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Why we should all care about social institutions related to gender inequality*

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Abstract. Institutions are a major factor explaining development outcomes. This study focuses on social institutions related to gender inequality understood as long-lasting norms, values and codes of conduct that shape gender roles, and presents evidence on why they matter for development. We derive hypotheses from existing theories and empirically test them at the cross-country level with linear regressions using the newly created Social Institutions and Gender Index (SIGI) and its subindices as measures for social institutions. We find that apart from geography, political system, religion, and the level of economic development, one has to consider social institutions related to gender inequality to better account for differences in development. Our results show that social institutions that deprive women of their autonomy and bargaining power in the household, or that increase the private costs and reduce the private returns to investments into girls, are associated with lower female education, higher fertility rates and higher child mortality. Moreover, social institutions related to gender inequality are negatively associated with governance measured as rule of law and voice and accountability.

Keywords: Social institutions, SIGI, Gender inequality, Fertility, Child mortality, Female education, Governance.

***JEL* codes:** D63, I10, I20, H1, J16

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1 Introduction

Institutions are a major factor explaining development outcomes. They guide human behavior and shape human interaction (North, 1990). Institutions are humanly-devised to reduce uncertainty and transaction cost, they are rooted in culture and history and sometimes they are taken-for granted and become beliefs (Hall and Taylor, 1996; De Soysa and Jütting, 2007). Our study centers on a special type of institutions and their explanatory value for development outcomes: social institutions related to gender inequality.

It is a settled fact that gender inequalities come at a cost. Besides the consequences that the affected women experience as they are deprived of their basic freedoms (Sen, 1999), gender inequalities affect the whole society. They can lead to ill-health, low human capital, bad governance and lower economic growth (e.g. World Bank, 2001; Klasen, 2002). Gender inequalities can be observed in outcomes like education, health and economic and political participation, but they are rooted in gender roles that evolve from institutions that shape everyday life and form role models that people try to fulfil and satisfy. We refer to these long-lasting norms, values and codes of conduct as social institutions related to gender inequality.

We investigate the impact of these social institutions related to gender inequality on development outcomes controlling for relevant determinants such as religion, political system, geography and the level of economic development. As development outcomes we choose indicators from the fields of education, demographics, health and governance. In particular, we use female secondary schooling, fertility rates, child mortality and governance in the form of rule of law and voice and accountability. We choose these indicators as they are related to economic development and allow us to find out whether social institutions related to gender inequality hinder progress in reaching the Millennium Development Goals.[1]

Most of the studies that have a similar research focus are conducted at the household level and proxy social institutions related to gender with measures of autonomy or status of women (e.g. Abadian, 1996; Hindin, 2000). At the cross-country level data are scarce and therefore only few studies are available that center on the development impact of gender-relevant social institutions (e.g. Morrison and Jütting, 2005; Jütting et al., 2008). In Branisa et al. (2009) and Branisa et al. (2009) we propose several new composite indices that measure social institutions related to gender inequality at the country level: the *Social Institutions and Gender Index* (SIGI) and its five subindices *Family Code, Civil*

[1] In particular, goal 3 "Promote gender equality and empower women", goal 4 "Reduce child mortality" and goal 5 "Improve maternal health" are relevant here, although the other goals can be at least indirectly linked to our chosen indicators.

liberties, *Physical integrity*, *Son preference* and *Ownership rights*. These measures use as input variables from the OECD Gender, Institutions and Development database.[2] We are not aware of other measures that provide a similar encompassing way to capture the institutional basis of gender inequality at the cross-country level.

In this paper we use these newly proposed measures and check whether they are associated with the chosen development outcomes at the cross-country level. We proceed as follows. First, we look for relevant theories linking - at least implicitly - social institutions related to gender inequality with development outcomes such as health, demographics, education and the governance of a society. We refer to bargaining household models (e.g. Manser and Brown, 1980; McElroy and Horney, 1981; Lundberg and Pollak, 1993) and models considering the costs and returns of children (e.g. Becker, 1981; King and Hill, 1993; Hill and King, 1995) as well as to contributions from several disciplines on governance and democracy. These contributions focus on differences in behavior between men and women, and on the role of women's movements countervailing power to personal rule and clientelism (e.g. Swamy et al., 2001; Tripp, 2001). Second, we run several linear regressions with the outcome indicators as dependent variables and the SIGI and its subindices as the main explanatory variables. Our results show that social institutions related to gender inequality matter; higher inequality in social institutions is associated with lower development outcomes. In a related paper, Jütting and Morrisson (2009) follow the same econometric procedure we use here and study the impact of the SIGI and its subindices on gender inequality on labor market outcomes.

The rest of the paper is organized as follows. Section 2 presents the concept and measurement of social institutions related to gender inequality. In section 3 we review existing theory on household decision-making and incorporate social institutions into the models, deriving hypotheses on their impact on female education, fertility and child mortality. In section 4 we formulate hypotheses on the impact of social institutions on rule of law, and voice and accountability based on the literature on governance, democracy and gender. Data is described in section 5. The empirical estimation and the results are presented in section 6. Section 7 concludes.

[2] The data are available at the web-pages `http://www.wikigender.org` and `http://www.oecd.org/dev/gender/gid`.

2 Social institutions related to gender inequality: Concept and measurement

There are several approaches to institutions. According to North (1990, p. 3 ff.) "institutions are the rules of the game in a society", they are "humanly devised constraints that shape human interaction". From an economics perspective, institutions are conceived as the result of collective choices in a society to achieve gains from cooperation by reducing uncertainty, collective action dilemmas and transaction costs. A sociological or cultural perspective, that is complementary to the rational choice one, relates institutions to culture. Institutions in this sense frame meanings and beliefs. People try to satisfy norms rather than to act individually within the rules of the game, i.e. institutions do not canalize preferences of actors, they influence the preferences and shape the role models and identities of the actors themselves. Actors and institutions amalgamate so that actors are often not aware of the guiding principles of their behavior. Legitimacy and appropriateness drive institutional evolution more than efficiency considerations. Cultural authority, power in a society and community dynamics might be more relevant in shaping such institutions that become taken-for-granted without continuously being evaluated against efficiency considerations (Hall and Taylor, 1996, and references therein).

Social institutions related to gender inequality that build the focus of our study are more embedded in the cultural-sociological account although efficiency issues may also matter. We conceive these social institutions as long-lasting norms, values and codes of conduct that find expression in traditions, customs and cultural practices, informal and formal laws. They are at the bottom of gender roles and the distribution of power between men and women in the family, in the market and in social and political life. As social institutions related to gender inequality build an often taken-for-granted basis of people's behavior and interaction in all spheres of life, they shape the social and economic opportunities of men and women, their autonomy in taking decisions (Dyson and Moore, 1983; Abadian, 1996; Hindin, 2000; Bloom et al., 2001) or the capabilities to live the life they value (Sen, 1999). That is why they might affect important development outcomes and contribute to outcome gender inequalities (De Soysa and Jütting, 2007).

As we are interested in the impact of social institutions related to gender inequality we make use of the recently proposed *Social Institutions and Gender Index* (SIGI) and its five subindices *Family code*, *Civil liberties*, *Physical integrity*, *Son preference* and *Ownership rights* (Branisa et al., 2009) that cover between 102 and 123 developing countries.[3] These

[3] As discussed in Branisa et al. (2009), an alternative measure of social institutions would be the Women's Social Rights index (WOSOC) of the CIRI Human Rights Data Project

cross-country composite measures are built out of twelve variables of the OECD Gender, Institutions and Development Database that proxy social institutions through prevalence rates, indicators of social practices and legal indicators.(Morrison and Jütting, 2005; Jütting et al., 2008).[4]

The five subindices of the SIGI measure each one dimension of social institutions related to gender inequality. For that reason, the method of polychoric principal component analysis (Kolenikov and Angeles, 2009) is chosen to extract the common information of the variables corresponding to a subindex. The *Family code* subindex captures institutions that directly influence the decision-making power of women in the household. It is composed of four variables that measure whether women have the right to be the legal guardian of a child during marriage and whether women have custody rights over a child after divorce, whether there are formal inheritance rights of wives, the percentage of girls between 15 and 19 years of age who are/were ever married, and the acceptance of polygamy in the population.[5] The *Civil liberties* subindex covers the freedom of social participation of women and combines two variables, freedom of movement of women and freedom of dress, i.e. whether there is an obligation for women to use a veil or burqa to cover parts of their body in the public. The *Physical integrity* dimension comprises two indicators on violence against women, the existence of laws against domestic and sexual violence and the percentage of women who have undergone female genital mutilation. The subindex *Son preference* measures the economic valuation of women and is based on a 'missing women' variable that measures an extreme form of preferring boys over girls based on information of the female population that has died as a result of gender inequality. The last subindex *Ownership rights* covers the access of women to several types of property: land, credits and property other than land. The values of the SIGI and of all the subindices are between 0 and 1. The value 0 means no or very low inequality and the value 1 indicates high inequality.

The SIGI combines the five subindices into a multidimensional measure of deprivation of women in a country. It is inspired by the Foster-Greer-Thorbecke poverty measures (Foster et al., 1984) and aggregates gender inequality in several dimensions measured

(http://ciri.binghamton.edu/) that measures from a human rights perspective the type of institutions we are interested in. We prefer to work with the SIGI and its subindices and not with WOSOC as WOSOC also covers outcomes of these institutions and does not allow to differentiate between dimensions of social institutions, e.g. between what happens within the family and what happens in public life. Moreover, WOSOC can only take four values from 0 to 3 which makes it difficult to compare countries as there are many ties in the data.

[4] The data are available at the web-pages http://www.wikigender.org and http://www.oecd.org/dev/gender/gid.

[5] Countries where this information is not available are assigned scores based on the legality of polygamy.

by the subindices. The underlying methodology of construction leads to penalization of high inequality in each dimension and allows only for partial compensation between dimensions. The value of the SIGI is calculated as follows.

$$\begin{aligned} \text{SIGI} &= \frac{1}{5}\left(\text{Subindex Family Code}\right)^2 + \frac{1}{5}\left(\text{Subindex Civil Liberties}\right)^2 \\ &+ \frac{1}{5}\left(\text{Subindex Physical Integrity}\right)^2 + \frac{1}{5}\left(\text{Subindex Son preference}\right)^2 \\ &+ \frac{1}{5}\left(\text{Subindex Ownership Rights}\right)^2 \end{aligned} \tag{1}$$

The main shortcoming of these indices is that they cover only developing countries. This is due to the fact that the variables used as input do not measure relevant social institutions related to gender inequalities in OECD countries. Further research is required to develop appropriate measures for developed countries. Nevertheless, these social institutions indicators are innovative measures of the social, economic and political valuation of women and add information to other existing measures of gender inequality in well-being and empowerment such as the Gender-Related Development Index (GDI) and the Gender Empowerment Measure (GEM) from United Nations Development Programme (1995), the Global Gender Gap Index from the World Economic Forum (Lopez-Claros and Zahidi, 2005), the Gender Equity Index developed by Social Watch (Social Watch, 2005), and the African Gender Status Index proposed by the Economic Commission for Africa (Economic Commission for Africa, 2004). The SIGI and its subindices focus on the roots of gender inequality in a society and not on gender inequality in outcomes. The ranking of countries according to the SIGI and its subindices is presented in Table 1.

3 Social Institutions and Household Decisions

In this section we review the existing literature about the potentials effects of social institutions related to gender inequality on the outcomes female education, fertility and child mortality. It is not in the scope of this study to develop a formal model that incorporates social institutions as a main variable and specifies the exact functional relationships. Instead, we use existing theories that give hints on how social institutions operate. We focus on the microeconomic literature as we assume that the effect of social institutions related to gender inequality operates at the micro-level affecting decisions of households. This literature provides the necessary micro-foundation for our empirical analysis which as a consequence of our aggregated country data can only be conducted at the macro-level.

We use the non-unitary approach to the household and the method of Net Present Value

to illustrate the effect of social institutions related to gender inequality on the outcomes female education, fertility and child mortality. Non-unitary household models show that household decisions are the result of the distribution of bargaining power in the household. The essence is that outcomes are affected by who takes the decision. Common to the non-unitary models, that were initiated by Manser and Brown (1980) and McElroy and Horney (1981), is a game-theoretic approach to the household. Husband and wife have their own utility function, $U^h(c^h)$ for the husband and $U^w(c^w)$ for the wife, that depend each on the consumption of private goods c.[6] They bargain over the allocation of resources to maximize their utility. In the case they do not reach agreement they receive a payoff which corresponds to an individual 'threat point', $P^h(\mathbf{S},Z)$ and $P^w(\mathbf{S},Z)$ which comprises the utilities associated with non-agreement.[7] $\mathbf{S}$ and Z are defined below. The implication of non-unitary models is that household members do not simply pool resources and that inequality in power may cause inequality in outcomes (Kanbur, 2003; Pollak, 2003, 2007; Lundberg and Pollak, 2008).[8] Empirical evidence shows that bargaining takes place and that who controls resources in the household significantly affects allocation decisions and that decisions by women differ from those taken by men (e.g. Thomas, 1990, 1997; Schultz, 1990; Lundberg et al., 1997; Haddad and Hoddinott, 1994; Rasul, 2008).

If husband and wife have to take decisions about their sons and daughters which will affect the future then the consideration of who takes the decision must be complemented with that of time. The method of the Net Present Value (NPV) allows to take into account not only present but also future costs and returns to investments in boys and girls (e.g. King and Hill, 1993, chapter 1). The NPV affects the decision of the household members. To simplify the illustration we ignore that bargaining takes place and name the decision-maker 'parents'. The maximization of utility in a multi-period model leads parents to consider the costs and returns of their investment in their children. This private calculation of parents at period $t = 0$ can then be represented with the NPV of the investment in a child, with $NPV = \sum_{t=0}^{T} \frac{R(\mathbf{S},Z)_t - K(\mathbf{S},Z)_t}{(1+r)^t}$ where T is the number of time periods considered,

[6] Certainly, there are public goods in the household that both husband and wife consume within the marriage.

[7] The threat point may be external to the marriage. In this case it corresponds to the individual's utility outside the family in case of divorce, as it is modeled in the divorce threat models of Manser and Brown (1980) and McElroy and Horney (1981). In the separate spheres bargaining models of Lundberg and Pollak (1993) the threat point is internal to the marriage and is the utility associated with a non-cooperative equilibrium within marriage given by traditional gender roles and social norms, where the spouses receive benefits due to the joint consumption of public goods.

[8] Using Nash-Bargaining a solution to these non-unitary models can be found. Husband and wife maximize the Nash product function $N = [U^h(c^h - P^h(\mathbf{S},Z)][U^w(c^w - P^w(\mathbf{S},Z)]$, that is subject to a pooled budget constraint. The result is the demand function $c^i = f^i(p,y,\mathbf{S},Z)$ with p for prices, y for total household income and $i = w,h$ (Lundberg and Pollak, 2008).

R represents the returns, K the costs of investments in a child, and r represents the discount rate. Like the threat point P in the non-unitary models, R and K are functions of **S** and Z that will be explained below. If the NPV is positive parents decide to invest in a child. Gender inequality in the investments in boys and girls arises if the NPV of boys is larger then the one of girls.[9]

Finally, let us explain **S** and Z. **S** can be defined as 'extrahousehold environmental parameters' (McElroy, 1990) or 'gender-specific environmental parameters' (Folbre, 1997) that influence the threat point in the non-unitary household models and the NPV of a child. We consider that **S** can be best described as *social institutions related to gender inequality*. Z represents all other influential factors besides **S** that affect the threat point in the non-unitary model and the NPV of a child.

3.1 Social Institutions and Female Education

There are several ways how social institutions related to gender inequality might affect the costs and returns of educational investments.[10] Social institutions related to gender inequality influence the costs of education as they shape gender roles related to the division of labor and the opportunity costs of educating girls. Opportunity costs include income from child labor and are higher for girls when they are expected to do housework, to care for their younger siblings or to work in agriculture. Boys are in general less engaged in household production. Moreover, traditions like paying a dowry increase costs and negatively affect parents' decision to educate their daughters (Hill and King, 1995; Lahiri and Self, 2007).

Social institutions related to gender inequality also affect the returns to education. They are generally lower for girls than for boys because girls and women are discriminated on the labor market in the form of entry restrictions and wage gaps. Thus, boys are expected to be economically more productive. They become or are by tradition the building block of their parents' old-age security. Moreover, parents cannot expect or expect only low returns from female education when the daughter marries and leaves the house implying that the family loses her labor force (Pasqua, 2005; Song et al., 2006). Another issue that may be considered by the parents' calculation is receiving a bride price that does not

[9] See Pasqua (2005) who considers both perspectives, the non-unitary approach to the household and the cost and returns approach in the case of education of girls.

[10] It must be noted that the private NPV of investments in the education of children does not correspond to the social NPV. Social returns to education, especially female education, are often higher than the private ones. There is evidence that society benefits from female education as it contributes to overall development and drives economic growth (Hill and King, 1995; Klasen, 2002; Braunstein, 2007; Klasen and Lamanna, 2009). The resulting investment in female education will then often be sub-optimal.

compensate the investments in the education of a girl (Hill and King, 1995).

In addition to these considerations, social institutions related to gender inequality can affect the supply of schooling which might reduce incentives to send girls to school. School environments that are hostile to the needs of girls could influence parents' decision to send girls to school. Examples are that no latrines are provided, no female teachers are available, distances to school are too long or prices favor boys (Hill and King, 1995; Alderman et al., 1996; Pasqua, 2005; Lahiri and Self, 2007).

The costs and returns perspective does not rule out that the distribution of decision-making power in the household matters, too. The non-unitary household approach is also useful to explain low female education (Pasqua, 2005). Several empirical studies show that when women dispose of more resources, investments in the education of girls are higher (e.g. Schultz, 2004; Emerson and Souza, 2007).

Hypothesis 1: Social institutions that deprive women of their autonomy and bargaining power in the household or that increase the private costs and reduce the private returns to investments into female education are associated with lower female education than in a more egalitarian environment.

3.2 Social Institutions and Fertility and Child Mortality Rates

Social institutions related to gender inequality that restrict female decision-making power in the household and reduce the *NPV* of the investment in girls in comparison to boys do not only lead to low female education but also to higher fertility levels and higher child mortality.

We first focus on fertility. Using a non-unitary household approach it can be argued that the net utility of a woman associated with getting a child might differ from that of a man. Assuming that both derive the same satisfaction of having a child, the net utility a woman derives is lower than the one of the man as the woman bears most of the costs of having children. These costs are related to the discomfort of pregnancy, health risks related to pregnancy, and the income losses associated with time spent on child care. This might explain why women might want less children than men, but cannot achieve their objectives in the presence of social institutions that restrict their power in limiting the number of children born. Empirical studies support the hypothesis that reduced female bargaining power leads to shorter time spans between births, a lower use of contraceptives and higher fertility levels (Thomas, 1990; Abadian, 1996; Hindin, 2000; Saleem and Bobak, 2005; Seebens, 2008).

The perspective of the *NPV* gives a second explanation for higher fertility if there are social institutions that favor gender inequality. In the absence of well-functioning insurance markets and pension systems, parents in developing countries may need more children to feel secure. Depending on the costs of a child and the returns to the investment in a child parents will consider to get more children.[11] As it was explained in the previous subsection on female education, social institutions related to gender inequality affect the *NPV* of investments in children. If these social institutions lower income earning opportunities for girls, the *NPV* of investments in girls will be lower than the *NPV* of investments in boys so that sons often yield the promise of more economic security than daughters do. As long as parents cannot perfectly control the sex of their offspring, they will bear more children to increase the chance of having more sons (Cain, 1984; Abadian, 1996; Kazianga and Klonner, 2009).

Child mortality is our next development outcome of interest. To explain higher child mortality levels in the presence of social institutions that disadvantage women one has to consider that mothers are usually the primary caregivers of children in developing countries. In line with the non-unitary approach, if mothers have only limited power in the household and are not free to take decisions, they are constrained in the use of health care or in the access to food and other goods necessary for children and cannot take care of their children as they would without those restrictions. This might lead to worse child health and higher child mortality rates (Thomas, 1990, 1997; Bloom et al., 2001; Smith et al., 2002; Maitra, 2004; Shroff et al., 2009).

From the *NPV* perspective it might be rational for parents to invest more in the health and nutrition of boys than in girls who as a consequence could suffer more heavily from health problems and experience higher mortality rates than boys. It is possible that this behavior increases overall child mortality rates. Moreover, the limited education and information that women typically experience in patriarchal societies as a result of past *NPV* calculations of their parents or as a result of lacking opportunities for information in the society might also lead to worse child health as measured e.g. by anthropometric indicators and to higher child mortality figures (Schultz, 2002; Shroff et al., 2009).

Hypothesis 2: Social institutions that deprive women of their autonomy and bargaining power in the household or that increase the private costs and reduce the private returns of

[11] Women might be even more dependent on their children than their husbands if they live in an environment of social institutions hostile to women where they lack access to resources, financial security and legal protection.

investments into girls are associated with higher fertility levels and higher child mortality than in an egalitarian environment.

4 Social Institutions and the Society: Governance

Social institutions related to gender inequality do not only influence household behavior, they also determine the place women have in society. In societies where social institutions limit the rights of women, their access to resources and protection, and where women's place is restricted to the private sphere, they usually have only a limited say in the public and political domain. They have only few possibilities to organize themselves in women's associations as well as to enter the political arena. What is the impact of social institutions related to gender inequality on governance?

Various disciplines (economics, politics and sociology) consider the issue of governance at all levels and sectors of a society. Although there is a variety of definitions of the concept, common to the different approaches are issues like responsiveness, steering and governability, accountability and legitimacy. We rely on the general definition of Kaufmann et al. (2008, p. 7) who developed several well-known governance indicators and defined governance "broadly as the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them." The World Bank states that in general gender inequalities come at the cost of governance (World Bank 2001). Evidence and causal mechanisms are rather suggestive. There are at least two explanations of why social institutions consolidating gender roles hinder high quality governance.

First, there exist psychological and sociological explanations that center on arguments that women are less corrupt and less egoistic than men. They are more risk-averse and tend to follow the rules. Moreover, women's socialization is more community-oriented and hence, women often represent not only their needs but also the needs of other social groups (Dollar et al., 2001; Swamy et al., 2001). Therefore, societies that give women economic and political power will have a political system that is more rule oriented, responsive and accountable compared to a society where women's participation is oppressed.[12]

[12] Policy decisions are influenced by politicians' gender, as it is shown by Chattopadhyay and Duflo (2004) in a randomized policy experiment in India. According to this study the type of public goods provided depends on the gender of political leaders. Therefore, a balanced representation of men and women in

Second, women's movements have played and play a major role in increasing the quality of political systems (Waylen, 1993; Tripp, 2001). Tripp (2001) states for African countries (notably Eastern and Southern Africa) that women's movements represent one of the most important forces challenging neopatrimonial rule that finds expression in patronage, clientelism and personal rule. Political reforms at the beginning of the 1990s in form of free and competitive elections, freedom of expression and association, and multi-party systems were not sufficient to end the praxis of neopatrimonialism. Nevertheless, these reforms strengthened social forces like the movement of women that started to demand the rule of law, transparency, responsiveness and accountability. In the beginning, governments and political parties affiliated women to the system as they wanted them to be part of it and to weaken their opposition. But women realized that they neither got access to formal political positions nor access to the benefits of clientelism. The denied access to power and participation in the political arena and in the economy that had existed for years drove women to develop a different relation to the state and to the execution of power than men. Especially, being part of an autonomous movement women could claim the rule of law, equality and transparency. Moreover, by cross-cutting cleavages like ethnicity or religion women's movements did not only gain members but also hindered clientelistic practices that go along those lines. Although there are no quantified and universal results about the real effects of the power of women's movements in increasing the quality of political systems, this argumentation might be suggestive about why countries with high gender inequality in social institutions might display a bad quality of governance. It might be because such social institutions hinder women in the first stage, namely to organize themselves and to express their interests.

Hypothesis 3: Social institutions related to high gender inequality inhibit the building blocks of good governance. In societies with social institutions favoring gender inequality political systems will be less responsive and less open to the citizens, so that voice and accountability will be reduced.

Hypothesis 4: Social institutions related to high gender inequality inhibit the building blocks of good governance. In societies with social institutions favoring gender inequality there might be more personal rule in the political system as well as inequality in justice and legal systems, so that the rule of law will be weakened.

politics could be more responsive to the needs of the male and female population. This does not rule out that women tend to be more community-oriented than men and that they represent the needs of other social groups such as those reflecting ethnicity or religion more than men do.

5 Data

Our investigation uses macro-data at the country level. Table 2 gives an overview over the variables used for our estimations, the definitions and the data sources. Descriptive statistics of the variables used are presented in Table 3. As main regressors we use the SIGI and its five subindices *Family code*, *Civil liberties*, *Physical integrity*, *Son Preference* and *Ownership rights* in our estimations to check their explanatory value for the development outcomes female education, fertility, child mortality and governance.

First, we are interested in the impact of social institutions on female education, fertility and child mortality. As dependent variables we use *total fertility rates* from World Bank (2009) and *child mortality rates* from World Bank (2008). To measure education we choose *female gross secondary school enrollment rates* because this enables important functionings and empowers women. Furthermore we assume that parents take into account that basic education of both boys and girls is necessary for fulfilling tasks related to the household. Data for secondary school enrollment are from World Bank (2009).

Second, we want to estimate the association between governance and our social institutions measures. We use the Governance Indicators developed by Kaufmann et al. (2008) and choose two of them to capture equality before the law, justice, tolerance and security as well as responsiveness, political openness and accountability in the political system. The *rule of law* index measures the extent to which contracts are enforced and property rights are ensured and the extent to which people trust in the state and respect the rules of the society. The *voice and accountability* index proxies civil and political liberties like freedom of expression, freedom of association, free media and the extent of active and passive political participation of citizens.

In all regressions we control for the level of economic development, religion, region and the political system in a country. The specific variables we use are:

- the log of per capita GDP in constant prices to control for the level of economic development (US$, PPP, base year: 2005);
- a Muslim majority and a Christian majority dummy to control for the impact of religion, the left-out category being countries that have neither a majority of Muslim nor a majority of Christian population;
- region dummies to capture geography and other unexplained heterogeneity that might go together with region, the left-out category being Sub-Saharan Africa;
- two political institutions variables, the electoral democracy variable and the civil liberties index from Freedom House (2008) that together measure liberal democracy

which is assumed to be related to responsiveness to the needs of the public, political openness and tolerance in a country.[13]

We use different additional control variables in each regression following suggestions in the literature. In the fertility and child mortality regressions, we additionally control for

- female literacy rates to measure the ability of women to control their reproductive behavior, to care for themselves and their children (e.g. Basu, 2002; Hatt and Waters, 2006; Lay and Robilliard, 2009);
- a dummy proxying for high HIV/AIDS prevalence rates to control for extreme health problems especially in Sub-Saharan Africa due to AIDS (e.g. Foster and Williamson, 2000).

The Governance regressions exclude as control variables the civil liberties index from Freedom House as this index is used to build the voice and accountability index that we choose as dependent variable. We keep the electoral democracy variable because it does not pose a problem. We additionally include as control variables

- the share of literate adult population to control for the population's ability to be informed, to express their needs and to hold politicians' accountable (Keefer and Khemani, 2005);
- ethnic fractionalization as it might disturb governance through identity politics, patronage and distribution conflicts (e.g. Collier, 2001; Tripp, 2001);
- a measure of trade openness as openness increases the incentives to build 'good' institutions to attract trading partners, to join trading agreements etc. (e.g. Al-Marhubi, 2005).

Social institutions, i.e. normative frameworks, change only slowly and incrementally. As the social institutions indicators are not expected to change much over time we have to decide which year or time span should be covered by the other variables. For our response variables we choose to take the average of the existing values over five or six years (2000-2005, 2001-2005). For the control variables we take the averages of the existing values over ten years (1996-2005).[14] The averages provide information that is more stable than using a particular year. Using a longer time span for the control variables than for the response variables allows to capture possible time delays until effects can be observed. Nevertheless, we acknowledge that the choice of the time spans is arbitrary.

[13] We multiply the civil liberties index by -1 to facilitate interpretation.

[14] The ethnic fractionalization variable is constant over time as changes in the ethnic composition of a country at least over 20 and 30 years are rare.

6 Empirical estimation and Results

6.1 Empirical estimation

We compute the Pearson correlation coefficient between the five subindices to show that they are correlated, but not perfectly. We additionally compute the correlation between the social institutions indices and the control variables to check whether the social institutions indices are proxies for these control variables.

We then empirically test with linear regressions whether the composite measures reflecting social institutions related to gender inequality s_i are associated with each of the response variables y_i, representing the chosen development outcomes. We estimate regressions in the form

$$y_i = \gamma + \beta s_i + \text{control variables}_i + \varepsilon_i \tag{2}$$

using information at the country level. We are mainly interested in testing the null hypothesis that the coefficient β is zero at a statistical significance level of $\alpha = 5\%$. If the null hypothesis is rejected, it is reasonable to infer that the measure proxying social institutions related to gender inequality does matter for the given response variable, as predicted in the hypothesis from sections 3 and 4.

The general procedure used for each of the response variables consists of two steps. First, we start examining the effect of SIGI. We begin our estimation with a simple linear regression with SIGI as the only regressor s_i. We then run a multiple linear regression adding the main group of control variables that consists of the level of economic development, region dummies, religion dummies and the political system variables. If SIGI is significant in this regression, we continue and, if applicable, estimate the complete model with all identified control variables to confirm whether SIGI remains significant.

As SIGI is a rather broad measure to rank and compare countries and policy implications are difficult to derive from it, in a second step we focus on the subindices to get a more precise idea about what kind of social institutions might be related to the chosen development outcomes. We estimate the same multiple linear regression(s) described above using the five subindices as s_i one at a time instead of SIGI to explore which dimension of social institutions related to gender inequality seems to be the most relevant. In the corresponding regression tables we only report the specification with the subindex or subindices that are statistically significant. It must be noted that we keep and show even those control variables that are not statistically significant in the regression, as we want to stress that the social institutions indices are associated with the development outcomes

even if we include these control variables.

All regressions are estimated with Ordinary Least Squares (OLS). Regression diagnostics not reported here suggest that heteroscedasticity is a possible issue in our data and that there are influential observations that could drive our results. Concerning the first issue, it is known that if the model is well specified, the OLS estimator of the regression parameters remains unbiased in the presence of heteroscedasticity, but the estimator of the covariance matrix of the parameter estimates can be biased and inconsistent making inference about the estimated regression parameters problematic. Violations of homoscedasticity can lead to hypothesis tests that are not valid and confidence intervals that are either too narrow or too wide. To deal with heteroscedasticity, we use 'heteroscedasticity-consistent' (HC) standard errors. This means that while the parameters are still estimated with OLS, alternative methods of estimating the standard errors that do not assume homoscedasticity are applied. As the samples we use contain less than 150 observations, we use HC3 robust standard errors proposed by Davidson and MacKinnon (1993), which are better in the case of small samples. These are the standard errors that are presented in the regression Tables 6-10. Simulation studies by Long and Ervin (2000) have shown that HC standard error estimates tend to maintain test size closer to the nominal alpha level in the presence of heteroscedasticity than OLS standard error estimates that assume homoscedasticity. These authors recommend the use of HC3 robust standard errors, especially for sample sizes less than 250, as they can keep the test size at the nominal level regardless of the presence or absence of heteroscedasticity, with only a minor loss of power associated when the errors are indeed homoscedastic.[15]

In addition to this, we also use bootstrap with 1000 replications to compute a Bias-corrected and accelerated (Bca) 95% confidence interval of the regression coefficients computed with OLS (Efron and Tibshirani, 1993). One of the main advantages of bootstrapping methods is that no assumptions about the sampling distribution or about the statistic are needed. The results are not reported here, but are available upon request, and confirm that all the coefficients that are significant at the 5% level in Tables 6-10 remain significant when using Bca 95% confidence intervals around them.

To deal with the second issue and check whether influential observations drive the results, we take the estimates of a regression obtained with OLS with standard variance estimator to detect the observations with unusual influence or leverage based on Cook's distance. Cook's distance is a commonly used estimate of the influence of a data point

[15] Certainly, heteroscedasticity-consistent standard errors are not a panacea for inferential problems under heteroscedasticity. As pointed out by some authors, there are limitations and trade-offs in these estimators (e.g. Kauermann and Carroll, 2001; Wilcox, 2001).

when doing least squares regression. We exclude countries from the sample if the value of Cook's distance is larger than $4/n$, with n being the number of observations, and re-estimate each regression on the restricted sample with HC3 robust standard errors. In all the cases we confirm that even after we exclude influential observations, the results remain basically unchanged.[16] The regressions are not reported here, but are available upon request.

We consider that the model specification is reasonable. However, possible endogeneity of our main regressors s_i (the SIGI and its subindices) should be taken into account when interpreting the coefficients of s_i as they would be biased and inconsistent in this case. Endogeneity is given if s_i is correlated with the disturbance ε_i in equation 2. There are three sources of endogeneity: omitted variables, measurement error and simultaneity (Wooldridge, 2002). We have included control variables to minimize omitted variable bias, although it is impossible to completely rule out this problem. Concerning measurement error, we regard the SIGI and the subindices as adequate proxies of social institutions related to gender inequality. It is not very plausible that there are errors in measurement that are related to the unobserved social institutions. The last source, simultaneity, arises when s_i is determined simultaneously with y_i. As was discussed in section 2, we consider that social institutions related to gender inequality s_i are relatively stable and long-lasting. Therefore, we think it is unlikely that the response variables y_i influence s_i. [17]

6.2 Results

The Pearson correlation coefficient between the subindices is always positive, but not always significant (Table 4). The correlations between the subindices are always lower than 0.6, with the exception of the correlation between the subindices *Family Code* and *Ownership rights*, which is equal to 0.74. Table 5 shows that the absolute value of the Pearson correlation coefficient between the social institutions indicators and the control variables is always lower than 0.6, except for the SIGI and the subindices *Family code* and *Ownership rights* and the two variables capturing literacy of the whole population and of the female population.

[16] As an alternative procedure we use robust regression with iteratively reweighted least squares as described in Hamilton (1992), and confirm that results are similar.

[17] Social institutions are hard to measure. Therefore, sometimes one has to rely on legal indicators to proxy them, although we acknowledge that this could pose problems as there is for example an international mechanism, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), that aims at changing social institutions through legal measures. However, the impact of CEDAW on national legislation depends on the willingness of governments to sign and ratify it without reservation and on its willingness and ability to enact the new laws. Given the constituting function of social institutions for a society this could be difficult and depends on many factors.

Regression results using *female secondary education* as dependent variable are presented in Table 6. Regression (1) with SIGI as the only regressor yields a negative and statistically significant association. Higher levels of inequality are associated with lower levels of female secondary education. The association vanishes in regression (2) if one includes the level of economic development, religion, region and the political system as control variables. Using the subindex *Family code* instead of SIGI as the main regressor in regression (3) shows a different picture. The subindex is statistically significant even if the control variables are included. The adjusted coefficient of determination R^2 is 0.78. Hence, we find no evidence against Hypothesis 1 that states that social institutions related to high gender inequality are negatively associated with female education.[18]

Results obtained using *total fertility rate* and *child mortality* as response variables are shown in Tables 7 and 8. In both cases, the simple linear regression (1) using SIGI as the only regressor shows a positive and significant statistical association between SIGI and the response variable. Higher levels of inequality are associated with higher levels of fertility and with higher levels of child mortality. However, once control variables related to the level of economic development, religion, region and the political system in a country are included in regression (2), SIGI is not longer statistically significant. This is not the case when we use the subindex *Family code* as the main regressor, as it is significant in regression (3) which uses the same control variables, and even in regression (4) which adds two additional regressors: the share of literate adult female population and a dummy reflecting high adult HIV/AIDS prevalence. In regression (4) the obtained adjusted R^2 is 0.84 for fertility and 0.82 for child mortality. Hence, we cannot reject Hypothesis 2, suggesting that social institutions related to high gender inequality are associated with higher fertility levels and higher child mortality.[19] As the subindex *Family code* is the relevant social institutions measure in our empirical estimations it seems that social institutions that deprive women of their autonomy and bargaining power in the family and that might restrict women's possibilities outside the family do matter for female education, fertility and child mortality.

Table 9 shows the results obtained for the dependent variable *voice and accountability*. Regression (1) with SIGI as the only regressor shows a negative and statistically significant association: higher levels of gender inequality are associated with lower levels of

[18] Regressions not reported here, but available upon request, using primary gross completion rates obtained from World Bank (2008) instead of female secondary schooling as the dependent variable yield similar results.

[19] Regressions not shown here, but available upon request, confirm that the results concerning mortality rates hold when using infant mortality rates taken from World Bank (2008) instead of child mortality rates as the dependent variable.

voice and accountability. This association remains significant in regression (2) where we add the level of economic development, religion, region and the political system[20] as control variables, and in the complete specification shown in regression (3) where we additionally include the proportion of seats held by women in national parliaments, the literacy rate of the population, a measure of openness of the economy, and a measure of ethnic fractionalization. In regression (3), we obtain an adjusted R^2 of 0.69. We explore which dimension of social institutions related to gender inequality is behind this result and find that it is the subindex *Civil liberties*. The specifications with the subindex *Civil liberties* in regressions (4) and (5) show that this subindex is negatively associated with voice and accountability and that this association is statistically significant even with the control variables. In regression (5) the adjusted R^2 is 0.69. Hypothesis 3 cannot be rejected with this evidence suggesting that social institutions related to gender inequality inhibit the building blocks of good governance in the form of voice and accountability. The subindex *Civil liberties* is the relevant social institutions measure in our empirical estimations. The freedom of women to participate in public life seems to increase the quality of governance of a society. Relating back to theory, this could be due to the behavior of women as they tend to be more socially oriented than men and are a group that cross-cuts cleavages in general.

Results for the other component of governance, *rule of law*, are shown in Table 10, providing evidence for Hypothesis 4. Regression (1) shows a negative and statistically significant association between SIGI and rule of law: higher levels of inequality are associated with lower levels of rule of law. This association remains significant in regression (2) where we add the level of economic development, religion, region and the political system as control variables, and in the complete specification in regression (3) where we additionally include the proportion of seats held by women in national parliaments, the literacy rate of the population, a measure of openness of the economy, and a measure of ethnic fractionalization. In this last regression, we obtain an adjusted R^2 of 0.51. Again, we are interested in exploring which dimension of social institutions related to gender inequality is the relevant one for rule of law finding that two subindices matter: *Ownership rights* and *Civil liberties*.[21] The specifications with the subindices yield similar results to those of the SIGI and are presented in regressions (4) and (5) for *Ownership rights* and (6) and (7) for *Civil liberties*. For both subindices the adjusted R^2 obtained for the complete

[20] Recall that in the governance regressions we only include the electoral democracy variable of Freedom House (2008) as the civil liberties index is included in the chosen governance indicators which are now the response variables.

[21] As shown in Table 4 the Pearson Correlation coefficient between the subindices Ownership rights and Civil liberties is 0.36.

specification is 0.56. As postulated in Hypothesis 4, social institutions related to gender inequality seem to matter for governance inhibiting the rule of law, e.g. through personal rule and inequality in justice. Assuming that women's attitudes are different from those of men and that they countervail clientelism and injustice, women's power in a society contributes to improve rule of law. The two subindices proxy where this power comes from, with *Ownership rights* measuring economic power through access to property and *Civil liberties* measuring the freedom to participate in and to shape public life.

A reasonable question is whether the social institutions indicators are capturing different religions. In the regressions reported here, we control for religion using a Christian and a Muslim dummy. As the results show, at least one subindex is significant when we control for religion. One could argue that what matters is how religion is practiced in the considered regions, and that the SIGI and the subindices might capture regional practice of religion. Therefore, we re-estimate all regressions including interactions between the religion and region dummies. The results for the SIGI and the subindices remain unchanged suggesting that they capture something different than religion and the regional practice of it.[22]

7 Conclusion

This study presents several answers to the question why we should care about social institutions related to gender inequality beyond the intrinsic value of gender equality. We derive hypotheses from existing theories and empirically test them with linear regression at the cross-country level using the newly created Social Institutions and Gender Index (SIGI) and its subindices. Our results show that social institutions related to gender inequality are associated with lower female secondary education, higher fertility rates, higher child mortality and lower levels of governance measured as voice and accountability and rule of law. We find that apart from geography, political system, the level of economic development and religion, one has to consider social institutions related to gender inequality to better account for differences in important development outcomes.

The empirical estimation follows a two-step procedure for each outcome measure. First, the focus is to examine the explanatory value of the SIGI. In the specifications including all control variables, the SIGI is significant in the regressions for the governance measures voice and accountability and rule of law. If one interprets the SIGI as a summary measure of lack of power of women in all spheres of the society then it seems that

[22] The results are available upon request.

when women have more power governance is better.[23] In the case of female secondary schooling, fertility rate and child mortality the SIGI turns out to be insignificant in the complete specifications.

Second, as the SIGI is a broad measure of social institutions related to gender inequality, we investigate which particular dimension of social institutions is significantly related to the chosen development outcomes using the complete specifications. The subindex*Family code* is negatively associated with female education, fertility and child mortality. These results suggest that social institutions that deprive women of their autonomy and bargaining power in the family do matter for female education, fertility and child mortality. The subindex *Civil liberties* is the dimension of social institutions that is significantly related to the governance component voice and accountability. The freedom of women to participate in public life seems to increase the quality of governance of a society as women tend to be more socially oriented than men and are a group that cross-cuts cleavages in general. The rule of law component of governance is negatively related to the subindices *Civil liberties* and *Ownership rights*. The two subindices proxy where this power comes from, with *Ownership rights* measuring access to property and *Civil liberties* measuring the freedom to participate in public life. Assuming that women's attitudes are different from those of men and that they countervail clientelism and injustice, women's power in a society is a relevant factor to improve rule of law.

Although the subindices *Family code*, *Ownership rights* and *Civil liberties* are the more important dimensions of social institutions related to gender inequality for the response variables considered in this study, this does not mean that the other two subindices *Son preference* and *Physical integrity* are not important intrinsically.

Case studies investigating the mechanisms between social institutions and the outcome variables are necessary. Our study has the limitations of any cross-sectional regression analysis as we cannot rule out omitted variable bias. Causality can never be derived from regression analysis with cross-sectional data unless at least valid instruments are found. Concerning the results of the subindices, these should be considered exploratory and need to be confirmed with further research which should also include the elaboration of appropriate theories linking social institutions related to gender inequality with each of the development outcomes used in this study.

Social institutions are long-lasting and deep-seated in people's minds. Changing them is a difficult task and requires approaches tailored to the particular needs and the socio-economic context (Jütting and Morrisson, 2005). The state can certainly help attenuate

[23] The association between two composite measures like the SIGI and the governance indicators has to be interpreted carefully.

the effects of social institutions through specific policies. It may set incentives to counteract social institutions, e.g. in the form of laws to fight against discriminatory practices or through the implementation of programs favoring girls and women. Micro-credit programs or subsidies targeted at mothers are good examples here. Nevertheless, changing social institutions needs more than that. It needs a thorough understanding of the power relations in a country and people that are willing to become reform drivers and initiate learning processes that should be complemented by deliberation and public discussion at all levels of society. Be it through internal or external forces, women need help to empower themselves. That is what Sen calls 'agency of women' (Sen, 1999).

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Appendix

Rankings of Countries according to the SIGI and its Subindices

Table 1: Rankings of Countries according to the SIGI and its Subindices

	SIGI		Family code		Civil liberties		Physical integrity		Son preference		Ownership rights	
Country	**Ranking**	**Value**	**Ranking**	**Value**	**Ranking**	**Value**	**Ranking**	**Value**	**Ranking**	**Value**	**Ranking**	**Value**
Paraguay	1	0.00248	19	0.06890	1	0	3	0.08757	1	0	1	0
Croatia	2	0.00333	3	0.00811	1	0	9	0.12878	1	0	1	0
Kazakhstan	3	0.00348	5	0.02837	1	0	9	0.12878	1	0	1	0
Argentina	4	0.00379	13	0.04864	1	0	9	0.12878	1	0	1	0
Costa Rica	5	0.00709	23	0.08106	1	0	15	0.16999	1	0	1	0
Russian Federation	6	0.00725	35	0.14028	1	0	9	0.12878	1	0	1	0
Philippines	7	0.00788	8	0.04053	1	0	3	0.08757	1	0	53	0.17351
El Salvador	8	0.00826	17	0.06485	1	0	3	0.08757	1	0	43	0.17151
Ecuador	9	0.00914	24	0.08917	1	0	3	0.08757	1	0	53	0.17351
Ukraine	10	0.00969	8	0.04053	1	0	23	0.21635	1	0	1	0
Mauritius	11	0.00976	11	0.04458	1	0	23	0.21635	1	0	1	0
Moldova	12	0.00980	12	0.04701	1	0	23	0.21635	1	0	1	0
Bolivia	13	0.00983	13	0.04864	1	0	23	0.21635	1	0	1	0
Uruguay	14	0.00992	15	0.05269	1	0	23	0.21635	1	0	1	0
Venezuela, RB	15	0.01043	21	0.07295	1	0	23	0.21635	1	0	1	0
Thailand	16	0.01068	41	0.15649	1	0	15	0.16999	1	0	1	0
Peru	17	0.01213	15	0.05269	1	0	33	0.24059	1	0	1	0
Colombia	18	0.01273	21	0.07295	1	0	15	0.16999	1	0	43	0.17151
Belarus	19	0.01339	4	0.02432	1	0	34	0.25756	1	0	1	0
Hong Kong, China	20	0.01465	26	0.10380	1	0	1	0	89	0.25	1	0
Singapore	21	0.01526	25	0.09975	1	0	34	0.25756	1	0	1	0
Cuba	22	0.01603	28	0.11754	1	0	34	0.25756	1	0	1	0
Macedonia, FYR	23	0.01787	39	0.15169	1	0	34	0.25756	1	0	1	0
Brazil	24	0.01880	19	0.06890	1	0	48	0.29877	1	0	1	0
Tunisia	25	0.01906	32	0.12738	1	0	9	0.12878	89	0.25	1	0

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Table 1 – continued from previous page

Country	SIGI		Family code		Civil liberties		Physical integrity		Son preference		Ownership rights	
	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value
Chile	26	0.01951	34	0.13909	1	0	23	0.21635	1	0	56	0.17723
Cambodia	27	0.02202	38	0.14433	1	0	48	0.29877	1	0	1	0
Nicaragua	28	0.02251	33	0.12970	1	0	34	0.25756	1	0	43	0.17151
Trinidad and Tobago	29	0.02288	39	0.15169	1	0	15	0.16999	89	0.25	1	0
Kyrgyz Republic	30	0.02924	42	0.15980	1	0	48	0.29877	1	0	56	0.17723
Viet Nam	31	0.03006	6	0.03242	1	0	60	0.38634	1	0	1	0
Armenia	32	0.03012	7	0.03648	1	0	60	0.38634	1	0	1	0
Georgia	33	0.03069	17	0.06485	1	0	60	0.38634	1	0	1	0
Guatemala	34	0.03193	27	0.10538	1	0	54	0.34513	1	0	43	0.17151
Tajikistan	35	0.03262	47	0.25955	1	0	34	0.25756	1	0	43	0.17151
Honduras	36	0.03316	44	0.21610	1	0	54	0.34513	1	0	1	0
Azerbaijan	37	0.03395	37	0.14314	1	0	60	0.38634	1	0	1	0
Lao PDR	38	0.03577	51	0.32034	1	0	23	0.21635	1	0	43	0.17151
Mongolia	39	0.03912	30	0.12001	1	0	48	0.29877	89	0.25	43	0.17151
Dominican Republic	40	0.03984	28	0.11754	1	0	34	0.25756	1	0	58	0.34502
Myanmar	41	0.04629	35	0.14028	1	0	60	0.38634	89	0.25	1	0
Jamaica	42	0.04843	1	0.00405	1	0	54	0.34513	1	0	76	0.35074
Morocco	43	0.05344	48	0.26279	1	0	9	0.12878	89	0.25	58	0.34502
Fiji	44	0.05450	8	0.04053	1	0	60	0.38634	1	0	66	0.34874
Sri Lanka	45	0.05914	46	0.23404	98	0.30069	15	0.16999	1	0	66	0.34874
Madagascar	46	0.06958	70	0.41138	1	0	60	0.38634	1	0	43	0.17151
Namibia	47	0.07502	58	0.35307	1	0	34	0.25756	89	0.25	66	0.34874
Botswana	48	0.08102	53	0.32163	1	0	15	0.16999	1	0	79	0.52225
South Africa	49	0.08677	73	0.42326	84	0.29808	23	0.21635	1	0	58	0.34502
Burundi	50	0.10691	57	0.33545	1	0	60	0.38634	1	0	79	0.52225
Albania	51	0.10720	31	0.12288	1	0	60	0.38634	101	0.5	66	0.34874
Senegal	52	0.11041	99	0.60250	1	0	45	0.26455	1	0	58	0.34502
Tanzania	53	0.11244	81	0.49886	1	0	22	0.20151	1	0	79	0.52225
Ghana	54	0.11269	61	0.36621	1	0	80	0.39575	1	0	79	0.52225
Indonesia	55	0.12776	59	0.35405	103	0.59876	79	0.39362	1	0	1	0
Eritrea	56	0.13645	76	0.45538	1	0	106	0.68910	1	0	1	0
Kenya	57	0.13704	63	0.37027	1	0	46	0.28152	1	0	111	0.68473

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Table 1 – continued from previous page

Country	SIGI		Family code		Civil liberties		Physical integrity		Son preference		Ownership rights	
	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value
Cote d'Ivoire	58	0.13712	79	0.49012	1	0	85	0.43455	1	0	77	0.50650
Syrian Arab Republic	59	0.13811	68	0.40269	98	0.30069	34	0.25756	101	0.5	66	0.34874
Malawi	60	0.14323	60	0.36087	84	0.29808	88	0.47362	1	0	79	0.52225
Mauritania	61	0.14970	71	0.42056	98	0.30069	103	0.60183	1	0	58	0.34502
Swaziland	62	0.15655	86	0.52144	84	0.29808	60	0.38634	1	0	79	0.52225
Burkina Faso	63	0.16161	88	0.53939	1	0	104	0.63092	1	0	58	0.34502
Bhutan	64	0.16251	43	0.20513	84	0.29808	54	0.34513	118	0.75	1	0
Nepal	65	0.16723	62	0.36779	84	0.29808	48	0.29877	101	0.5	79	0.52225
Rwanda	66	0.16859	56	0.32974	1	0	91	0.51512	1	0	111	0.68473
Niger	67	0.17559	104	0.64882	1	0	99	0.52482	89	0.25	58	0.34502
Equatorial Guinea	68	0.17597	82	0.50291	84	0.29808	91	0.51512	1	0	79	0.52225
Gambia, The	69	0.17830	103	0.64303	1	0	102	0.59698	1	0	66	0.34874
Central African Republic	70	0.18440	92	0.55902	1	0	101	0.58029	1	0	79	0.52225
Kuwait	71	0.18602	83	0.50523	103	0.59876	34	0.25756	101	0.5	1	0
Zimbabwe	72	0.18700	80	0.49075	84	0.29808	59	0.36937	1	0	111	0.68473
Uganda	73	0.18718	102	0.63697	84	0.29808	81	0.41058	1	0	79	0.52225
Benin	74	0.18899	84	0.50633	1	0	87	0.46877	1	0	111	0.68473
Algeria	75	0.19024	69	0.40501	103	0.59876	60	0.38634	101	0.5	43	0.17151
Bahrain	76	0.19655	52	0.32147	103	0.59876	60	0.38634	101	0.5	66	0.34874
Mozambique	77	0.19954	109	0.69776	84	0.29808	60	0.38634	1	0	79	0.52225
Togo	78	0.20252	96	0.58833	1	0	86	0.44452	1	0	111	0.68473
Congo, Dem. Rep.	79	0.20448	66	0.39038	1	0	81	0.41058	1	0	119	0.83752
Papua New Guinea	80	0.20936	50	0.27697	1	0	60	0.38634	118	0.75	78	0.50825
Cameroon	81	0.21651	89	0.54344	84	0.29808	90	0.48332	1	0	109	0.68175
Egypt, Arab Rep.	82	0.21766	49	0.26647	98	0.30069	111	0.82273	101	0.5	1	0
China	83	0.21786	1	0.00405	1	0	48	0.29877	122	1	1	0
Gabon	84	0.21892	107	0.68387	84	0.29808	91	0.51512	1	0	79	0.52225
Zambia	85	0.21939	108	0.69197	1	0	60	0.38634	1	0	111	0.68473
Nigeria	86	0.21991	71	0.42056	103	0.59876	89	0.47847	89	0.25	79	0.52225
Liberia	87	0.22651	87	0.53470	1	0	107	0.75756	1	0	79	0.52225
Guinea	88	0.22803	105	0.67140	1	0	105	0.64546	1	0	79	0.52225
Ethiopia	89	0.23325	55	0.32726	1	0	109	0.77424	1	0	108	0.67801

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Country	SIGI		Family code		Civil liberties		Physical integrity		Son preference		Ownership rights	
	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value
Bangladesh	90	0.24465	95	0.58334	103	0.59876	2	0.04121	101	0.5	79	0.52225
Libya	91	0.26019	67	0.39285	103	0.59876	91	0.51512	101	0.5	79	0.52225
United Arab Emirates	92	0.26575	93	0.56197	103	0.59876	100	0.53180	101	0.5	66	0.34874
Iraq	93	0.27524	77	0.47391	103	0.59876	98	0.51997	101	0.5	79	0.52225
Pakistan	94	0.28324	64	0.37821	103	0.59876	47	0.28180	118	0.75	79	0.52225
Iran, Islamic Rep.	95	0.30436	91	0.55792	119	0.78099	91	0.51512	89	0.25	79	0.52225
India	96	0.31811	100	0.60655	103	0.59876	15	0.16999	118	0.75	79	0.52225
Chad	97	0.32258	111	0.79330	98	0.30069	84	0.43212	1	0	120	0.84049
Yemen	98	0.32705	97	0.59439	119	0.78099	60	0.38634	101	0.5	79	0.52225
Mali	99	0.33949	112	0.79735	1	0	114	0.97091	1	0	58	0.34502
Sierra Leone	100	0.34245	98	0.60159	1	0	110	0.79849	1	0	121	0.84424
Afghanistan	101	0.58230	110	0.71598	121	0.81777	91	0.51512	122	1	109	0.68175
Sudan	102	0.67781	106	0.67981	122	1	111	0.82273	101	0.5	122	1
Angola		NA	89	0.54344	1	0		NA	89	0.25	79	0.52225
Bosnia and Herzegovina		NA		NA	1	0	34	0.25756	1	0	1	0
Chinese Taipei		NA		NA	1	0	3	0.08757	101	0.5	1	0
Congo, Rep.		NA	101	0.62450	1	0		NA	1	0	79	0.52225
Guinea-Bissau		NA		NA		NA	107	0.75756	1	0	111	0.68473
Haiti		NA	65	0.37837	1	0	54	0.34513	1	0		NA
Israel		NA	45	0.22712	1	0		NA	1	0	1	0
Jordan		NA	85	0.51739	103	0.59876		NA	101	0.5	79	0.52225
Korea, Dem. Rep.		NA		NA	84	0.29808	91	0.51512	1	0	1	0
Lebanon		NA		NA	103	0.59876	60	0.38634	1	0	53	0.17351
Lesotho		NA	94	0.57149	84	0.29808		NA	1	0	79	0.52225
Malaysia		NA	53	0.32163	103	0.59876		NA	1	0	1	0
Occupied Palestinian Territory		NA	78	0.48607	103	0.59876		NA	1	0	66	0.34874
Oman		NA	74	0.45364	84	0.29808		NA	101	0.5	66	0.34874
Panama		NA		NA	1	0	8	0.11181	1	0	1	0
Puerto Rico		NA		NA	1	0	23	0.21635	1	0		NA
Saudi Arabia		NA	74	0.45364	122	1		NA	101	0.5	79	0.52225
Serbia and Montenegro		NA		NA	1	0		NA		NA	43	0.17151
Somalia		NA		NA	103	0.59876	113	0.84213	1	0	111	0.68473

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Country	SIGI		Family code		Civil liberties		Physical integrity		Son preference		Ownership rights	
	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	Value
Timor-Leste		NA		NA	1	0	83	0.42755	89	0.25	79	0.52225
Turkmenistan		NA		NA	1	0	60	0.38634	1	0	79	0.52225
Uzbekistan		NA		NA	1	0	60	0.38634	1	0	1	0

7.1 Codebook

Table 2: Description and Sources of Variables

Variables	Definition	Source
Response Variables		
Fertility	Total fertility rate (births per woman) (average of existing values over the last five years)	World Bank (2009)
Child mortality	Children under five mortality rate per 1,000 live births (year 2005)	World Bank (2008)
Female secondary school	School enrollment, secondary, female (% gross) (average of existing values over the last five years)	World Bank (2009)
Voice and accountability	Index that combines several data sources based on expert perceptions of "the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media" (Kaufmann et al., 2008); (average of existing values over the last five years)	Kaufmann et al. (2008)
Rule of law	Index that combines several data sources based on expert perceptions of "the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" (Kaufmann et al., 2008); (average of existing values over the last five years)	Kaufmann et al. (2008)
Regressors		
SIGI	Social Institutions and Gender Index	Branisa et al. (2009)
Subindex family code	Subindex Family code	Branisa et al. (2009)
Subindex civil liberties	Subindex Civil liberties	Branisa et al. (2009)
Subindex physical integrity	Subindex Physical integrity	Branisa et al. (2009)
Subindex son preference	Subindex Son preference	Branisa et al. (2009)
Subindex ownership rights	Subindex Ownership rights	Branisa et al. (2009)
Literacy female	Share of literate adult female population (15+) (%) year 2000	World Bank (2009)

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Variables	Definition	Source
	(average of the existing values over the last 10 years)	
Literacy population	Share of literate population (whole)	Human Development Report (HDR) stats office
	(average of the existing values over the last 10 years)	
log GDP	Log of GDP per capita, PPP (constant 2005 international $)	World Bank (2008)
	(average over the last 10 years)	
FH civil liberties	-1 * Index that measures the extent to which countries ensure civil liberties including freedom of expression, assembly, association, education, and religion as well as personal autonomy. It covers whether there is an established and generally equitable system of rule of law, free economic activity and equality of opportunity. (scale -1 (best) to -7 (worst))	Freedom House (2008)
	(average of the existing values over the last 10 years)	
Electoral democracy	Index that qualifies countries as electoral democracy when there exist competitive, universal and free and secret elections and a multiparty system that can access the media for political campaigning; (average of the existing values over the last 10 years)	Freedom House (2008)
Parliament	Proportion of seats held by women in national parliaments (%)	World Bank (2009)
	(average of the existing values over the last 10 years)	
Aids	Adult (15-49) HIV prevalence percent by country, 1990-2007; Countries were coded 1 if Adult (15-49) HIV prevalence rate exceeds 5 per cent, otherwise 0.	UNAIDS/WHO (2008)
Ethnic	The ethnic fractionalization measure gives the probability that two individuals selected at random from a population are members of different groups. It is calculated with data on language and origin using the following formula $FRAC_j = 1 - \sum_{i=1}^{N} s_{ij}^2$, where s_{ij} is the proportion of group $i = 1, \ldots,$ N in country j going from complete homogeneity (an index of 0) to complete heterogeneity (an index of 1).	Alesina et al. (2003)
Openness	Share of imports of goods and services of total GDP	World Bank (2008)
Muslim	Countries get a 1 if at least 50 % of the population are muslim, 0 otherwise.	Central Intelligence Agency (2009)
Christian	Countries get a 1 if at least 50 % of the population are christian, 0 otherwise.	Central Intelligence Agency (2009)

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Table 2 – continued from previous page

Variables	Definition	Source
SA	Countries get a 1 if located in region South Asia, 0 otherwise.	
ECA	Countries get a 1 if located in region Europe and Central Asia, 0 otherwise.	
LAC	Countries get a 1 if located in region Latin America and the Caribbean, 0 otherwise.	
MENA	Countries get a 1 if located in region Middle East and North Africa 0 otherwise.	
EAP	Countries get a 1 if located in region East Asia and Pacific 0 otherwise.	

7.2 Descriptive Statistics

Table 3: Variables used

Variable	Observations	Mean	Std. Dev.	Min	Max
SIGI	102	0.126	0.122	0.002	0.678
Subindex Family Code	112	0.326	0.223	0.004	0.797
Subindex Civil Liberties	123	0.160	0.259	0	1
Subindex Physical integrity	114	0.358	0.191	0	0.971
Subindex Son preference	123	0.134	0.240	0	1
Subindex Ownership rights	122	0.298	0.266	0	1
Fertility	121	3.562	1.702	0.933	7.678
Child mortality	119	80.005	67.777	3.758	273.8
Female secondary school	108	59.210	30.484	6.037	113.275
Rule of law	123	-0.563	0.718	-2.142	1.658
Voice and accountability	123	-0.583	0.752	-2.102	1.088
SA	124	0.056	0.232	0	1
ECA	124	0.137	0.345	0	1
LAC	124	0.177	0.384	0	1
MENA	124	0.145	0.354	0	1
EAP	124	0.137	0.345	0	1
Muslim	124	0.331	0.472	0	1
Christian	124	0.435	0.498	0	1
log GDP	115	7.988	1.121	5.609	10.553
Literacy population	121	0.741	0.218	0.173	1
Literacy female	106	0.705	0.251	0.128	0.998
Electoral democracy	120	0.455	0.459	0	1
FH civil liberties	121	-4.366	1.434	-7	-1.4
Parliament	118	10.630	6.925	0	29.556
Aids	116	0.138	0.346	0	1
Openness	119	0.452	0.261	0.013	1.914
Ethnic	120	0.517	0.237	0.039	0.930

Table 4: Pearson Correlation Coefficient between the SIGI and the Subindices

		SIGI	Subindex Family	Subindex Civil	Subindex Physical	Subindex Son	Subindex Ownership
SIGI	ρ	1					
	Obs.	102					
Subindex Family	ρ	0.793	1				
	p-value	0.0000					
	Obs.	102	112				
Subindex Civil	ρ	0.710	0.472	1			
	p-value	0.0000	0.0000				
	Obs.	102	112	123			
Subindex Physical	ρ	0.661	0.594	0.282	1		
	p-value	0.0000	0.0000	0.0025			
	Obs.	102	103	113	114		
Subindex Son	ρ	0.535	0.179	0.530	0.020	1	
	p-value	0.0000	0.0594	0.0000	0.8312		
	Obs.	102	112	122	114	123	
Subindex Ownership	ρ	0.743	0.753	0.358	0.508	0.132	1
	p-value	0.0000	0.0000	0.0001	0.0000	0.1504	
	Obs.	102	111	121	112	121	122

Table 5: Correlation of the SIGI and the Subindices with the Control Variables

		SIGI	Subindex Family	Subindex Civil	Subindex Physical	Subindex Son	Subindex Ownership
log GDP	ρ	-0.343	-0.390	0.196	-0.465	0.157	-0.481
	p-value	0.0005	0.0000	0.0362	0.0000	0.0948	0.0000
	Obs.	98	108	114	105	114	114
Muslim	ρ	0.504	0.421	0.570	0.401	0.361	0.226
	p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0122
	Obs.	102	112	123	114	123	122
Christian	ρ	-0.386	-0.332	-0.396	-0.271	-0.368	-0.052
	p-value	0.0001	0.0003	0.0000	0.0036	0.0000	0.5662
	Obs.	102	112	123	114	123	122
SA	ρ	0.298	0.134	0.326	-0.131	0.486	0.137
	p-value	0.0023	0.1589	0.0002	0.1652	0.0000	0.1319
	Obs.	102	112	123	114	123	122
ECA	ρ	-0.316	-0.379	-0.248	-0.167	-0.166	-0.329
	p-value	0.0012	0.0000	0.0057	0.0762	0.0659	0.0002
	Obs.	102	112	123	114	123	122
LAC	ρ	-0.424	-0.467	-0.289	-0.360	-0.240	-0.354
	p-value	0.0000	0.0000	0.0012	0.0001	0.0076	0.0001
	Obs.	102	112	123	114	123	122
MENA	ρ	0.231	0.164	0.533	0.083	0.417	0.017
	p-value	0.0196	0.0843	0.0000	0.3796	0.0000	0.8501
	Obs.	102	112	123	114	123	122
EAP	ρ	-0.194	-0.294	-0.111	-0.149	0.096	-0.284
	p-value	0.0505	0.0017	0.2205	0.1127	0.2934	0.0016
	Obs.	102	112	123	114	123	122

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Table 5 – continued from previous page

		SIGI	Subindex Family	Subindex Civil	Subindex Physical	Subindex Son	Subindex Ownership
Electoral democracy	ρ	-0.388	-0.380	-0.344	-0.369	-0.217	-0.238
	p-value	0.0001	0.0000	0.0001	0.0001	0.0179	0.0091
	Obs.	101	110	119	111	119	119
FH civil liberties	ρ	-0.443	-0.298	-0.421	-0.415	-0.279	-0.251
	p-value	0.0000	0.0016	0.0000	0.0000	0.0021	0.0056
	Obs.	101	110	120	112	120	120
Parliament	ρ	-0.145	-0.150	-0.279	-0.182	-0.165	-0.105
	p-value	0.1514	0.1202	0.0023	0.0578	0.0750	0.2611
	Obs.	100	109	117	110	118	117
Literacy population	ρ	-0.657	-0.696	-0.189	-0.585	-0.252	-0.586
	p-value	0.0000	0.0000	0.0389	0.0000	0.0054	0.0000
	Obs.	102	112	120	112	121	119
Literacy female	ρ	-0.636	-0.679	-0.129	-0.581	-0.149	-0.617
	p-value	0.0000	0.0000	0.1891	0.0000	0.1286	0.0000
	Obs.	95	103	106	98	106	105
Openness	ρ	-0.195	-0.099	-0.071	-0.130	-0.125	-0.174
	p-value	0.0509	0.2995	0.4465	0.1784	0.1775	0.0605
	Obs.	101	111	118	109	118	117
Ethnic	ρ	0.399	0.511	0.079	0.408	-0.105	0.463
	p-value	0.0000	0.0000	0.3918	0.0000	0.2548	0.0000
	Obs.	101	110	119	111	119	119
AIDS	ρ	0.121	0.356	0.019	0.016	-0.194	0.361
	p-value	0.2312	0.0002	0.8425	0.8684	0.0381	0.0001
	Obs.	99	108	115	107	115	115

7.3 Regression Analysis

Table 6: Linear regressions with dependent variable female secondary school

Specification with SIGI	(1) b/se	(2) b/se	Specification with Subindex	(3) b/se
SIGI	**-141.77*** **	**-10.91**	**Subindex family code**	**-39.10** **
	(37.31)	(36.37)		(11.64)
log GDP		12.69***	log GDP	11.46***
		(3.39)		(2.61)
Muslim		-2.21	Muslim	3.43
		(5.47)		(4.84)
Christian		5.31	Christian	4.18
		(5.48)		(4.33)
SA		16.05	SA	12.3
		(8.75)		(8.44)
ECA		40.26***	ECA	28.25***
		(8.98)		(6.95)
LAC		18.33*	LAC	8.64
		(9.07)		(7.41)
MENA		33.86**	MENA	29.67**
		(12.50)		(9.69)
EAP		24.73**	EAP	14.36*
		(8.26)		(6.53)
Electoral democracy		8.11	Electoral democracy	6.19
		(7.67)		(6.84)
FH civil liberties		1.95	FH civil liberties	2.72
		(3.56)		(2.89)
constant	74.75***	-56.71	constant	-27.87
	(4.12)	(37.27)		(30.56)
Number of obs.	94	91	Number of obs.	99
Adj. R-Square	0.28	0.75	Adj. R-Square	0.78
Prob>F	0.0003	0.0000	Prob>F	0.0000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
HC3 robust standard error in brackets.
Regression (2) and (3) with controls for economic development, geography, religion and political system. In this case, this specification corresponds to the complete specification.

Table 7: Linear regressions with dependent variable fertility

Specification with SIGI	(1) b/se	(2) b/se	Specification with Subindex	(3) b/se	(4) b/se
SIGI	**8.25*** **	**1.73**	**Subindex family code**	**1.89** **	**2.03** **
	(2.31)	(2.61)		(0.70)	(0.70)
log GDP		-0.71***	log GDP	-0.60***	-0.43***
		(0.16)		(0.12)	(0.12)
Muslim		0.52	Muslim	0.34	0.18
		(0.27)		(0.27)	(0.27)
Christian		0.25	Christian	0.24	0.46
		(0.26)		(0.25)	(0.26)
SA		-1.89***	SA	-1.73***	-1.88***
		(0.37)		(0.41)	(0.38)
ECA		-2.44***	ECA	-2.08***	-1.59***
		(0.48)		(0.38)	(0.43)
LAC		-0.96*	LAC	-0.68	-0.57
		(0.47)		(0.36)	(0.40)
MENA		-1.42*	MENA	-1.07*	-1.23*
		(0.63)		(0.50)	(0.48)
EAP		-1.74***	EAP	-1.37***	-1.20**
		(0.42)		(0.39)	(0.38)
Electoral democracy		-0.2	Electoral democracy	0.02	-0.03
		(0.31)		(0.29)	(0.30)
FH civil liberties		-0.02	FH civil liberties	-0.11	-0.14
		(0.17)		(0.13)	(0.13)
			Literacy female		-1.62**
					(0.60)
			Aids		-0.51
					(0.30)
constant	2.55***	9.76***	constant	7.89***	7.47***
	(0.25)	(1.82)		(1.30)	(1.29)
Number of obs.	100	97	Number of obs.	106	99
Adj. R-Square	0.31	0.82	Adj. R-Square	0.80	0.84
Prob>F	0.0006	0.0000	Prob>F	0.0000	0.0000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
HC3 robust standard error in brackets.
Regression (2) and (3) with minimum of controls for economic development, geography, religion and political system. Regression (4) with complete specification for fertility.

Table 8: Linear regressions with dependent variable child mortality

Specification with SIGI	(1) b/se	(2) b/se	Specification with Subindex	(3) b/se	(4) b/se
SIGI	**318.56****	**50.42**	**Subindex family code**	**80.14****	**77.23***
	(108.81)	(150.58)		(25.85)	(31.50)
log GDP		-22.55**	log GDP	-20.24***	-13.82**
		(7.35)		(5.34)	(5.09)
Muslim		26.61	Muslim	14.23	5.74
		(14.13)		(13.13)	(14.50)
Christian		7.49	Christian	9.47	14.27
		(11.72)		(10.31)	(10.81)
SA		-68.33***	SA	-61.30***	-71.03***
		(18.87)		(17.05)	(16.33)
ECA		-85.65***	ECA	-66.13***	-53.16*
		(23.82)		(16.75)	(20.65)
LAC		-66.65**	LAC	-50.69***	-50.23**
		(23.84)		(14.88)	(18.89)
MENA		-97.73***	MENA	-86.25***	-93.71***
		(26.90)		(21.71)	(23.48)
EAP		-73.44***	EAP	-59.37***	-55.65**
		(17.23)		(15.02)	(17.85)
Electoral democracy		-0.79	Electoral democracy	7.05	1.75
		(15.86)		(15.96)	(14.80)
FH civil liberties		-4.54	FH civil liberties	-8.33	-8.32
		(7.86)		(6.65)	(6.44)
			Literacy female		-62.77**
					(21.39)
			Aids		-19.02
					(14.56)
constant	43.38***	272.39**	constant	209.47**	209.34**
	(10.80)	(93.09)		(66.26)	(63.27)
Number of obs.	99	97	Number of obs.	106	99
Adj. R-Square	0.28	0.79	Adj. R-Square	0.79	0.82
Prob>F	0.0043	0.0000	Prob>F	0.0000	0.0000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
HC3 robust standard error in brackets.
Regression (2) and (3) with controls for economic development, geography, religion and political system. Regression (4) with complete specification for child mortality.

Table 9: Linear regressions with dependent variable voice and accountability

Specification with SIGI	(1) b/se	(2) b/se	(3) b/se	Specification with Subindex	(4) b/se	(5) b/se
SIGI	**-2.60*** **	**-1.42** **	**-1.59** **	**Subindex civil liberties**	**-0.61** **	**-0.65** **
	(0.50)	(0.48)	(0.54)		(0.23)	(0.23)
log GDP		0.27***	0.30***	log GDP	0.31***	0.27***
		(0.06)	(0.06)		(0.05)	(0.06)
Muslim		0.18	0.15	Muslim	0.16	0.21
		(0.13)	(0.14)		(0.13)	(0.14)
Christian		-0.03	-0.04	Christian	-0.05	-0.08
		(0.12)	(0.13)		(0.12)	(0.12)
SA		-0.27	-0.28	SA	-0.12	-0.04
		(0.20)	(0.21)		(0.18)	(0.20)
ECA		-0.64***	-0.56*	ECA	-0.52***	-0.57**
		(0.14)	(0.22)		(0.13)	(0.22)
LAC		-0.40*	-0.41*	LAC	-0.32*	-0.31
		(0.17)	(0.18)		(0.15)	(0.16)
MENA		-0.45	-0.47	MENA	-0.27	-0.23
		(0.23)	(0.25)		(0.19)	(0.24)
EAP		-0.30*	-0.21	EAP	-0.14	-0.21
		(0.14)	(0.21)		(0.13)	(0.18)
Electoral democracy		1.10**	1.07***	Electoral democracy	1.13**	1.14***
		(0.12)	(0.11)		(0.10)	(0.10)
Parliament			0.01	Parliament		0.01
			(0.01)			(0.01)
Literacy population			-0.31	Literacy population		0.24
			(0.42)			(0.37)
Openness			-0.07	Openness		0.23
			(0.36)			(0.22)
Ethnic			-0.07	Ethnic		0.01
			(0.25)			(0.23)
constant	-0.23*	-2.80***	-2.77***	constant	-3.28***	-3.37***
	(0.10)	(0.45)	(0.47)		(0.41)	(0.39)
Number of obs.	102	97	95	Number of obs.	112	108
Adj. R-Square	0.18	0.69	0.69	Adj. R-Square	0.68	0.69
Prob>F	0.0000	0.0000	0.0000	Prob>F	0.0000	0.0000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
HC3 robust standard error in brackets.
Regression (2) and (4) with controls for economic development, geography, religion and political system.
Regressions (3) and (5) with complete specification for governance/voice and accountability.

Table 10: Linear regressions with dependent variable rule of law

Specification with SIGI				Specification with Subindices					
	(1) b/se	(2) b/se	(3) b/se		(4) b/se	(5) b/se		(6) b/se	(7) b/se
SIGI	**-1.73*** **	**-1.88*** **	**-1.33***	**Subindex ownership**	**-0.89*** **	**-0.71*** **	**Subindex civil**	**-0.75*** **	**-0.63***
	(0.49)	(0.53)	(0.60)		(0.20)	(0.23)		(0.24)	(0.25)
log GDP		0.41***	0.36***	log GDP	0.37***	0.30***	log GDP	0.47***	0.36***
		(0.08)	(0.07)		(0.08)	(0.07)		(0.08)	(0.07)
Muslim		0	-0.04	Muslim	-0.03	-0.02	Muslim	0.04	0.11
		(0.16)	(0.16)		(0.13)	(0.14)		(0.14)	(0.14)
Christian		-0.18	-0.18	Christian	-0.11	-0.14	Christian	-0.22	-0.22
		(0.15)	(0.14)		(0.14)	(0.13)		(0.14)	(0.13)
SA		0.18	0.26	SA	0.11	0.21	SA	0.37	0.44
		(0.22)	(0.24)		(0.17)	(0.20)		(0.22)	(0.26)
ECA		-0.84***	-0.67*	ECA	-0.93***	-0.83***	ECA	-0.71***	-0.74**
		(0.18)	(0.27)		(0.16)	(0.22)		(0.15)	(0.22)
LAC		-0.74***	-0.54*	LAC	-0.78***	-0.61**	LAC	-0.58***	-0.51**
		(0.19)	(0.21)		(0.19)	(0.19)		(0.17)	(0.18)
MENA		-0.14	0.17	MENA	-0.09	0.18	MENA	0.10	0.30
		(0.27)	(0.32)		(0.25)	(0.29)		(0.24)	(0.28)
EAP		-0.31	-0.28	EAP	-0.35*	-0.36	EAP	-0.12	-0.23
		(0.16)	(0.23)		(0.15)	(0.20)		(0.15)	(0.20)
Electoral democracy		0.33*	0.40**	Electoral democracy	0.38**	0.44***	Electoral democracy	0.38**	0.46***
		(0.14)	(0.13)		(0.11)	(0.11)		(0.13)	(0.12)
Parliament			0.01	Parliament		0.01	Parliament		0.01
			(0.01)			(0.01)			(0.01)
Literacy population			-0.29	Literacy population		-0.03	Literacy population		0.20
			(0.42)			(0.38)			(0.36)
Openess			0.69*	Openess		0.71**	Openess		0.73**
			(0.33)			(0.27)			(0.23)
Ethnic			-0.07	Ethnic		-0.12	Ethnic		-0.13
			(0.32)			(0.28)			(0.27)
constant	-0.35***	-3.37***	-3.32***	constant	-3.06***	-2.94***	constant	-4.05***	-3.83***
	(0.10)	(0.58)	(0.52)		(0.56)	(0.53)		(0.52)	(0.46)
Number of obs.	102	97	95	Number of obs.	112	108	Number of obs.	112	108
Adj. R-Square	0.09	0.49	0.51	Adj. R-Square	0.53	0.56	Adj. R-Square	0.52	0.56
Prob>F	0.0006	0.0000	0.0000	Prob>F	0.0000	0.0000	Prob>F	0.0000	0.0000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
HC3 robust standard error in brackets.
Regression (2), (4) and (6) with controls for economic development, geography, religion and political system.
Regressions (3), (5) and (7) with complete specification for governance/rule of law.