Table B.3. Results for cross-sectional OLS regressions of historical gender equality index compared to present-day indices in 1995/2000.

	HGEI	GII	GGG
African fam.	-5.91	-0.19***	-27.32***
	3.54	0.04	8.84
Anomic fam.	-0.75	-0.05*	4.08
	1.58	0.03	3.26
Stem fam.	0.33	0.02	-0.79
	2.03	0.03	3.46
Endo. Com. Fam.	-5.65**	-0.16***	-23.11***
	2.67	0.05	5.13
Exo. Com. Fam.	-0.69	0.02	5.38
	1.73	0.03	3.79
% Protestant	14.85***	0.12*	41.52***
	3.46	0.06	8.92
% Catholic	-0.14	0.06*	6.76
	2.06	0.03	4.89
% Islam	-3.02	-0.05	-3.99
	3.1	0.06	5.72
Scandinavian/German C. code	-1.19	0.04	-8.48
	2.67	0.03	5.58
French C. Code	0.68	0.03	-3.8
	1.8	0.04	3.91
Socialist/Communist Laws	3.52	0.06	-6.93
	2.41	0.04	5.48
log GDPPC	1.94*	0.12***	1.98
	0.94	0.02	2.41
Polity IV	0.08	0	0.36
	0.17	0	0.35
% Education expenditures	0.13	0	-1.22
	0.49	0.01	1.4
East Asia & Pacific	-4.09	-0.06	-17.17**
	3.07	0.05	7.41
Europe & Central Asia	-3.8	-0.09*	-12.10*
	3.03	0.05	6.96
Americas	-5.57	-0.22***	-22.42***
	3.27	0.05	6.51
Middle East and North Africa	-5.03	-0.06	-4.42
	3.14	0.05	7.1

Table B.3 (continued)

	HGEI	GII	GGG
South Asia	-5.44	-0.02	-8.35
	3.87	0.05	7.59
Constant	56.42***	-0.32***	62.12***
	7.25	0.12	18.76
Observations	89	89	89

Notes: Standard errors in parentheses (clustered at country level). *** p < 0.01, ** p < 0.05, * p < 0.1 (based on two tailed t-test).

Table B.4. Results for OLS regressions of gender equality, 1950-2003: specification with random effects, fixed effects, non-linear GDP per capita, and instrumental variables.

				IV	IV
	Non-linear	RE	FE	First stage	Second stage
African fam.	-0.96	-0.71		-0.15**	-0.4
	1.82	1.82		0.06	1.56
Anomic fam.	0.07	-0.15		0	-0.02
	0.91	0.91		0.05	0.89
Stem fam.	-1.57	-1.45		-0.04	-1.53
	1.65	1.67		0.03	1.4
Endo. Com. Fam.	-4.98***	-4.87***		-0.16***	-3.77***
	1.49	1.51		0.05	1.29
Exo. Com. Fam.	-0.21	-0.19		-0.09*	0.99
	1.34	1.39		0.05	1.03
% Protestant	0.58	0.6	0.51	-0.20***	1.24**
	0.65	0.66	0.59	0.05	0.52
% Catholic	-0.04	-0.06	-0.01	-0.03	0.14
	0.44	0.44	0.32	0.03	0.31
% Islam	-1.25**	-1.24**	-0.86**	-0.03	-2.80***
	0.43	0.43	0.37	0.03	0.34
Scand./German C. code	1.96	2.04		0.03	2.21
	1.83	1.9		0.04	1.45
French C. Code	-2.86***	-2.85***		-0.07**	-2.46***
	0.84	0.91		0.03	0.56
Socialist/Communist Laws	1.04	0.81		-0.21***	-0.32
	1.15	1.23		0.07	0.82
log GDPpc	-5.76	1.26**	1.53***		1.25***
	4.38	0.44	0.4		0.27
gdp^2	0.43				
	0.27				
Polity IV	-0.04	-0.04	-0.02	0.01**	-0.08***
	0.03	0.03	0.03	0	0.01
% Education expenditures	0.32***	0.31***	0.29***	0.02***	0.45***
	0.06	0.07	0.06	0	0.05
Inst. Internat. Women move.	0.22***	0.23***	0.25***	-0.01***	0.24***
	0.04	0.05	0.04	0	0.03
East Asia & Pacific	0.73	0.77		0.23***	1.83
	1.97	2.01		0.06	1.57
Europe & Central Asia	3.20*	2.99		0.21***	3.71**
	1.77	1.77		0.07	1.49
Americas	1.21	0.94		0.11	0.93
	1.7	1.7		0.07	1.53

Table B.4 (continued)

				IV	IV
	Non-linear	RE	FE	First stage	Second stage
Middle East and North Africa	-2.75	-3.17*		0.21***	-3.21***
	1.57	1.47		0.05	1.17
South Asia	-4.40**	-4.15**		-0.04	-3.81***
	1.61	1.58		0.06	1.4
Year	0.04	0.04	0	0.01**	0.03
	0.03	0.03	0.02	0	0.02
log GDPpc (10-year lag)				0.85***	
				0.02	
lat				0.00***	
				0	
Constant	78.31***	50.03***	46.63***	1.29***	49.16***
	17.84	3.88	3.11	0.2	2.45
Observations	5237	5237	6563	4338	4338

Notes: Standard errors in parentheses (clustered at country level). *** p < 0.01, ** p < 0.05, * p < 0.1 (based on two tailed t-test).

Table B.5. Results for OLS regressions of gender equality, 1950-2003 by component of the historical gender equality index (with imputations).

	Sex ratio	Life exp. Ratio	Marriage age ratio	Labour force part. Ratio	Av. Years schooling ratio	Parl. Seats ratio
African fam.	0.01	0.03**	0.01	0.01	0.02	0
	0.01	0.01	0.01	0.07	0.06	0.02
Anomic fam.	0	0	-0.01	-0.06	0.07**	0.01
	0	0.01	0.01	0.04	0.03	0.01
Stem fam.	-0.01**	-0.02***	-0.01	-0.01	0.03	0.01
	0.01	0.01	0.01	0.06	0.03	0.03
Endo. Com. Fam.	-0.01	0	-0.02*	-0.12**	-0.04	0
	0.01	0.01	0.01	0.05	0.05	0.02
Exo. Com. Fam.	-0.01**	0.01	-0.01	-0.01	-0.02	0.05**
	0.01	0.01	0.01	0.04	0.03	0.03
% Protestant	0	-0.02**	0.02**	0.01	0.11***	0.13***
	0	0.01	0.01	0.03	0.04	0.03
% Catholic	0	0	0.02***	-0.09***	0.08***	-0.02
	0	0.01	0.01	0.03	0.03	0.01
% Islam	0	-0.01*	-0.03***	-0.16***	-0.08***	-0.03**
	0	0.01	0.01	0.03	0.03	0.02
Scand./German C. code	0	0.02**	0.01	0.02	-0.09**	0.06*
	0.01	0.01	0.01	0.06	0.04	0.03
French C. Code	0	0	0	-0.02	-0.05*	0.02
	0	0.01	0.01	0.03	0.03	0.01
Socialist Laws	0	0.02*	0.02**	0.14**	0.09**	0.06**
	0.01	0.01	0.01	0.06	0.04	0.02
log GDPPC	-0.00***	0.02***	0.02***	-0.02	0.09***	0.01
	0	0	0	0.02	0.01	0.01
Polity IV	0	0.00**	0	0	0.00*	-0.00***
	0	0	0	0	0	0
% Edu. Expenditures	0	0	0.00**	0.01**	0.01***	0.01***
	0	0	0	0	0	0
Inst. Women move.	-0.00**	0	0.00**	0.01***	0.00***	0.00**
	0	0	0	0	0	0
East Asia & Pacific	-0.02**	0.03**	0.05***	-0.05	0.08	-0.01

Notes: Standard errors in parentheses (clustered at country level). *** p < 0.01, ** p < 0.05, * p < 0.1 (based on two tailed t-test).

Table B.6. Results for OLS regressions of gender equality, 1950-2003 by component of the historical gender equality index (without imputations).

	HGEI	Sex ratio	Life exp. Ratio	Marr. Age ratio	Lab. Force part. Ratio	Av. Years school. Ratio	Parl. Seats ratio
African fam.	-0.05	0	0.01	0.01	-0.07	0.08	-0.01
	0.03	0.02	0.02	0.04	0.22	0.09	0.03
Anomic fam.	0	0	0.01	-0.02	-0.05	0.08**	0.02
	0.01	0	0.01	0.02	0.04	0.04	0.02
Stem fam.	-0.09***	-0.01**	-0.02***	0.02	-0.02	-0.01	0.04
	0.02	0.01	0.01	0.02	0.07	0.04	0.03
Endo. Com. Fam.	-0.02	-0.01	-0.01	-0.01	-0.01	-0.05	0.02
	0.03	0.01	0.02	0.03	0.13	0.08	0.04
Exo. Com. Fam.	-0.04***	-0.01**	0	0.02	-0.03	-0.07	0.03
	0.01	0.01	0.01	0.01	0.06	0.05	0.03
% Protestant	0.02	0	-0.03	0.01	-0.1	0.15**	0.22***
	0.03	0.01	0.02	0.03	0.08	0.07	0.04
% Catholic	-0.05*	0	0	0.01	-0.24***	0.11*	-0.01
	0.03	0.01	0.01	0.03	0.08	0.06	0.03
% Islam	-0.08***	0.01*	0	-0.03	-0.25*	-0.06	-0.07*
	0.02	0.01	0.01	0.03	0.13	0.07	0.04
Scand./German C. code	0.06***	0	0.03**	-0.02	0	-0.11*	0.05
	0.02	0.01	0.01	0.02	0.07	0.06	0.04
French C. Code	0.02*	-0.01	0	0.01	-0.01	-0.10**	0.05***
	0.01	0.01	0.01	0.01	0.05	0.05	0.01
Socialist Laws	0.10***	0	0.03*	-0.03	0.13*	0.10*	0.11***
	0.02	0.01	0.01	0.03	0.08	0.06	0.03
log GDPPC	0.01	-0.00**	0.02***	0	-0.02	0.08***	0.02*
	0.01	0	0	0.01	0.03	0.02	0.01
Polity IV	0	0	0.00**	0	0	0	-0.00***
	0	0	0	0	0	0	0
% Educ. Exp.	0	0	0	0	0.02*	0	0
	0	0	0	0	0.01	0.01	0
Inst. Women move.	0	0	-0.00***	0	0.01	0.01**	0
	0	0	0	0	0	0	0
East Asia & Pacific	0	-0.04**	0.02	0.10***	-0.17	0.12	-0.03
	0.04	0.02	0.02	0.04	0.2	0.09	0.03

Table B.6 (continued)

	HGEI	Sex ratio	Life exp. Ratio	Marr. Age ratio	Lab. Force part. Ratio	Av. Years school. Ratio	Parl. Seats ratio
Europe & Central Asia	0.01	-0.03*	0.03*	0.09**	-0.13	0.1	-0.01
	0.03	0.01	0.02	0.04	0.21	0.09	0.03
Americas	-0.01	-0.02	0.03	0.07*	-0.18	0.13	-0.02
	0.03	0.01	0.02	0.04	0.2	0.09	0.03
MENA	-0.04	-0.02*	0.02	0.07**	-0.38**	0.08	-0.05*
	0.03	0.01	0.02	0.03	0.18	0.07	0.03
South Asia		-0.04**	-0.02	0.05	-0.44**	-0.07	0.04
		0.02	0.01	0.04	0.18	0.07	0.03
Year	0	0	0.00***	0	0	0	0
	0	0	0	0	0	0	0
Constant	0.53***	1.03***	0.83***	0.77***	0.79***	-0.11	-0.22***
	0.07	0.03	0.03	0.07	0.26	0.16	0.08
Observations	73	657	657	127	256	657	587
Adjusted R-squared	0.743	0.553	0.442	0.392	0.667	0.667	0.501

Notes: Standard errors in parentheses (clustered at country level). *** p < 0.01, ** p < 0.05, * p < 0.1 (based on two tailed t-test).

Table B.7. panel regressions of growth rate on lag of HGEI_OECDimputations

	Pooled	Pooled	FE	FE	Pooled w. hist/inst. Ctrs
Intercept	4.93***	6.24***			8.44***
	(0.98)	(1.48)			(2.93)
HGEI_lag	-0.03*	-0.082***	0.06**	-0.23***	-0.21***
	(0.02)	(0.02)	(0.03)	(0.06)	(0.04)
log(GDP)		0.31*		2.42***	0.76***
		(0.18)		(0.49)	(0.26)
Polity2					-0.10***
					(0.03)
% Education expenditures					0.13
					(0.11)
Inst. International women movement					0.11***
					(0.02)
% Protestant					3.72***
					(0.96)
% Islam					0.45
					(0.63)
% Catholic					-0.70
					(0.79)
Scandinavian/German C. code					-0.57
					(0.59)
English Common Law					0.10
					(0.56)
French C. Code					0.61
					(0.65)
African fam.					0.22
					(1.06)
Anomic fam.					0.81**
					(0.41)
Stem fam.					0.61
					(0.51)
Endo. Com. Fam.					-0.09
					(0.77)
Exo. Com. Fam.					0.12
					(0.40)
East Asia & Pacific					-0.08
					(0.87)
Europe & Central Asia					-0.52
					(1.03)

Table B.7 (continued)

	Pooled	**Pooled**	**FE**	**FE**	**Pooled w. hist/inst. Ctrs**
Americas					-1.20
					(1.02)
Middle East and North Africa					-1.44**
					(0.68)
South Asia					0.09
					(1.08)
Adj. R^2	0.01	0.03	0.01	0.05	0.12
Num. obs.	757	553	757	553	503

Notes: Outcome variable: decennial % growth HGEI. Robust standard errors are reported between parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (based on two tailed t-test).

Table B.8. Regressions of decennial growth rate of the HGEI on its level for four periods.

	1950-1960	**1960-1970**	**1970-1980**	**1980-1990**	**1950-1960**	**1960-1970**	**1970-1980**	**1980-1990**
(Intercept)	3.55	4.96	12.19**	12.07***	-9.57	-5.62	2.57	6.84*
	(7.90)	(7.55)	(6.84)	(5.34)	(7.78)	(6.90)	(6.12)	(4.73)
hgi_ame_1950	0.10				-0.16			
	(0.13)				(0.11)			
hgi_ame_1960		0.07				-0.16		
		(0.13)				(0.11)		
hgi_ame_1970			-0.09				-0.26***	
			(0.11)				(0.10)	
hgi_ame_1980				-0.14**				-0.27***
				(0.09)				(0.09)
log(gdp_1950)					3.930***			
					(0.648)			
log(gdp_1960)						3.178***		
						(0.571)		
log(gdp_1970)							2.556***	
							(0.460)	
log(gdp_1980)								1.68***
								(0.42)
Adj. R^2	-0.00	-0.01	0.00	0.04	0.25	0.22	0.22	0.17
Num. obs.	110	110	110	110	110	110	110	110

Notes: Outcome variable: % growth to 1990. Robust standard errors are reported between parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (based on two tailed t-test).

Appendix C: A Long run Perspective on Gender Inequality in India

C.1.The List of the Names of Indian States over Time

1881	1961	2011	Zones
Ajmere	ANDAMAN AND NICOBAR ISLANDS	Andaman and Nicobar Islands	East
Assam	ANDHRA PRADESH	Andhra Pradesh	South
Baroda	ASSAM	Arunachal Pradesh	East
Bengal	BIHAR	Assam	East
Berar	DADRA AND NAGAR HAVELI	Bihar	East
Bombay	DELHI	Chandigarh	North
Burmah	GOA, DAMAN AND DIU	Chhattisgarh	East / Central
Central India	GUJARAT	Dadra and Nagar Haveli	West
Central Provinces	HIMACHAL PRADESH	Daman and Diu	West
Central Provinces	JAMMU AND KASHMIR	Delhi	North
Cochin	KERALA	Goa	South
Coorg	LACCADIVE, MINICOY AND AMINDIVI ISLANDS	Gujarat	West
Do.	MADHYA PRADESH	Haryana	North
Hydrabad	MADRAS	Himachal Pradesh	North
Madras	MAHARASHTRA	Jammu and Kashmir	North
Mysore	MANIPUR	Jharkhand	East / Central
N.-W. Provinces	MYSORE	Karnataka	South
N.-W. Provinces	NAGALAND	Kerala	South
Punjab	NORTH-EAST FRONTIER AGENCY*	Lakshadweep	South
Punjab	ORISSA	Madhya Pradesh	Central
Rajputana	PONDICHERRY	Maharashtra	West / Central
	RAJASTHAN	Meghalaya	East
	SIKKIM	Mizoram	East
	TRIPURA	Nagaland	East
	UTTAR PRADESH	Orissa	East
	WEST BENGAL	Puducherry	East
		Punjab	South
		Rajasthan	North
		Sikkim	North
		Tamil Nadu	East
		Tripura	South
		Uttar Pradesh	East
		Uttarakhand	Central
		West Bengal	North

C2- OLS Results on Determinant of Gender Equality in 1880, 1960, and 2000

	(1)	(2)	(3)	(4)	(5)
	sexratio1880r	mar1880	femalesmam1880	lit1880	flit1880
urbanisation_1880	-0.006*	0.002	0.124*	0.022*	0.011*
	(0.003)	(0.005)	(0.060)	(0.011)	(0.005)
CFA_1880	0.040	0.144*	6.362***	0.239	0.115
	(0.044)	(0.066)	(1.010)	(0.155)	(0.077)
mixedr_1880	0.035	0.002	-0.246	-0.077	-0.027
	(0.035)	(0.071)	(0.896)	(0.084)	(0.043)
nativer_1880	0.010	0.022	0.959	-0.024	-0.003
	(0.036)	(0.064)	(0.899)	(0.091)	(0.043)
hindu1901_1880	0.001	-0.001	-0.029	-0.003	-0.001
	(0.001)	(0.001)	(0.019)	(0.002)	(0.001)
muslim1901_1880	-0.001	0.000	0.021	-0.001	-0.000
	(0.001)	(0.001)	(0.022)	(0.002)	(0.001)
%Dalit_1880	0.000	0.006	0.124	0.003	0.001
	(0.003)	(0.005)	(0.068)	(0.008)	(0.004)
Constant	0.992***	0.520***	8.556***	-0.076	-0.057
	(0.069)	(0.111)	(1.520)	(0.139)	(0.066)
Observations	16	16	16	16	16
R-squared	0.659	0.452	0.873	0.669	0.667

Notes: Outcome variable: decennial % growth HGEI. Robust standard errors are reported between parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (based on two tailed t-test).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	sexratio1960	Mar_1960	femsmam1960	lit1960	femlit1960	turn1960	parl1960	femparl1960	femturn1960
Urbanisation_1960	-0.002	0.000	0.112	0.012*	0.007*	0.015***	-0.000	-0.000	0.017***
	(0.002)	(0.002)	(0.082)	(0.006)	(0.003)	(0.004)	(0.001)	(0.001)	(0.004)
CFA_1960	0.023	-0.015	2.607**	0.108	0.063	0.093*	-0.010	-0.010	0.105*
	(0.029)	(0.026)	(1.024)	(0.080)	(0.051)	(0.046)	(0.014)	(0.013)	(0.047)
Mixedr_1960	-0.012	0.056**	1.920	0.112	0.099	0.064	-0.020	-0.019	0.074
	(0.033)	(0.017)	(1.715)	(0.134)	(0.081)	(0.098)	(0.015)	(0.013)	(0.103)
Nativer_1960	-0.031	0.028	-0.277	-0.045	-0.044	-0.058	0.008	0.007	-0.085*
	(0.026)	(0.034)	(0.868)	(0.082)	(0.054)	(0.042)	(0.020)	(0.018)	(0.038)
Hindu1901_1960	-0.000	0.001*	0.025	0.002	0.002	0.001	-0.001	-0.001	0.002
	(0.001)	(0.001)	(0.041)	(0.003)	(0.002)	(0.002)	(0.000)	(0.000)	(0.002)
muslim1901_1960	-0.002*	0.002**	0.024	0.001	0.000	0.002	-0.000	-0.000	0.002
	(0.001)	(0.001)	(0.030)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Dalit_1960	0.002	-0.006**	-0.102	-0.008	-0.006	0.000	0.001	0.001	-0.003
	(0.002)	(0.002)	(0.107)	(0.010)	(0.007)	(0.007)	(0.002)	(0.002)	(0.007)
Constant	1.021***	0.686***	12.076**	0.082	-0.058	0.347**	0.071**	0.067**	0.053
	(0.043)	(0.052)	(3.885)	(0.212)	(0.118)	(0.147)	(0.025)	(0.023)	(0.141)
Observations	16	16	16	16	16	16	16	16	16
R-squared	0.473	0.579	0.617	0.475	0.543	0.676	0.347	0.347	0.706

Notes: *** p<0.01,** p<0.05, * p<0.10 (two tailed t-test), ^p<.10 (one-sided t-test). Robust standard errors are reported in the parentheses

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	sexratio2000	Mar_2000	femsmam2000	lit2000	femlit2000	turn2000	parl2000	femparl2000	femturn2000
urbanisation_2000	-0.002**	0.001	0.027	0.004**	0.007***	0.004***	0.000	0.000	0.002
	(0.001)	(0.001)	(0.030)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
CFA_2000	0.034*	-0.029*	2.201***	0.082**	0.087***	-0.013	-0.005	-0.005	-0.021
	(0.016)	(0.013)	(0.638)	(0.032)	(0.025)	(0.026)	(0.014)	(0.012)	(0.049)
Mixedr_2000	-0.013	0.027	1.031	0.126*	0.195**	0.034	0.005	0.005	0.012
	(0.019)	(0.022)	(0.736)	(0.062)	(0.061)	(0.042)	(0.014)	(0.012)	(0.078)
Nativer_2000	-0.035	0.036	0.087	-0.034	-0.017	-0.022	-0.051**	-0.045**	-0.052
	(0.022)	(0.026)	(0.986)	(0.032)	(0.044)	(0.038)	(0.019)	(0.017)	(0.082)
Hindu1901_2000	0.000	0.000	0.001	0.001	0.001	0.000	0.001**	0.001**	-0.000
	(0.000)	(0.000)	(0.015)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Muslim1901_2000	-0.002***	0.001***	0.007	0.001	0.001	0.001	0.000	0.000	0.000
	(0.001)	(0.000)	(0.024)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)
Dalit_2000	0.002	-0.002	0.017	-0.001	-0.005	0.002	0.002*	0.002*	0.003
	(0.002)	(0.002)	(0.066)	(0.004)	(0.005)	(0.003)	(0.001)	(0.001)	(0.006)
Constant	0.985***	0.769***	18.077***	0.511***	0.289**	0.713***	-0.027	-0.018	0.504***
	(0.046)	(0.051)	(1.772)	(0.102)	(0.099)	(0.072)	(0.036)	(0.031)	(0.149)
Observations	16	16	16	16	16	16	16	16	16
R-squared	0.773	0.448	0.687	0.766	0.846	0.611	0.625	0.628	0.247

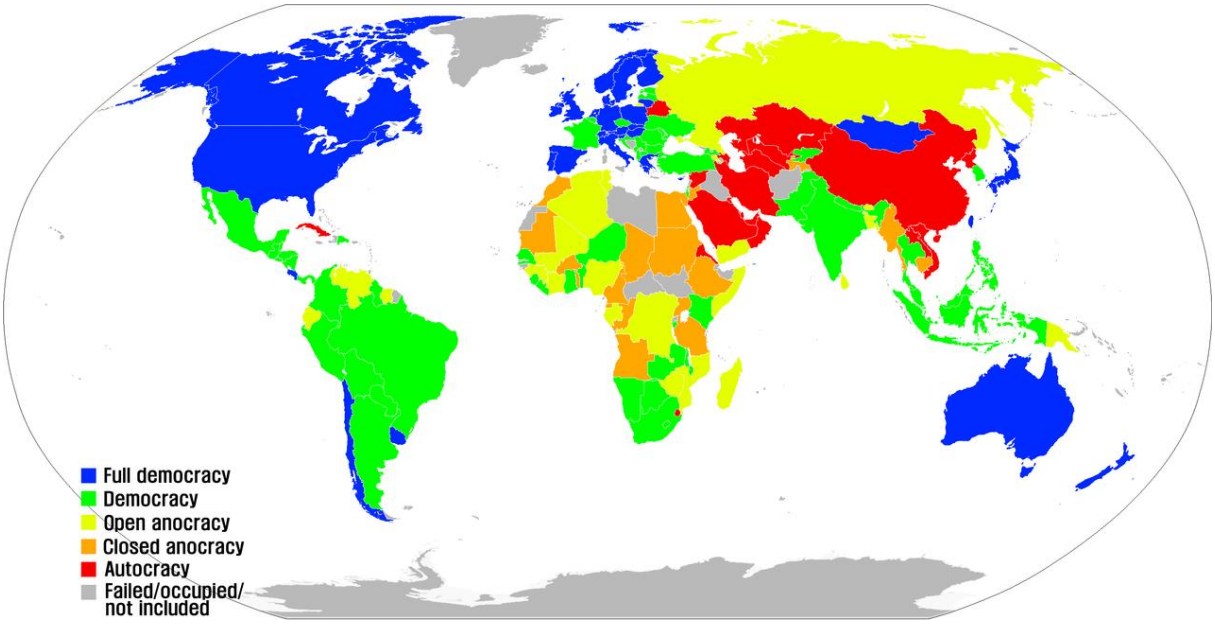
Notes: *** p<0.01,** p<0.05, * p<0.10 (two tailed t-test), ^p<.10 (one-sided t-test). Robust standard errors are reported in the parentheses

Table C 3.Coefficient of Variation in Indicators of Women's Position and Gender Equality over time

decade	cvsexr	cvfsmam	cvmar	cvflit	cvlit	cvfparl	cvparl	cvturn	cvfturn
1880	0.06	0.16	0.09	2.76	1.52	0.60	0.61	0.17	0.12
1890	0.05	0.12	0.10	0.83	0.78	0.59	0.60	0.18	0.13
1900	0.05	0.12	0.08	1.27	0.51	0.63	0.64	0.18	0.12
1910	0.04	0.13	0.081	1.47	0.89	0.57	0.59	0.20	0.13
1920	0.046	0.13	0.09	0.72	0.31	0.64	0.66	0.19	0.12
1930	0.03	0.17	0.06	1.47	0.72	0.59	0.62	0.20	0.13
1940	0.05	0.17	0.10	0.96	0.61	0.54	0.56	0.19	0.13
1950	0.05	0.12	0.08	0.66	0.49	0.50	0.51	0.19	0.13
1960	0.04	0.11	0.06	0.61	0.33	0.49	0.50	0.24	0.151
1970	0.05	0.11	0.05	0.63	0.31	0.70	0.71	0.19	0.14
1980	0.04	0.09	0.04	0.54	0.29	0.40	0.41	0.21	0.11
1990	0.04	0.10	0.07	0.40	0.23	0.39	0.41	0.17	0.08
2000	0.06	0.07	0.04	0.23	0.13	0.35	0.38	0.14	0.06
2010	0.05	0.08	0.06	0.18	0.13	0.30	0.32	0.13	0.08
Total	0.05	0.12	0.07	0.911	0.52	0.52	0.54	0.18	0.12

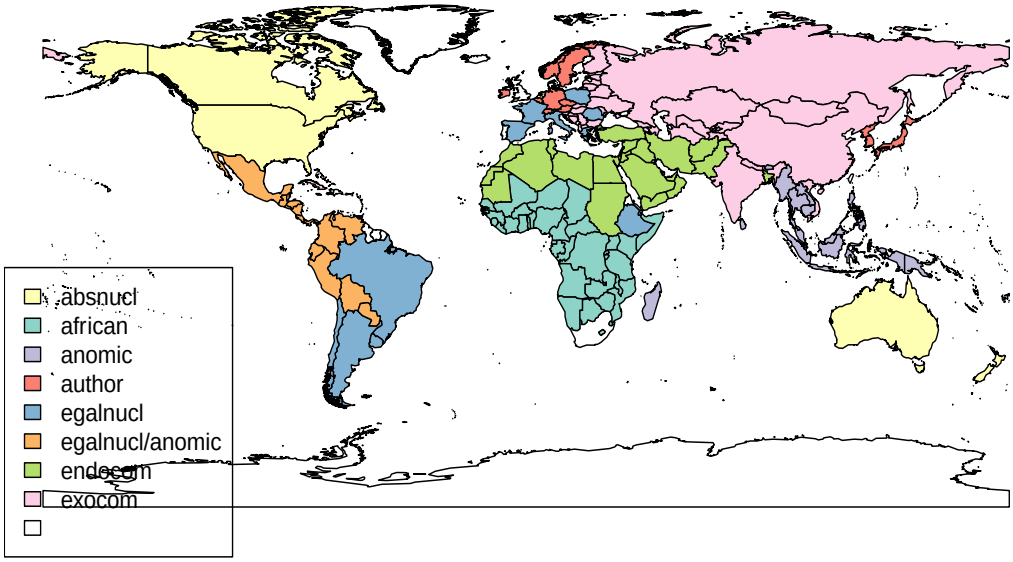
Appendix D: Family Systems, Female Agency and Democratic Development

Map D.1. Distribution of the Democratic Rule over the World, 2013



Source: Marshall, Jaggers, and Gurr (2014)

Map D.2. Todd (1985)'s Classification of Family Systems over the World



Source: Rijpma and Carmichael (2013)

Table D.1. Overview of all the Measures included in Chapter 5

Variable	Description	*Source*
Dependent Variable: National-level Democracy Measures (same as section 2.1 in the text)		
Polity IV	This measure covers all the independent states that have a total population of 500,000 or more in a given year. It is based on three criteria; competitiveness of political participation, the competitiveness of executive recruitment, and constraints on chief executive. The scale ranges from -10 (hereditary monarchy) to +10 (consolidated democracy). For the ease of interpretation, the Polity IV index has been standardized to range between 0 and 1 in which higher score means higher level of democracy as a political regime. It is available from 1820 onwards and originally covers 166 countries. Moreover, the underlying measures, Competitiveness of executive recruitment, Regulation of chief executive recruitment, openness of executive recruitment and constraints on the executive have been used in the robustness checks. As the Polity IV index, a higher value in all these measures indicates higher quality of democratic institutions.	Marshall, Jaggers, and Gurr (2014)
Duration of Democracy	This index is created based on the Polity IV index and used to measure the persistence in democracy. It simply counts the number of years of uninterrupted democratic regime in a country since it has been independent. This scale has been standardized to range between 0 and 1.	Based on Marshall, Jaggers, and Gurr (2014)
Freedom House Index	As an alternative measure of democracy, the Freedom House Index is used. This index focuses on political and civil liberties in a country where the index ranges between 1 and 7 with 1 representing the most free and 7 the least free. The sum of the two scales on political and civil liberties has been taken and divided by two to create the Freedom Index. This variable has been rescaled and standardized to range between 0 and 1 in which a higher score on the index implies a higher level of freedom. It is available from 1972 onwards on an annual basis and covers 194 countries. The measure on political liberties has been employed in the robustness checks, presented in Table D.4 as well.	Freedom House (2011)
Indicators on Governance	Three measures on governance, namely voice and accountability, effectiveness and rule of law are composite indicators on the key dimensions of governance and are based on the Worldwide Governance database by Kaufman et al. (2009. Voice and	Teorell et al. (2013)

	accountability measure the extent to which citizens of a country are able to participate in the selection of government and indicators measuring the independence of the media, which serves an important role in monitoring those in authority and holding them accountable for their actions. Government Effectiveness" combines into a single grouping responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. "Rule of Law" includes several indicators, which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. All these measures are continuous in which a higher score indicates a higher quality of governance. This information is obtained from Teorell et al. (2013)'s codebook, which provides detailed information on these measures.	
Legal Structure and Security of Property Rights	This measure is based on Gwartney et al. (2012) database, the Economic Freedom of the World Data.The index ranges from 0-10 where 0 corresponds to 'no judicial independence', 'no trusted legal framework exists', 'no protection of intellectual property', 'military interference in rule of law', and 'no integrity of the legal system' and 10 corresponds to 'high judicial independence', 'trusted legal framework exists', 'protection of intellectual property', 'no military interference in rule of law', and 'integrity of the legal system'. This information is obtained from Teorell et al. (2013)'s codebook, which provides detailed information on these measures.	Teorell et al. (2013)
Independent Variables		
Historical Institutions		
Family Systems	The data on family systems come from Rijpma and Carmichael (2013), who test the validity of Todd's classification by employing data from Murdock's Ethnographic Atlas and Social Institutions related to Gender Equality. Murdock's Ethnographic Atlas contains information for 1265 ethnic groups. The data on ethnic level from Murdock's data has been aggregated to the country level by Bolt (2102). Based on	Rijpma and Carmichael (2013) and Carmichael et al. (2014), based on

	the majority of the population, variables related to family systems were coded as dummy variables. They use Murdock's Ethnographic Atlas to obtain further measures on family systems. For more information on the dataset, please refer to Rijpma and Carmichael (2013). As a main measure of family system, Todd's classification is used which is a time-invariant categorical variable and measured based on the following criteria: co-residence, inheritance and choice of marriage partner. Based on his typology, seven categories are included in the analysis, namely (1) egalitarian nuclear family, (2) exogamous community family, (3) endogamous community family, (4) absolute nuclear family, (5) stem family, (6) anomic family, and (7) African family. In the analysis egalitarian nuclear family is used as the reference category. The robustness of the findings based on Todd's classifications has been tested by employing dichotomous measures of family systems, capturing whether the majority of the population that practice communitarian co-residence, endogamous marriage, patrilineal descent, early marriage practice and asymmetrical and patrilineal inheritance, which also comes from Rijpma and Carmichael (2012).	Todd (1985), Murdock (1969)
Colonial Origin	The colonial origin variable exclusively focuses on "Western overseas" colonialism where countries are considered as colonized if the colonization process took place after 1700 and lasted at least 10 years. Based on these criteria, the colonial heritage variable includes 4 categories namely, (1) never colonized by a Western overseas colonial power, (2) British colony, (3) French colony, and (4) other colonies (e.g., Spanish, Dutch, Belgium, and American). In the analysis, the focus is on British colonialism as the effects of other colonizer identities were insignificant.	Hadenius and Teorell (2005)
Religion	Protestant, Catholic and Muslim are entered as dummies in the analysis based on a comparison of the percentage of population that has one of these three religious denominations in 1900, 1970, and 2000. As a robustness check, religion is included in the analysis as the percentage of the population that has Muslim, Catholic and Protestant religious denominations in 1970.	Barro (2008)
Reliance on Natural Resources	Gross Oil Rent per capita is measured based on the income of the government provided by oil resources. The log of gross oil rents is included in the analysis. This measure is available for 168 countries from 1800 onwards.	Haber and Menaldo (2011)
Socio-Economic Indicators		

Economic Development	To measure economic development, the Gross Domestic Product (GDP) per capita is used. The log of GDP is included in the analysis. The data on GDP per capita covers 166 countries for which yearly observation becomes available after 1820s.	Maddison (2008)
Education	Education is measured by average years of schooling among the adult population age over 25. The variable is available between 1850 and 2000 covering 156 countries in the world. The data combines total enrolments in primary, secondary and tertiary schooling with age pyramids in order to calculate the average number of years of schooling among the adult population	Clio-Infra (2013)
Fertility	Fertility is measured by the Total Fertility Rates (TFR), which is the average number of children that would be born to a woman over her lifetime. The data comes from Gapminder (2013), which is largely based on data from the Princeton European Fertility Project and the UN fertility dataset. More information on the data sources can be obtained from http://www.gapminder.org/tag/fertility-rate/. For a further discussion on the issues regarding the reliability of data on TFR, see van der Vleuten and Kok (2014).	Gapminder (2013)
Urbanisation	Urbanisation is measured as the percentage of population living in cities of 10,000 or more to the total population in a country	Wejnert (2007)
Additional Indicators in Table 3		
Gender Inequality Index	This index gives an indication of the inequality between men and women, measured along health, empowerment and labour market participation dimensions. This index varies from 0 to 1 where 0 means no inequality between men and women and 1 means total inequality. The index has been rescaled so that a higher score on the index would indicate higher gender equality. The index is available for 195 countries between 1995 and 2011.	United Nations Development Programme (2011)
Local Democracy	Local democracy measure comes from Murdock ethnographic Atlas based on Variable 73, "Succession to the Office of Local Headman: Type of Hereditary Succession" and measures the percentage of the population in a country which chooses the local headman based on son inheritance.	Murdock (1969)
Self-expressive	The composite index includes items from World Values survey regarding individuals' attitudes towards public expression, liberalism, trust, happiness and homosexuality. Teorell and his co-authors used a Principal component analysis to create one index from these items. For more information:	Teorell et al. (2013)

	http://www.qogdata.pol.gu.se/codebook/codebook_standard_20dec13.pdf	
Trust	This item also based on World Values Survey which asks individuals whether individuals can be trusted (1) or not (0).	Teorell et al. (2013)
Supportive of Democracy	Teroell and his co-authors create this composite measure based on various World Values survey items to calculate the percentage of "solid democrats" for each country. For details on the items and how the index is constructed, see: http://www.qogdata.pol.gu.se/codebook/codebook_standard_20dec13.pdf	Teorell et al. (2013)
Individualism	This measure captures the degree of interdependence a society maintains among its members by assessing whether people´s self-image is defined in terms of "I" or "We". 80 countries in the world are evaluated on a 0 to 100 points continuous scale on which a higher score indicates a more individualistic culture.	Hofstede (2010)

Table D.2. Descriptive Statistics

	Min	Max	Mean	SD	N (count)
Polity IV	0	1	0.57	0.35	736
Absolute nuclear family	0	1	0.11	0.31	740
Stem family	0	1	0.14	0.35	740
Endogamous community family	0	1	0.11	0.31	740
Exogamous community family	0	1	0.09	0.29	740
Anomic family	0	1	0.18	0.38	740
African family	0	1	0.18	0.38	740
(log)Oil	-6.91	9.60	-1.79	5.42	739
Britishcolon	0	1	0.14	0.35	740
Muslim	0	1	0.16	0.37	740
Protestant	0	1	0.11	0.31	740
Catholic	0	1	0.44	0.50	740
(log)GDP	5.42	10.30	8.02	0.98	736
Education	0.12	12.87	5.50	3.02	736
Fertility	1.24	8.21	4.15	1.87	733
Urban	2.07	100	47.89	23.77	605
Eastern Asia	0	1	0.08	0.27	736
Latin America	0	1	0.19	0.40	736
Middle East	0	1	0.09	0.20	736
Southern Asia	0	1	0.03	0.18	736
Community	0	1	0.21	0.41	699
Asymmetrical Inheritance	0	1	0.18	0.39	577
Exogamous	0	1	0.81	0.39	616
Polygamy	0	1	0.19	0.39	712
Female_uninherit	0	1	0.32	0.46	591
Early_mar	0	1	0.28	0.45	740
Patrilineal Descent	0	1	0.35	0.40	717
Self-expressive	-0.91	1.53	0.11	0.62	91
Trust	0.04	0.74	0.31	0.18	524
Supportive of Democracy	-1.16	4.84	3.13	1.05	453
Individualism	6	91	49.86	25.49	478
Gender Inequality Index	0.15	0.94	0.55	0.20	211
GINI	19.59	70.1	41.98	9.03	333
Local Democracy	0	0.99	0.11	0.24	721
Comp. Exec. Rec.	0	3	1.81	1.05	734
Reg. Exec. Rec.	1	3	2.44	0.59	734
Open. Exec. Rec.	0	4	3.27	1.28	734
Const. on Exec.	1	7	4.36	2.25	734

Table D.2 (continued)

	Min	Max	Mean	SD	N (count)
Political Freedoms	0	6	3.94	1.86	325
Gov. Accountability	-2.11	1.66	-0.15	1.02	233
Gov. Stability	-2.91	1.52	-0.24	0.974	233
Gov. Effectiveness	-2.18	2.20	-0.04	1.03	233
Property Rights	1.25	9.09	5.35	1.78	330
Rule of Law	-2.36	1.94	-0.14	1.04	233

Table D.3. Additional Model Specifications and Robustness Checks

	(1)	(2)	(3)	(4)	(5)
	Democracy Duration	Family*oil	Family* religion	Freedom House	Cross sectional
Democ t-1		0.73***	0.70***	0.62***	
		(0.04)	(0.04)	(0.06)	
Absolute nuclear family	0.50***			-0.14	0.14
	(0.08)			(0.20)	(0.07)
Stem family	0.34***			-0.12	0.15*
	(0.09)			(0.18)	(0.07)
Endogamous community	-0.10*			1.10***	-0.32**
	(0.05)			(0.36)	(0.13)
Exogamous community	-0.01			0.26	0.05
	(0.05)			(0.32)	(0.11)
Anomic family	0.06			0.68***	0.10
	(0.06)			(0.25)	(0.10)
African family	-0.12***			0.79**	-0.26**
	(0.04)			(0.36)	(0.11)
Community_Murd.		-0.11***	-0.09*		
		(0.03)	(0.05)		
Inheritence_Murd.		-0.00	0.08		
		(0.02)	(0.05)		
Exogamous_ Murd.		0.05*	0.01		
		(0.03)	(0.04)		
Polygamy_Murd		-0.10**	-0.06		
		(0.04)	(0.05)		
(log)GDPpc t-1^	0.03*	0.00	-0.01	-0.07	0.19**
	(0.01)	(0.02)	(0.02)	(0.17)	(0.08)
Edu t-1^	-0.00	0.01**	0.01	-0.03	0.01
	(0.01)	(0.01)	(0.01)	(0.07)	(0.02)
Fertility t-1^	-0.01	0.00	0.00	-0.08	-0.04
	(0.01)	(0.01)	(0.01)	(0.09)	(0.04)
(log)Oil t-1^	-0.00	-0.00	0.00	0.04	-0.00
	(0.00)	(0.00)	(0.00)	(0.02)	(0.01)
British colon	0.05*	-0.06**	-0.06**	-0.12	-0.01
	(0.03)	(0.02)	(0.02)	(0.22)	(0.06)
Muslim	-0.00	-0.00	0.09**	0.08	-0.05
	(0.03)	(0.02)	(0.04)	(0.24)	(0.07)
Protestant	0.05	0.04	0.07**	-0.03	0.05
	(0.08)	(0.03)	(0.03)	(0.22)	(0.08)
Catholic	0.03	0.01	0.06*	-0.10	0.05
	(0.04)	(0.02)	(0.03)	(0.20)	(0.07)

Table D.3 (continued)

	(1)	(2)	(3)	(4)	(5)
	Democracy Duration	Family*oil	Family* religion	Freedom House	Cross sectional
Interactions					
Oilcommunity		0.00			
		(0.00)			
Oilasyminherit		0.00			
		(0.01)			
Oilpolygamy		0.02**			
		(0.01)			
Muslimcommunity			-0.15**		
			(0.06)		
Muslimpolygamy			-0.11**		
			(0.05)		
Protcommunity			0.08*		
			(0.05)		
Protasyminherit			-0.11*		
			(0.06)		
Protpolygamy			-0.02		
			(0.06)		
Cathcommunity			-0.03		
			(0.05)		
Cathasyminherit			-0.08		
			(0.06)		
Cathpolygamy			-0.13***		
			(0.04)		
Constant	0.13***	0.23***	0.28***	0.69*	0.67***
	(0.03)	(0.05)	(0.05)	(0.39)	(0.11)
Regional Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	no	yes	yes	yes	no
Observations	873	562	562	213	127
R-squared	0.706	.808	.812	.827	0.605

Notes: ***<.01, ** p<0.05, * p<0.10 (based on two-tailed t-test). Reference category for the family systems is egalitarian nuclear family. Robust standard errors, clustered at country level, are reported in the parentheses. Continuous measures are centred at their group mean to avoid multicollinearity issues. ^ In Model 1 and Model 6, thus in cross sectional specifications, the level of continuous variables are used rather than taking the lags. These models are estimated by OLS with standard errors clustered at country level. Finland is the only country in the world that is protestant and have communitarian living arrangements. Therefore this coefficient is not interpreted. The results on the Freedom House Index are based on 10-year data; however the same analysis has been carried out with annual data between 1973-2003. The results remain the same.

Table D.4.OLS Regression Results for the Underlying Democracy and Governance Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Compet.	Regulation	Openness	Constraints	Politicalrights	Account.	Stability	Effectiv.	Property	Rulelaw
Absolute nuclear family	0.07	0.11	-0.03	0.14	0.16	0.18**	0.136	0.24***	0.24***	0.22***
	(0.74)	(0.97)	(-0.25)	(1.50)	(1.50)	(2.22)	(1.35)	(3.12)	(3.90)	(2.96)
Stem family	0.13	0.16	0.06	0.20*	0.18	0.15*	0.092	0.18**	0.12*	0.14*
	(1.31)	(1.35)	(0.42)	(1.91)	(1.61)	(1.77)	(0.88)	(2.30)	(1.96)	(1.90)
Endogamous community family	-0.23	-0.12	-0.11	-0.18	-0.13	-0.08	0.373*	-0.10	-0.08	-0.26*
	(-1.12)	(-0.51)	(-0.38)	(-0.86)	(-0.56)	(-0.46)	(1.76)	(-0.61)	(-0.64)	(-1.69)
Exogamous community family	0.02	0.07	-0.03	0.12	0.08	0.04	0.08	-0.01	0.06	-0.01
	(0.22)	(0.60)	(-0.22)	(1.15)	(0.73)	(0.45)	(0.81)	(-0.15)	(0.93)	(-0.08)
Anomic family	0.07	0.05	0.01	-0.06	-0.10	-0.09	-0.08	-0.05	-0.140	-0.095
	(0.48)	(0.31)	(0.03)	(-0.43)	(-0.69)	(-0.77)	(-0.58)	(-0.45)	(-1.64)	(-0.91)
African family	-0.46***	-0.47**	-0.53**	-0.28*	-0.22	-0.28**	-0.34**	-0.268**	-0.25**	-0.26**
	(-2.83)	(-2.51)	(-2.41)	(-1.87)	(-1.25)	(-2.10)	(-2.05)	(-2.14)	(-2.56)	(-2.21)
gdpcen	0.27*	0.20	0.05	0.33**	0.38**	0.44***	0.50***	0.465***	0.53***	0.53***
	(1.67)	(1.07)	(0.23)	(2.17)	(2.21)	(3.30)	(2.94)	(3.75)	(5.37)	(4.42)
educen	-0.04	-0.15	-0.04	0.04	-0.03	0.02	0.02	0.081	0.06	0.085
	(-0.31)	(-1.09)	(-0.22)	(0.42)	(-0.24)	(0.23)	(0.14)	(0.88)	(0.82)	(0.96)
fertcen	0.07	0.07	0.23	0.04	0.03	0.02	-0.11	-0.033	-0.08	-0.08
	(0.48)	(0.44)	(1.22)	(0.19)	(0.18)	(0.15)	(-0.75)	(-0.30)	(-0.99)	(-0.80)
oilcen	0.09	0.14	0.05	0.07	-0.02	-0.01	-0.12	0.016	-0.04	-0.01
	(0.97)	(1.30)	(0.38)	(0.60)	(-0.15)	(-0.15)	(-1.31)	(0.23)	(-0.81)	(-0.27)
britishcolon	-0.00	-0.02	0.13	-0.01	0.08	0.06	-0.02	0.17**	0.10	0.10
	(-0.01)	(-0.17)	(0.89)	(-0.08)	(0.68)	(0.65)	(-0.19)	(2.05)	(1.54)	(1.27)

Table D.4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Compet.	Regulation	Openness	Constraints	Politicalrights	Account.	Stability	Effectiv.	Property	Rulelaw
Muslim	0.06	-0.01	-0.07	0.02	-0.06	-0.12	-0.11	-0.044	0.03	0.00
	(0.45)	(-0.08)	(-0.36)	(0.04)	(-0.40)	(-1.03)	(-0.77)	(-0.42)	(0.37)	(0.01)
Protestant	0.00	-0.04	-0.03	-0.03	0.06	0.01	-0.08	0.037	0.05	0.02
	(0.01)	(-0.41)	(-0.12)	(-0.28)	(0.59)	(0.11)	(-0.83)	(0.52)	(0.91)	(0.24)
Catholic	-0.03	-0.03	-0.26	-0.00	-0.00	0.04	-0.14	0.103	0.06	0.06
	(-0.27)	(-0.22)	(-1.60)	(0.05)	(-0.01)	(0.38)	(-1.08)	(1.07)	(0.83)	(0.59)
Eastern Asia	-0.19*	-0.23*	-0.15	-0.16	-0.19	-0.26***	-0.18	-0.176**	-0.17**	-0.14*
	(-1.76)	(-1.81)	(-1.00)	(-1.45)	(-1.57)	(-2.83)	(-1.55)	(-2.05)	(-2.56)	(-1.71)
Latin America	0.08	-0.01	0.08	0.15	0.14	-0.12	-0.150	-0.201*	-0.20**	-0.21**
	(0.55)	(-0.04)	(0.44)	(1.14)	(0.93)	(-1.03)	(-1.07)	(-1.88)	(-2.42)	(-2.00)
Middle East	-0.20	-0.06	-0.17	-0.17	-0.26	-0.23*	-0.61***	-0.050	-0.25**	0.08
	(-1.21)	(-0.34)	(-0.77)	(-1.02)	(-1.49)	(-1.73)	(-3.72)	(-0.40)	(-2.49)	(0.72)
Southern Asia	0.19	0.15	-0.11	0.11	-0.01	-0.11	-0.47***	-0.15*	-0.28***	-0.05
	(1.13)	(1.14)	(-0.74)	(1.13)	(-0.07)	(-1.20)	(-4.02)	(-1.71)	(-3.96)	(-0.59)
Observations	83	83	83	83	83	83	83	83	83	83
Adj. R-squared	0.59	0.45	0.25	0.59	0.52	0.72	0.57	0.75	0.85	0.77

Notes: ***<.01, ** p<0.05, * p<0.10 (based on two-tailed t-test). Standardized beta coefficients and t-test are reported below the coefficients are reported. The analysis is based on the most recent time period for which data is available. The measure on political rights in Model 5 is one of the components used in the construction of the freedom house index. While originally a higher score on the index implies more restrictions, the scale has been reversed for the ease of comparability of the coefficients between the models. In a nutshell, a higher value in each column should be interpreted as: (1) more competitive process in executive recruitment, (2) more regulation of executive recruitment process; (3) more open procedure in executive recruitment; (4) more constraints on the executive; (5) more political freedoms; (6) higher level of government accountability; (7) higher level of stability in the governmental rule; (8) higher level of government effectiveness; (9) more protection of property rights; and (10) more rule of law.

Appendix E: The Deep Causes of Economic Development: Family Systems and Female Agency

Table E.1. The List of countries included in the analysis and grouped by the stages of development

High Income Countries	Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Republic of Korea, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Russia, the United Kingdom, United States of America
Middle Income Countries (low and high middle income)	Algeria, Argentina, Bolivia, Brazil, Bolivia, Brazil, Bulgaria, Cameroon, Sri Lanka, China, Colombia, Costa Rica, Ghana, Guatemala, Honduras, Hungary, India, Iran, Cote d'Ivoire, Kazakhstan, Jordan, Lesotho, Libya, Malaysia, Mauritania, Mexico, Morocco, Namibia, Nicaragua, Pakistan, Paraguay, Peru, Philippines, Senegal, Vietnam, South Africa, Syrian Arab Republic, Thailand, Tunisia, Turkey, Ukraine, Egypt, Venezuela, Zambia
Low Income Countries	Afghanistan, Bangladesh, Myanmar, Cambodia, Central African Republic, Democratic Republic of Congo, Benin, Haiti, Kenya, Kyrgyzstan, Liberia, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Zimbabwe, Tajikistan, Uganda, United Republic of Tanzania

Table E.2. Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	M_developed	M_developing	Further controls	Fixed effect	Instrumental Early Marriage	Instrumental Inheritance	year2000
uninherit	-0.49***	-0.16***	-0.10***	-0.13^	-0.05**	-0.73***	0.22
	(0.02)	(0.01)	(0.02)	(0.10)	(0.02)	(0.12)	(0.21)
earlymar	-0.02**	-0.04***	-0.09***	-0.07**	-0.69***	0.00	-0.25^
	(0.01)	(0.00)	(0.01)	(0.03)	(0.04)	(0.02)	(0.16)
Extended	0.02	-0.06	-0.17		-0.10	-0.20	-0.33**
	(0.16)	(0.08)	(0.14)		(0.12)	(0.15)	(0.16)
polygamy	0.00	-0.15**	-0.43**		-0.56***	-0.47**	-0.56**
	(.)	(0.07)	(0.20)		(0.17)	(0.20)	(0.21)
(log) Oil	0.59***	0.34***	0.02***	0.02**	0.01***	0.01***	0.01
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
colonized	0.11	-0.03	-0.49**		-0.73***	-0.93***	-0.50**
	(0.18)	(0.09)	(0.20)		(0.15)	(0.17)	(0.23)
muslim	0.00	-0.03	-0.50***		-0.55***	-0.03	
	(.)	(0.07)	(0.18)		(0.15)	(0.21)	
protestant	-0.02	-0.02	0.20		0.29*	0.06	0.43**
	(0.06)	(0.09)	(0.20)		(0.16)	(0.47)	(0.21)
TFR			-0.03***	-0.08***			-0.13
			(0.01)	(0.03)			(0.12)
Education			0.08***	0.16***			0.33***
			(0.01)	(0.03)			(0.06)
Polity IV			-0.00	0.01			0.06***
			(0.00)	(0.00)			(0.01)

Table E.2 (continued)

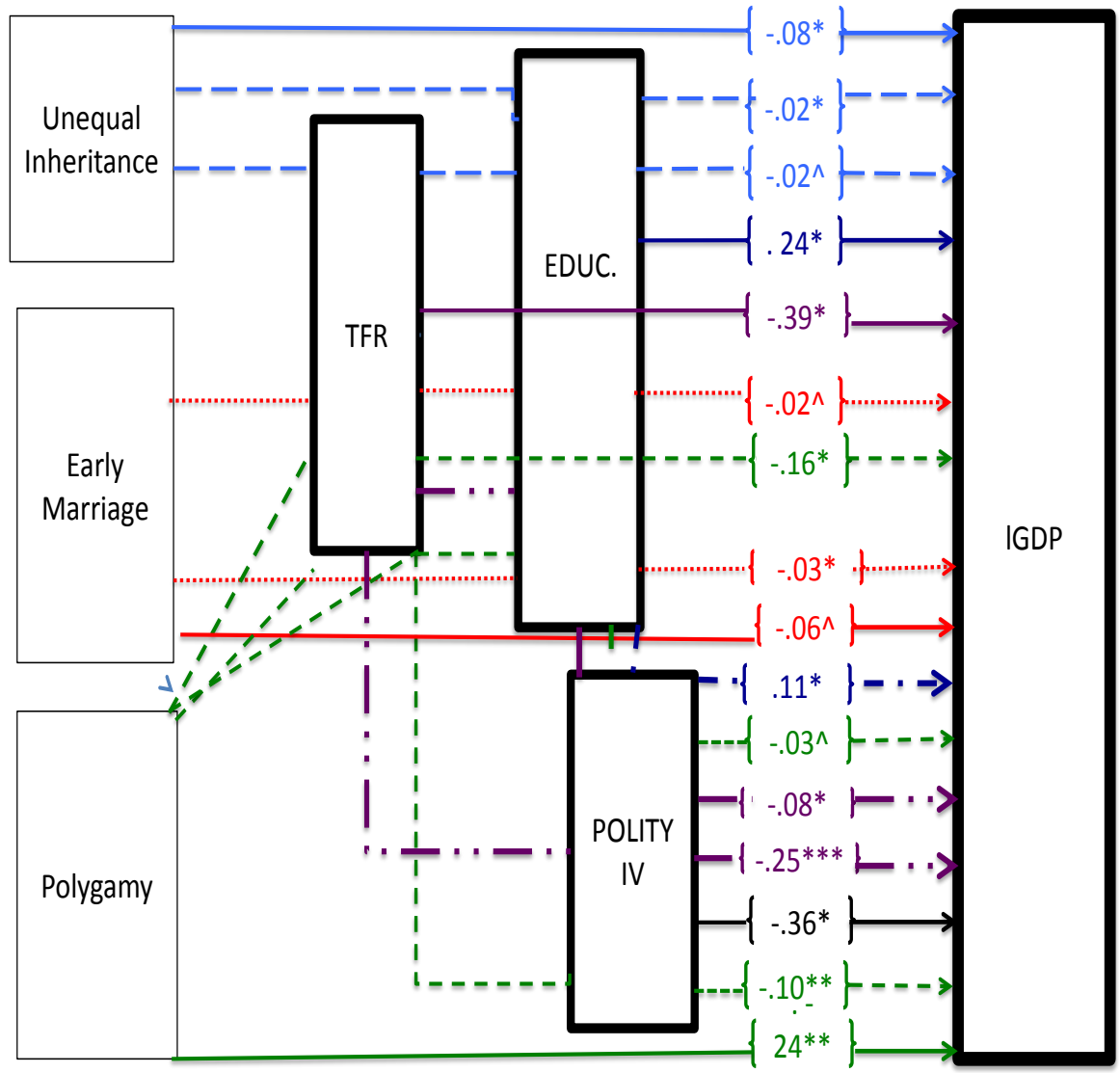
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	M_developed	M_developing	Further controls	Fixed effect	Instrumental Early Marriage	Instrumental Inheritance	year2000
East Asia & Pacific			0.07		-0.47***	-0.44*	-0.34
			(0.44)		(0.18)	(0.26)	(0.21)
Middle East and North Africa			0.56**		0.44*	0.69***	-0.17
			(0.27)		(0.23)	(0.26)	(0.40)
South Asia			-0.46		-0.84***	-0.50**	-0.81***
			(0.37)		(0.25)	(0.25)	(0.30)
Americas			0.61*		0.35*	0.54**	-0.23
			(0.34)		(0.20)	(0.22)	(0.25)
Sub-Saharan African			-0.26		-0.66***		-0.56
			(0.29)		(0.23)		(0.35)
lon			-0.00				
			(0.00)				
lat			0.02***				
			(0.01)				
sexrc			-2.90***				
			(0.45)				
comped			0.02				
			(0.02)				

Table E.2 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	M_developed	M_developing	Further controls	Fixed effect	Instrumental Early Marriage	Instrumental Inheritance	year2000
Constant	0.73***	-0.41***	8.02***	7.89***	9.20***	8.86***	7.59***
	(0.20)	(0.08)	(0.33)	(0.07)	(0.11)	(0.29)	(0.28)
lns1_1_1							
Constant	0.26***	0.33***	0.25***				
	(0.04)	(0.03)	(0.02)				
lnsig_e							
Constant	0.23***	0.08***	0.06***				
	(0.00)	(0.00)	(0.00)				
Observations	2336	2853	4208	5189	5090	1295	89

Notes: ***<.01, ** p<0.05, * p<0.10 (based on two-tailed t-test). Standard errors are reported in the parenthesis.

Figure 6.3. Multilevel Structural Equation Model with All the Indirect and Direct Effects



Notes: All the standardized coefficients are reported in parenthesis in the figure.
Blue color refers to the direct and indirect effects of inheritance on (log) GDP pc.
Red refers to the direct and indirect effects of early marriage on (log) GDP pc.
Green refers to the direct and indirect effects of polygamy on (log) GDP pc.
Purple refers to the direct and indirect effects of fertility on (log) GDP pc.
Dark blue refers to the direct and indirect effects of education on (log) GDP pc
Dashed line refers to the indirect effects and the solid lines to the direct effect.

REFERENCES:

Acemoglu, D., S. Johnson, and J.A. Robinson (2001a), "Institutions and Economic Development", unpublished manuscript, thehardtrade.com/wp-content/uploads/2009/07/institutions.doc

Acemoglu, Daron, S. Johnson, and J. A. Robinson (2001b), "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review* 91, 1369-1401.

Acemoglu, D., S. Johnson, J. A. Robinson, and P. Yared (2009), "Reevaluating the modernization hypothesis", *Journal of Monetary Economics* 56 (8), 1043-1058.

Acemoglu, D., and J. A. Robinson (2006), *Economic Origins of Dictatorship and Democracy*, Cambridge, UK: Cambridge University Press.

Acemoglu, Daron, and James A. Robinson (2008), "Persistence of Power, Elites, and Institutions", *American Economic Review* 98 (1), 267–93.

Acemoglu, D., and J. A. Robinson (2012), *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, London: Profile Books LTD.

Adewuya, A., B. Ola, O. Aloba, A. Dada, and O. Fasoto (2007), "Prevalence and Correlates of Depression in Late Pregnancy among Nigerian Women", *Depression and Anxiety* 24(1), 15–21.

Agarwal, B. (1995), *A field of one's own*, Cambridge: Cambridge University Press.

Agarwal, B. (1997), "Bargaining and Gender Relations: Within and Beyond the Household", *Feminist Economics* 3, 1-51.

Agarwala, S. N. (1957), "The Age at Marriage in India", *Population Index 23*(2), 96–107.

Aghion, P., L. Boustan , C. Hoxby, and J. Vandenbussche (2009), "The Causal Impact of Education on Economic Growth: Evidence from U.S.", http://scholar.harvard.edu/files/aghion/files/causal_impact_of_education.pdf.

Ahmed, L. (1993), *Women and Gender in Islam: Historical Roots of a Modern Debate*, New Haven, CT, and London: Yale University Press.

Akbulut-Yuksel, M., and D. Rosenblum (2012), "The Indian Ultrasound Paradox", SSRN Scholarly Paper, Rochester, NY: Social Science Research Network, http://papers.ssrn.com/abstract=1989245.

Alesina, A., and P. Giuliano (2010), "The Power of the Family", *Journal of Economic Growth* 15, 93-125.

Alesina, A., and P. Giuliano (2011), "Family Ties and Political Participation", *Journal of the European Economic Association* 9 (5), 817–39.

Alesina, A., P. Giuliano, and N. Nunn (2011), "Fertility and the Plough", *American Economic Review* 101, 499–503.

Alesina, A., P. Giuliano and N. Nunn (2013), "On the Origins of Gender Roles: Women and the Plough", *Quarterly Journal of Economics* 128, 469–530.

Alesina, A., and P. Giuliano (2014), "Culture and Institutions", *Journal of Economic Literature*, http://scholar.harvard.edu/files/alesina/files/cultureandinstitutions_jel_2014.pdf

Alger, I., and J. W. Weibull (2007), "*Family Ties, Incentives and Development: A Model of Coerced Altruism*", *SSRN Scholarly Paper*, Rochester, NY: Social Science Research Network, http://papers.ssrn.com/abstract=1055281.

Al-Hibri, A. (1997), "Islam, Law, and Custom: Redefining Muslim Women's Rights", *American University International Law Review* 12, 1–44.

Allison, P. (2002), *Missing Data.* Thousand Oaks, CA: Sage.

Almond, D., L. Edlund and K. Milligan (2013), "Son Preference and the Persistence of Culture: Evidence from South and East Asian Immigrants to Canada", *Population and Development Review* 39, 75–95.

Almond, G. A., and S. Verba (1963), *The Civic Culture: Political Attitudes and Democracy in Five Nations*, California: Sage Publication Inc.

Al-Thakeb, F. T. (1985), "The Arab Family and Modernity: Evidence From Kuwait", *Current Anthropology* 26 (5), 575–80.

Ambedkar, B. R. (1948), *The Untouchables: Who Were They and Why They Became Untouchables*?, Amrit Book Company.

Anand, S. and A. Sen (1994), "Human development index: methodology and measurement", Human Development Report Office Occasional Paper 12, United Nations Development Programme, New York, http://hdr.undp.org/sites/default/files/oc12.pdf.

Anderon, S. and D. Ray (2010), "Missing women: Age and disease", *The Review of Economic Studies* 77, 1262–1300.

Arora, R. U. (2012), "Gender inequality, economic development, and globalization: A state level analysis of India", *The Journal of Developing Areas 46*(1),147-164

Arulampalam, W., L. A. Booth, and M. L. Bryan, (2007), "Is There a Glass Ceiling over Europe? Exploring the Gender Pay Gap Across the Wage Distribution", *Industrial and Labour Relations Review* 60, 163–186.

Asadullah, M. N., and Yalonetzky, G. (2012), "Inequality of Educational Opportunity in India: Changes Over Time and Across States", *World Development 40*(6), 1151–1163.

Atkinson, A. (1970), "On the Measurement of Inequality", *Journal of Economic Theory* 2, 244-263.

Austad, S. N. (2006), "Why Women Live Longer than Men: Sex Differences in Longevity", *Gender Medicine* 3 (2), 79–92.

Baden, S. (1992), *The Position of Women in Islamic Countries: Possibilities, Constraints and Strategies for Change*, Brighton: BRIDGE (Development-Gender) Institute of Development Studies, University of Sussex.

Baldez, L. (2010), "The Gender Lacuna in Comparative Politics", *Perspectives on Politics* 8, 199–205.

Banerjee, K. (1998), "Marriage Change in Rural India, 1921–1981",*The History of the Family 3*(1), 63–94.

Banerjee, A., and R. Somanathan (2007), "The Political Economy of Public Goods: Some Evidence from India", *Journal of Development Economics* 82 (2), 287-314.

Banfield, E. C. (1958), *The Moral Basis of a Backward Society*, New York: Free Press.

Bardhan, P. K. (1974), "On Life and Death Questions", *Economic and Political Weekly*, 1293–1304.

Bardhan, P. (1997), "Corruption and Development: A Review of Issues", *Journal of Economic Literature* 35 (3), 1320–46.

Bartlett, A. (2004), "Entry Points for Empowerment", *CARE Bangladesh*, http://expert.care.at/downloads/careexpert/CARE_Analytical_Toolbox.pdf.

Barro, R. J. (1991), "Economic Growth in a Cross-Section of Nations", *Quarterly Journal of Economics* 106 (2), 407-43.

Barro, R. J. (1999), "The Determinants of Democracy", *Journal of Political Economy* 107 (6), 158-183.

Barro, R. J. (2003), "Determinants of Economic Growth in a Panel of Countries." *Annals of Economics and Finance, Society for AEF* 4(2), 231-274.

Barro, R.J. (2008), *Religion Adherence Data*, http://www.economics.harvard.edu/faculty/barro/data_sets_barro.

Barro, R. J. (2012), *Convergence and Modernization Revisited*. Working Paper 18295, National Bureau of Economic Research, http://www.nber.org/papers/w18295.

Barro, R.J. and J. W. Lee (1996), "International Measures of Schooling Years and Schooling Quality", *American Economic Review* 86, 218–223.

Barro, R. J, and J. W. Lee (2010), "A New Data Set of Educational Attainment in the World, 1950–2010", *National Bureau of Economic Research,* www.nber.org/papers/w1590.

Beer, C. (2009), "Democracy and Gender Equality", *Studies in Comparative International Development* 44 (3), 212–27.

Basu, A. (2008), "Women's Struggle for Vote: 1917-1937", *Indian Historical Review* 25, 128-143.

Basu, A., and M. Das Gupta (2001), Family systems and the preferred sex of children", *International Encyclopedia of the Social & Behavioral Sciences 8*, 5350–5357.

Berendsen, B. (ed.) (2008), *Democracy and Development,* Amsterdam: KIT Publishers.

Bericat, E. (2012), "The European Gender Equality Index: Conceptual and Analytical Issues", *Social Indicators Research* 108, 1-28.

Bertocchi, G. and M. Bozzano (2015), "Family Structure and the Education Gender Gap: Evidence from Italian Provinces", CESifo Working paper, http://www.econstor.eu/handle/10419/89760.

Besley, T., and R. Burgess (2002), "The Political Economy of Government Responsiveness: Theory and Evidence from India", *The Quarterly Journal of Economics* 117 (4), 1415–51.

Bhan, G. (2001), "India Gender Profile", Bridge Report No. 62, http://www.atria.nl/epublications/2001/india_gender_profile.pdf

Bhaskar, V. and B. Gupta (2007), "India's missing girls: biology, customs, and economic development", *Oxford Review of Economic Policy* 23 , 221–38.

Bhat, P., N. Mari, and S. Halli (1999), "Demography of Brideprice and Dowry: Causes and Consequences of the Indian Marriage Squeeze", *Population Studies* 53 (2), 129–48.

Bidner, C., and M. Eswaran (2013), "A Gender-Based Theory of the Origin of the Caste System of India", Working Paper, eSocialSciences, https://ideas.repec.org/p/ess/wpaper/id5206.html.

Bisin, A., and T. Verdier (2000),"'Beyond the Melting Pot': Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits", *The Quarterly Journal of Economics* 115 (3), 955–88.

Bisin, A. and T. Verdier (2001), "The Economics of Cultural Transmission and the Dynamics of Preferences" *Journal of Economic Theory* 97, 298–319.

Blaydes, L., and E. Chaney (2013), "The Feudal Revolution and Europe's Rise: Political Divergence of the Christian West and the Muslim World before 1500 CE", *American Political Science Review* 107, 16–34.

Bogue, D. J. (1969), *Principles of Demography*, New York: John Wiley and Sons, Inc.

Boix, C. (2003), *Democracy and Redistribution*, Cambridge: Cambridge University Press.

Bollen, K. A. (2009), "Liberal Democracy Series I, 1972–1988: Definition, Measurement, and Trajectories", *Electoral Studies* 28, 368-374.

Bolt, J. (2012), *A New Database on the Origins of Institutional Development, University of Groningen working paper*.

Bolt, J., and J.L. van Zanden (2014), "The Maddison Project: Collaborative Research on Historical National Accounts", *The Economic History Review* 67 (3), 627–51.

Borcan, O., O. Olsson, and L. Putterman (2014), "State History and Economic Development: Evidence from Six Millennia." SSRN Scholarly Paper, Rochester, NY: Social Science Research Network, http://papers.ssrn.com/abstract=2464285.

Boserup, E. (1970), *Woman's Role in Economic Development*, New York: St. Martins Press.

Bossen, L., W. Xurui, M.J. Brown and H. Gates (2011), "Feet and Fabrication: Footbinding and Early Twentieth-Century Rural Women's Labor in Shaanxi", *Modern China* 37, 347–83.

Bove, R. and C. Valeggia (2009), "Polygyny and Women's Health in sub-Saharan Africa*", Social Science and Medicine* 68, 21–9.

Brahmbhatt, H., D. Bishai, F. Wabwire-Mangen, G. Kigozi, M. Wawer, and R. Gray, (2002), "Polygyny, maternal HIV status and child survival: Rakai, Uganda", *Social Science & Medicine* 55(4), 585–592.

Branisa, B., S. Klasen, and M. Ziegler (2009), "The Construction of the Social Institutions and Gender Index (SIGI)," Background paper, University of Goettingen, http://genderindex.org/sites/default/files/SIGI_background_paper.pdf.

Branisa, B., S. Klasen, and M. Ziegler (2013), "Gender Inequality in Social Institutions and Gendered Development Outcomes", *World Development* 45, 252–268.

Bruning, G. and J. Plantenga (1999), "Parental Leave and Equal Opportunities: Experiences in Eight European Countries", *Journal of European Social Policy* 9, 195–209.

Bourne, K. L., and G. M. Walker (1991), "The Differential Effect of Mothers' Education on Mortality of Boys and Girls in India", *Population Studies 45*(2), 203–219.

Caldwell, J., P.H. Reddy, and P. Caldwell (1983), "The Causes of Marriage Change in South India", *Population Studies* 37, 343-61.

Carmichael, S. (2011), "Marriage and Power: Age at First Marriage and Spousal Age Gap in Lesser Developed Countries", *The History of the Family* 16, 416–36.

Carmichael, S. (2015), “Marriage and Power: An Historical Exploration of the Relationship between Family Systems, the Position of Women and Development”, Unpublished manuscript.

Carmichael, S.G., De Moor, T., and van Zanden, J.L. (2011), “Introduction”, *The History of the Family* 16 (4), 309-311.

Carmichael, S., A. Rijpma and L. van der Vleuten (2014b), “Quantity versus Quality: The Household Structure, Number of Siblings, and Educational Attainment in the Long Ninetheenth Century” unpublished manuscript.

Carmichael, S., and J.L.van Zanden (2015), “Towards an ethnographic understanding of the European Marriage Pattern: Global correlates and links with female status”, *Population Histories in Context*, Cambridge University Press

Casterline, J. B., L. Williams, and P. McDonals (1986), “The Age Difference Between Spouses: Variations among Developing Countries”, *Population Studies* 40, 353-374.

Campbell, R. and K. Winters (2008), “Understanding Men’s and Women’s Political Interests: Evidence from a Study of Gendered Political Attitudes”, *Journal of Elections, Public Opinion and Parties* 18 (1), 53–74.

Cavalli, A. (1983), “The Changing Role of Women: The Case of Italy”, in E. Lupri (ed.), *The Changing Position of Women in Family and Society: A Cross-National Comparison*, Leiden: E. J. Brill, 179–89.

Cerise, S. and F. Francavilla (2012), “Tackling the Root Causes of Gender Inequalities in the Post-2015 Development Agenda”, Paris: OECD Development Centre, http://www.wikigender.org/images/d/d1/Tackling_the_root_causes_of_gender_inequalities_OECD_DEV.pdf

Chandra, S. K. (1987), *Family Planning Programme in India: Its Impact in Rural and Urban Areas, 1970-1980*, Mittal Publications.

Chernock, A. (2009), *Men and the Making of Modern British Feminism*, California: Stanford University Press.

Cherodian, R., and A. P. Thirlwall (2015), "Regional disparities in per capita income in India: convergence or divergence?" *Journal of Post Keynesian Economics* 37 (3), 384-407.

Chen, Y., H. Li, and M. Lingsheng (2013), “Prenatal Sex Selection and Missing Girls in China: Evidence from the Diffusion of Diagnostic Ultrasound”, *Journal of Human Resources* 48, 36–70.

Chhibber, P. (2002), "Why are Some Women Politically Active? The Household, Public Space, and Political Participation in India", *International Journal of Comparative Sociology* 43 (3), 409–429.

Christy, C. A (1987), *Sex Differences in Political participation: Processes of Change in Fourteen Nations,* New York: Preager.

Clio-Infra (2013), Average Years of Education, https://www.clio-infra.eu/.

Clots-Figueras, I. (2011), "Women in Politics: Evidence from the Indian States", *Journal of Public Economics* 95 (7–8), 664–90.

Clots-Figueras, I. (2012), "Are Female Leaders Good for Education? Evidence from India", *American Economic Journal: Applied Economics* 4 (1), 212–44.

Clutton-Brock, T.H. and K. Isvaran (2007), "Sex differences in ageing in natural populations of vertebrates", *Proceedings of the Royal Society* 274, 3097-3104.

Coffé, H., and C. Bolzendahl (2011), "Gender Gaps in Political Participation across Sub-Saharan African Nations", *Social Indicators Research* 102(2), 245–264.

Commander, S. (1983), "The Jajmani System in North India: An Examination of its Logic and Status across Two Centuries", *Modern Asian Studies 17*(02), 283–311.

Corbridge, S., and Harriss, J. (2013), *Reinventing India: Liberalization, Hindu Nationalism and Popular Democracy*, John Wiley & Sons.

Croissant, Y., and G. Millo (2008). "Panel Data Econometrics in R: The Plm Package", *Journal of Statistical Software* 27 (2). http://www.jstatsoft.org/v27/i02/.

Cuberes, D., and M. Teignier (2014), "Gender Inequality and Economic Growth: A Critical Review." *Journal of International Development* 26 (2), 260–76.

Currie, J. and E. Moretti (2003), "Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings", *Quarterly Journal of Economics* 118, 1495–532.

Dahl, R. A. (1971), Polyarchy: Participation and Opposition, New Haven: Yale University Press.

Dahlerup, D. (2005), "Increasing Women's Political Representation: New Trends in Gender Quotas", *Women in Parliament: Beyond Numbers*, 141.

Dahlerup, D., and L. Freidenvall (2005), "Quotas as a 'Fast Track' to Equal Representation for Women", *International Feminist Journal of Politics* 7 (1), 26-48.

Das Gupta, M. (1987), "Selective Discrimination against Female Children in Rural Punjab, India", *Population and Development Review 13*(1), 77–100.

Das Gupta, M. and S. Desai (2003), "Why are Educated Women Less Likely to be Employed in India? Testing Competing Hypotheses", Social Protection Discussion paper series, No. 0313, http://ideas.repec. org/p/wbk/hdnspu/27868.html.

Das Gupta, M., J. Zhenghua, L. Bohua, X. Zhenming, W. Chung, and B. Hwa-Ok (2003), "Why is son preference so persistent in East and South Asia? A cross-country study of China, India and the Republic of Korea", *The Journal of Development Studies 40* (2), 153-187.

Deininger, K., A., Goyal and H. Nagarajan (2013), "Women's Inheritance Rights and Intergenerational Transmission of Resources in India", *Journal of Human Resources* 48, 114–41.

Deininger, K., A. Goyal, and H. Nagarajan (2010),"Inheritance Law Reform and Women's Access to Capital? Evidence from India's Hindu Succession Act," World Bank Policy Research Working Paper No. 5338.

De Moor, T., and J. L. van Zanden (2010), "Girl Power: The European Marriage Pattern and Labour Markets in the North Sea Region in the Late Medieval and Early Modern period", *The Economic History Review* 63, 1–33.

Dennison, T., and S. Ogilvie (2014), "Does the European Marriage Pattern Explain Economic Growth?", *The Journal of Economic History* 74 (3), 651–93.

Desai, P. B. (1969), *Size and Sex Composition of Population in India, 1901-1961*, Delhi: Asia Pub. House.

Desai, S. (1994), *Gender Inequalities and Demographic Behaviour*, India, New York: The Population Council.

Desai, M. (2006). *State Formation and Radical Democracy in India*. Routledge.

Desai, S., and Andrist, L. (2010), "Gender Scripts and Age at Marriage in India", *Demography 47*(3), 667–687.

Desai, S., and Dubey, A. (2012), "Caste in 21st Century India: Competing Narratives", *Economic and Political Weekly 46*(11), 40–49.

Diebolt, C., and F. Perrin (2013), "From Stagnation to Sustained Growth: The Role of Female Empowerment", *American Economic Review* 103 (3), 545–49.

Dijkstra, A. G. and L. Hammer (2000), "Measuring Socio-Economic Gender Equality: toward an Alternative for UNDP's GDI", *Feminist Economics* 6, 41–75.

Dijkstra, A. (2002), "Revisiting UNDP's GDI and GEM: Toward an Alternative," *Social Indicators Research* 57, 301-388.

Dijkstra, A. (2006), "Towards a Fresh Start in Measuring Gender Equality: A Contribution to the Debate", *Journal of Human Development* 7 (2), 275-283.

Dilli, S., A. Rijpma and S. Carmichael (2013), "Development Versus Legacy: The Relative Role of Development and Historical Legacies in Achieving Gender Equality", CESifo Working paper, http://www.econs- tor.eu/handle/10419/84155.

Dilli, S., A. Rijpma and S. Carmichael (2014), "Achieving Gender Equality: Development versus Historical Legacies", *CESifo Economic Studies*, 1-34.

Dirks, N. B. (2001), *Castes of Mind: Colonialism and the Making of Modern India*, Princeton University Press.

Doepke, M., M. Tertilt and A. Voena (2012), "The Economics and Politics of Women's Rights", *Annual Review of Economics* 4, 339–72.

Dollar, D., and R. Gatti. (1999), "Gender Inequality, Income, and Growth: Are Good Times Good for Women?" Mimeographed, The World Bank.

Dollar, D., R. Fisman, and R. Gatti (2001), "Are women really the "fairer" sex? Corruption and women in government", *Journal of Economic Behavior and Organization* 46, 423-429

Donno, D., and B. Russett (2004), "Islam, Authoritarianism, and Female Empowerment: What Are the Linkages?", *World Politics* 56 (4), 582–607.

Dorius, S. F., and G. Firebaugh (2010), "Trends in Global Gender Inequality", *Social Forces* 88, 1941–68.

Doorenspleet, R. (2000), "Reassessing the Three Waves of Democratization", *World Politics* 52(3), 384-406.

Doorenspleet, R. (2004), "The Structural Context of Recent Transitions to Democracy", *European Journal of Political Research* 43 (3), 309-335.

Drèze, J., and Murthi, M. (2001), Fertility, Education, and Development: Evidence from India, *Population and Development Review*, *27*(1), 33–63.

Drèze, J., and Sen, A. (2002). *India: Development and Participation*, OI:10.1093/acprof:oso/9780199257492.001.0001.

Drèze, J., and A. Sen (2013), *An Uncertain Glory: India and Its Contradictions*, Princeton, New Jersey: Princeton University Press.

Duflo, E. (2003), "Grandmothers and Granddaughters: Old-Age Pensions and Intrahousehold Allocation in South Africa", *World Bank Economic Review* 17, 1–25.

Duflo, E. (2012), "Women Empowerment and Economic Development", *Journal of Economic Literature 50,* 1051–1079.

Duranton, G., A. Rodriguez-Pose and R. Sandall (2009), “Family Types and the Persistence of Regional Disparities in Europe”, Economic Geography 85, 23–47.

Dvorokova, K. (2014), "Sigma Versus Beta-convergence in EU28: Do they Lead to Different Results?" in NECK, R. (ed.) Mathematical Methods in Finance and Business Administration, http://www.wseas.us/e-library/conferences/2014/Tenerife/ECONMATH/ECONMATH-13.pdf.

Dyson, T., and Moore, M. (1983), “On Kinship Structure, Female Autonomy, and Demographic Behavior in India”, *Population and Development Review, 9*(1), 35–60.

Dyson, T. (2012), “On the Democratic and Demographic Transitions”, *Population and Development Review 38,* 83–102.

Dyson, T. (2014), “Historical Demographic Regimes and Adjustment Mechanisms in the Indian Subcontinent”, Paper prepared for Session 6—‘The West and the Rest’—of the conference to celebrate the 50th anniversary of the founding of the Cambridge Group for the History of Population and Social Structure, Downing College, Cambridge, 16-18 September 2014.

Eastin, J., and A. Prakash (2013), “Economic development and gender equality. Is there a gender Kuznets curve?”, *World Politics* 65(1), 156–186.

Economist Intelligence Unit (2012), *Women’s economic opportunity index,* http://www.eiu.com/public/topical_report.aspx?campaignid=weoindex2012

Eckstein, H. (1966), *Division and Cohesion in Democracy: A Study of Norway*, Princeton NJ: Princeton University Press.

Edlund, L., and N. P. Lagerlöf (2005), “Implications of Marriage Institutions for Redistribution and Growth”, CDDRL Working Papers, http://cddrl.fsi.stanford.edu/sites/default/files/Nov27_04_No30.pdf.

Edlund, L., and N. P. Lagerlöf (2006), “Individual versus Parental Consent in Marriage: Implications for Intra-Household Resource Allocation and Growth”, *The American Economic Review* 96 (2), 304–307.

Ehrlich, D. P. R. (1970), *The Population Bomb*, New York: Ballantine Books.

Engerman, S. L., and K. L. Sokoloff (2005), “Colonialism, Inequality, and Long-Run Paths of Development”, *NBER working paper* no. 11057, http://www.nber.org/papers/w11057.

Engerman, S. L., and K. Sokolff (2008), "Debating the Role of Institutions in Political and Economic Development: Theory, History, and Findings", *The Annuual Review of Political Science* 11, 119-135.

Eskes, T. and C. Haanen, "Why do women live longer than men?" *European Journal of Obstetrics & Gynaecology and Reproductive Biology* 133 (2), 126-133.

Esteve-Volart, B. (2004), "Gender discrimination and growth: Theory and evidence from India", LSE STICERD Discussion paper, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1127011

Eswaran, M. (2014), *Why Gender Matters in Economics*, Princeton University Press.

FAO (Food and Agriculture Organization of the United Nations) (2011), *The State of Food and Agriculture 2010-2011 – Women in Agriculture.*

FAO (2011), Women in Agriculture: Closing the Gender Gap for Development 2010-2011, http://www.fao.org/docrep/013/i2050e/i2050e.pdf.

Fehr, E. (2009), "On the Economics and Biology of Trust", *Journal of the European Economic Association* 7 (2-3), 235-266.

Fenske, J. (2012). "African Polygamy: Past and Present. CSAE Working Paper Series", Centre for the Study of African Economies, University of Oxford, https://ideas.repec.org/p/csa/wpaper/2012-20.html.

Fernández, R. (2014), "Women's Rights and Development." *Journal of Economic Growth*, 19(1), 37-80.

Fernández, R., and A. Fogli (2009), "Culture: An Empirical Investigation of Beliefs, Work, and Fertility", *American Economic Journal: Macroeconomics* 1 (1), 146–77.

Finkel, S. E. (1995), *Causal Analysis with Panel Data*, Sage University Paper Series on Quantitative Applications in Social Sciences, 07-105, Thousand Oaks, CA: Sage.

Finkel, S. E., P. Liñan, S. Aníbal, and M. A. Seligson (2007), "The Effects of U.S. Foreign Assistance on Democracy Building, 1990–2003", *World Politics* 59 (3), 404–40.

Fish, M. S (2002), "Islam and Authoritarianism," *World Politics* 55,4-37.

Foreman-Peck, J. (2011), "The Western European Marriage Pattern and Economic Development", *Explorations in Economic History* 48 (2), 292– 309.

Freedom House (2011), *Freedom in the World 2011*, http://www.freedomhouse.org/report-types/freedom-world.

Freedom House (2014), *Map of Freedom 2014*, http://www.freedomhouse.org/sites/default/files/MapofFreedom2014.pdf.

Friesen, J., J.Baten, and V.Prayon (2012), "Women Count. Gender (In-) Equalities in the Human Capital Development in Asia, 1900-60," *University of Tubingen Working Paper Series in Economics and Finance*, No. 29. http://tobias-lib.uni-tuebingen.de/volltexte/2012/6040/pdf/WPEF29Friesen_Baten_Prayon.pdf.

Forsythe, N., R. P. Korzeniewicz, and V. Durrant (2000), "Gender Inequalities and Economic Growth: A Longitudinal Evaluation", *Economic Development and Cultural Change* 48(3), 573–617.

Foster, A. D., and M. R. Rosenzweig (1996), "Technical Change and Human-Capital Returns and Investments: Evidence from the Green Revolution", *The American Economic Review 86*(4), 931–953.

Fukuyama, F. (2011), *The Origins of Political Order:From Pre-human times to the French Revolution*, New York: Farrar, Straus and Giroux.

Fuller, J. E. (2004), "Equality in Cyber-democracy? Gender Gaps in On-line Civic Participation", *Social Science Quarterly* 85(4), 938–956.

Fuwa, N., Ito, S., Kubo, K., Kurosaki, T., and Y. Sawada (2006), "Introduction to a study of intrahousehold resource allocation and gender discrimination in rural Andhra Pradesh, India", *The Developing Economies 44*(4), 375-397.

Galasso, V. and P. Profeta (2010), "When the State Mirrors the Family: The Design of Pension Systems", Netspar Discussion Papers, http://arno. uvt.nl/show.cgi?fid1⁄4106633.

Gallup, J. L., J. D. Sachs and A. D. Mellinger (1999), "Geography and Economic Development", *International Regional Science Review* 22, 179–232.

Galor, O. (2011), *Unified Growth Theory*, Princeton: Princeton University Press.

Galor, O., and D. N. Weil (1996), "The Gender Gap, Fertility, and Growth", *American Economic Review* 86 (3), 374–87.

Gerring, J., P. Bond, W. T. Barndt, and C. Moreno (2005), "Democracy and Economic Growth: A Historical Perspective", *World Politics* 57 (3), 323–64.

Gerring, J., S. C. Thacker, and R. Alfaro (2012), "Democracy and Human Development", *The Journal of Politics* 74, 1–17.

Giavazzi, F., Ivan P. and F. Schiantarelli (2014) "Culture: Persistence and Evolution", NBER working paper series, N. 20174, http://www.nber.org/papers/w20174.pdf

Ginsburg, T. (2007), "Lessons for Democratic Transitions: Case Studies from Asia", SSRN Scholarly Paper, Rochester, NY: Social Science Research Network, http://papers.ssrn.com/abstract=1022979.

Giuliano, P. (2014), "The Role of Women in Society: From Preindustrial to Modern Times", *CESifo Economic Studies*.

Giuliano, P., and N. Nunn (2013), "The Transmission of Democracy: From the Village to the Nation-State." *American Economic Review: Papers & Proceedings* 103 (3), 86-92.

Ghani, E. (2011), "Is Growth Incomplete without Social Progress? India's Development Paradox", http://www.voxeu.org/article/growth-incomplete-without-social-progress-india-s-development-paradox.

Glaeser, E. L., R. La Porta, F. Lopez-De-Silanes, and A. Shleifer (2004), "Do institutions cause growth?" *Journal of Economic Growth* 9, 271-303.

Glaeser, E. L., G. Ponzetto, and A. Shleifer (2007), "Why Does Democracy Need Education?" *Journal of Economic Growth*, 12, 77- 99.

Goldin, C. (1995), "The U-Shaped Female Labour Force Function in Economic Development and Economic History," in Schultz, T.P. *Investment in Women's Human Capital and Economic Development*, University of Chicago Press, 61-90.

Goldin, C. (2006), "The Quiet Revolution That Transformed Women's Employment, Education, and Family", *American Economic Review* 96, 1–21.

Goldin, C. (2014), "A Grand Gender Convergence: Its Last Chapter", *American Economic Review* 104(4), 1091–1119.

Gorodnichenko, Y., and G. Roland (2010), "*Culture, Institutions and the Wealth of Nations*", National Bureau of Economic Research Working Paper, http://www.nber.org/papers/w16368 (accessed May 2014).

Gorodnichenko, Y., and G. Roland (2011), "Which Dimensions of Culture Matter for Long-Run Growth?", *American Economic Review* 101 (3), 492–98.

Gorodnichenko, Y., and G. Roland (2013), "*Culture, Institutions and Democratization*", http://eml.berkeley.edu/~groland/pubs/gorrolpolculture03-05-2013.pdf.

Goody, J., (1976),"Inheritance, Property and Women: Some Comparative Considerations" in Goody, J., Thirsk, J., Thompson, E.P. (eds.), *Family and Inheritance: Rural Society in Western Europe 1200-1800*, Cambridge: Cambridge University Press, 10-36.

Goody, J. (1983), *The Development of the Family and Marriage in Europe*, Cambridge: Cambridge University Press.

Gooch, P. (2014), "Daughters of the Hills: Gendered Agricultural Production, Modernisation, and Declining Child Sex Ratios in the Indian Central Himalayas", in M. Fischer-Kowalski, A. Reenberg, A. Schaffartzik, & A. Mayer (Eds.), *Ester Boserup's Legacy on Sustainability* (pp. 159–173), Springer Netherlands, http://link.springer.com/chapter/10.1007/978-94-017-8678-2_10.

Gough, K. (1961), *Matrilineal Kinship*, University of California Press.

Gray, J. S. (1998), "Divorce-Law Changes, Household Bargaining, and Married Women's Labour Supply", *The American Economic Review* 88, 628–642.

Gray, W. S. (1969), *The Teaching of Reading and Writing*, UNESCO, http://unesdoc.unesco.org/images/0000/000029/002929eo.pdf.

Greif, A. (1994), "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies", *Journal of Political Economy* 102 (5), 912-50.

Greif, A. (2006) "Family Structure, Institutions, and Growth: The Origins and Implications of Western Corporations", *AEA paper and proceedings,* 308-312.

Greif, A. and G. Tabellini (2010) "Cultural and Institutional Bifurcation: China and Europe compared", *American Economic Review: Papers & Proceedings* 100 (2), 1–10.

Grossbard-Shechtman, A. (1986), "Economic Behavior, Marriage and Fertility: Two Lessons from Polygyny", *Journal of Economic Behavior & Organization* 7(4), 415–24.

Guiso, L., P. Sapienza, and L. Zingales.2006. "Does Culture Affect Economic Outcomes?" *Journal of Economic Perspectives* 20 (2), 23–48.

Gupta, B. (2014), "Where Have All the Brides Gone? Son Preference and Marriage in India over the Twentieth Century", *The Economic History Review 67*(1), 1–24.

Gwatkin, D. R. (1979), "Political Will and Family Planning: The Implications of India's Emergency Experience", *Population and Development Review 5*(1), 29–59.

Haber, S., and V. Monaldo (2010), "Rainfall and Democracy", http://m.cdn.blog.hu/el/eltecon/file/SSRN-id1667332[1].pdf.

Haber, S., and V. Monaldo (2011), "Does natural resources fuel authoritarianism? A Reappraisal of the resource curse", *American Political Science Review* 105 (1), 1-26.

Hadenius, A., and J. Teorell (2005), "Assessing Alternative Indices of Democracy", *Committee on Concepts and Methods Working Paper Series.* http://www.concepts-methods.org/Files/WorkingPaper/PC%206%20Hadenius%20Teorell.pdf

Hajnal, J. (1965), "European Marriage Patterns in Perspective", In *Population in History: Essays in Historical Demography,* D.V. Glass and D.E.C. Eversley (eds.), Edward Arnold.

Hallward-Driemeier, M., T. Hasan and A. Bogdana Rusu (2013), "Women's Legal Rights over 50 Years: What Is the Impact of Reform?", World Bank Policy Research Working paper, The World Bank, http://ideas.repec.org/p/wbk/wbrwps/6617.html.

Handa, S. (1994), "Gender, Headship and Intrahousehold Resource Allocation", *World Development* 22 (10), 1535–47.

Hansen, C., P. Worm, S. Jensen, and C. V. Skovsgaard (2012), "Modern Gender Roles and

Agricultural History: The Neolithic Inheritance", SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, http://papers.ssrn.com/abstract=2170945.

Hausmann, R., L. D. Tyson and S. Zahidi (2011), "The Global Gender Gap Report", World Economic Forum, http://www3.weforum.org/docs/WEF_GenderGap_Report_2011.pdf

Hasan, Z. (2010), "Gender, Religion and Democratic Politics in India", *Third World Quarterly* 31 (6), 939-954.

Helliwell, J. F., S. Wang, and J. Xu (2014), "How Durable Are Social Norms? Immigrant Trust and Generosity in 132 Countries", National Bureau of Economic Research Working Paper, http://www.nber.org/papers/w19855.

Henderson, M., and W. Whatley (2014), " Pacification and Gender in Colonial Africa: Evidence from the Ethnographic Atlas", unpublished manuscript.

Heywood, C. (2004), " Learning Democracy in France: Popular Politics in Troyes, c. 1830-1900", *The Historical Journal* 47 (4), 921–39.

Hitlin, S., and G.H. Elder (2007), "Time, Self, and the Curiously Abstract Concept of Agency", *Sociological Theory* 25(2), 170-91.

Hofstede, G. (2010), Dimension Data Matrix, http://www.geerthofstede.nl/dimension-data-matrix

Hogan, M. C., Foreman, K. J., Naghavi, M., Ahn, S. Y., Wang, M., Makela, S. M., and C. J. C. Murray (2010), "Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5," *The Lancet 375,* 1609-1623.

Honaker, J. and G. King (2010), "What to Do about Missing Values in Time-Series Cross-Section Data", *American Journal of Political Science* 54, 561–81.

Hopkins, B. E., and L. S. Duggan (2011), "A Feminist Comparative Economic Systems", *Feminist Economics* 17 (3), 35–69.

Horrell, S. and J. Humphries (1995), "Women's Labour Force Participation and the Transition to the Male-Breadwinner Family, 1790-1865", *The Economic History Review* 48, 89–117.

Horowitz, D.L. (1998), "Structure and Strategy in Ethnic Conflict", in B. Pleskovic and J.E. Stiglitz, *Annual Bank Conference on Development Economics* The World Bank, Washington DC.

Hox, J. (2010) *Multilevel Analysis*, 2nd ed, London, Routledge.

Huntington, S. (1968), *Political Order in Changing Societies*, New Haven: Yale University Press.

Huntington, S. P. (1991), *The Third Wave: Democratization in the Late Twentieth Century*, Norman, OK: University of Oklahoma.

Huntington, S. P (1996), *The Clash of Civilizations and the Remaking of World Order*, New York: Simon & Schuster.

Hu, L. and A. Schlosser (2012), "Trends in Prenatal Sex Selection and Girls' Nutritional Status in India", *CESifo Economic Studies* 58, 348–72.

Human Mortality Database. University of California, Berkeley (USA) and Max Planck Institute for Demographic Research (Germany). www.mortality.org or www.humanmortality.de (2012).

Human Life-Table Database, http://www.lifetable.de.

Htun, M. and L. Weldon (2011), "*Sex equality in family law: historical legacies, feminist activism, and religious power in 70 countries*", World Development Report 2012, Background Paper, Vol. 70.

Ibrahim, S. and S. Alkire, (2007), "Agency and empowerment: A proposal for internationally comparable indicators," *Oxford Development Studies*, Vol. 35/4, pp. 379-403.

India Census Commissioner, (1903), *Census of India, 1901* (Vol. Volume I - India - ethographic appendices), http://archive.org/stream/censusindia21rislgoog#page/n4/mode/2up

Inglehart, R. (1997), *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*, New Jersey: Princeton University Press.

Inglehart, R. and W. E. Baker (2000), "Modernization, Cultural Change, and the Persistence of Traditional Values", *American Sociological Review* 65, 19–51.

Inglehart, R., and P. Norris, (2003), *Rising Tide: Gender Equality and Cultural Change Around the World*, Cambridge University Press.

Inglehart, R., P. Norris and C. Welzel (2002), "Gender Equality and Democracy", *Comparative Sociology* 1 (3-4), 321–345.

Inglehart, R. and C. Welzel (2003), "Political Culture and Democracy: Analyzing Cross-Level Linkages", *Comparative Politics* 36 (1), 61-79.

International Institute for Population Sciences (IIPS) and Macro International (2007), National Family Health Survey (NFHS-3), 2005-06, India: Key Findings, Mumbai: IIPS.

International Institute for Social History, *History of Labour Relations project* http://socialhistory.org/en/projects/history-labour-relations-1500-2000.

Inter-parliamentary Union (2015).*Women in National Parliaments*, http://www.ipu.org/wmn-e/world.htm, accessed July 2013.

International Labour Office (2013), *LABORSTA.* http://laborsta.ilo.org/ default.html.

Iyer, L. (2010), "Direct versus indirect colonial rule in India: Long-term consequences", *The Review of Economics and Statistics*, *92*(4), 693-713

Jackson, R. M. (2006), "Opposing Forces: How, Why, and When Will Gender Inequality Disappear?" in *The Declining Significance of Gender,* Francine D. Blau, Mary C. Brinton, and David B. Grusky (eds.), 215–44.

Jagger, Keith, and Ted R. Gurr, (1995) "Tracking Democracy's Third Wave with the Polity III Data", *Journal of Peace Research* 32, 469-482.

Jain, S., and K. Kurz, (2007), *New Insights on Preventing Child Marriage: A Global Analysis of Factors and Programs* (ICRW Rapports), Washington, DC, International Center for Research on Women (ICRW).

Janssens, A. (2007a), "'Were Women Present at the Demographic Transition?' A Question Revisited", *The History of the Family* 12 (1), 43–49.

Janssens, A. (ed.) (2007b), *Gendering the Fertility Decline in the Western World,* Bern: Peter Lang.

Jayachandran, S. (2015), "The Roots of Gender Inequality in Developing Countries", *Annual Review of Economics* 7.

Jeffrey, R. (1992), *Politics, Women and Well-Being: How Kerala Became a "Model",* Macmillan Academic and Professional.

Jensen, R., and E. Oster (2009), "The Power of TV: Cable Television and Women's Status in India", *The Quarterly Journal of Economics* 124, 1057–94.

Jha, P., M. A. Kesler, R. Kumar, F. Ram, U. Ram, L. Aleksandrowicz, D. G Bassani, S. Chandra, and J. K. Banthia (2011), "Trends in Selective Abortions of Girls in India: Analysis of Nationally Representative Birth Histories from 1990 to 2005 and Census Data from 1991 to 2011", *The Lancet* 377, 1921–28.

Jones, M. P. (2012), "The Diversity of Latin American Democracies", *World Politics Review*, http://bakerinstitute.org/publications/POL-pub-JonesWPRDemocracy-032012.pdf.

Jung, J. (2008), "Mission Impossible? Democracy Building in Post-Civil War Societies", *Paper presented at the annual meeting of the MPSA Annual National*

Conference, *http://government.arts.cornell.edu/assets/psac/sp08/MissionImpossible_PSAC.pdf*.

Jütting, J. P. (2003), "Institutions and Development: A Critical Review", *OECD Development Centre Working Papers* No. 210, OECD Publishing, Paris.

Jütting, J. P., and C. Morrisson (2005), "Culture, Gender and Growth", OECD Development Centre Policy Insights, OECD Publishing, https://ideas.repec.org/p/oec/devaac/15-en.html.

Jütting, J. P., C. Morrisson, J. Dayton- Johnson, and D. Drechsler (2008), "Measuring Gender (In)Equality: The OECD Gender, Institutions and Development Data Base." *Journal of Human Development* 9, 65–86.

Kabeer, N. (1999), "Resources, agency, achievement: reflections on the measurement of women's empowerment," *Development and Change* 30, 435–464.

Kabeer, N., and L. Natali (2013), "Gender Equality and Economic Growth: Is There a Win-Win?" *IDS Working Papers* 417, 1–58.

Kalben, B. B. (2000), "Why Men Die Younger: Causes of Mortality Differences by Sex", *North American Actuarial Journal* 4.

Karve, I. K. (1953), *Kinship Organization in India*, Poona : Deccan College.

Katznelson, I. (1997), "Structure and configuration in comparative politics." in Comparative Politics: Rationality, Culture, and Structure, edited by Lichbach and Zuckerman, 81–112.

Kelly, S. (2009), *Recent Gains and New Opportunities for Women's Rights in the Gulf Arab States, in Women's Rights in the Middle East and North Africa: Gulf Edition*, New York: Freedom House.

Kennedy, P.(2008), *A Guide to Econometrics* (sixth ed.),Malden: Blackwell.

Kenworthy L. and Malami M. (1999), "Gender Inequality in Political Representation: a Worldwide Comparative Analysis", *Social Forces* 78(1), 235–269.

King, E. M., and M. A. Hill (1997), "Women's Education in Developing Countries: An Overview," in *Women's Education in Developing Countries: Barriers, Benefits, and Policies*, edited by E. M. King and M. A. Hill, 1–50, World Bank Publications.

King, E. M., J. Peterson, S. Moertiningsih Adioetomo, L. J. Domingo, and S. Hasaan Syed (1986), *Change in the Status of Women Across Generations in Asia*, Santa Monica: Rand Corporation, http://www.rand.org/pubs/reports/R3399/.

King, G., J. Honaker, A. Joseph, et al. (2001), "Analyzing Incomplete Political Science Data: An Alternative Algorithm for Multiple Imputation", *The American Political Science Review* 95(1), 49–69.

Kishor, S. (1993), "May God Give Sons to All": Gender and Child Mortality in India. *American Sociological Review 58*(2), 247–265.

Kishwar, M. (1986), "The daughters of Aryavarta", *Indian Economic & Social History Review 23*(2), 151–186.

Klasen, S. (2002), "Low Schooling for Girls, Slower Growth for All? Cross-Country Evidence on the Effect of Gender Inequality in Education on Economic Development", *The World Bank Economic Review* 16 (3), 345–73.

Klasen, S. (2004), "Gender-Related Indicators of Well-Being," *Working Paper Series UNU-WIDER Research Paper*, World Institute for Development Economic Research (UNU-WIDER), http://ideas.repec.org/p/got/iaidps/102.html, accessed January 2014.

Klasen, S., and F. Lamanna (2009), "The Impact of Gender Inequality in Education and Employment on Economic Growth: New Evidence for a Panel of Countries", *Feminist Economics* 15 (3), 91–132.

Klasen, S., and D. Schüler (2011),"Reforming the Gender-Related Development Index and the Gender Empowerment Measure: Implementing Some Specific Proposals", *Feminist Economics* 17 (1), 1–30.

Klasen, S. and C. Wink (2002), "A Turning Point in Gender Bias in Mortality? An Update on the Number of Missing Women", *Population and Development Review* 28, 285–312.

Klasen, S. and C. Wink (2003), "Missing Women": Revisiting the debate", *Feminist Economics* 9 (2), 263-299.

Kok, J. (2009), "Family Systems as Frameworks for Understanding Variation in Extra-Marital Births, Europe 1900-2000", *Romanian Journal of Population Studies*,3 (Supplement), 13-38.

Kok, J. (2010), "The Family Factor in Migration Decisions", in *Migration History in World History, edited by* Jan Lucassen, Leo Lucassen en Patrick Manning. *Multidisciplinary Approaches,* Leiden: Brill, 215-250.

Kok, J. (2015). "Women's Agency in Historical Family Systems", unpublished manuscript.

Kristiansen, M. H. (2014), "Agency as an Empirical Concept. An Assessment of Theory and Operationalization", NIDI Working paper no 2014/9, http://www.nidi.nl/shared/content/output/papers/nidi-wp-2014-09.pdf

Kuran, T. (2013), "The Political Consequences of Islam's Economic Legacy." *Philosophy & Social Criticism* 39, no. 4–5 (May 1, 2013): 395–405.

Kurien, J. (1995), "The Kerala Model: Its Central Tendency and the Outlier", *Social Scientist 23*(1/3), 70–90.

Lagerlöf, N. (1999), "Gender Inequality, Fertility, and Growth", University of Sydney, Department of Economics, Australia.

Lagerlöf, J. (2003), "Gender Equality and Long-Run Growth," *Journal of Economic Growth* 8, 403-426.

Lane, J.-E., and S. Errson (2003), *Democracy: A Comparative Approach*, London: Routlege.

La Ferrara, E., A. Chong, and S. Duryea (2012), "Soap Operas and Fertility: Evidence from Brazil", *American Economic Journal: Applied Economics* 4,1– 31.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1999), "The Quality of Government", *Journal of Law, Economics, and Organization* 15, 222–79.

La Porta, R., F. Lopez-de-Silanes and A. Shleifer (2008), "The Economic Consequences of Legal Origins*", Journal of Economic Literature* 46, 285–332.

Lavrakas, P. J. (2008), "Auxilary Variable" *in Encyclopedia of Survey Research Methods*, http://srmo.sagepub.com/view/encyclopedia-of-survey-research-methods/n31.xml.

Levinde, D. (1977), *Family Formation in an Age of Nascent Capitalism*, Academic Press.

Licht, A. N., C. Goldschmidt, and S. H. Schwartz (2007), "Culture Rules: The Foundations of the Rule of Law and Other Norms of Governance", *Journal of Comparative Economics* 35 (4), 659–88.

Lindert, P. H (2004), *Growing Public: Social Spending and Economic Growth Since the Eighteenth Century, Volume I: The Story*, Cambridge University Press.

Lippe, T. van der, J. M. P. de Ruijter, E. H. M. de Ruijter, and W. Raub (2011), "Persistent Inequalities in Time Use between Higher Educated Men and Women: A Detailed Look at the Influence of Economic Circumstances, Policies, and Culture", *European Sociological Review* 27, 164–79.

Lipset, S. M. (1959), "Some Social Requisites of Democracy: Economic Development and Political Legitimacy", *American Political Science Review* 82, 942-963.

Lom, P. (1999), "Alexis de Tocqueville: The Psychologist of Equality", http://cadmus.eui.eu/bitstream/id/988/sps99_1.pdf/.

López Pintor, R., M. Gratschew and K. Sullivan (2002), "Voter Turnout Rates from a Comparative Perspective" in *Voter Turnout Since 1945: A Global Report*, http://www.idea.int/publications/vt/index.cfm.

Löfström, Å. (2009), "Gender Equality, Economic Growth, and Employment", Department of Economics, Umeå University, Umeå, Sweden, http://www.forschungsnetzwerk.at/downloadpub/2009_12_Gender_Equality_study.pdf

Lukito, R. (2013), *Legal Pluralism in Indonesia: Bridging the Unbridgeable*, Routledge.

Lynch, K. A. (2011), "Why Weren't (many) European Women 'missing'?" , *The History of the Family* 16 (3), 250–266.

Maddison, A. (2010), *Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD*, Groningen Growth and Development Centre, http://www.ggdc.net/maddison/oriindex.htm and http://www.clio-infra.eu/.

Malanima, P. (2005), "Urbanisation and the Italian Economy During the Last Millennium", *European Review of Economic History 9*(01), 97-122.

Malhotra, A (2003), "Conceptualizing and Measuring Women's Empowerment as a Variable in International Development" *Measuring Empowerment: Cross-disciplinary Perspectives*, Washington, DC, 4-5 February, http://siteresources.worldbank.org/INTEMPOWERMENT/Resources/486312-1095970750368/529763-1095970803335/malhotra2.pdf.

Malhotra, A., S. R. Schuler, and C.Boender (2002), "Measuring Women's Empowerment as a Variable in International Development*",* World Bank, http://www4.worldbank.org/afr/ssatp/Resources/HTML/Gender-RG/Source%20%20documents/Technical%20Reports/Gender%20Research/TEGEN5%20Measuring%20Women's%20Empowerment%20ICRW%202002.pdf.

Mamadouh, V. (1999), "A Political-cultural Map of Europe. Family Structures and the Origins of Differences between National Political Cultures in the European Union", *GeoJournal* 47, 477-486.

Mammen, K. and C. Paxson (2000), "Women's Work and Economic Development," *The Journal of Economic Perspectives* 14 (4), 141-164

Maseland, R. (2013), "Parasitical Cultures? The Cultural Origins of Institutions and Development", *Journal of Economic Growth* 18 (2), 109–36.

Mayer, P. (1999). India's Falling Sex Ratios. *Population and Development Review, 25*(2), 323–343.

Maoz, Z. and E. A. Henderson (2013), "The World Religion Dataset, 1945-2010: Logic, Estimates, and Trends", *International Interactions* 39, 265–91.

Marshall, M. G., K. Jaggers, and T.R. Gurr (2014), *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2013, INSCR*, http://www.systemicpeace.org/polity/polity4.htm.

Mason, K. O. (2001), "Gender and Family Systems in the Fertility Transition." *Population and Development Review* 27, 160–176.

McDonald, P. (2006), "Low Fertility and the State: The Efficacy of Policy." *Population and Development Review* 32(3), 485–510.

McKee, M. and V. Shkolnikov (2001), "Understanding the toll of premature death among men in eastern Europe", *British Medical Journal* 323 (7320), 1051-1055

Menon, N., Y. Rodgers, and A. Kennedy (2013), "Land Reform and Welfare in Vietnam: Why Gender of the Land-Rights Holder Matters", http://www.worldbank.org/content/dam/Worldbank/document/Gender/Vietnam%20Land%20Rights%20and%20Women%20Yana%20et%20al.pdf.

Miller, B. D. (1981), *The Endangered Sex: Neglect of Female Children in Rural North India*, Oxford University Press.

Minier, J. (2001), " Political Institutions and Economic Growth", *Knowledge, Technology & Policy* 13(4), 85-93.

Ministry of Women and Children, G. of I. (2009), *Gendering Human Development Indices: Recasting the Gender Development Index and Gender Empowerment Measure of India*.

Mitchell, B. R. (2007), International Historical Statistics, 6th ed. Palgrave Macmillan, Basingstoke, Hampshire, [etc.].

Mitra, A. (2014), "Son Preference in India: Implications for Gender Development." *Journal of Economic Issues* 48 (4), 1021–37.

Mitterauer, M., and R. Sieder (1982), *The European Family: Patriarchy to Partnership from the Middle Ages to the Present*, Chicago: University of Chicago Press.

Mitterauer, M. (1992), "Peasant and Non-Peasant Family Forms in Relation to the Physical Environment and the Local Economy", *Journal of Family History* 17, 139−159

Moghadam, V. M. (2003), *Modernizing Women: Gender and Social Change in the Middle East*, London: Lynne Reinner Publishers Inc. .

Morrisson, C., and F. Murtin (2013), "The Kuznets Curve of Human Capital Inequality: 1870–2010", *The Journal of Economic Inequality* 11 (3), 283–301.

Murdock, G. P. (1967), "Ethnographic Atlas: a Summary", *Ethnology* 6, 109–236.

Murdock, G. P., and C. Provost (1973), "Factors in the Division of Labour by Sex: A Cross-Cultural Analysis", *Ethnology* 12 (2), 203–25.

Murtin, F. (2012), "Long-Term Determinants of the Demographic Transition, 1870–2000", *Review of Economics and Statistics* 95 (2), 617–31.

Murtin, F., and R. Wacziarg (2013), "The Democratic Transition", *Journal of Economic Growth*, 1–41.

Nair, P. S. (2010), "Understanding Below-Replacement Fertility in Kerala, India." *Journal of Health, Population, and Nutrition* 28 (4), 405–12.

Nayak, P. K., S.K. Chattopadhyay, A.V. Kumar, and V. Dhanya (2010), " Inclusive Growth and its Regional Dimension", *Reserve Bank of India 31*(3), http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2359

Nee, V. (2005), "The New Institutionalism in Economics and Sociology", in Neil Smelser & Richard Swedberg (eds), *The Handbook of Economic Sociology* (2nd Ed), Princeton: Princeton University Press.

Nicholas, S. J. and J. M. Nicholas (1992), "Male literacy, 'deskilling', and the industrial revolution", *Journal of Interdisciplinary History* 23, pp. 1-18.

North, D. C., and B. R. Weingast (1989), "The Evolution of Institutions Governing Public Choice in Seventeenth-Century England", *Journal of Economic History* 49, 803-32.

North, D. C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Pres.

Nunn, N. (2009), "The Importance of History for Economic Development", *Annual Review of Economics* 1 (1), 65-92.

Nunn, N. (2012), "Culture and the Historical Process", *Economic History of Developing Regions* 27, 108–26.

Nussbaum, M. (1995), ''Human Capabilities, Female Human Beings'', in Women, Culture and Development: A Study of Human Capabilities, edited by Martha Nussbaum and Jonathan Glover, Oxford, UK: Clarendon Press, 61 – 104,.

Nussbaum, M. (2000), *Women and Human Development. The Capabilities Approach*, Cambridge, UK: Cambridge University Press.

Nussbaum, M. (2003), ''Capabilities as Fundamental Entitlements: Sen and Social Justice'', *Feminist Economics* 9,33-59.

OECD (2013), *How's Life? 2013: Measuring Well-being*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264201392-en.

OECD. (2015), “Gender equality and women’s rights in the post-2015 agenda: A foundation for sustainable development”, http://www.oecd.org/dac/POST-2015%20Gender.pdf

O’Malley, L. S. S. (2013), *Indian Caste Customs,* Cambridge University Press.

Oxaal, Z., and S. Baden (1997), “Gender and empowerment: definitions, approaches and implications for policy”, *BRIDGE,* Report No. 40, www.bridge.ids.ac.uk/reports/re40c.pdf.

Pande, R. and D. Ford (2011), “Gender Quotas and Female Leadership: A Review Background Paper for the World Development Report on Gender”, http://scholar.harvard.edu/files/rpande/files/gender_quotas_-_april_2011.pdf

Patel R. (1996), “The Practice of Sex Selective Abortion in India: May You Be the Mother of a Hundred Sons”, *Carolina Papers in International Health and Development* , http://www.ucis.unc.edu/about/pubs/carolina/abortion.pdf)

Paxton, P. (1997) “Women in National Legislatures: A Cross-National Analysis”, *Social Science Research* 26 (4), 442–64.

Paxton, P. (2000), “Women’s Suffrage in the Measurement of Democracy: Problems of Operationalization”, *Studies in Comparative International Development* 35 (3), 92–111.

Paxton, P., M. M. Hughes, and J. L. Green (2006), “The International Women’s Movement and Women’s Political Representation, 1893–2003”, *American Sociological Review* 71 (6), 898–920.

Paxton, P., J. Green, and M. Hughes (2008), “Women in Parliament, 1945–2003: Cross-National Dataset”, ICPSR ed. Ann Arbor, MI: Inter-university, Consortium for Political and Social Research.

Permanyer, I. (2010), “The Measurement of Multidimensional Gender Inequality: Continuing the Debate”, *Social Indicators Research* 95(2), 181-198.

Permanyer, I. (2013), “A Critical Assessment of the UNDP’s Gender Inequality Index”, *Feminist Economics* 19, 1–32.

Persson, T. and G. Tabellini (2007), “The Growth Effect of Democracy: Is It Heterogenous and How Can It Be Estimated?” Working Paper, *National Bureau of Economic Research*, http://www.nber.org/papers/w13150

Persson, T., and G. Tabellini, (2009), “Democratic Capital: The Nexus of Political and Economic Change”, *American Economic Journal: Macroeconomics* 1(2), 88-126.

Praz, A.-F. (2006), “Ideologies, Gender and School Policy: A Comparative Study of Two Swiss Regions (1860–1930)”, *Paedagogica Historica* 42, 345–61.

Preston, S. H. (1975), "The Changing Relation Between Mortality and Level of Economic Development", *Population Studies* 29, 231–48.

Przeworski, A., M. E. Alvarez, J. A. Cheibub, and F. Limongi (2000), *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990,* Cambridge, UK: Cambridge University Press.

Przeworski, A., and F. Limongi (1997), "Modernization: Theories and Facts", *World Politics* 49 (2), 155-183

Przeworski, A. (2009), "Conquered or Granted? A History of Suffrage Extensions", *British Journal of Political Science* 39, 291–321.

Putnam, R. D. (1993), *Making Democracy Work: Civic Traditions in Modern Italy,* Princeton: Princeton University Press.

Putterman, L., and D. N. Weil (2010), "Post-1500 Population Flows and The Long-Run Determinants of Economic Growth and Inequality", *The Quarterly Journal of Economics,* 125 (4), 1627–82.

Rahman, L., and V. Rao (2004), "The determinants of gender equity in India: examining Dyson and Moore's thesis with new data", *Population and Development Review 30*(2), 239–268.

Reher, D. S. (1998), "Family Ties in Western Europe: Persistent Contrasts", *Population and Development Review* 24, 203–34.

Rehm, J. et al. (2007), "Alcohol accounts for a high proportion of premature mortality in central and eastern Europe," The *International Journal of Epidemiology* 36 (2), 458-67.

Reynolds A. (1999), "Women in legislatures and executives of the world", *World Politics* 51(4): 547-572.

Rhode, D. L. (1996), "The Ideology and Biology of Gender Difference", *The Southern Journal of Philosophy*, 35 (1), 73–98.

Rodrik, D. (2011), *The globalization paradox: democracy and the future of the world economy, New York.*

Rijpma, A. and S. Carmichael (2013), "Testing Todd: Global Data on Family Characteristics", http://vkc.library.uu.nl/vkc/seh/Lists/Events/Attachments/33/carmichaelrijpma_testing.pdf.

Rijpma, A. and S. Carmichael (2015), "Measuring Agency", unpublished manuscript.

Robeyns, I. (2003), "Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities", *Feminist Economics* 9 (2–3), 61–92.

Rodrik, D., A. Subramanian, and F. Trebbi (2004), "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development", *Journal of Economic Growth* 9 (2), 131–65.

Roland, G. (2004), "Understanding Institutional Change: Fast-Moving and Slow-Moving Institutions", *Studies in Comparative International Development* 38 (4), 109–31.

Rosenzweig, M. R., and T. P. Schultz (1982), "Market Opportunities, Genetic Endowments, and Intrafamily Resource Distribution: Child Survival in Rural India", *The American Economic Review* 72 (4), 803–15.

Ross, M. L. (2008), "Oil, Islam, and Women", *American Political Science Review* 102(1), 107–123.

Rotering, P. (2014), "Family Systems and Fertility Decline in Western Europe, 1870-1930", unpublished manuscript.

Roy, T. (2014), "The Rise and Fall of Indian Economic History 1920–2013", *Economic History of Developing Regions* 29, 15-41.

Salim, A (2008), *Challenging the Secular State: The Islamization of Law in Modern Indonesia,* University of Hawai'i Press.

Saxonberg, S. (2000), "Women in East European Parliaments." *Journal of Democracy* 11 (2), 145–58.

Schalkwyk, J. and B. Woroniuk (1999), "Russia: Gender Equality Issues and Resources in Brief," *Canadian International Development Agency*, Quebec.

Schmidt, A. and E. van Nederveen Meerkerk (2012), "Reconsidering the 'First male-Breadwinner Economy': Women's Labour Force Participation in the Netherlands, 1600–1900." *Feminist Economics* 18 (4), 69–96.

Schoellman, T., and M. Tertilt (2006), "Marriage Laws and Growth in Sub-Saharan Africa", *American Economic Review* 96 (2), 295–98.

Sen, A. (1983), "Economics and the Family", *Asian Development Review*, 1, 14–26.

Sen, A. (1990), "Gender and Cooperative Conflicts," in *Persistent Inequalities: Women and World Development*, edited by I. Tinker, 123–149.

Sen, A. (1990), "More Than 100 Million Women Are Missing", *New York Review of Books 37*(20), http://ucatlas.ucsc.edu/gender/sen100m.html

Sen, A. (1992), "Missing Women," *British Medical Journal* 304, 587–588.

Sen, A. (1999), *Development as Freedom,* Oxford University Press.

Sen, A. (2001), "The Many Faces of Gender Inequality", The New Republic, http://prof.chicanas.com/readings/SenInequality.pdf

Sen, A. (2006), *The Argumentative Indian: Writings on Indian History, Culture and Identity* (First Edition), Picador.

Shah, A. M. (1998), *The Family in India: Critical Essays*, Orient Blackswan.

Shachar, A. (2001), *Multicultural Jurisdictions: Cultural Differences and Women's Rights, Contemporary Political Theory*, Cambridge University Press, Cambridge.

Sharma, S. C. (1987). *Punjab, the Crucial Decade*. Atlantic Publishers & Distri.

Siems, M. M. (2007), "Legal Origins: Reconciling Law & Finance and Comparative Law", *McGill Law Journal* 52, 55–81.

Sharabi, H. (1988), *A Theory of Distorted Change in Arab Society*, New York: Oxford University Press.

Singh, P. (2003), *Women Legislators in Indian Politics*, New Delhi: Concept Publishing Company.

Singh, A. (2012), "Measuring Inequality of Poverty: Theory and an Application to India", *Journal of Poverty*, *16*(1), 96–118.

Sirowy, L., and A. Inkeles (1990), "The Effects of democracy on economic growth and inequality: A review", *Studies in Comparative International Development* 25, 126-157.

Sokoloff, K. L, and S. L Engerman (2000), "History Lessons: Institutions, Factor Endowments, and Paths of Development in the New World", *Journal of Economic Perspectives*, Vol. 14/3, pp. 217–232.

Spierings, N., J. Smith, and M. Verloo (2009), "On the Compatibility of Islam and Gender Equality Effects of Modernization, State Islamization, and Democracy on Women's Labour Market Participation in 45 Muslim Countries", *Social Indicators Research* 90 (3), 503–522.

Spolaore, E., and R. Wacziarg (2013), "How Deep Are the Roots of Economic Development?", *Journal of Economic Literature* 51, 325–69.

Strassmann, B. (1997), "Polygyny as a risk factor for child mortality among the Dogon", *Current Anthropology*, 38(4), 688–695.

Strauss, J., and D. Thomas (1995), "Human Resources: Empirical Modeling of Household and Family Decisions", in, Human Resources: Empirical Modeling of Household and Family Decisions, Handbook of Development Economics, edited by Jere Behrman and T.N. Srinivasan, Amsterdam: Elsevier, 1883–2023.

Suryanarayana, M. H., A. Agrawal, and S. Prabhu (2011), "*Inequality adjusted Human Development Index for India's States 2011*", India: United Nations Development Programme.

Tabellini, G. (2008) "The Scope of Cooperation: Values and Incentives", *The Quarterly Journal of Economics* 123 (3), 905–50.

Teignier, M., and D. Cuberes. (2014) "Aggregate Costs of Gender Gaps in the Labour Market: A Quantitative Estimate", SSRN Scholarly Paper, Rochester, NY, Social Science Research Network, http://papers.ssrn.com/abstract=2405006.

Teorell, J., N. Charron, S. Dahlberg, S. Holmberg, B. Rothstein, P. Sundin and R. Svensson (2013), "The Quality of Government Dataset", Version 15 May 2013, University of Gothenburg, The Quality of Government Institute, http://www.qog.pol.gu.se.

Tertilt, M. (2005), "Polygyny, Fertility, and Savings", *Journal of Political Economy* 113 (6), 1341–1371.

Tertilt, M. (2006), "Polygyny, Women's Rights, and Development", *Journal of the European Economic Association* 4, 523–30.

Thachil, T. (2014), *Elite Parties, Poor Voters: How Social Services Win Votes in India*, Cambridge University Press.

Thelen, K. (1999), "Historical Institutionalism in Comparative Politics", *Annual Review of Political Science* 2 (1), 369–404.

Thelen, K. (2009), "Institutional Change in Advanced Political Economies", *British Journal of Industrial Relations* 47 (3), 471–98.

Therborn, G. (2004), *Between Sex and Power: Family in the World 1900-2000*, London: Routledge.

Tilly, L. A. and J. W. Scott (1987), *Women, Work and Family*, New York: Routledge.

Todd, E. (1985), *The Explanation of Ideology: Family Structures and Social Systems* (Family, Sexuality and Social Relations in Past Times), Blackwell, Oxford.

Todd, E. (1987), *The Causes of Progress: Culture, Authority and Change*, Oxford: Basil Blackwell.

Todd, E. (2011), *L'origine des systèmes familiaux, Tome 1: L'Eurasie*, Gallimard, Paris.

Tur-Prats, A. (2014), "Family Types and Intimate-Partner Violence: A Historical Perspective", http://www.econ.upf.edu/docs/seminars/tur.pdf.

Tusalem, R. F. (2009), "The Role of Protestantism in Democratic Consolidation among Transitional States", *Comparative Political Studies* 42, 882-915.

United Nations Development Programme (2000), *Human Development Report 2000: Human Rights and Human Development*, http://hdr.undp.org/en/content/human-development-report-2000

United Nations (2008), *World Marriage Data 2008*, United Nations Population Division, http://www.un.org/esa/population/publications/WMD2008/Metadata/SMAM.html

United Nations Development Programme (2011a), *Human Development Index*, http://hdr.undp.org.

United Nations Development Programme (2011), *Human Development Report 2011: Sustainability and Equity: A Better Future for All*, United Nations Development Programme, New York.

United Nations Development Programme (2011c), Gender Inequality Index, http://hdr.undp.org/gii.

United Nations (2013a), *The gender dimension of the Millennium Development Goals Report 2013*, www.unwomen.org/en/news/stories/2013/7/the-gender-dimension-of-the-millennium-development-goals-report-2013/#sthash.DczDShxJ.dpuf.

United Nations, Department of Economic and Social Affairs, Population Division (2013b), *World Population Prospects: The 2012 Revision, Key Findings and Advance Tables*, http://esa.un.org/wpp/Excel-Data/popula- tion.htm.

University of California, Berkeley, and Max Planck Institute for Demographic Research, *Human Mortality Database*, www.mortality.org.

van Buuren, S. (2010), "Multiple Imputation of Multilevel Data", in The Handbook of Advanced Multilevel Analysis, edited by Joop Hox and Kyle Roberts Milton Park: Routledge, 173–196.

van der Vleuten, L. (2014), "Mind the Gap! The Impact of Family Systems on the Gender Education Gap in Developing Countries, 1950-2005", unpublished manuscript.

van der Vleuten, L., and J. Kok (2014), "Demographic Trends since 1820", in *Global Well-Being since 1820*, OECD Publishing.

van Zanden, J. L., E. Buringh, and M. Bosker (2012), "The Rise and Decline of European Parliaments, 1188–17891", *The Economic History Review* 65, 835–61.

van Zanden, J. L., et al. (2014). "Introduction", in How was life: Global Wellbeing since 1820, edited by van Zanden, J.L., J. Baten, M. Mira d'Ercole, A. Rijpma, C. Smith and M. Timmer, Paris: OECD Publishing.

Verba, S., N. Burns, and K. L. Schlozman (1997), "Knowing and Caring about Politics: Gender and Political Engagement", *The Journal of Politics*, 59 (4), 1051-1073.

Verme, P. (2014), "Economic Development and Female Labour Participation in the Middle East and North Africa : A Test of the U-Shape Hypothesis", The World Bank, http://documents.worldbank.org/curated/en/2014/06/19686510/economic-development-female-labour-participation-middle-east-north-africa-test-u-shape-hypothesis.

Vlassoff, C. (1992), "Progress and stagnation: changes in fertility and women's position in an Indian village", *Population Studies 46*(2), 195-212.

Vlassoff, C. (2013), *Gender Equality and Inequality in Rural India: Blessed with a Son*, Palgrave Macmillan.

Voigtländer, N., and H.-J. Voth (2013), "How the West 'Invented' Fertility Restriction", *American Economic Review* 103 (6), 2227–64.

Waldron, I. (1967), "Why do women live longer than men?", *Social Science and Medicine* 10/7-8.

Ward, J., B. Lee, S. Baptist, and H. Jackson (2010), "Evidence for Action: Gender Equality and Economic Growth." *Chatham House*, http://www.chathamhouse.org//node/6023.

Waylen, G. (1993), "Women's Movements and Democratization in Latin America", *Third World Quarterly* 14(3), 573–587.

Weber, M. (1930), *The Protestant ethic and the spirit of capitalism*, London: Routledge.

Wejnert, B. (2005), "Diffusion, Development, and Democracy, 1800-1999." *American Sociological Review* 70 (1), 53-81.

Wejnert, B. (2007), *Nations, Development, and Democracy, 1800-2005*, ICPSR20440-v1. Buffalo, NY: Barbara Wejnert, University at Buffalo-SUNY [producer]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2007-12-13.

Weldon, L., and M. Htun (2012), "Sex Equality in Family Law: Historical Legacies, Feminist Activism, and Religious Power in 70 Countries", https://openknowledge.worldbank.org/handle/10986/9204.

White, H. (1997), "Patterns of Gender Discrimination: An Examination of the UNDP's Gender Development Index", *The Hague: Institute of Social Studies*.

Wieringa, S. E. (ed.) (1997), *Report of the Workshop on GDI/GEM Indicators*, The Hague (13–18 January), Mimeo, Institute of Social Studies.

Williford, M. (1975), "Bentham on the Rights of Women", *Journal of the History of Ideas* 36, 167–176.

Wollstonecraft, M. (1792/ 2004), *A Vindication of the Rights of Woman: with Strictures on Political and Moral Subjects*, London, Penguin

Woodberry, R., and T. Shah (2004), "Christianity and Democracy: The Pioneering Protestants", *Journal of Democracy* 15(2), 47-60.

Wooldridge, J.M. (2009), *Introductory Econometrics: A Modern Approach*, N.P.,South-Western College Publishing.

Wooldridge, J. M. (2006), *Econometrics: A Modern Approach, third edition*, South-Western, Cengage Learning.

World Bank, *The Gender Equality as Smart Economics Project*, http://go.worldbank.org/FSV68RJ1F0.

World Bank (2001), *Engendering Development*, Washington DC, The World Bank.

World Bank. (2004), "Gender and Development in the Middle East and North Africa: Women in the Public Sphere", http://web.worldbank.org/archive/website01418/WEB/0__CO-29.HTM

World Bank (2009), *World Development Report, Reshaping Economic Geography*, Washington: The World Bank, *https://openknowledge.worldbank.org/handle/10986/5991*

World Bank (2011), *World Development Report 2012: Gender equality and development*, http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/EXTWDR2012/0,,contentMDK:22999750~pagePK:64167689~piPK:64167673~theSitePK:7778063,00.html.

World Bank (2013), "Opening Doors: Gender Equality and Development in the Middle East and North Africa: Main report", http://documents.worldbank.org/curated/en/2013/02/17235637/opening-doors-gender-equality-development-middle-east-north-africa.

World Bank (2014), *Voice and Agency: Empowering Women and Girls for Shared Prosperity*, http://www.worldbank.org/en/topic/gender/publication/voice-and-agency-empowering-women-and-girls-for-shared-prosperity.

World Bank (2015), *GDP per capita, urban population and services (value added)*, http://data.worldbank.org/indicator.

World Economic Forum (2013), *The Global Gender Gap Report*. http://www3.weforum.org/docs/WEF_GenderGap_Report_2013.pdf.

Wyndow, P., J. Li, and E. Mattes (2013), “Female Empowerment as a Core Driver of Democratic Development: A Dynamic Panel Model from 1980 to 2005”, *World Development* 52, 34–54.

Yadava, K. N. S., and S.S. Yadava. (1999), “Women’s status and fertility in rural India”, *The History of the Family 4*(2), 209–228.

Young, A., T., Matthew, J. Higgins, and D. Levy (2008), “Sigma Convergence versus Beta Convergence: Evidence from U.S. County-Level Data”, *Journal of Money, Credit and Banking* 40 (5): 1083–93.

Zeileis, A., F. Leisch, K. Hornik and C. Kleiber (2002), “Strucchange: An R Package for Testing for Structural Change in Linear Regression Models”, *Journal of Statistical Software*, 7(2), 1-38, http://www.jstatsoft.org/v07/i02/.