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# MASS EDUCATION, STATE- BUILDING AND EQUALITY

Searching for the Roots of Corruption

ERIC M. USLANER

BO ROTHSTEIN

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Department of Political Science

University of Gothenburg

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Bo Rothstein  
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## ABSTRACT

The roots of corruption are highly contested. We argue that there is a path dependence across almost a century and a half and present five theoretical arguments for the existence of a causal mechanism between universal education and control of corruption. We show a powerful statistical link between education levels in 1870 and corruption levels in 2010 for 78 countries, a relationship that remains strong even when controlling for change in the level of education, gross national product per capita, and democratic governance. Regime type is generally not significant. We then trace early education to levels of economic equality in the late 19<sup>th</sup> and early 21<sup>st</sup> centuries—and argue that societies with more equality educated more of their citizens, which then gave their citizens more opportunities and power, reducing corruption. We present historical evidence from Europe and Spanish, British, and French colonies that strong states provided more education to their publics—and that such states were themselves more common where economic disparities were smaller

**Eric M. Uslaner**  
Department of Government and Politics  
University of Maryland  
euslaner@umd.edu

**Bo Rothstein**  
The Quality of Government Institute  
Department of Political Science  
University of Gothenburg  
bo.rothstein@pol.gu.se

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## The problem and the arguments

Beginning in the mid-1990s, the evidence that corruption is a general social ill has been mounting. Included in concepts such as (the lack of) *good governance*, *quality of government* and *state capacity*, corruption not only prevents economic prosperity but also have strong negative implications for population health, economic equality, social trust, political legitimacy, and people's subjective well-being (Uslaner 2008; Holmberg and Rothstein 2012). Theoretically, the dramatically increased interest in research about corruption is related to the “institutional revolution” in the social sciences that began in the early 1990 that stressed that being able to create a certain type of rules and regulations determined the well-being of societies (North 1990; cf. Acemoglu and Robinson 2012).

One result of this is a profound change in the attention given to anti-corruption by many policy organizations. From being largely ignored until the late 1990s, anti-corruption has become a prime issue for organizations such as the UN, the EU and the IMF. Many states' international development agencies have put anti-corruption high on their agenda.<sup>i</sup> However, despite the many anti-corruption efforts that have been undertaken during the last fifteen years, there is very little evidence that corruption throughout the world has declined.<sup>ii</sup> Neither international anti-corruption commissions, nor conditioning aid upon the establishment of anti-corruption agencies or even the rise in democratization has led to a substantial reduction in corruption (Mungiu-Pippidi, 2011; Rothstein, 2011, 105-107; Uslaner, 2008, 32-36, 69-74). As shown by Uslaner (2008, 24-27), when states are compared, both high and low levels of corruption persists over very long periods of time which is an indication that there is a general lack of understanding why it is so hard to curb. Our conclusion from this is that ad-hoc tinkering with institutional design or economic incentives will not solve the problem because systemic corruption is deeply rooted in the underlying economic, political and social systems. We shall make three main arguments. First, we will show that current levels of corruption have very long and deep historical roots, implying that this is not a problem that can be addressed without profound social and political changes. Second, broad based mass education is a central factor behind low levels of corruption. More precisely, countries' level of education as far back as 1870, measured as the mean number of years of schooling, strongly predict levels of corruption 140 years later—more so than overall economic prosperity, democratization, or the growth in education levels over time. Third, social and economic equality as well as political ambitions for state-building were important factors behind variation in the establishment of universal mass education during the late 19<sup>th</sup> century.

That institutions matter for economic prosperity and social well-being has become a standard argument in development research. There are, however, two main problems with this argument. One is a lack of theoretical distance between the independent and dependent variables. We think that it should come as no surprise that countries that have “extractive” as opposed to “inclusive” legal and political institutions, as argued by Acemoglu and Robinson (2012), are less prosperous. In a similar manner, it seems self-evident that countries with “open access” orders are more successful in economic and social terms than countries with “limited” or “closed” social orders, as stated by North, Wallis and Weingast (2009). A second problem in these analyses is a lack of precision in what specific institutions that need to be “inclusive” or “open”. These authors point at a very large set of social, political and legal institutions but without indicating which of them that are more (or less) important. The third problem with the institutional argument is that it lacks convincing explanations for why some countries get “good” institutions and others not. In other words, the root of corruption and other forms of “bad governance” is largely left unexplained in this literature. We want to address these three weaknesses in the institutional argument by making a case for the importance of a *specific* policy/institution that as an independent variable is theoretically *separated* in time and space from our dependent variable (corruption). In addition, we want to explain what made some countries establish this institution/policy (broad based education) more than others.

## **Theory: Why education, economic inequality and state-building?**

Searching for historical explanations for a problem like corruption, there is certainly no end to the number of potentially interesting variables. Since our variables operate at the aggregate level, we want to specify theoretically how we perceive the causal mechanisms between broad based education and a country’s ability to control corruption. We identify five such potential causal mechanisms. Firstly, according to Persson et. al. (2012) as well as Mungiu-Pippidi (2011), systemic corruption should be seen as a problem of collective action. This idea is a critique of the main theory in this field that has understood corruption as problem that fits under the so called “principal-agent” model in economics (Rose-Ackeman 1998 ; Klitgaard 1988; Persson & Tabellini 2000). The latter theory states that corruption occurs because an honest “principal”, due to information problems, cannot monitor her “agents” whom will fall for the temptation to engage in corrupt behavior. The policy advice that has come out from this theory has been that the “principal” should increase con-

trol and change the incentives for the “agents” to a point where the fear of being caught is higher than the greed that leads agents to engage in corruption. The problem for this theory is that in a systemically corrupt setting, it is difficult to see who this benevolent principal could be. It is very unlikely that this would be the political leaders since in a corrupt system they are usually the ones that collect most of the rents. It is also unlikely that the honest principal could be “the people” since they face a massive co-ordination problem (Persson et. al. 2012).

In the alternative “collective action” theory of corruption, people in systemically corrupt settings participate in corrupt practices mostly because they perceive that most other agents play this game and that it therefore makes little sense to be the only agent that acts honestly if one cannot trust others to be honest. In such a situation, endemic free-riding becomes the preferred strategy. We base this on results from experimental research that underscores the centrality of reciprocity in strategic interactions. As Fehr and Fischbacher (2005, 259) have stated it: “If people believe that cheating on taxes, corruption and abuses of the welfare state are widespread, they themselves are more likely to cheat on taxes, take bribes, or abuse welfare state institutions”. In this approach, corruption takes the form of a multiple-equilibria coordination problem, within the framework of which the choice of action should be expected to depend on shared expectations about how other individuals will act. Without *trust* in that most other agents are willing to stop demanding or paying bribes or in other ways subvert public institutions, most agents in a corrupt setting see no point in changing their behavior. This turns corruption into a *social trap* because it is difficult to manufacture generalized trust (Rothstein 2005). However, as argued by Glaeser et al. (2007) education “suggests a solution to Olson’s free rider problem” because it creates the necessary amount of social trust for overcoming problems of collective action.

Moreover, as suggested by Uslaner (2002, 68-74), when people in surveys answer the question if they think that “most other people can be trusted”, their answers can be interpreted as an evaluation of the moral standard of the society in which they live. While generalized trust is difficult to manufacture by political means, numerous studies have shown that education has a positive effect on generalized trust, also at the micro level (Helliwell and Putnam 2007; Uslaner, 2002, chs. 4, 8; Yamagishi 2001). Thus, although we have no measures of the level of trust 140 years ago, it is plausible that countries that established broad based free education at that time also increased the level of generalized trust among the population in their societies. The theory that higher levels

of social trust will have a positive effect for curbing corruption is supported by a substantial amount of empirical research (Rothstein 2011; Uslaner 2008).

A second theoretical argument for why universal education should be important has to do with the importance of literacy and mass-media for curbing corruption. A free press with a broad circulation is important for curbing corruption (Adsera, Boix, and Payne, 2000). The effectiveness of a vigilant press for curbing corruption depends on wide-spread literacy is. If most people cannot read, there will be fewer newspapers sold and the popular knowledge about corruption and the demand for accountability and “clean government” will be lower. Others, however, have contested this relationship (Rose-Ackerman, 1999, 167; Uslaner, 2008, 37, 67). Moreover, Botero, Pontero, and Shleifer (2012) argue that more highly educated people are more likely to protest against corruption, also in non-democratic states, which explains why some autocratic states can have relatively low corruption and some democratic states are highly corrupt.

A third theoretical argument for the importance of broad based education has to do with our understanding of what corruption is and, not least, how the opposite of corruption should be defined. The standard definition of corruption is usually “abuse of public power for private gain”. This definition is problematic because it does not say what should be counted as “abuse”. An alternative definition that has been suggested is that the opposite of corruption is “universalism” in public policies (Mungui-Pippidi 2006), or “impartiality” in the implementation of public policies (Rothstein 2011). A state that is governed by universal or impartial norms of fairness saying that “like cases should be treated alike” is not generally corrupt. The opposite of justice is not equality because justice sometimes requires unequal treatment. Instead, it is *favoritism* which is what corruption (and clientelism/nepotism) is all about and as stated by Goodin (2004), the opposite of justice is favoritism.

The introduction of broad based free education is likely to establish the idea that the state need not only be an instrument of favoritism, extraction and oppression, but that it can also be an instrument for social justice and increased equality of opportunities which, in its turn, will induce generalized trust. However, establishing a “credible commitment” that universalism, fairness and impartiality will be respected turns out not to be a simple thing. The incentive model that comes out from the principal-agent theory is in this respect detrimental for combatting corruption because such a strategy likely to crowd out the trust that is necessary for overcoming the collective-action

problem (Miller and Whitford 2002). In order to break out of “social trap” situation such as endemic corruption, the agents need to be convinced that most other agents are willing to change their behavior from opportunism to collaboration and for this to happen, a very strong (convincing) “signal” must occur (Ziegler 1998). Our argument is that a state that establishes broad based free education is sending out such a very strong *signal* about being committed to universalism, fairness and impartiality to its citizens which is likely to increase political legitimacy.

A fourth theoretical justification for a causal link between universal education and low corruption runs through economic equality. As shown by Uslaner (2008), economic inequalities increase corruption. The causal chain is complex since it is characterized by “feed-back” mechanisms since corruption increases inequality. However, as we will show below, it was often the more equal societies that established broad based education. Universal education is a powerful policy for reducing economic inequalities, which then lowers corruption. Over time the great educational inequalities between the rich and the poor in countries that went for universal education were sharply reduced, though not eliminated (Morrison and Murtin, 2010). In the highly stratified societies of the 1870s, the introduction of universal or (near universal) education must be understood as a quite substantial increase in the degree of equality in human capital. Simply put, education decreased inequality which is known to be a factor that leads to higher levels of corruption. Access to education provided more people with the skills to find good-paying jobs without having to rely on traditional feudal, corrupt or clientelistic structures of power (Uslaner, 2008, 239-241). A related argument is that a state that spends heavily in education is more likely to capitalize on this investment by employing the most successful “outputs” from this system as civil servants, as system known as meritocracy which in its turn is a positive causal factor for reducing corruption (Dahlström, Lapuente and Teorell, 2011)

Our fifth theoretical argument is about the importance of gender equality for levels of corruption. There is a strong positive correlation between gender equality and low levels of corruption, even when controlling for a number of other variables and even when one compares regions in a corrupt country such as Mexico (Wängnerud 2012). A society that establishes universal free education will also increase gender equality since in such systems boys and girls are given the same amount of education, something that still is not accepted in many parts of the world. Establishing (at least formal) gender equality in education is a strong signal about *impartiality* and *fairness* of the state, especially if one considers the situation 140 years ago. In his account of the introduction of

mass schooling in Sweden during the 19<sup>th</sup> century, Boli (1989, 234) argues that the reform should be seen as a qualitative shift for increased gender equality.

There are thus a number of theoretical justifications for why establishing broad based free schooling should have a positive effect on curbing corruption. Such education increases generalized trust, general literacy, citizens' ability to protest against malpractice as well as their perceptions of impartiality and fairness of the state, economic equality, and gender equality.

If broad based education determines levels of corruption, then we need to know what may explain the establishment of such education. We focus on two variables that have been shown to have a strong influence on the establishment of broad based education: economic equality and state-building. Highly stratified societies restrict opportunities for the poor to better their situation—and educational opportunities are a major reason why the universal welfare state leads to greater equality (Rothstein and Uslaner, 2005). In the historical cases known for having dealt with corruption during the 19<sup>th</sup> century in a successful way, ambitions for state building by the political elite turns out to have been important.

Below we will show that the level of education in the 1870s shapes corruption 140 years later—more so than overall economic prosperity, democratization, or the growth in education levels over time. We also show that former colonies had lower levels of educational attainment in 1870, though some (in Latin America) fared better than others (mostly British and French possessions in Africa and Asia).

## **The Data and the Results**

We examine the roots of contemporary corruption by analyzing the linkages with measures of educational attainment, inequality, and democratization in the 19<sup>th</sup> century—more specifically the period around 1870. We chose 1870 because it is the earliest date for which mean levels of schooling are available. We make no claim as to how long a country's historical social and economic conditions will continue to shape its quality of governance. However, the results we present below indicate that such conditions matter at least a century and a half later.

Our measure of corruption is the Corruption Perceptions Index (CPI) of Transparency International for 2010 which is largely based on expert surveys.<sup>iii</sup> While some have criticized this measure (notably Abramo, 2005), others (Kaufmann, Kray, and Mastruzzi, 2007; Lambsdorff, 2005) have defended it and similar measures with vigor—and we find their responses convincing. Additional validation for this measure has come from two recent surveys of representative samples or citizens showing that measures based on the perceptions by “ordinary people” and experts correlate to a surprisingly high degree (Berchert & Quant 2009; Svallfors 2012). In the CPI, the most corrupt countries have the lowest scores on this index, the least corrupt the highest values. We use new data sets on historical levels of education developed by Morrison and Murtin (in press) and on historical income levels by Bourginon and Morrison as well as existing data on democratization, percent family farms, and percent Protestant.<sup>iv</sup>

We begin with our central result. There is a striking relationship between the mean number of years of schooling in a country in 1870 and its level of corruption in 2010 (see Figure 1). Moving from the lowest levels of education (.01 for four African nations) to the highest (6.07 in Switzerland) leads to an increase in transparency of 7.06—the difference between Angola, the fourth most corrupt country, and Canada, the fifth least corrupt nation. Colonies in 1870 with almost no schooling were the most corrupt countries 140 years later while the most highly educated nations were the least corrupt. The relationship is very powerful: the  $r^2$  between 1870 educational levels and 2010 corruption levels is .699 across 78 countries..



FIGURE 2

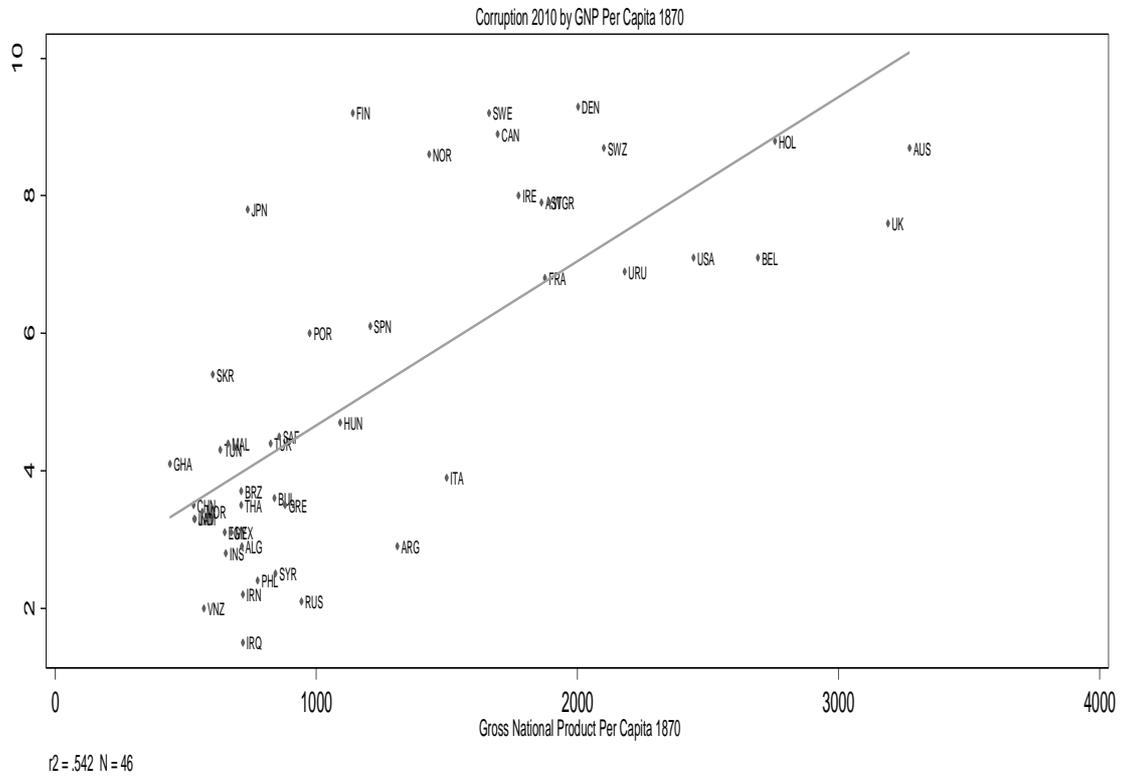


TABLE 1,

REGRESSION OF 2010 CORRUPTION BY 1870 MEAN SCHOOL YEARS AND GNP PER CAPITA

Variable	Coefficient	Standard Error	t Ratio
Mean School Years 1870	.738**	.174	4.22
Gross National Product Per Capita 1870	.001*	.0004	2.07
Constant	2.710**	.422	6.42

$R^2 = .677$   $R.M.S.E. = 1.433$   $N = 46$ . \*\*  $p < .01$  \*  $p < .05$

Is it then all about the past? Mostly, though not completely. Note first that countries with high levels of education in 2010 also had more educated publics 140 years ago ( $r = .760$ ).

The countries with the greatest gains in levels of education were Japan, South Korea, Finland, and Italy—which had low levels of schooling 140 years earlier—as well as the mid-level countries of Australia and the United Kingdom. Sixteen of the countries with the biggest increase in mean school years were in the 20 most educated countries in 1870; and 17 of the 20 countries with the smallest growth in education were among the least educated third in 1870. Our regression predicting 2010 levels of corruption from both 1870 education levels and changes in schooling over 140 years shows that both are significant (Table 2). The impact of historical levels of education is 2.5 times that of change in education (6.36 units of the CPI corruption index compared to 2.71). However, there is evidence of a catch-up effect. Countries that had the fewest years of schooling in 1870 (less than two) had stronger growth in education levels—but, even here, the countries that were at the “top of the bottom” experienced the greatest growth rates in schooling ( $r = .613$ ).

TABLE 2,

REGRESSION OF 2010 CORRUPTION BY MEAN SCHOOL YEARS AND MEAN SCHOOL YEARS CHANGE

Variable	Coefficient	Standard Error	t Ratio
Mean School Years 1870	1.049***	.086	12.23
Mean School Year Change 1870-2010	.248**	.064	3.88
Constant	1.343*	.429	3.13

$R^2 = .750$   $R.M.S.E. = 1.213$   $N = 78$ . \*\*\* $p < .0001$  \*\* $p < .01$  \* $p < .05$

What about political institutions? There were relatively few democratic regimes in the latter part of the 19<sup>th</sup> century compared to today. There are measures of democratization, though for fewer countries. We re-estimate the model in Table 2 including the Polity IV measure of democracy in 1870 (see note 4). The sample size is reduced to 40 countries. But the story is straightforward: Democracy in the late 19<sup>th</sup> century doesn’t matter for contemporary levels of corruption. The coefficient is insignificant and going from the least to the most democratic nation increases transparency by a mere .27 points on the ten point scale. The mean level of education

effect is 5.95 units and education level change leads to a 2.96 unit boost in transparency. This is not an issue of collinearity. The correlation between mean school years and democracy in 1870 is just .435 and the simple  $r$  between democracy in 1870 and corruption in 2010 is only .421, while the  $r$  between corruption and mean school years 140 years earlier is .825. In sum, the educational roots of corruption are much stronger than its democratic foundations. As Green (1990, 31f) argues in his comparative study of the history of education in England, France and the USA: “One of the great ironies of educational history is that the more 'democratic' nineteenth-century powers like France, England and the USA, ..., were forced to look to the autocratic German states for examples of educational reforms to adopt at home.”

TABLE 3,

REGRESSION OF CORRUPTION 2010 BY MEAN SCHOOL YEARS AND DEMOCRATIZATION IN THE LATE 19<sup>TH</sup> CENTURY

Variable	Coefficient	Standard Error	t Ratio
Mean School Years 1870	.984***	.121	8.16
Mean School Year Change 1870-2010	.305**	.119	2.56
Democracy Polity IV	.027	.078	.03
Constant	.961	.889	1.09

$R^2 = .734$   $R.M.S.E. = 1.338$   $N = 40$ . \*\*\*  $p < .0001$  \*\*  $P < .05$

What type of schooling matters? We show below that more inclusive (that is, universal) education in the latter part of the 19th century was more likely to be found where governments, rather than private groups (most notably missionaries), took responsibility for funding and organizing schools—and in countries where there was a greater degree of economic equality. Outside the West, most countries in the late 19th century were either colonies or former colonies. The colonies had no control over their own budgets and the colonial powers paid scant attention to educating the public in their colonies. As for religion, the Protestant churches in Western countries supported public education more than the Catholic churches did. Before the twentieth century

regions with more Protestant individuals within the same European countries did have higher literacy rates, especially among non-elites and women than their catholic counterparts (Woodberry 2011). In Europe, the type of religion was more important than economic prosperity. Scandinavia, lowland Scotland, and Iceland were all very poor and yet had broad-based literacy. What they had in common was the Protestant religion that resulted in both religiously financed literacy campaigns and support for public education through the state.

The Catholic Church invested in education only where it faced competition (such as in Ireland, North America and in the British colonies) or where facing a secularizing state such as France. However, where competition for the souls was lacking, education was not a prioritized area for the Catholic Church as the cases of Italy, Spain and Portugal clearly show. At times, the Catholic Church also feared literacy as this was seen as a means to a Protestant reformation (Gill 1998). Gill also argues that Protestantism more often stresses a personal relationship to God, while the Catholic religion sees that this rather is done by priestly meditation. The result, according to the author, is more activity by Protestant churches than among by the Catholic church for mass education. Protestantism also implied that everyone would need direct access to the word of God in the form of being able to read the Bible in their own language (Woodberry 2004). However, we do not argue that the content of religious principles made the difference. Instead, it was the existence of competition for the souls and the idea in Protestantism of each individual's access to the "word" that made education more widespread and equal in Protestant countries. The Catholic Church had a different approach. As the Bible text was read in Latin and hence seldom translated, mass education was not a priority for the Catholic Church unless it was competing with Protestants or with a secular state.

There is also a connection between state-building and Protestantism. In several of the countries where Protestantism succeeded (England and the Nordic countries), the church became an official part of the state. This made it easier for these states to use the schools that was either run by the local parishes or in other ways heavily influenced by the clergy as instrument in for nationalistic state building, not least by influencing the content in disciplines such as history and literature (Weber, 1976, ch. 18; Tingsten, 1969). It seems reasonable to infer that a state that had this influence over the clergy, which in its turn ran the schools, would increase the state's willingness to finance broad based education. However, the type of universal mass education that was introduced in countries like Denmark, France, Prussia and Sweden during the 19th century should according to

Boli (1989, 209-212), Weber (1976, 362-364) and Green (1990) not be seen as a mere extension of earlier forms of church dominated education. Instead, Green (1990, 29) argues that:

... as an explanation of the rise of national systems of education, religion will clearly not do. The fact is, that national education systems were not simply elaborated networks of schools of the earlier type: they were qualitatively distinct. What characterized the national education system was its 'universality', and specific orientation towards the secular needs of the state and civil society.

Our interpretation is that while Protestantism clearly is a structural factor, it is noteworthy that historical interpretations of the mass education reforms in some of the least corrupt countries in the contemporary world stresses the break with religious dominance and instead point at the importance of universalism and the need to create “new citizens” as a mean for state-building. It is also noteworthy that for these states, as a “signal” of fairness and impartiality, free mass education was introduced several decades before universal welfare state programs such as public pensions or health insurance.

## **Western Europe: Mass Education and the Need for State-Building**

The question of why and when universal and free mass education was established in Europe during the 19<sup>th</sup> century comes with a number of surprises. One is that the most economically developed country, namely England, was a latecomer in this process. This goes against not only functionalist modernization theory as well as Marxist theories about the development of the productive forces increasing the need for the state to provide skilled labor. As Green (1990, 45) states, "If technical requirements in the economy were the major factor in educational development, one would expect France and Prussia to have been behind England. But the fact is they were not". Prussia introduced

universal mass education in 1806, almost a hundred years before England did. Green also shows that sociological theories that stress the importance of urbanization, working-life conditions and changing family structures cannot explain why France and Prussia (and Denmark and Sweden) developed universal mass schooling well before England. Instead, Green (1990) as well as Boli (1989) and Weber (1976) point to the need for state-building and national unity as the main driving force behind why countries Prussia, Sweden and France developed universal mass education. Mass education was introduced as a mean for creating citizens with a strong national identity. To quote Eugen Weber, the French system of mass education was established to make “peasants into Frenchmen” and to teach them “national and patriotic sentiments” (1976, 332). These authors also show that the introduction of universal mass education should be seen as a departure from earlier educational models. As Green (1990, 79) argues, the new systems for mass education

...signaled a decisive break with the voluntary and particularistic mode of medieval and early modern education, where learning was narrowly associated with specialized forms of clerical, craft and legal training, and existed merely as an extension of the corporate interests of the church, the town, the guild and the family. Public education embodied a new universalism which acknowledged that education was applicable to all groups in society and should serve a variety of social needs. The national systems were designed specifically to transcend the narrow particularism of earlier forms of learning. They were to serve the nation as a whole.

Boli (1989,34) argues that the new systems of mass education that arose in countries like Denmark, France, Prussia and Sweden were built on new principles such as universality and egalitarianism: In the Swedish case, Boli (1989, 232) adds that one of “the most striking aspect of the universalism” of the law that established free mass education in Sweden in 1842 was that boys and girls would be treated equally in the new system and that they were to be thought together. This was a clear break with earlier practices.

Can particular historical cases of the development of mass education be traced to contemporary levels of corruption? As is well known, today's Germany has a comparatively very low level of corruption while Italy is the opposite case, in the CPI ranked well below a number of sub-Saharan African countries. The question is if this huge difference can be traced back to variations in universal schooling at the end of the 19<sup>th</sup> century. The answer seems to be a resounding yes.

Ramirez and Boli (1987) argue that state and nation building was the primary reason for why Prussia introduced mass education. Schooling was a mean "to construct a unified national polity, where individuals would identify themselves with the nation". Hence, sponsoring system for mass schooling was a strategy for the state to avoid losing power in the interstate system by using it as the means of "national revitalization". At that time, Prussia was a "state without a nation" while a strong central bureaucracy was in place. However its polity was fragmented and dominated by local interests. In order to unify Prussia, Frederick II wrote the famous directive "General Regulations for Village Schools" (Ramirez and Boli 1987). Through state-directed education, "... all children were taught to identify with the state and its goals and purposes rather than with local polities (estates, peasant communities, regions, etc.).

In 1806, Napoleon triumphed over Prussia, and the French influence was a fact. The humiliation the Treaty of Tilsit provoked the Germans towards patriotism which would be implemented by mass education. According to the lectures of Fichte "...universal, state-directed, compulsory education would teach all Germans to be good Germans and would prepare them to play whatever role – military, economic, political – fell to them in helping the state reassert Prussian power." Fichte's words fast became actions. A Bureau of education was established, ten years later a department of education was created. Between the years 1817-1825 a state administration of education was established, and taxes were imposed in order to finance the school system (Ramirez and Boli 1987; cf. Green 1990). Hence, in Prussia (as well as in Denmark, France and Sweden, (Boli 1989, 218; Weber 1976), the introduction on universal education reforms was a response to a sense of national crisis caused by a too fragmented social order. Universal mass education was seen as a mean to strengthen and unify the nation, or to use Boli's (1989) book title – to create "new citizens for a new society".

A different and for our purpose particularly interesting case is Italy which introduced a law about universal education in 1859. However, Italy was at that point in time not a unified nation state but instead had strong regional differences. As it turned out, the implementation of the school reform was much more efficient in the northern regions whereas little was done in the southern regions before 1900. According to Smith:

Virtually, the whole southern agricultural population was illiterate. Yet it was impossible to apply the (...) law of 1859 which had specified two years' compulsory education, because parents would not have co-operated even if the teachers and schools could have been found. (Smith 1997:51).

This follows closely both the well-known study by Putnam (1993) showing great regional differences in institutional effectiveness in Italy between the north and the south. This has recently been confirmed by a survey based study showing huge difference in perceptions of corruption and the general quality of government institutions in Italy between the Northern and the Southern regions. This study shows that Italy is the EU country in with the starkest regional differences in levels of corruption and quality of government (Charron, Lapuente and Dykstra 2012). As late as 1911, half of the Italian population was illiterate (Smith 1997). Thus, there seem to be a lasting impact of what took place in national systems of education during the late 19th century and contemporary levels of "good governance".

### **Fewer Educational Opportunities: Outside the West**

Almost all of the countries in our sample outside the West were colonies or former colonies in 1870.<sup>v</sup> The mean level of education for non-Western countries was .44, less than a half a year of schooling, compared to 3.5 for the West. The publics in only five Western countries (Portugal, Italy, Japan, Greece, and Finland, in descending order) had fewer than a year and a half of schooling on average, while only four non-Western countries (Argentina, Bulgaria, Uruguay, and Hungary, in ascending order) had publics with that much education. Almost a century and a half later the

mean level of corruption for the OECD countries was 7.64, compared to 3.14 for other countries. Even the modest level of education in Italy in 1870 (an average of .84 years) was greater than most colonies or former colonies.

The relationship between corruption in 2010 and mean schooling in 1870 is only slightly greater outside the West ( $r^2 = .277$ ) because: (1) the major differences in both schooling and corruption are between the West and outside the West, rather than within either grouping; and (2) there is simply less variance in education levels outside the West.<sup>vi</sup>

The major powers still ruling colonies in our sample were Great Britain (19 countries), France (9), and Portugal (3).<sup>vii</sup> The other major power, Spain (16 countries), had granted independence to most of its colonies in the early 19<sup>th</sup> century. The British and French did little to provide education for their colonies, which had .17 and .11 school years each. Residents of Spanish colonies fared considerably better, with an average of .75 years of schooling.

The data set includes a diverse set of independent nations, with some countries (Bulgaria and Hungary) having education levels just below Western levels, others (China, Japan, Russia, and South Korea) with schooling comparable to many former Spanish colonies, a third group (Iran, Thailand, Turkey) in the bottom third of nations, and a final set that provided little education (Ethiopia, Indonesia). Overall, the ten independent nations averaged .87 years of education in 1870, still well below Western levels but even greater than the former Spanish colonies.

Education levels were low in British and French colonies—primarily in Africa and Asia—were very low because the colonial powers were more concerned with extracting resources from their colonies and did little to establish institutions that would enhance the lives of their subjects. Colonists had no access to independent institutions of governance, much less of tax revenue, to finance their own schools.

Throughout the British and French colonies, the vacuum in state-provided education was left to missionaries or settlers to provide (Bledsoe, 1992, 188; Heggoy, 1973, 183; Malinowski, 1943, 649; Mpka, n.d.) or to local authorities. These private and local suppliers of education had limited resources and often less commitment to educating Asians and Africans (Maddison, 1971, 6-8; Mpka, n.d.). They also received very limited support from the colonial governments (Gray, 1986). Very few young people were educated in these private institutions—because of miniscule funding

but also because of the cultural conflicts in the few schools that were established. The schools in India were designed to “Anglicize” the Indian population—and so all instruction was in English (Mantena, 2010; Maddison, 1971, 6).

In North Africa, the French colonialists met with resistance from the indigenous population, who often refused to send their children to the handful of schools established, which emphasized French language and culture and did not permit any instruction in Islam (Balch, 1909; Heggoy, 1973). In much of Africa, traditional education was oral, not written, designed to teach young people the skills needed to survive in an agrarian society, but the colonists did little to respect this heritage (Mpka, n.d.). The few students who did receive public education were almost all boys (Robertson, 1977, 213). Education was barely provided by British and French colonists, other than missionaries, who had few resources. The indigenous people neither had their own state nor a fair state run by the colonial powers

Spanish colonialism—and to a lesser degree Portuguese rule in Brazil— actually placed a greater emphasis on providing education (and other services) to the population. Premo (2005, 81) argued that Spanish colonial rule in Peru emphasized education: “[schools] served as social workshops in which early modern Iberian culture, religion, and political ideologies were reproduced among a colonial populace, and particularly a young colonial populace.” The Spanish parliament (Cortes) decreed that universal free public education be made available to every community in Cuba with at least 100 residents; 21 years later a plan was adopted shifting all education from private to public control (Fitchen, 1974, 109, 111)

Uruguayans were the most educated Latin American population in 1870, with an average of 1.61 years of schooling. Yet, “...the small aboriginal population had been almost liquidated long before [1850] and a strong immigration from Europe was taking place” (Arocena and Sutz, 2008, 1-2). Where the indigenous population remained dominant, the Spanish colonial regime exploited indigenous labor and provided much lower levels of education. Lange., Mahoney, and vom Hau (2006, 1425-1426) have constructed an index of the extent of colonial power in Spanish Latin America. Where colonial influence was greatest, the mean level of education was lowest (.45), compared to intermediate colonialism (.73) and low influence (1.06,  $r = -.65$ ). Nevertheless the relationship between mean school years in 1870 and 2010 was much weaker in Latin America ( $r^2 = .104$ ) than in all countries ( $r^2 = .577$ ). Education was a benefit to the Spanish

migrants to Latin America, who were far more numerous than either British or French settlers in Africa or Asia. When these nations became independent, their own governments took on this responsibility.

The Spanish colonies were able to provide greater education than British and French dependencies in Europe and Asia because they had, at least initially, governments that took the responsibility for providing education, rather than because of any differences between religious traditions. In many independent countries (such as Turkey, China, Japan, and Korea) the state did not assume responsibility to provide education. Only a small share of the population received education provided by the military, religious authorities, or local nobles (Adams, 1960; Dore, 1964; Frey, 1964, 209, 218; Kilicap, 2009, 100-101). Hungary and Bulgaria, with the highest level of education among the independent nations, had state-supported secular education by the middle of the 19<sup>th</sup> century (Ministry of Education and Culture [Hungary], 2008, 7; Bulgarian Properties, 2008).

## **Equality, Schooling and Corruption**

We have developed short narratives of the development of public education inside and outside the more developed world in 1870. We now present a simple model integrating these qualitative stories—and then offer an alternative account focusing on institutional design. We show that one key factor shaping the level of educational attainment is the relative level of equality in a society. We then examine whether democratic governance in the late 19<sup>th</sup> century shaped educational achievement contemporaneously.

We present two simple models of the level of education in 1870 in Table 4. We consider a measure of equality, a dummy variable for being a present or former colony, a dummy variable for Latin American countries, and the percent Protestant in a country. We expect that colonial status, either present or former, will lead to lower levels of educational attainment. Since Latin American countries had different colonial experiences—and achieved independence earlier than other colonies—we expect that they will have relatively higher levels of schooling. The role of the Protestant churches in promoting literacy in Europe should lead to considerably higher levels of educational attainment in Protestant countries.<sup>viii</sup>

Without a direct measure of economic equality available, we use a measure also employed by Easterly (2006), and Boix (2008), Vanhanen's (1997) estimates of the percent of family farms in a country in 1868. The Vanhanen (1997, 48) index is the share of all farms that are owned and operated by small farmers (with no more than four employees). As Boix (2008, 207) argues: "The percentage of family farms captures the degree of concentration and therefore inequality in the ownership of land." Easterly (2006, 15) argues that "...the family farm measure from earlier dates since 1858 is a good predictor of inequality today." Rueschemeyer, Stephens, and Stephens (1992, 139-140) states that "the wide availability of cheap land [in the British colonies of the United States, Canada, Australia, and New Zealand]...eventually resulted in a large class of family farmers," setting a path for the development of democracy and ensuring that large landholders could not dominate family farmers, either economically or politically. Our data show a moderate, if not overwhelming powerful relationship between school attainment in 1870 and percent family farms for 35 countries ( $r^2 = .331$ ).

We estimate two models because percent Protestantism is very strongly correlated with percent family farms and colonial status. The first model includes percent Protestant and the dummy variables for colonial history and Latin America (Table 4). The second model includes percent family farms, democratization, the dummy variables for colonial history and a measure from Acemoglu, Johnson, and Robinson (2001) of the percentage of the population in a country of European origin in 1900.<sup>ix</sup> We argue that mass public education was a European innovation—and that countries outside of the European continent with widespread schooling had populations that were mostly of European background. We present these models in Tables 4 and 5.

In the first model, all three predictors are significant in a model explaining almost two-thirds of the variance in education levels. An almost completely Protestant society will have 3.66 extra years of education, an effect greater than that for colonial status (two fewer years of schooling) or Latin American status (two-thirds of a year more). In the second model, with a smaller number of cases, democracy is significant, but its impact is dwarfed by equality and European population share..

Neither democracy nor colonial status is significant. A country ranking highest on the Polity IV measure of democracy will have an average of 1.33 additional years of schooling and a former colony .13 *more* years of education. An entirely European country will average 2.1 more years

of education, while the most equal society will have 3.2 additional years. The effect of colonial status is insignificant (with a boost of just .13 extra years of education). In separate estimates (not shown), neither the Latin America dummy nor Protestantism is significant. Our estimates show that when a power replaced the local population with its own citizens (the United States, Canada, Australia, and New Zealand for Britain, Uruguay and Argentina for Spain), it provided education at the same levels that it did for the people who stayed home.<sup>x</sup> For the 50 colonies or former colonies for which we have data, *only* the percent European matters and the correlation is almost perfect ( $r = .910$ ).

TABLE 4,  
MEAN SCHOOL YEARS 1870 BY COLONIAL HISTORY AND PROTESTANT SHARE OF POPULATION 1980

Variable	Coefficient	Standard Error	t Ratio
Colonial history	-1.982****	.388	-5.11
Latin American country	.630*	.274	2.30
Percent Protestant 1980	3.732***	.818	4.56
Constant	2.143***	.373	5.75

$R^2 = .645$  R.M.S.E. = 1.211  $N = 60$ . \*\*\*  $p < .0001$  \*\*  $p < .01$ , model estimated with robust standard errors

TABLE 5,  
REGRESSION OF MEAN SCHOOL YEARS 1870 BY PERCENT FAMILY FARMS AND DEMOCRATIZATION IN THE LATE 19<sup>TH</sup> CENTURY

Variable	Coefficient	Standard Error	t Ratio
Percent Family Farms 1868	.050*	.011	4.48
Democracy 1870	.133	.104	1.28
Colonial history	.128	.356	.36

<b>Percent European background</b>	.021****	.005	3.92
<b>Constant</b>	-.548	.398	-1.38

$R^2 = .659$   $R.M.S.E. = 1.226$   $N = 34$

\* $p < .0001$ , *model estimated with robust standard*

Democracy matters—a bit. But the cultural heritage of a country (here reflected in percent Protestant and for colonies the percent of European background) and especially the level of equality (as measured by percent family farms) matter much more. The results indicate that egalitarian societies, far more than democratic countries, invested in universal education. The link from educational equality in the late 19<sup>th</sup> century to less corruption in the 21<sup>st</sup> century is not simply a matter of the aura of the past trickling down through some vague process of “path dependence.” The immediate gains from public education to good governance have long-term consequences—creating a virtuous circle where initial support for public education (and economic equality) when they were high and a vicious circle when they were low. Since lower corruption leads to greater economic growth (Leite and Weidmann, 1999; Tanzi, 1998) and to greater spending on education (Mauro, 1998; Uslander, 2008, 74-79), countries with an initial positive endowment of education—and a reasonably impartial (low corrupt) state—continue on the path toward more services and better performance. In countries where corruption is widespread, the education system is often one of the more tainted institutions—and bribes may make the price of schooling too high for some people (Chapman, 2002).<sup>xi</sup>

Even as the gap between the top and the bottom in public support for education has fallen dramatically, it persists. Countries that had high levels of public education in 1870 have a more generous welfare state in the early 21<sup>st</sup> century. Our contemporary measure of inequality is Solt’s (2009) index of redistribution<sup>xii</sup> which is the difference between net and gross inequality in a country, where net inequality includes government transfer benefits. Countries with high levels of public education in 1870 have greater redistribution to the poor in 2004 ( $r^2 = .598$  for 49 countries). And redistribution is strongly linked to lower levels of corruption ( $r^2 = .682$ ,  $N = 49$ ). Contemporary redistribution is also linked to our proxy for inequality in the late 19<sup>th</sup> century, the share of family farms ( $r^2 = .382$  for  $N = 29$ , .457 with the outlier of China excluded). One might argue

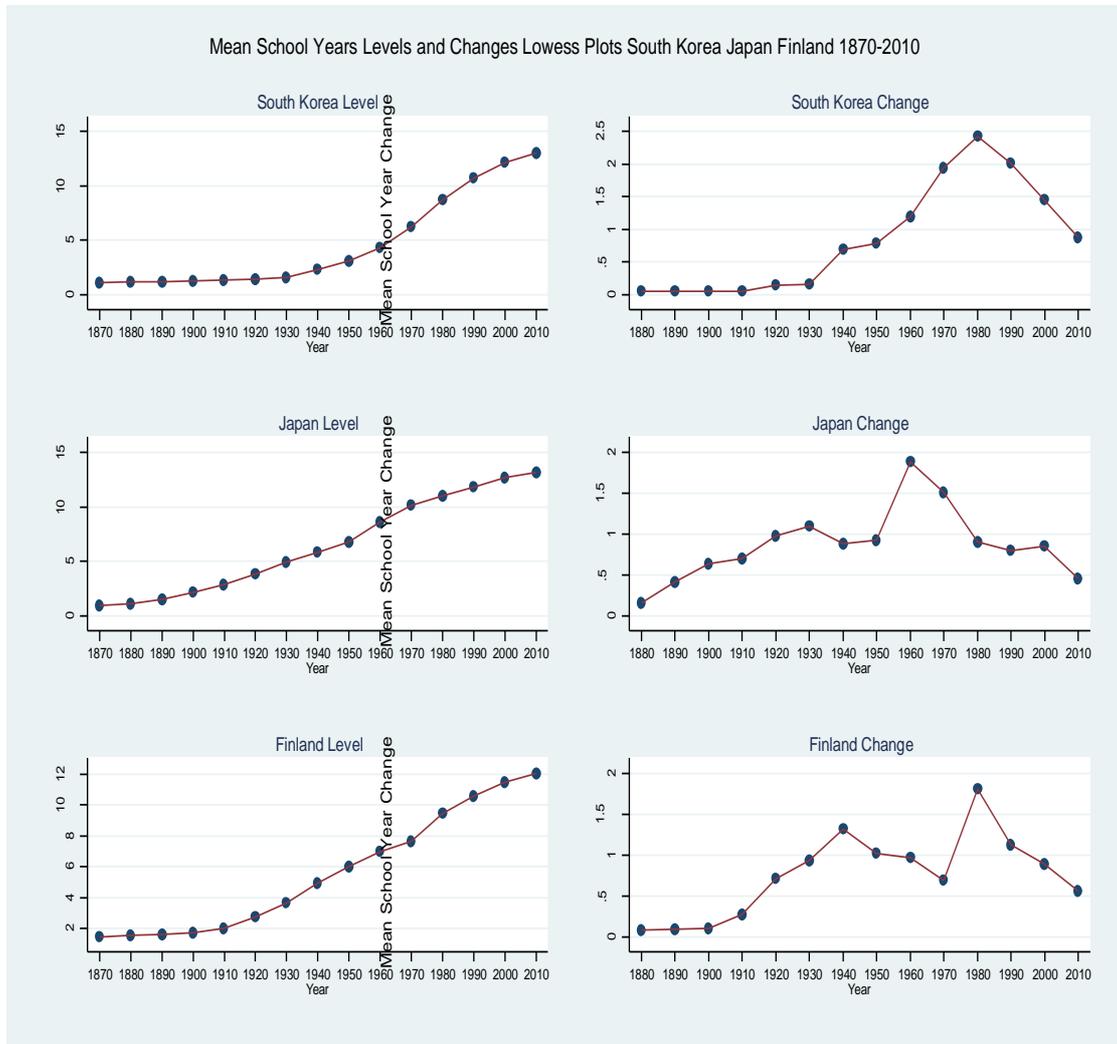
about the direction of causality in the contemporary linkage. Yet, there is clearly a path dependence from a state in a more equal society providing more widespread education in the late 19<sup>th</sup> century toward both a less corrupt state in 2004.

### **Is Path Dependence Forever?**

Our short answer is “no”. We saw in the regression in Table 3 that change in mean school years from 1870 to 2010 shapes the level of corruption in 2010 as well as do historical levels of education. Three nations with middle-to-low levels of education in 1870 showed the largest increases over time: Finland (10.6 year increase), South Korea (11.8), and Japan (12.2). Contemporary Finland ranks among the four very least corrupt countries at 9.2. Japan is tied for 17<sup>th</sup> and South Korea is tied for 39<sup>th</sup> place. These are all much higher transparency scores than we would expect based upon their 1870 levels of education (1.45, 1.11, and .97. respectively). We present less smoother plots of both the trends in education and changes from one decade to another for these countries over time in Figure 3.<sup>xiii</sup>

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FIGURE 3



The plots show increasing education levels in South Korea from 1940 onward, with the big spikes coming after 1960; in Japan since 1950 with the greatest increase around 1960; and in Finland since 1940 with the greatest surge between 1970 and 1980.

How do we account for such trends? The bad news for countries seeking to engineer boosts in education is that each country seems to be responding to external threats and the following need for state-building, which Aghion *et al.* (2012) found to be a general pattern historically. This story is consistent with Uslander’s (2008, ch. 7) account of curbing corruption in Hong Kong, Singapore, and Botswana—Hong Kong and Singapore faced perils from China and Botswana

na from South Africa. Here the adversaries are both the same (China for Korea) and different (defeat in World War II for Japan and the Soviet threat for Finland). This is also consistent with analysis of how Denmark being under constant threat from Prussia and Sweden having lost a third or the country to Russia in 1809, during the mid-19<sup>th</sup> century managed to curb systemic corruption (Frisk Jensen 2008, Rothstein 2011 ch. 8).

The movement for universal education in Korea first came as a reaction against the Japanese colonial regime in 1945. The Japanese rule sharply limited access to education in Korea, but reform attempts were put aside when China intervened on behalf of North Korea and started the Korean War in 1949. When the war ended in 1954, education spending soared as Koreans saw education as the key to economic development but the country was both economically devastated by the war and caught up in domestic protests that overthrew the military regime. Free compulsory primary education was adopted in 1954 and was achieved by 1959. An expanded public education system including free textbooks was implemented by 1971 and in 1968 the state replaced the comprehensive examination system for middle school admission with a more egalitarian lottery. The lottery was not designed to lead to universal public education; yet, by 1980, 96 percent of students in primary schools went on to middle schools and 85 percent of middle-school graduates went to high school (Ihm, 1995, 125, 129; Kim, 2002; Kim and Lee, 2003, 13). The spread of universal public education went hand-in-hand with a major land reform policy after the war that took power away from the landed elite and made the country more equal. The trigger events for both land and educational equalization policies were the threats from North Korea and China that had led to the Korean War (You, n.d., 23, 29; You, 2005, 118).

Japan's rise in education levels was even more directly a response to external events. After Japan (and other Axis powers) lost World War II, the United States Occupation Government set out to draw a new constitution to create a liberal democracy there. The United States Education Mission to Japan, 27 prominent scholars, had the task of "develop[ing] a new education appropriate to a liberal democratic state" (Cummings, 1980, 30-31). The Occupation Government dictated that Japanese schools eliminate all militarist and nationalist materials. Schools not only emphasized equal opportunity for all students, but adopted a learning style in which children of different abilities and personalities worked together in small groups to promote equality. In the 1960s and 1970s, a public movement of "High schooling for everyone who desires it" lay behind a strong increase in mean school years (as in Figure 6). The public was clearly involved, but the ini-

tial push toward more equality in schooling came from an external source, the United States (Okano and Tsuchiya, 1999, 30-40, 59).

The Finnish history is a combination of external threat, internal strife, and an ambition, after independence from Russia in 1917, to orient the country towards Western Europe and especially towards the other Nordic countries. Finland had been an integrated part of Sweden for 600 years until 1809 when Sweden's defeat against Russia meant that Finland came under Russian rule. However, Finland was never became a part of the Russian empire but managed to keep some autonomy and the right to follow its own (that is, the Swedish) laws as a Grand Duchy (Kirby 2006; Meinander and Geddes 2011). Swedish was then the "official" language, mostly spoken by the ruling elite, and it was first during the Russian era that the Finnish language, mostly spoken by the peasants and workers, began to gain wide-spread recognition. From the 1860s onwards, a strong Finnish nationalist movement appeared very much centered on the language issue since about 20 percent of the population was Swedish speaking and Swedish was the most often used official language in government and courts.

It was not until 1892 that the Finnish language achieved equal legal status with Swedish. Since Swedish and Finnish are completely different languages, and since this was a very hotly debated question, the language issue delayed the introduction of broad based schooling (Kirby 2006: 89). Finland was also struck by an unusually gruesome famine in 1866-1868 which according to some estimations killed about 15 percent of the population (Pitkänen 2002). Although a failure of the crops occurred during the same period in northern Sweden and many people suffered of and also died from hunger, no general famine coming close to the horribly situation in Finland took place.

After declaring independence from Russia in 1917, class-based political conflicts escalated into a full-blown civil war in 1918. This Finnish civil war contained all kinds of horrible atrocities such as summary mass executions of defeated enemy prisoners and unarmed civilians (Ylikangas 1998; Meinander 2011). According to recent estimations, more than one per cent of the total Finnish population lost their lives in the 1918 civil war (Stenquist 2009). This makes the Finnish conflict even more violent than the Spanish Civil War 1936-39. While an almost similar proportion of population died in these wars Spain lost those lives over a period of three years, not a year as was the case for Finland (Ylikangas 1998).<sup>xiv</sup> In sum, the lack of full nationhood until 1917, the difficult

language question, the famine of 1866-68 and the civil war all served to delay the introduction of mass education in Finland compared to the other Western and especially Nordic countries. The rapid increase of education between during the 1920s and 1930s can to a large extent be explained by a combination of the threat felt from the Soviet Union, a strong willingness to orient the country to Western Europe and the Scandinavian countries and a rapid industrialization. Another rapid expansion of education in Finland took part during the 1970s, when a large school reform was introduced. The reform introduced the nine-year basic school system in which all children would be taught in the same schools and not, as has been the case until then, separated into grammar schools or vocational schools after four years (Sahlberg 2011, 21). A very similar educational reform had been introduced in the Swedish school system a few years earlier. Sahlberg (2011) explains the Finnish comprehensive school reform of the 1970s as a result of political mobilization from the left based on ideas of social justice and equalization of educational opportunities. In the current discussion about the merits of different school systems, Finland is generally praised for its unusual combination of students performing at the very top in international test scores and at the same time having a very high degree of equality in its educational system.<sup>xv</sup>

## Conclusions

Our main result is that of the importance of “long historical trajectory”, that what happened 150 years ago in a country’s system of education greatly impacts its contemporary level of corruption. Such long-term effects have gotten increased attention in several other areas, not least in economics (see Dell 2010; Nunn 2008; Nunn and Wantchekon 2011). Our empirical argument rests on the fact that we are not the first ones who try to show that important contemporary variation in political and social outcomes can have deep historical roots that can be traced back several centuries. One of the most well-known analysis in this vein is Robert Putnam’s (1993) study of social capital in modern day Italy where he traces the large difference between the Italian south and north back to the political institutions that were established during the 14<sup>th</sup> and 15<sup>th</sup> centuries (city-states in the North, absolutist feudalism in the south). A recent survey of corruption and other forms of problems in government institutions at the regional level in EU member states supports Putnam’s study (Charron, Lapuente and Dykstra 2012). Regions in northern Italy are as clean from corruption and similar practices as is Denmark, while Italy’s southern regions are among the most corrupt in Eu-

rope and have a quality of government probably far below many developing countries in for example sub-Saharan Africa.

In another study testing Putnam's theory, Guiso, Sapienza and Zingales (2008) show that Italian cities that had self-governance a thousand years ago still have higher levels of social capital today and that this variation is considerable both in the northern as well as in the southern Italian regions. As they state, their results show that a "positive experiences of cooperation at the local level can have extremely long lasting effects" (2008, p. 27).

Another recent study shows that the variation in local German communities and cities of the level of persecution and mass killings of Jews after the Black Death epidemic 1348 to 1350, strongly predicts the variation in the levels of Nazi led local persecution and violence against Jews during the 1920s and 1930s. German cities that had high levels of anti-Semitic violence during medieval times had more Jews deported to extermination camps by the local Nazis after the "machübername" in 1933 and were more likely to have their synagogues burnt down during the "Kristallnacht" in 1938. Thus, violent anti-Semitism had a strong local grip of the German population for almost seven-hundred years despite the fact that in many of these German local areas and cities, for centuries hardly any Jews remained after the medieval programs had taken place (Voigtländer and Voth 2011). How the causality actually operates over such long periods remain an open question but at these and many other recent studies show, historical legacies seem to have very long-lasting political effects.

A third example is Rothstein and Broms (2011) study showing that differences in how religion was financed locally in the 16<sup>th</sup> and 17<sup>th</sup> century has a strong impact on if contemporary countries are democratic or not. They show that in the mainly Protestant counties of Northwestern Europe, religious services (churches, priests, religious schools, assistance to the poor, etc.) was financed by local taxation and administered by locally elected church wardens that were obliged to present the bookkeeping every year to the members of the parishes. This they argue, gave rise to the idea that common tasks should be handled by elected representatives that were accountable to the people they served and also to the idea of transparency in public affairs and finances. In the Arab-Muslim world, where we still do not have one single representative democracy, the same type of religious services has been (and to quite some extent still is) financed "from above" by private

and mostly inherited foundations established by rich families/clans and where consequently there has been no accountability, no representation and no transparency.

Exactly how these long-term trajectories work remains to quite some extent a puzzle but as these examples and our study show, it is very difficult not to take such long-term effects into account when we try to explain the huge differences that exist between contemporary countries for important things like persecution of minorities, control of corruption and representative democracy. Our theoretical argument is that a state that establishes free broad based education sends out an important signal that is not primarily an “private good” apparatus for oppression and extraction in the hands of an elite, but that it also can produce a certain amount of fairness and “public goods”. The policy lessons that comes out from the collective action approach to corruption – to launch policies that increases social trust - is thus diametrically different from the advice coming out from the principal-agent theory that stresses increased use of economic incentives.

Our story points to the strong role of the state in providing broad based education in the 19<sup>th</sup> century. The state was the vehicle for creating opportunities for people to obtain the literacy that is essential to free them from dependence on corrupt leaders. Yet state structure was hardly autonomous. Democratic regimes did not lead to higher average levels of education. What mattered most was economic equality—as measured by the percent of farms held by families. States could take the lead in promoting education—and therefore more fairness and equality—when the distribution of resources was already more equal (measured at approximately the same time as education). We see a strong persistence over time in both the social welfare state and a commitment to redistribution and in educating the public. Religious institutions also played a central role in educating people in the 19<sup>th</sup> century. When they worked *with* the state, education flourished. However, when they themselves were the primary organization for providing education, they could not muster the necessary resources—or in some cases the interest—in providing broad based universal style education. Protestant societies were more egalitarian than were largely Catholic countries—and this was reflected the more hierarchical nature of the Catholic Church (Putnam, 1993, 175).<sup>xvi</sup> The welfare state educated its citizens—then and now—but not just any regime became (or still is) a welfare state.

And it is not easy to create a welfare state through institutional design. Acemoglu and Robinson (2012, 18-19) argue that “[t]hroughout the Spanish colonial world in the Americas...after

an initial phase of looting, and gold and silver lust, the Spanish created a web of institutions designed to exploit the indigenous peoples [turning] Latin America into the most unequal continent in the world...”. The less extractive rule of Britain in North America led settlers to rebel against colonial attempts “to force [them] into a hierarchical society” and “soon they were demanding more economic freedom and further political rights” (Acemoglu and Robinson, 2012, 27). Yet, the Spanish colonialists also established educational institutions that developed the technology for exporting farm goods and the precious metals—so education and extraction were not mutually exclusive. British and French colonial policies in Africa and Asia were just as extractive and even less egalitarian.<sup>xvii</sup> Today, Latin America nations are not more corrupt and only marginally more unequal compared to African countries, with substantially higher levels of education. The “successful” former colonies seem to be the ones where European settlers displaced the natives, thus reducing both political and especially economic inequalities. In both these colonies and the West, the provision of education in a more egalitarian setting has had long-term benefits for governance (if not always for the indigenous populations).

## REFERENCES

- Abramo, Claudio Weber. 2005. "How Far Go Perceptions?" Brasilia: TransparenciaBrasil, at <http://www.transparencia.org.br/docs/HowFar.pdf>.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Economic Development: A Comparative Investigation," *American Economic Review*, 91 (2001): 1369-1401.
- Acemoglu, Daron and James A. Robinson. 2012. *Why nations fail: The origins of power, prosperity and poverty*. London: Profile.
- Adams, Don. 1960. "Problems of Reconstruction in Korean Education," *Comparative Education Review*, 3:27-32.
- Adserà, Alícia, Carles Boix, and Mark Payne. 2003. "Are You Being Served? Political Accountability and Quality of Government." *The Journal of Law, Economics, & Organization* 19:445-490.
- Aghion, Phillipe, Torsten Persson, and Dorothee Rouzet. 2012. "Education and Military Rivalry." Unpublished paper, Harvard University available at <http://isites.harvard.edu/fs/docs/icb.topic1029951.files/Philippe%20Revised%20Paper.pdf>.
- Arocena, Rodrigo and Judith Sutz. 2008. "Uruguay: Higher Education, National System of Innovation and Economic Development in a Small Peripheral Country." Lund University Research Policy Institute, available at [www.fpi.lu.se/media/en/research/UniDev\\_DP\\_Uruguay.pdf](http://www.fpi.lu.se/media/en/research/UniDev_DP_Uruguay.pdf)
- Balch, Thomas Willing. 1909. "French Colonization in North Africa," *American Political Science Review*, 3:539-551.
- Bechert, Insa and Markus Quandt. 2009. "ISSP Data Report: Attitudes towards the Role of Government." GESIS. Leibniz-Institute für Sozialwissenschaften. Working Paper 2009:2, Bonn.
- Bledsoe, Caroline. 1992. "The Cultural Transformation of Western Education in Sierra Leone," *Africa: Journal of the International African Institute*, 62:182-202.
- Boix, Carles. 2008. "Civil Wars and Guerrilla Warfare in the Contemporary World: Toward a Joint Theory of Motivations and Opportunities." In Stathis Kalyvas, Ian Shapiro and Tarek Masoud, eds., *Order, Conflict and Violence*. New York: Cambridge University Press.
- Boli, John. 1989. *New citizens for a new society: the institutional origins of mass schooling in Sweden*. Oxford: Pergamon.
- Botero, Juan, Alejandro Ponce, and Andrei Shleifer. 2012. "Education and the Quality of Government." NBER Working Paper, available at [www.nber.org/papers/w18119](http://www.nber.org/papers/w18119).
- Bulgarian Properties. 2008. "History of Bulgarian Education," available at <http://bulgarianproperties.info/history-of-bulgarian-education/>

- Chapman, David. 2002. *Corruption and the Education Sector*. Washington: Management Systems International, available at [http://pdf.usaid.gov/pdf\\_docs/PNACT874.pdf](http://pdf.usaid.gov/pdf_docs/PNACT874.pdf).
- Charron, Nicholas, Victor Lapuente, and Lewis Dykstra. 2012. "Regional Governance Matters: A Study on Regional Variation in Quality of Government within the EU." *Regional Studies* (forthcoming).
- Cummings, William K. 1980. *Education and Equality in Japan*. Princeton: Princeton University Press.
- Dahlström, Carl, Victor Lapuente, and Jan Teorell. 2011. "The Merit of Meritocratization: Politics, Bureaucracy, and the Institutional Deterrents of Corruption." *Political Research Quarterly* xx(x):1-13.
- Dell, Melissa. 2010. "The Persistent Effects of Peru's Mining Mita." *Econometrica* 78:1863-1903.
- Dore, R.P. 1964. "Education: Japan." In Robert E. Ward and Dankwart A. Rustow, eds., *Political Modernization in Japan and Turkey*. Princeton: Princeton University Press.
- Easterly, William. 2006. "Inequality Does Cause Underdevelopment: Insights from a New Instrument," unpublished paper, New York University, available at [www.international.ucla.edu/cms/files/PERG.easterly.pdf](http://www.international.ucla.edu/cms/files/PERG.easterly.pdf)
- Fehr, Ernst and Urs Fischbacher. 2005. "The Economics of Strong Reciprocity." Pp. 151-193 in *Moral Sentiments and Material Interests. The Foundations for Cooperation in Economic Life*, edited by H. Gintis, S. Bowles, R. Boyd, and E. Fehr. Cambridge, Mass.: The MIT Press.
- Fitchen, Edward D. 1974. "Primary Education in Colonial Cuba: Spanish Tool for Retaining "La Isla Siempre Leal?," *Caribbean Studies*, 14:105-120.
- Frey, Frederick W. 1964. "Education: Turkey." In Robert E. Ward and Dankwart A. Rustow, eds., *Political Modernization in Japan and Turkey*. Princeton: Princeton University Press.
- Frisk Jensen, Mette. 2008. *Korruption og embedsetik: Danske embedsmænds korruption i perioden 1800 til 1886 (Diss.)*. Aalborg: Aalborg Universitet.
- Grant, Oliver Wavell. 2002. "Does Industrialisation Push Up Inequality? New Evidence On The Kuznets Curve From Nineteenth-Century Prussian Tax Statistics," University of Oxford Discussion Papers in Economic and Social History, Number 48, September, available at <http://www.nuff.ox.ac.uk/Economics/History/Paper48/48grant.pdf>.
- Gray, Richard. 1986. "Christianity." In Andrew Roberts, ed., *The Colonial Moment in Africa*. Cambridge: Cambridge University Press.
- Green, Andy. 1990. *Education and State Formation: The Rise of Education Systems in England, France and the USA*. New York: St. Martin's Press.
- Glaeser, Edward L., Giacomo A. M. Ponzetto, and Andrei Shleifer. 2007. "Why does democracy need education?" *Journal of Economic Growth* 12:77-99.

- Goodin, Robert E. 2004. "Democracy, justice and impartiality." Pp. 97-111 in *Justice and Democracy*, edited by K. Dowding, R. E. Goodin, and C. Pateman. Cambridge: Cambridge University Press
- Golden, Miriam A. and Eric C.C. Chang. 2001. "Competitive Corruption: Factional Conflict and Political Malfeasance in Postwar Italian Christian Democracy," *World Politics*, 53: 588-622.
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales. 2008. "Long Term Persistence." NBER - National Bureau of Economic Research, Working Paper 14278, Cambridge, MA.
- Heggoy, Alf Andrew. 1973. "Education in French Algeria: An Essay on Cultural Conflict," *Comparative Education Review*, 17:180-197.
- Helliwell, John F. and Robert D. Putnam. 2007. "Education and Social Capital." *Eastern Economic Journal* 33:1-19.
- Holmberg, Sören and Bo. Rothstein (eds.). 2012. *Good Government: The Relevance of Political Science*. Cheltenham: Edward Elgar (in press).
- Ihm, Chon Sum. 1995 "South Korea." In Paul Morris and Anthony Sweeting, eds., *Education and Development in East Asia*. New York: Garland.
- Kaufmann, Daniel, Aart Kray, and Massimo Mastruzzi. 2007. "Growth and Governance: A Reply," *Journal of Politics*, 69:555-562.
- Kilicap, Sevinc Sevd. 2009. *Exploring Politics of Philanthropy*. Unpublished thesis, Master of International Studies in Philanthropy, University of Bologna.
- Kim, Gwang-Jo. 2002. "Education Policies and Reform in South Korea." In Africa Region, The World Bank, *Secondary Education in Africa: Strategies for Renewal*, available at [http://siteresources.worldbank.org/INTAFRREGTOPEUCATION/Resources/444659-1220976732806/Secondary\\_Education\\_Strategies\\_renewal.pdf](http://siteresources.worldbank.org/INTAFRREGTOPEUCATION/Resources/444659-1220976732806/Secondary_Education_Strategies_renewal.pdf)
- Kim, Sunwoong and Ju-Ho Lee. 2003. "The Secondary School Equalization Policy in South Korea." Unpublished paper, University of Wisconsin-Milwaukee.
- Kirby, David G. 2006. *A concise history of Finland*. New York: Cambridge University Press.
- Klitgaard, Robert. 1988. *Controlling corruption*. Berkeley: University of California Press.
- Lambsdorff, Johann Graf. 2005. "The Methodology of the 2005 Corruption Perceptions Index." Transparency International and the University of Passau (Germany), at <http://ww1.transparency.org/cpi/2005/dnld/methodology.pdf>
- Lange, Matthew, James Mahoney, and William von Hau. 2006. "Colonialism and Development: A Comparative Analysis of Spanish and British Colonies," *American Journal of Sociology*, 111:1412-1412.
- Leite, Carlos and Jens Weidmann. 1999. "Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth?" Washington: International Monetary Fund Working Paper WP99/85.

- Lipset, Seymour Martin Lipset. 1959. "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," *American Political Science Review* 53: 69–105.
- Maddison, Angus. 1971. "The Economic and Social Impact of Colonial Rule in India." In Angus Maddison, *Class Structure and Economic Growth: India & Pakistan since the Moghuls*, available at [http://www.ggdc.net/maddison/articles/moghul\\_3.pdf](http://www.ggdc.net/maddison/articles/moghul_3.pdf)
- Malinowski, Bronislaw. 1943. "The Pan-African Problem of Culture Contact," *American Journal of Sociology*, 48:649-665.
- Mantena, Rama Sundari. 2010. "Imperial Ideology and the Uses of Rome in Discourses on Britain's Indian Empire." In Mark Bradley, ed., *Classics and Imperialism in the British Empire*. Oxford: Oxford University Press, available at <http://ramamantena.files.wordpress.com/2011/03/rama-mantena-contribution-to-classics-and-imperialism-volume1.pdf>
- Mauro, Paolo 1998. "Corruption and the Composition of Government Expenditure," *Journal of Public Economics*, 69:263-279.
- Meinander, Henrik and Tom Geddes. 2011. *A history of Finland*. London: Hurst.
- Miller, Gary J. and Andrew B. Whitford. 2002. "Trust and incentives in principal-agent negotiations - The 'insurance/incentive trade-off'." *Journal of Theoretical Politics* 14:231-267.
- Ministry of Education and Culture (Hungary). 2008. *Education in Hungary: Past, Present, and Future, An Overview*. Available at [http://www.nefmi.gov.hu/letolt/english/education\\_in\\_hungary\\_080805.pdf](http://www.nefmi.gov.hu/letolt/english/education_in_hungary_080805.pdf)
- Morrison, Christian and Fabrice Murtin. 2009. "The Century of Education," *Journal of Human Capital*, 3:1-42, available at [www.fabricemurtin.com](http://www.fabricemurtin.com).
- Mpka, M. N.d. "Overview of Educational Development: Pre-colonial to Present Day," available at <http://onlinenigeria.com/education/?blurb=534>
- Mueller, John. 2001. *Democracy, Capitalism, and Ralph's Pretty Good Grocery*. Princeton: Princeton University Press.
- Murtin, Fabrice. N.d. "On the Demographic Transition," available at [www.fabricemurtin.com](http://www.fabricemurtin.com).
- Murtin, Fabrice and Romain Wacziarg. 2010. "The Demographic Transition 1870-2000," available at <http://www.fabricemurtin.com>.
- Mungiu-Pippidi, Alina. 2006. "Corruption: Diagnosis and Treatment." *Journal of Democracy* 17:86-99.
- Mungiu-Pippidi, Alina. 2011. "Contextual choices in fighting corruption: Lessons learned." Hertie School of Governance: Report commissioned by the Norwegian Agency for Development Cooperation, Berlin.
- North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

- North, Douglass C., John J. Wallis, and Barry R. Weingast. 2009. *Violence and social orders: a conceptual framework for interpreting recorded human history*. Cambridge: Cambridge University Press.
- Nunn, Nathan. 2008. "The Long-Rerm Effects of Africa's Slave Trades." *Quarterly Journal of Economics* 123.
- Nunn, Nathan and Leonard Wantchekon. 2011. "The Slave Trade and the Origins of Mistrust in Africa." *American Economic Review* 101:3221–3252.
- Okano, Kaori and Motonori Tsuchiya. 1999. *Education in Contemporary Japan: Inequality and Diversity*. Cambridge: Cambridge University Press.
- Persson, Anna, Bo Rothstein, and Jan Teorell. 2012. "Why Anti-Corruption Reforms Fail: Systemic Corruption as a Collective Action Problem." *Governance: An International Journal of Policy, Administration and Institutions* (forthcoming).
- Persson, Torsten, and Guido Tabellini. 2000. *Political Economics: Explaining Economic Policy*. Cambridge: The MIT Press.
- Prado, Caio Jr. 1967. *The Colonial Background of Modern Brazil*. Translated by Suzette Macedo. Berkely: University of California Press.
- Premo, Bianca. 2005. *Children of the Father King: Youth, Authority, and Legal Minority in Colonial Lima*. Chapel Hill: University of North Carolina Press.
- Putnam, Robert. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.
- Ramirez, Francisco O. & Boli, John 1987. "The political construction of mass schooling: European origins and worldwide institutionalization" *Sociology of Education*, 60:2-17
- Robertson, Claire C. 1977. "The Nature and Effects of Differential Access to Education in Ga Society," *Africa: Journal of the International African Institute*, 47:208-219.
- Rose-Ackerman, Susan. 1999. *Corruption and Government. Causes, Consequences, and Reform*. Cambridge: Cambridge University Press.
- Rothstein, Bo. 2005. *Social Traps and the Problem of Trust*. Cambridge: Cambridge University Press.
- Rothstein, Bo. 2011. *The Quality of Government: Corruption, Social Trust and Inequality in a Comparative Perspective*. Chicago: The University of Chicago Press.
- Rothstein, Bo and Rasmus Broms. 2011. "Why No Democracy in the Arab-Muslim World? The Importance of Temple Financing." in *Annual Meeting of the American Political Science Association*. Seattle, WA.
- Rothstein, Bo and Eric M. Uslaner. 2005. "All for All: Equality, Corruption, and Social Trust," *World Politics*, 58:41-72.
- Rueschemeyer, Dietrich, Evelyne Huber Stephens, and John D. Stephens. 1992. *Capitalist Development and Democracy*. Chicago: University of Chicago Press.

- Russell-Wood, A.J.R. 1992. *The Portuguese Empire, 1415-1808*. Baltimore: Johns Hopkins University Press.
- Sahlberg, Pasi. 2011. *Finnish lessons: what can the world learn from educational change in Finland?* New York: Teachers College Press.
- Solt, Frederick. 2009. "Standardizing the World Income Inequality Database." *Social Science Quarterly*, 90:231-242.
- Smith, D. M. 1997. *Modern Italy. A Political History*. New Haven: Yale University Press.
- Svallfors, Stefan. 2012. "Does Government Quality Matter? Egalitarianism and attitudes to taxes and welfare policies in Europe." *Department of Sociology*. Umeå: Umeå University.
- Stenquist, Bjarne. 2009. *Den vita segerens svarta skugga: Finland och inbördeskriget 1918*. Stockholm: Atlantis.
- Tanzi, Vito. 1998. "Corruption Around the World: Causes, Consequences, Scope and Cures." *IMF Staff Papers*, 45: 559-594.
- Tingsten, Herbert. 1969. *Gud och fosterlandet: studier i hundra års skolpropaganda*. Stockholm: Norstedt.
- Uslaner, Eric M. 2002. *The Moral Foundations of Trust*. New York: Cambridge University Press.
- Uslaner, Eric M. 2008. *Corruption, Inequality, and the Rule of Law*. New York: Cambridge University Press.
- Vanhanen, Tatu. 1997. *Prospects of Democracy: A Study of 172 Countries*. London: Routledge.
- Voigtländer, Nico and Hans-Joachim Voth. 2011. "Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany." National Bureau of Economic Research, NBER Working Paper 17113., Cambridge, MA.
- Weber, Eugen. 1976. *Peasants into Frenchmen. The Modernization of Rural France 1870-1914*. Stanford, CA: Stanford University Press.
- Woodberry, R. D. 2004. *The Shadow of Empire: Christian Missions, Colonial Policy, and Democracy in Post-colonial Societies*. Chapel Hill
- Woodberry, R. D. 2011 "Religion and the spread of human capital and political institutions Christian Missions as a Quasi-Natural Experiment", in *The Oxford Handbook of the Economics of Religion*, edited by R. M McCleary. Oxford: Oxford University Press
- Wängnerud, Lena. 2012. "Why Women Are Less Corrupt than Men." Pp. 212-232 in *Good Government: The Relevance of Political Science*, edited by S. Holmberg and B. Rothstein. Cheltenham: Edward Elgar.
- Yamagishi, Toshio. 2001. "Trust as a form of social intelligence." Pp. 121-147 in *Trust in Society*, edited by K. S. Cook. New York: Russell Sage Foundation.
- Ylikangas, Heikki. 1995. *Vägen till Tammerfors. striden mellan röda och vita i finska inbördeskriget 1918*. Stockholm: Atlantis.

- You, Jong-sung. 2008. "Inequality and Corruption: The Role of Land Reform in Korea, Taiwan, and the Philippines." Presented at the Annual Conference of the Association for Asian Studies, Atlanta, April, available at <http://irps.ucsd.edu/assets/001/503066.pdf>.
- \_\_\_\_\_. 2005. *A Comparative Study of Income Inequality, Corruption, and Social Trust: How Inequality and Corruption Reinforce Each Other and Erode Social Trust*, Unpublished Ph.D. dissertation (draft), Department of Government, Harvard University.
- \_\_\_\_\_. N.d. "Inequality and Corruption: The Role of Land Reform in Korea, Taiwan, and the Philippines." Unpublished paper, University of California–San Diego, available at <http://irps.ucsd.edu/assets/001/503066.pdf>
- You, Jong-sung and Sanjeev Khagram. 2005. "A Comparative Study of Inequality and Corruption." *American Sociological Review* 70:136-157.
- Ziblatt, David. 2008. "Does Landholding Inequality Block Democratization? A Test of the 'Bread and Democracy' Thesis," *World Politics*, 60:610-641.
- Ziegler, Rolf. 1998. "Trust and the Reliability of Expectations." *Rationality and Society* 10:427-450.

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<sup>i</sup> For a list of anti-corruption organizations, see

<http://www.unodc.org/yournocounts/en/resources/index.html><http://www.unodc.org/yournocounts/en/resources/index.htm>

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<sup>ii</sup> The median scores for Transparency International's Corruption Perceptions Index (ranging from the least corrupt country at 10 to the most corrupt country at 1) are 5.86 for 39 countries in 1996 and 5.91 in 2010. For 74 countries, a more representative sample, the median score for 2000 is 5.07 for 2000 and 5.12 for 2010.

<sup>iii</sup> See [http://www.transparency.org/policy\\_research/surveys\\_indices/cpi/2010/in\\_detail](http://www.transparency.org/policy_research/surveys_indices/cpi/2010/in_detail).

<sup>iv</sup> The Morrison-Murtin data set is available at **Fel! Endast huvuddokument**, <http://www.fabricemurtin.com/> and the Bourginon-Morrison economic data are available at **Fel! Endast huvuddokument**, <http://www.delta.ens.fr/XIX/#1870>. Since many of the countries in the Transparency International data were not in existence in 1870, we matched the regional/colonial codes in these data sets to contemporary nations. This increased the sample size of the Morrison-Murtin data set from 74 to 78. Other data sets we use are Vanhanen (1997) for percent family farms and democratization (available at <http://www.fsd.uta.fi/english/data/catalogue/FSD1216/>) and You and Khagram (2005) for 1980 percent Protestant, provided by Jong-sun You. We also estimated models with both Vanhanen's measure of democratization and with the Polity IV historical measure of democracy (Marshall and Jaggers, 2010, available at <http://www.systemicpeace.org/polity/polity4.htm>). The results were similar using Vanhanen's measure.

<sup>v</sup> Fifty-two of 57 countries were colonies or former colonies. The exceptions are China, (South) Korea, Thailand, Russia, and Turkey.

<sup>vi</sup> The standard deviation for mean levels of schooling in 1870 is 1.819 for the OECD countries, .522 for other countries (less than 30 percent of the OECD measure).

<sup>vii</sup> We exclude British colonies that were largely self-governing or had been independent (Australia, Ireland, New Zealand, and Canada—which became independent in 1867). One of the three Portuguese colonies (Brazil) gained independence early in the 19<sup>th</sup> century while the others (Angola and Mozambique) did not.

<sup>viii</sup> We have no measure of the Protestant share of a country in the 19<sup>th</sup> century, so we use as a proxy the Protestant percentage in 1980

<sup>ix</sup> The data are available at <http://economics.mit.edu/faculty/acemoglu/data/ajr2001>.

<sup>x</sup> Uruguayans had a slightly higher level of education than Spain (1.61 compared to 1.51), while Argentina had approximately the same level (1.5.). Canada, the United States, and New Zealand had higher levels of education than did Great Britain, with Australia somewhat lower (mean school years at 5.71, 5.57, 3.91 and 3.06 compared to 3.59 for the United Kingdom).

<sup>xi</sup> See also <http://armeniabribes.blogspot.com/>.

<sup>xii</sup> Solt's data are available at <http://www.siuc.edu/~fsolt/swiid/swiid.html>.

<sup>xiii</sup> A lowess smoother is a curve that "smooths" the plot of a trend (here we use a bandwidth of .2 to make the plot more even). It yields no statistical information other than a visual display. We also note that Italy had a large increase in mean school years from 1870 to 2010, but there is also a rather surprising and not really explicable decline from 2000 to 2010.

<sup>xiv</sup> The actual fighting in the Finnish Civil War lasted only for three months. Most lives were lost after the war by summary executions and especially in concentration camps where prisoners of the losing red side were left without enough food or access to medical treatment.

<sup>xv</sup> See Diane Ravitch review of Sahlberg's book in *New York Review of Books*, 2012, March 8.

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<sup>xvi</sup> The correlation between the percent of family farms and the percent Protestant across 23 countries in Europe and Latin America is .657. For 15 European countries it is .557.

<sup>xvii</sup> We owe this interpretation to David Sartorius.