UNIVERSITY OF MANNHEIM, DEPARTMENT OF POLITICAL SCIENCE
ADVANCED QUANTITATIVE METHODS; PROFESSOR THOMAS GSCHWEND, PH.D.

The Effect of Education and Corruption on Political Trust: A World Wide Approach

Bengi KOSEOGLU, Roman SALZWEDEL and Annika WAGNER

June 6, 2018

Abstract

This paper focuses on the intersection of public sector corruption and individual-level characteristics in explaining the level of political trust among fifty-seven countries world wide. Corruption plays a crucial role in explaining and understanding democratic attitudes of citizens. However, the role of individual-level characteristics have only recently received more scholarly attention. Following the study by Hakhverdian and Mayne (2012), we focus on the interaction of citizens' level of education and public sector corruption. While most scholars acknowledge the large between-country variation in institutional quality (i.e. levels of corruption), most existing studies in the literature focus exclusively on European democracies. The aim of this article is to overcome this short-coming and untangle the complex relationship between corruption, citizens' characteristics and political trust in a world wide approach, including both, democratic and undemocratic countries. Using individual, and country-level data from Transparency International, the World Bank, the World Values Survey (WVS), as well as multiple other sources, we could confirm the tendency that the corrosive effect of corruption on political trust is worse for higher educated people in democratic countries. Furthermore, we offer first empirical evidence that the mechanism that shapes political trust of citizens is different in non-democratic compared to democratic states. Whereas we find that generally, citizens in non-democratic societies exhibit higher political trust compared to democratic societies, there is no substantial difference in the effect of corruption on political trust across different education levels in non-democratic countries.

Contents

List of Figures

List of Tables

1 Introduction

The Transparency International Corruption Perception Index (CPI) from 2017 reveals that the majority of countries are making little or no progress in ending corruption. Over two-thirds of the 180 countries in the current CPI fall below the midpoint of the scale of 0 to 100, where 0 is highly corrupt and 100 is very clean (Transparency International, 2017). The alarming numbers indicate that endemic corruption in countries public sectors remains a relevant topic.

In political science research, corruption is a widely used measure for institutional performance. Low institutional performance leads to mistrust which in turn for example can result in a decline of political participation (Agerberg, 2018).

In previous research, the interactive effect of individual characteristics on citizens evaluation of the institutions was widely ignored. Solely very recent research takes into account that corruption interacts with individual characteristics like education in shaping political trust (Hakhverdian and Mayne, 2012; Agerberg, 2018). Nonetheless, the recent research is limited to a number of European democracies. The objective of our paper is therefore to expand the analysis to a World wide approach with individual- and country-level data while including non-democratic countries, to untangle the effect of corruption on institutional trust. Thereby, we focus on the question of how corruption and education interact to affect a person's level of trust in political institutions.

In line with recent research, we find that public sector corruption has a strong negative effect on political trust. Furthermore, the highest educated citizens in democratic states have an especially increased probability to exhibit no trust in comparatively corrupt societies. In the case of non-democratic countries, we offer first empirical evidence that the mechanism that shapes political attitudes and trust of citizens differs from the one in democratic countries. We find that generally, citizens in non-democratic societies exhibit higher political trust compared to democratic societies and the lowest educated citizens have a larger probability to exhibit high or full trust. The effect of high corruption however, is the same for all education level in non-democratic countries. The findings of this paper open up new avenues for future research to analyze how corruption interacts with education as individual characteristics of citizens in shaping the institutional trust.

The paper is structured as follows: First of all, we present a condensed overview over related empirical studies. Secondly, we build up a theoretical framework by introducing the concept of institutional trust of citizens as outcome of performance evaluation of political institutions interacted with a persons level of education. The following chapter describes the multiple data sources used in the paper and the methods which were applied to estimate an ordered logistic regression model. In the next chapter, we describe and graphically present our results as quantities of interest. The paper ends with a discussion of the limitation of the results and a conclusion with an outlook for future research.

2 Literature Review

The positive relationship of institutional trust with political participation and democratic attitudes is widely confirmed by various studies in political science research (Agerberg, 2018; Rose and Mishler, 2002). Using data from the World Value Survey (WVS), Catterberg (2006) finds that political trust is positively related with a number of desirable attributes, as for example, well-being, social capital, democratic attitudes, political interest and external efficacy. The authors further conclude that trust responds to government performance (Catterberg, 2006).

Whereas the positive outcomes of institutional trust are widely indisputable, the mechanism which lead to institutional trust are rather controversial in the literature. The question how individual characteristics of citizens relate to trust in governmental institutions even resulted in contradicting empirical findings (Hakhverdian and Mayne, 2012). Since in previous

research, education is often described as one main determinant of political trust (Agerberg, 2018), in this paper, we focus on education as paramount individual characteristic of a citizen.

On the one hand, some researchers claim that education increases political trust. In the course of their research which included 20 democracies from the European Social Survey (ESS), Anderson and Singer (2008) for instance find a significant increase in trust in public institution when the education level increases.

On the other hand, other researchers find that education is associated with lower institutional trust. Seligson (2002) for example conducted an empirical study using national sample survey data of four Latin American countries. The author infers that high educated people are likely to know more about the political system and consequently are more likely to be in a position to criticize the system than lower educated people (Seligson, 2002).

Contrary to the previous mentioned studies which indicate either a decline or an increase of political trust with increasing education, in her study, Catterberg (2006) observes that the direction of the effect of education on political trust is ambiguous. Whereas she found that education has no effect on political trust in established democracies and Eastern Europe, she discovers a negative correlation of education and trust in former Soviet republics and Latin America.

Agerberg (2018) and Hakhverdian and Mayne (2012) draw attention on a possible reason for the ambiguous relationship between education and institutional trust.

Agerberg (2018) criticizes that previous studies did not consider the quality of the institution as an influential factor and the individual capabilities of citizen to evaluate the quality the institutions. Hence, his recent study explores the interaction of individual characteristics and corruption (Agerberg, 2018). Using the International Social Survey Program (ISSP) data from 31 democracies, he observes that highly educated citizens react negatively to high levels of corruptions in their country. He comes to the conclusion, that the positive relationship between education and political trust depends on institutional quality which was measured as the level of a countries corruption. As a possible reason for the effect of education, Agerberg (2018) argues that higher educated citizen are more likely to have experienced corruption during their long timespan in the education system. This is supported by the fact that in countries with weak institutions, the prevalence of corruption is especially high in higher education (Agerberg, 2018).

In a similar vein as the previously mentioned study, Hakhverdian and Mayne (2012, 739) examine "how the effect of education on institutional trust varies cross-nationally as a function of the pervasiveness of the public-sector corruption". Using micro data from the European Social Survey (ESS) and county level data from 21 European democracies the authors find that education is negatively related to institutional trust in states with high corruption and positively related to institutional trust in clean societies.

The authors stress two arguments. Firstly, higher educated people have higher capabilities in accurately assessing the level of corruption, Secondly, higher educated people are more committed to democratic values and therefore more "normatively troubled" by corruption (Hakhverdian and Mayne, 2012, 739).

In this research paper we build up and expand the above mentioned works of Hakhverdian and Mayne (2012) and Agerberg (2018). Both studies suggest that the relationship between corruption and institutional trust is moderated by education. However, the authors base their assumption on data which solely includes countries which follow democratic principles and furthermore mainly focus on European states. Consequently, we want to close a gap in the previous work and expand the analysis using a broader dataset as Hakhverdian and Mayne and Agerberg and includes democratic as well as non-democratic countries from all over the world into the analysis. In the next chapter, we shortly explain the underlying theoretical concepts.

3 Theoretical Framework

Before turning to the individual explanation of the key concepts, we briefly summarize the general theoretical framework in this paper. As displayed in figure 1 below, we consider the quality of governmental institutions to shape the political trust of the population. Thereby, corruption is a straightforward measure for institutional performance as low corruptions can be understood as an indicator of a functioning system and high corruptions indicates poor quality of public institutions. Education is assumed to be a very important individual characteristic which determines how citizens evaluate the performance of public institutions. Consequently, the emergence of a citizen's trust into institutions is a function of the institutional quality and the citizen's individual characteristics.
However, we expect that the effect of education in guiding the performance evaluation is not the same in democratic and in non-democratic countries. This assumption will be discussed in a later paragraph of the theory section.

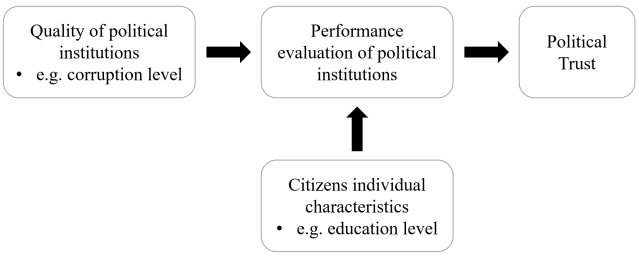

Figure 1: Graphical Depiction of the Theoretical Framework

3.1 Key Concepts

3.1.1 Institutional Trust

Already some 2500 years ago, Confucius describes trust as one of the main pillars of leadership. Ever since, political trust is often described as the basis of democracy. Likewise, autocratic leaders need to establish trust for an efficient leadership (Newton, 1999). Thus, it is widely acknowledged that trust into the institutions enhances both the legitimacy and effectiveness of governments, independent of the type of the regime.
In contrast to the consensus about the importance of trust in political systems, the definition of institutional trust, is not as straightforward. The explanations for the origin and consequently the definition of trust vary between different theories. In the following, two competing theories, namely a cultural and institutional theoretical approach in explaining the origin of institutional trust are shortly introduced.
Cultural theorists hypothesize that trust in political institutions is exogenous as according to them, trust originates outside the political sphere. From a cultural perspective, institutional trust is an extension of interpersonal trust, which is learned early in life and later projected onto political institutions (Mishler and Rose, 2001).
In this paper, instead of expanding on an exogenous nature of trust, we assume that trust is politically endogenous. Building on the concepts from Institutional theories, we suggest that institutional trust is the "expected utility of institutions performing satisfactorily" (Mishler and Rose, 2001, 31). In other words, citizens trust into the system is a consequence of institutional quality. Thereby, trust in institutions is based on rational decisions and thus can be directly derived institutional performance. Institutions that perform well generate trust, whereas untrustworthy institutions generate skepticism and distrust (Mishler and Rose, 2001).

To sum up, in this paper, we approach trust as a performance-based evaluation of political institutions.

Following the suggestions of Catterberg (2006) and Newton (1999) we understand the term political trust as the trust in political institutions, as for example the government and political parties. In this paper, the terms "institutional trust" and "political trust" refer to the same concept and are used interchangeably. The later data description section expands on the introduced concept of institutional trust and explains the precise operationalization of the variable.

3.1.2 Corruption as performance measure of governmental institutions

Following a large body of previous research, in this paper corruption is used as performance measure of political institutions.
In the recent years, corruption was more and more taken into account by research as factor to explain democratic attitudes and behavior (Agerberg, 2018). Corruption in governmental institutions can be seen a form of "disempowerment" (Agerberg, 2018, 4). The consequences of corruptions are manifold. One direct negative consequence of corruption is that it inhibits the ability to produce policies and act for the good of the citizens. E Warren (2004, 328) states that:

> *Corruption (...) breaks the link between collective decision making and people's powers to influence collective decisions through speaking and voting, the very link that defines democracy. Corruption reduces the effective domain of public action, and thus the reach of democracy, by reducing public agencies of collective action to instruments of private benefit."*

Consequently, we assume that corruption undermines institutional trust of citizen. We expect more corrupt regimes to generally receive less trust from their citizens than regimes in which public services are delivered in a fair manner. In the next paragraph, we explain why we expect and interacting effect of education and on the way corruption is shaping political trust.

3.1.3 Education as determinant of institutional performance evaluation

A basic assumption of our theoretical framework is that acceptance and evaluation of the institutional performance depend on individual characteristics of the citizens of a country. In this paper, following the work of Hakhverdian and Mayne (2012) and Agerberg (2018), we focus on education as individual characteristic of a person. The authors argue that performance evaluation of public institutions differs depending on the education level of a citizen. More precisely, the corrosive effect of corruption on political trust is exacerbated for people with high education. Self-evidently, not a university degree per se leads to distrust in corrupt societies, instead formal education as measured in degree and years of schooling, comes with side effects that can possibly explain the interacting relationship with political trust. Hakhverdian and Mayne (2012, 741) describe those side effects of formal education as two factors, namely as *accuracy-inducing* and *norm-inducing functions* of education.
Accuracy-inducing function of education. In the same manner as any evaluation task, the assessment of the performance of political institutions requires the capacity of a person to gather and process information about the evaluated object. Hakhverdian and Mayne (2012) assume that formal education provides this required skills to accurately evaluate political institutions. This assumption is further affirmed by studies which show for example that higher educated people more often read the newspaper and keep better track of civic knowledge than formally less educated people (Grabe et al., 2009). Consequently, it can be assumed that higher educated people are more likely to correctly assess the quality of political institutions.
Norm-inducing function of education. Beside its knowledge enhancing properties, education has a norm-inducing function. So, education does not only influence the evaluation process of institutional quality, but it does also influence the way how people react to a phenomena like corruption (Hakhverdian and Mayne, 2012). Hakhverdian and Mayne (2012, 742) argue

that higher educated are more "normatively troubled" by practices that undermine the functioning of democratic institutions. In line with these assumptions, previous researches have shown that high moral standards are positively correlated with increasing education. Bobo and Licari (1989) for example found strong positive effects of education on a multiple target group tolerance scale that included both, left-wing and right-wing groups.
To sum up the findings regarding education described in the literature review above, we suggest that the level education has an conditioning effect on a person's manifestation of trust in political institutions, in a way that highly educated people react more drastically to the performance of their system.

3.2 Non-Democratic countries

The previous sections which describe the concepts of education and institutional trust and related empirical studies, mainly refer to insights in democratic countries. The relationship between corruption and institutional trust and an interacting effect of education in non-democratic regimes has been widely overlooked by political science researchers. Yet, we are interested in which way the above described mechanisms hold for countries which do not underly democratic principles.
Since the existing literature only provides a superficial insight into the described mechanisms applied on non-democratic countries, in the following we solely build a very simply framework of assumptions. Consequently, the later data analysis is rather pursued in an exploratory manner for non-democratic countries.

Institutional Trust and corruption in non-democratic countries As described above, the relevance of institutional trust for the functioning of a government can be seen as independent from the regime type.
We further assume that corruption is an appropriate measure for the performance of political institutions, independent from the form of government. These two assumptions are supported by a study of Rose and Mishler (2002) who compared regime support in non-democratic and democratic countries in 36 countries world wide from the WVS, while controlling for the level of a countries corruption.
Education in non-democratic countries Any governing policy aspires to impress its values upon its citizens (Pedahzur, 2001). This principle can be translated to the education policy of a country, since formal education is influenced by governmental education policies.
It is conceivable that the norm- and accuracy-inducing functions of educational differ in authoritarian regimes. Whereas in democratic countries (at least in principle), education tries to enable people to evolve a critical mind, in non-democratic countries formal education possibly aims to shape opinions which are conform with the government.
In line with this argument, in his book, "Democracy and its critics" Dahl (1989), describes democracy as unattainable goal which justifies critical citizens expressing dissatisfaction with their political system "because it is not as good as it ought to be"(Rose and Mishler, 2002, 8). In other words, whereas a certain mistrust into governmental institutions is a intrinsic duty in democratic countries, in non-democratic countries, citizen are rather taught to express trust towards their political institutions.

To sum up, we expect the findings regarding the interaction effect of high education in the way corruptions influences political trust to be inexistent for non-democratic countries. Based on the short theoretical framework, in a somewhat exploratory way, we apply the analysis not solely on democratic countries but also include states into the sample which do not follow democratic principles.

3.3 Hypotheses

The theoretical framework as it is described above and displayed in figure 1 can be translated into 3 precise hypothesis which are formulated as follows:

H1: High levels corruption hinder political trust regardless of the education level.

As described in the corruption section, corruption is a pervasive threat to the rule of law in a country and leads to disadvantages to the majority of the population. Consequently, as formulated in H1, we expect a general decrease in political trust in the case of poor institutional quality.
Hypothesis 2 translates the assumption that corruption and education interact to affect a person's level of trust in political institutions:

H2a: In countries with comparatively high levels of corruption, people with high education show lower levels of political trust than low educated people.

H2b: In countries with comparatively low levels of corruption, people with high education show higher levels of political trust than low educated people.

As it is the aim of this paper to broaden up previous research to more countries and regime types, we add another hypothesis:

H3: The conditional effect of education as described in H2 is not present in non-democratic countries.

Figure 2 graphically depicts the effect described in the hypotheses 1 and 2 in democratic countries. As suggested in hypothesis 1, we expect positive slopes since low corruption (displayed as high CPI score) should generally increase institutional trust no matter of the education level of a person.
Following the assumption of related research of Hakhverdian and Mayne (2012), H2 suggests that education is negatively related to institutional trust in corrupt countries and positively related in clean societies. So we expect that the corrosive effect corruption on institutional trust is worse for higher educated people as displayed in the steeper slope for high educated citizen which should lead to reversed effect: In very corrupt countries, high educated people should have lower trust, than low educated people and in very clean societies, high educated people should show a higher level of trust as persons with a low education level.
The assumption of H3 are presented graph in 3 on the right-hand side. As H3 suggests, the interacting effect of education and corruption level should not present in non-democratic countries. Consequently, for non democratic countries, we solely expect decreasing trust for higher corruption, so no education specific line for different levels of education.

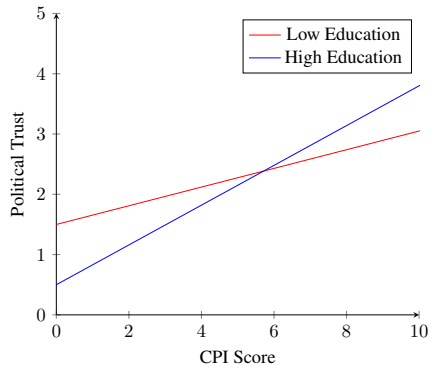

Figure 2: Expected Effects in democratic Countries

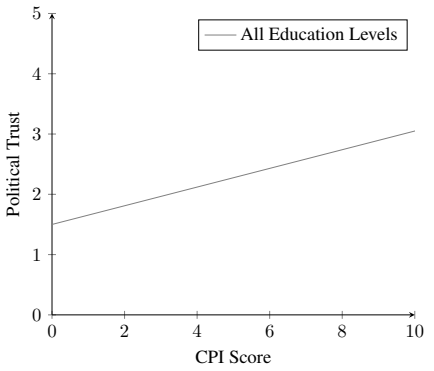

Figure 3: Expected Effects in non-democratic Countries

4 Research Design

4.1 Data and Methods

For the purpose of our research, we need data on the individual and on the country level. We use a novel data set that combines several information from different data sources. The data on the individual level stem from the World Values Survey (WVS), while data on the country level come from Transparency International, The Economist Intelligence Unit (EIU) as well as the various datasets from the World Bank.

The empirical analysis includes all the countries that participated in wave 6 of the WVS, except for Taiwan and Palestine, which are dropped due to not having sufficient data available. The field time for wave 6 of the World Values Survey, which is used in the main part of our analysis was between 2010 and 2014. The overall sample includes 78,574 observations in the following fifty-seven countries: Algeria, Argentina, Armenia, Australia, Azerbaijan, Bahrain, Belarus, Brazil, Chile, China, Colombia, Cyprus, Ecuador, Egypt, Estonia, Georgia, Germany, Ghana, Hong Kong, India, Iraq, Japan, Jordan, Kazakhstan, Korea Rep., Kuwait, Kyrgyzstan, Lebanon, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Pakistan, Peru, Philippines, Poland, Qatar, Romania, Russia, Rwanda, Singapore, Slovenia, South Africa, Spain, Sweden, Thailand, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United States, Uruguay, Uzbekistan, Yemen, and Zimbabwe.

4.2 Dependent Variable

To measure political trust we rely on an ordered five-point summary scale. In contrast to the study by Hakhverdian and Mayne (2012), which uses data stemming from the Eurobarometer, to measure institutional trust on a global scale, we rely on the data from the World Values Survey. However, while the Eurobarometer uses a continuous scale ranging from 1 to 10, the WVS asks respondents to report their level of trust on a categorical four-point scale ranging from *"none at all"* to *"a great deal"*. Since we aim to study political trust in national institutions, we will focus on the following four institutions: the parliament, the political parties, the legal system and the police. To arrive at our five-point scale, we dichotomize the answers on each of the respective four survey items in the WVS into *"trust"* and *"no trust"*, and then add the answers up for each respondent. The scale has a range of 0, i.e. respondents that show "no trust" in all four institutions, to 4 representing respondents that report "trust" in every single of the four institutions institutions. The distribution of our dependent variable is depicted in Figure 3 below.

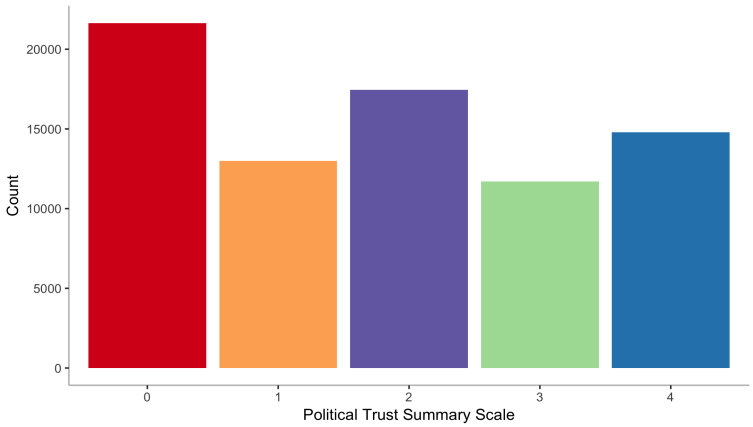

Figure 4: Distribution of Dependent Variable

4.3 Independent Variables

Our three main explanatory variables are education , public sector corruption and democracy score of a country. To measure respondents' education background we use the relevant data from the WVS. In the WVS education is measured on a scale ranging from *"no formal education"* to *"university level education"*. For the purpose of our analysis we recode education in four categories differentiating between *"basic"*, *"lower secondary"*, *"upper secondary"*, and *"university and higher"* level education. This is in line with the research design used in previous studies and makes the reported findings more comparable. To obtain a reliable measure of a country's level of public sector corruption we use the Corruption Perception Index (CPI). The CPI is an annually conducted survey by Transparency International that ranks countries by their perceived degree of corruption according to the judgment of experts and business people (Transparency International, 2017). The index uses a scale of 0 to 100, where 0 indicates highly corrupt and 100 stands for very clean societies. To ensure comparability with previous studies, we rescale the CPI to a scale of 0 to 10. Lastly, to measure a countries level of democracy we use the data from the EIU Democracy Index. The EIU index measures on a scale of 0 to 10 a countries level of democracy based on five categories: electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture. Based on the index scores the countries are grouped into authoritarian regimes, hybrid regimes, flawed democracies, and full democracies (The Economist Intelligence Unit (2016)). For the purpose of our study we combine authoritarian and hybrid regimes, as well as flawed democracies and full democracies. As a result, 36627 or 46.6 percent of the respondents in our data come from countries that are considered non-democratic based on this grouping. For a complete overview of the countries and their respective CPI scores and level of democracy see table 1 in the appendix.

4.4 Control Variables

To untangle the complex relationship between education and corruption in their effect on political trust in democratic and non-democratic countries we also account for a number of control variables. This includes respondents' age, sex, income, as well as respondent's religious denomination, which is coded as 1 if the person belongs to one particular religion and 0 otherwise, frequency of attending religious services coded as 0 and 1, and social trust, which have been shown to be import predictors of political trust on the individual level (Hakhverdian and Mayne (2012); Agerberg (2018)). In addition, we control for respondents' satisfaction with the state of the economy, the current GDP growth, and unemployment rate. Moreover, we include seven region dummies, to account for differences between the countries in our sample. The country regions are based on the grouping by the World Bank and cover: Latin America and the Caribbean, East Asia and Pacific, Europe and Central Asia, Sub-Saharan Africa, South Asia, Middle East and North Africa, and North America. The membership of a countries to a certain region is shown in table 1 in the appendix [1].

4.5 Estimation

To model the proposed interaction effects of education, public sector corruption and the level of democracy on political trust, we run a series of ordered choice models. The categories of an ordinal variable can be ranked, however the intervals between the categories are unknown. This is clearly the case for our summary scale of political trust. In addition, ordered choice models are nonlinear and the magnitude of a change in the outcome probability for one independent variable depends on the level of all other explanatory variables. An ordinal

[1] Accounting for the underlying multi-level structure of the data by including region dummies, might be put into question. However, since we are interested in the three-way interaction effect of education, corruption and the level of democracy (i.e. a cross-level interaction in the terms of multi-level modeling) a varying intercept model is not practical. Due to the time constraints a full ordinal multilevel model set-up, including varying intercepts, varying slopes and a cross-level interaction between education, public sector corruption, and the level of democracy is beyond the scope of this study (see discussion in section 6)

dependent variable violates the assumption of the linear regression model; thus, using a linear model can lead to biased and incorrect estimates (Winship and Mare, 1984, 521-23). We can derive the ordered choice model in terms of an underlying latent variable as introduced by McKelvey and Zavoina (1975). In our case this latent variable is the actual or *true* level of political trust of a respondent. To derive the model, we assume that our latent political trust variable $y*$ ranging from $-\infty$ to $+\infty$ is mapped to our observed summary scale y which we obtained from the WVS data [2]. The underlying measurement equation is given by:

$$y_i = m \quad if \quad \tau_{m-1} \leq y_i^* < \tau_m \quad for \quad m = 1 \; to \; J$$

where the τ's are the so-called thresholds. The observed y is linked to the latent y^* through the measurement model. The structural component of our model is given by:

$$y_i^* = X_i\beta + \epsilon$$

In addition, we need to assume an error distribution. For the ordered logit model ϵ has a logistic distribution with variance of $\pi^2/3$. The probability density function is given by:

$$\lambda(\epsilon) = \frac{exp(\epsilon)}{[1 + exp(\epsilon)]^2}$$

And the cumulative density function is:

$$\Lambda(\epsilon) = \frac{exp(\epsilon)}{1 + exp(\epsilon)}$$

The probability that a respondent in our sample falls into a specific category of the political trust summary scale is thus given by:

$$Pr(y_i = m|x_i) = F(\tau_m - x_i\beta) - F(\tau_{m-1} - x_i\beta)$$

where F follows a logistic distribution. To identify the ordered logit regression model we have to assume that either $\beta_0 = 0$ or $\tau_1 = 0$. In the following we use the parametrization where τ_1 is constrained to zero. The likelihood equation of our ordered logit model is given by:

$$L(\beta, \tau|y, X) = \prod_{j=1}^{J} \prod_{y_i=1} Pr(y_i = j|x_i, \beta, \tau)$$

$$L(\beta, \tau|y, X) = \prod_{j=1}^{J} \prod_{y_i=1} [F(\tau_j - x_i\beta) - F(\tau_{j-1} - x_i\beta)]$$

Finally, taking the logarithm then yields:

$$lnL(\beta, \tau|y, X) = \sum_{j=1}^{J} \sum_{y_i=1} ln[F(\tau_j - x_i\beta) - F(\tau_{j-1} - x_i\beta)]$$

In order to built the model, we used polr function which is available within the MASS package in R. The empirical analysis is structured as follows: Model 1 is an implementation of a similar model used by Hakhverdian and Mayne (2012) to our world wide dataset using an ordered logistic regression model. It includes the direct effects for education and public sector corruption, as well as an interaction effect between education and CPI. Model 2, includes the level of democracy as a control variable. Model 3 is used to answer the research questions proposed in this paper that includes a three-way interaction between education, public sector corruption and the level of democracy. Model 3 can be denoted as follows:

[2]The explanation of the ordered logit model in this section follows (Long, 1997, Chapter 5)

$$P.Trust_i^* = \beta_0 + \beta_1 edu_i + \beta_2 CPI_i + \beta_3 edu_i * CPI_i + \beta_4 gender_i + \beta_5 age_i + \beta_6 rel.d_i + \beta_7 church.d_i + \beta_8 income_i + \beta_9 trust.d_i + \beta_{10} econsatis_i + \beta_{11} gdp_i + \beta_{12} unemploy._i + \beta_{13} region_i + \beta_{14} demo.d_i + \beta_{15} edu_i * demo.d_i + \beta_{16} CPI_i * demo.d_i + \beta_{17} CPI_i * demo.d_i * edu_i$$

where y^* denotes the underlying latent political trust and subscript i denotes the respondents in our sample. One of the key challenges in ordered choice regression models is to summarize the estimated effects in a way that account for the full underlying complexity and yet allow to easily communicate the substantive findings to the reader. In order to tackle this challenge and combine these two objectives the following analysis will strongly rely on the simulation of meaningful quantities of interest.

5 Analysis

5.1 Descriptive Analysis

As a starting point to our empirical analysis we visualize the political trust across different education groups for the democratic and non-democratic countries in our sample. This is shown in Figure 5, which displays the average political trust of the highest and lowest educated citizens for each country. The left panel of Figure 5 denotes democratic states, while the right panel shows non-democratic states. The countries are ranked top to bottom according to their CPI score (i.e. countries with the lowest CPI are shown at the bottom of the y-axis). Recall that a high CPI score indicates a low level of public sector corruption and vice versa. We will first focus on the democratic countries. Figure 5 shows that the democratic states with the highest CPI score (i.e. lowest level of public sector corruption) are New Zealand, Sweden and Australia. The democratic states with the lowest CPI score are Mexico, Argentina, and Trinidad and Tobago. In line with Hypothesis 1, we find tentative evidence that countries with a low CPI score exhibit lower levels of political trust, compared to the countries on the upper end of the scale. However, there are notable exception such as India, Philippines and Peru. In addition, Figure 5 provides some evidence that the highest educated respondents show higher political trust compared to the lowest educated respondents when corruption is comparatively low (Hypothesis 2a). This is the case in Sweden, Australia and the Netherlands. Moreover, we find that lower educated respondents exhibit more trust in comparatively corrupt societies (Hypothesis 2b). This is evident in Romania, Brazil and Thailand. Although, not all countries behave according to the theoretical expectations, the general trend in Figure 4 offers some support for the proposed interaction of education and corruption in forming citizens' attitudes in democratic societies.

For the case of the non-democratic states in our sample, which are depicted on the right hand side of Figure 5, the relationship between education, corruption, and political trust is less clear-cut. In most of the non-democratic societies the lowest educated citizens exhibit more political trust irrespective of the degree of public sector corruption. Exceptions are Rwanda and Bahrain - that are among the least corrupt countries - in which the highest educated citizens exhibit more political trust. However, in general Figure 4 does not show a clear relationship between education and public sector corruption in non-democratic societies. This finding supports the theoretical expectations expressed in Hypothesis 3.

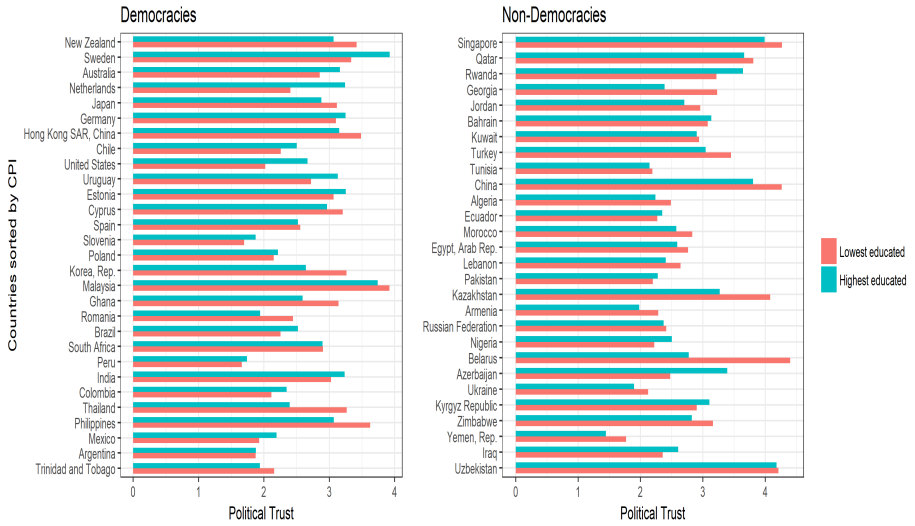

Figure 5: Political Trust across Education Groups

5.2 Ordered Logit Regression Models

In this paper we proposed three major hypotheses to study the intertwined role education and public sector corruption play in shaping the political trust of citizens in democratic and non-democratic societies worldwide. In line with previous findings in the literature Hypothesis 1 states that high public sector corruption has a direct negative affect on citizens institutional trust. Recall that the public sector corruption is measured using the Corruption Perception Index (CPI), hence a positive coefficient of CPI indicates a negative impact of corruption on political trust. Hypotheses 2a and 2b of this paper state that the effect of corruption on political trust is moderated by education. This means that higher educated groups exhibit more political trust when CPI is high, and consequentially public sector corruption is low; and less educated citizens exhibit more trust when CPI is low, and thus public sector corruption is high. Hypothesis 3 states that the expected interaction between education and corruption linked to the level of democracy, and not present in non-democratic societies. To test these hypotheses, we model a three-way interaction effect between education, corruption, and level of democracy in Model 3. Since the raw coefficients of ordered choice models are not intuitively meaningful to reflect the complex relationship, we will present the substantive findings of our empirical analysis using quantities of interest. All models are shown in table3 in the appendix.

5.3 Simulating Quantities of Interest

To present our empirical results in a way that is easier to digest, we will strongly rely on the simulation of meaningful quantities of interest. For the simulation we use both, the average case approach and the observed value approach to estimate predicted probabilities and first differences for interesting scenarios in our data. To answer the research question proposed in this paper, we will simulate the public sector corruption in order to see the effect on political trust across different education groups and levels of democracy. Figure 6, shows the effect of CPI on political trust using observed value approach, while simulating for the CPI without any particular scenarios. Figure 6, demonstrates our initial findings, as countries become less corrupt, the predicted probability of full trust increases, people's trust to the government increases.

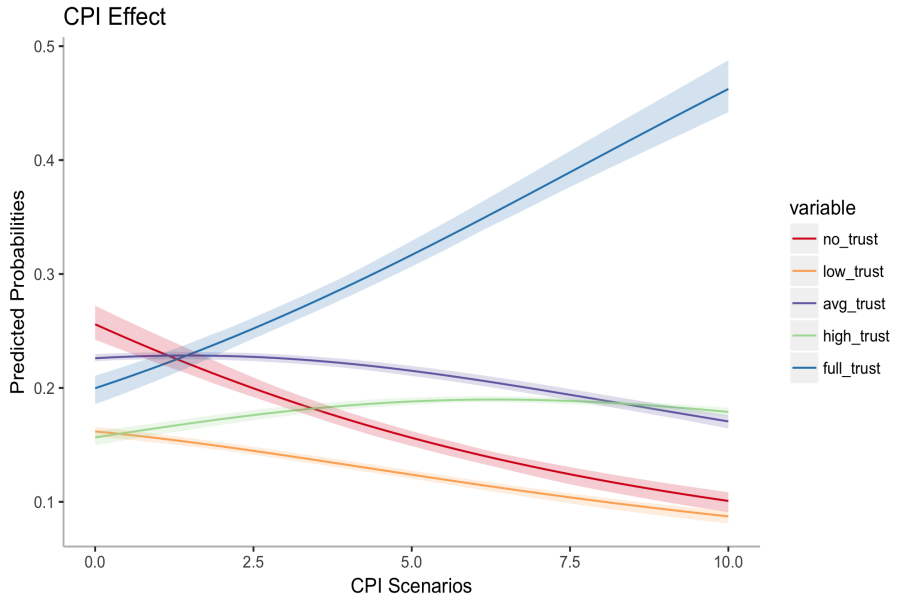

Figure 6: Political Trust and CPI Relationship

Figure 7 shows the predicted probability of falling into each of the five categories of our political trust summary scale in relation to a respondent's educational background and the degree of public sector corruption. While deciding on the simulation scenario, for numerical values, we took the mean and for the categorical variables, we took the most frequent value. As a result, our simulation scenario consists of average aged male respondents who are religious and attend religious services, do not have social trust and live in Europe and Central Asia. The plot is separated into democratic and non-democratic countries on the left and right side, respectively. While the upper panels denote the effect for the lowest educated respondents in our data, the bottom panels correspond to the highest educated respondents. The x-axis of the plot displays the CPI score, which varies between a minimum of 0 and a maximum of 10. Note that the the range of actual CPI values in our data lies between 1.6 (Uzbekistan) and 9.5 (New Zealand). Recall that a CPI score of 0 represents the highest level of public sector corruption, while in turn a score of 10 indicates the lowest. To ease the interpretation, we will refer to the five categories our dependent variable as *"no trust"*, *"low trust"*, *"average trust"*, *"high trust"*, and *"full trust"*.

In Hypothesis 1 we argued that corruption has a direct negative effect on political trust regardless of the education level. This means the higher the level of public sector corruption the lower political trust, irrespective of the educational background of a respondent. This argument is supported by the predicted probabilities in Figure 7. Figure 7 shows that an increase in CPI (i.e. a decrease in public sector corruption) decreases the probability to exhibit no or low political trust, while consequentially increases the probability of high or full trust. This effect is evident for both the highest and lowest educated respondents, in democratic and non democratic countries. In democratic societies, with a CPI score of 3 (Trinidad and Tobago, Argentina) the probability to exhibit no trust for respondents with a basic educational background is ca. 26 percent. This probability decreases to around 22 percent, when the CPI score increases to a value of close to 10 (Sweden, New Zealand). Likewise the probability of full trust increases from 15 percent to 23 percent when the CPI increases from its minimum of 0 to its maximum of 10. For the highest educated citizens, we observe the same effect. In democratic states with comparatively high public sector corruption (CPI of 3) the probability of the highest educated citizens to exhibit "no trust" is around 37 percent. With increasing CPI the probability drops to approximately 19 percent at CPI score close to 10.

The negative effect of high corruption on political trust is also evident in non-democratic

states (right hand side of Figure 7. Here, the direct effect of CPI is even more pronounced. While the probability of no trust in non-democratic societies with a high degree of corruption (CPI of 2) is around 37 percent for both respondents within the lowest and the highest education groups, this probability decreases to less than 10 percent for states with a CPI of 7.5 or higher (Qatar, Singapore). It is also noteworthy, that around a CPI of 3.7 (CPI of 5 for highest educated respondents) the two prediction lines cross each other. This means from a CPI of 3.7 onwards it is more likely that respondents with basic education exhibit full trust compared to no trust. To conclude for both the democratic as well as non-democratic societies, the empirical results point to a strong negative effect of corruption on political trust. This effect holds across different educational backgrounds and further support the claim in the literature that high levels of public sector corruption undermine citizens trust in the political institutions of a society regardless of their educational level. The predicted probabilities shown in Figure 7, clearly confirm the theoretical expectations expressed in Hypothesis 1.

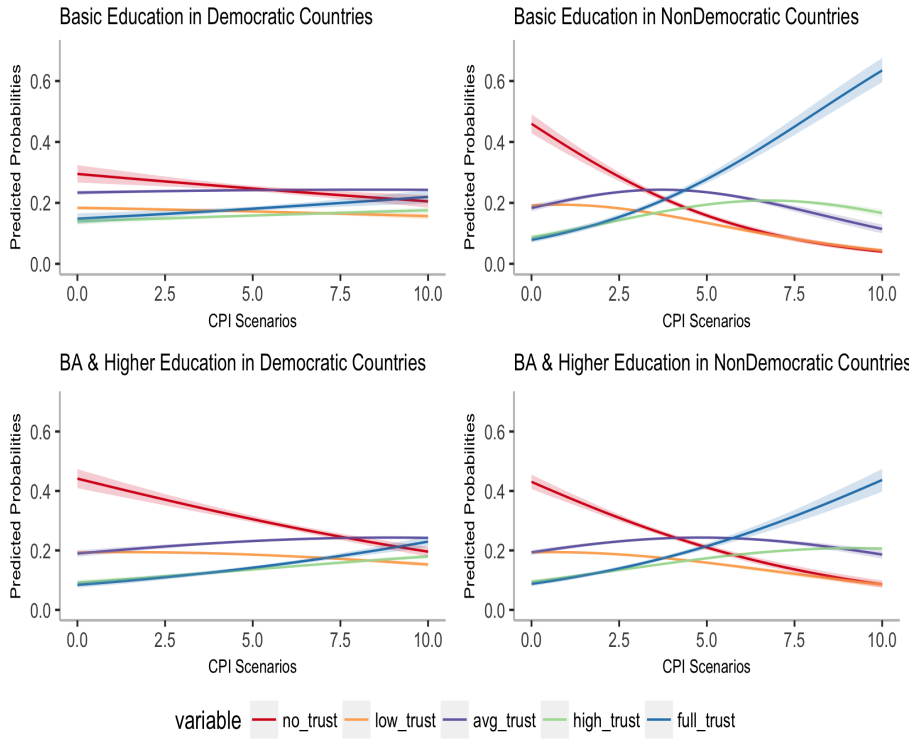

Figure 7: Effect of Education and CPI on Political Trust

Moving on to Hypotheses 2 and 3, we will evaluate the interaction effect between education and public sector corruption. Based on the argument made in this paper the effect of public sector corruption on political trust is moderated by citizens' education. This leads to a relatively higher degree of political trust of higher educated respondents when corruption is low; and to a relatively lower degree of political trust of higher educated respondents when corruption is high. In addition, we argue that this effect is absent when the level of democracy is low, since in non-democratic societies the causal mechanisms that shape citizens attitudes towards the state take a distinct pathway. To account for the proposed relationship of education, corruption, and the level of democracy in shaping citizens' political and institutional trust our main model includes a triple interaction.

First, let us consider the effect for the lowest educated citizens in democratic countries (upper left panel in Figure 7). At a CPI of 3 and below the combined probability to exhibit no or low trust equals less than 50 percent, while the combined probability of high and full trust is around 30 percent. If CPI increases from its minimum to its maximum, the probability of

average trust stays more or less the same. However, the probabilities to exhibit no trust or low trust decrease sharply to 23 and 16 percent, respectively. The probabilities of high or full trust, in turn, raise to ca. 23 and 17 percent, respectively. If we compare this change to respondents with university and higher level education (bottom left panel of Figure 7), we find that at a CPI of 0 the probabilities of no trust or low trust are 45 percent and 20 percent, respectively, while the combined probability of full trust and high trust is less than 20 percent. At a CPI of 10 the probability for full and no trust is 23 percent and 18 percent. This shows that the highest educated respondents are affected more strongly by the degree of public sector corruption. The gain in political trust caused by decreasing public sector corruption is larger for the highest educated citizens than the lowest educated citizens. On the one hand, if corruption is high, higher educated citizens react more negative showing lower political trust, while, on the other hand, with decreasing corruption they exhibit a more sustained increase in political trust. For a CPI score close to 10 the probability for the highest educated citizens to exhibit full trust is around 23 percent, thus overtaking respondents within the lowest education group. This finding supports the theoretical expectations expressed in Hypothesis 2a and 2b. However, the difference in the probabilities of full trust between the lowest and highest educated respondents is rather small. Therefore, to further evaluate if the difference in the probability to exhibit full trust between the highest and lowest education groups reaches conventional levels of statistical significance, we will next turn to first differences.

The first differences between the highest and lowest educated respondents are displayed in Figure 8. The upper panels of Figure 8 show the first differences between highest and lowest educated citizens in their probability to exhibit no trust. The bottom panels show the same comparison with respect to full trust. Once again, we will first focus on the left side of the Figure 8 which denotes the predicted probabilities for democratic societies.
According to Hypothesis 2a and 2b we expect that the probability for highest educated citizens to exhibit no trust should be larger than for the lowest educated citizen, when corruption is high. Therefore, the first differences of no trust should be positive and significantly different from zero for low values of CPI. When corruption is low, we expect higher educated citizens to exhibit higher political trust. The first differences of full trust, thus, should be positive and significantly different from zero for high values of CPI. If we look at the upper left panel of Figure 8 we find Hypothesis 2a confirmed. Up until a CPI of 8, the highest educated citizen have a significantly larger probability of showing no trust compared to lowest educated citizens. However, once public sector corruption decreases and exceeds a CPI of 8, we find no significant difference in the probability of no trust between the two education groups.
Now, let us look at the first difference in the probability to exhibit full trust between the lowest and highest educated citizens (bottom left panel of Figure 8). Figure 8 shows that in democratic societies with a high level of corruption, the lowest educated citizens have a significantly larger probability to exhibit full trust. With increasing CPI this differences diminishes and becomes statistically insignificant around a CPI of 8. However, contrary to our theoretical expectations expressed in Hypothesis 2b citizens with higher education do not exhibit a significantly larger probability of full trust, in societies with comparatively low level of corruption. Once the corruption is relatively low, the political trust of the highest educated citizens equals the political trust of citizens with basic educational background. So, we only partially confirm Hypothesis 2. While we find strong empirical support that higher educated citizens exhibit lower political trust in states with high public sector corruption (Hypothesis 2a), we do not find that citizens with higher education exhibit more political trust, in comparatively less corrupt societies (Hypothesis 2b).
It is noteworthy that we can show that an interaction effect between education and public sector corruption exists in democratic societies. However, it is less pronounced than expected.

Now let us turn to the situation in non-democratic states. Hypothesis 3 proposed that the conditioning effect of education on corruption is not present in non-democratic societies. The right side of Figure 7 shows the probabilities for each of the five categories on our political trust summary scale as a function of CPI for the highest and lowest educated respondents in

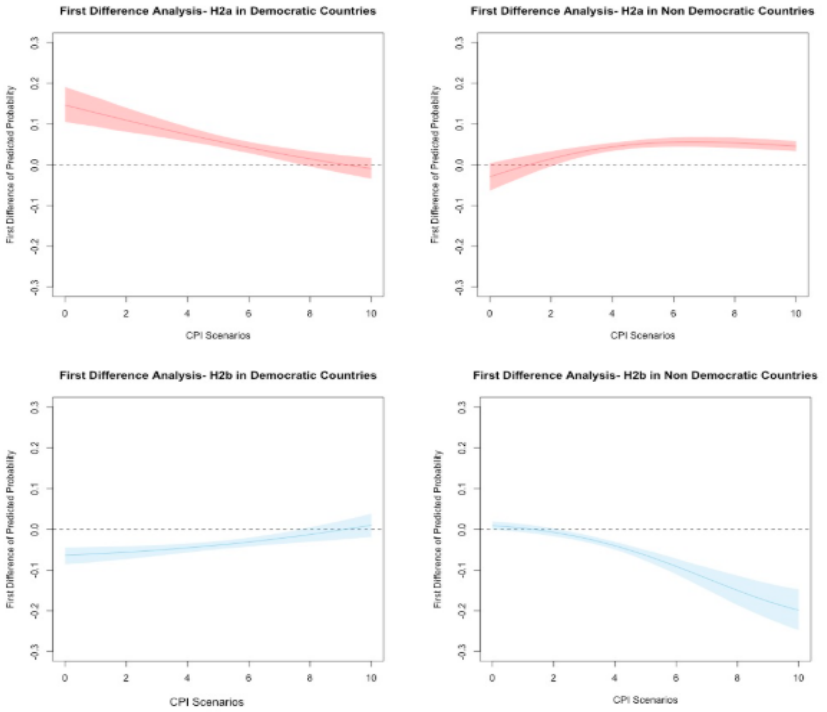

Figure 8: First Difference Analysis

non-democratic countries. For a CPI of 1, we find that the combined probability to exhibit no or low trust for the lowest educated citizens is ca. 60 percent. We find a similar combined probability for the highest educated citizens (bottom right panel of Figure 7). This shows, that in non-democratic states there is no substantial difference in the probability of no trust across different education groups. As we have seen before, once corruption decreases citizens' political trust increases. However, lower educated respondents in non-democratic societies react more strongly. For citizens with basic education, the probability to exhibit full trust raises to above 60 percent - compared to 40 percent for the highest educated citizens, if we increase CPI to its maximum of 10. At a CPI close to 10, respondents with basic educational background are clearly more likely to exhibit higher political trust. This finding differs from the proposed relationship between education and corruption in democratic states (Hypotheses 2a and 2b); and thus is in line with the theoretical expectation expressed in Hypothesis 3.

The findings are also confirmed if we look at the first differences. The first differences for non-democratic societies are displayed at the right side of Figure 8. The upper right panel shows the first difference in the probability of no trust between lowest and highest educated citizens. For the most corrupt societies, we find no significant difference, while once CPI exceeds 2, higher educated citizens have a significantly larger probability of no trust than lower educated citizens.

If we look at the probability of full trust, we find that in the most corrupt societies there is no significant difference between the lowest and highest eduction groups. However, once a society becomes less corrupt (CPI > 3) we find a significant difference. But in contrast to the causal mechanism we assumed in democratic societies where the highest educated citizens were assumed to exhibit higher political trust, in non-democratic societies it is the other way around. The lowest educated citizens have a significant larger probability to exhibit full trust. Therefore, the comparison of first differences underlines our theoretical expectations which argued that the causal mechanisms shaping political trust differ between democratic and non-democratic societies. An explanation for the significantly lower political trust of

highly educated citizens in non-democratic societies may be that these citizens are more concerned about general democratic freedoms such as political participation and civil liberties, which is reflected in their attitudes of political trust. Hence, even in comparatively clean non-democratic societies, highly educated citizens feel more opposed towards the political actors and government institutions.

However, this explanation might be contradicted by the finding that across all education groups, citizens in non-democratic societies have a significantly larger probability to exhibit high or full trust. This is shown in Figure 9 which displays the first difference between democratic and non-democratic societies for citizens with basic education and higher education. Figure 9 left figure shows once CPI exceeds 2, citizens in non-democratic states are significantly more likely to exhibit high or full trust. This finding seems odd at first hand. The higher level of political trust in non-democratic societies is also evident in Figure 4, which shows that China, Singapore, and Rwanda are among the countries that exhibit the highest political trust. At the same time, China and Rwanda are also among the most authoritarian countries in our sample. Two explanations for the higher political trust of citizens in non-democratic societies seem possible. First, citizens in non-democratic and authoritarian regimes might be subjected to extensive efforts of state propaganda, which in turn might lead to higher levels of support and trust in political elites and institution across all education groups. However, an alternative explanation is possible. That is to say, respondents in authoritarian states might be more likely to report biased or false information regarding their degree of political trust, since they might fear discrimination or state repressions. Clearly, further research in this field is needed.

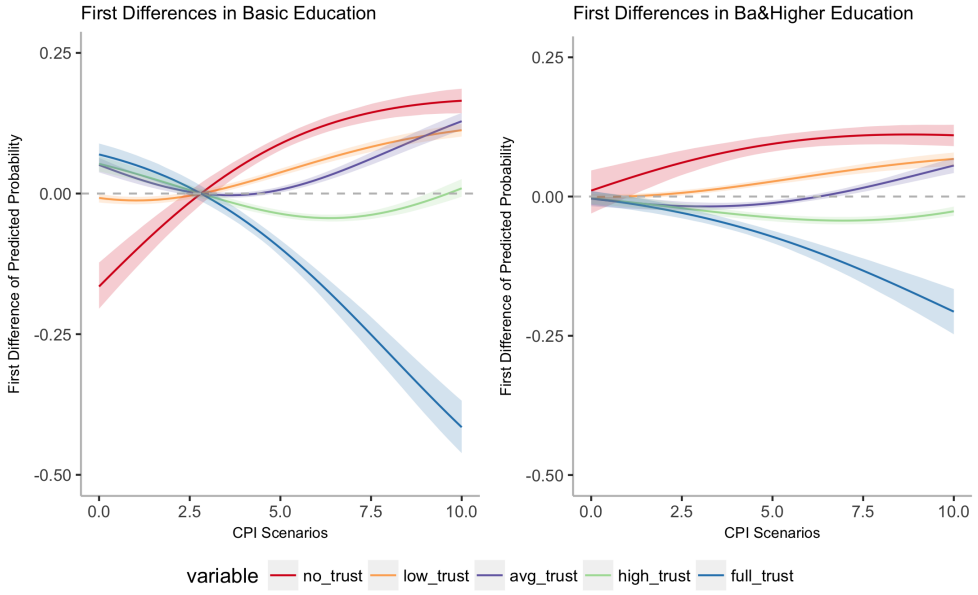

Figure 9: First Difference Analysis Between Democratic and Non Democratic Countries

To sum up, the empirical results show how education and corruption interact in shaping citizens' perceptions of political elites and institutions worldwide. We find that public sector corruption has a strong negative effect on political trust. In addition, Figure 7 and Figure 8 highlight that the highest educated citizens in democratic states have a larger probability to exhibit no trust in comparatively corrupt societies. Figure 7 also shows that there exist an interaction between education and public sector corruption, since in democratic societies the increase in political trust is stronger for the respondents with university and higher level education compared to respondents with basic education. However, we fail to provide sufficient evidence that once public sector corruption is comparatively low, the effect flips and highest educated citizen exhibit higher political trust than lower educated citizens. The first differ-

ences show that there is no statistically significant difference between lowest and highest educated citizen in democratic societies. Once corruption exceeds a CPI of 7 the probability of full trust is more or less the same across all education groups. In case of non-democratic countries we provide first empirical evidence that the causal mechanism that shapes political attitudes and trust of citizens, differ from the one in democratic countries. In general, in non-democratic states the lowest educated citizens have a larger probability to exhibit high or full trust. Finally, we find that overall citizens in non-democratic societies exhibit higher political trust compared to democratic societies. The findings of this paper open up new avenues for future research.

5.4 Robustness Checks

In this section, we apply robustness checks to examine the behavior of the main regression coefficients when changing the sampling strategy. In the interest of space, the results of the robustness checks are presented in table 4 in the appendix.

5.4.1 Randomly subsample

As a first general robustness check of our model, we take random two-third subsample of our dataset. After repeating the procedure 10 times the resulting coefficients are combined by taking the mean of all subsamples. The averaged coefficients and the associated standard errors are displayed in table 4, in the appendix, denoted as "Subs.Model". As expected, due to the relatively large sample size of still 52,382 observations in each two-third subsample, one can see that they do not deviate from the overall results presented in model 3. We take this result as a first indicator of a reliable model.

5.4.2 Systematically excluding countries

The countries included into the analysis vary substantially in many ways. One way they differ from each other is whether or not they hold free and fair elections. To test whether the results systematically change when taking into account the election setting, we excluded countries which did not have fair election from the analysis and reestimated the model. Thereby, countries were removed from the analysis if they fall below a threshold of 6 on a Free and Fair Elections Index from the World Bank which is based on the Bertelsmann Information Index. The original scale ranges between 0 and 10, whereas 0 indicates very unfair and 10 flawless elections. The elimination of countries reduces the sample size from originally 78,574 observations to 53,083 as 23 countries for example Russia, China and Rwanda drop out.
The table 4 in the appendix displays that the coefficients and standard errors of the interaction effects only slightly differ from the final model 3 and the direction of the main effect remains the same. The comparison gives a first hint that the model is stable when applied on systematic country subsamples.
However, a mere comparison between regressors and standard errors of the final model 3 and the estimated fair election model do not draw a full picture about the reliability of the analysis. A more detailed sampling strategy, for instance based on theoretical assumptions about specific countries and accordingly a comparison between quantities of interests would be appropriate. However, to not to exceed the scope of the paper, further robustness tests are left to future research.

6 Discussion, Conclusion and Outlook

The aim of this paper was to entangle the interaction of the quality of political institutions and individual-level characteristics in explaining the level of citizens political trust in a worldwide approach. And indeed, we can show that quality, measured as a country's corruption

and citizens characteristics, operationalized as a person's education level, do interact in shaping political trust in democratic countries.
As displayed in Figure 1, in the theory section, we expected that the effects flips in clean societies so that the highest educated citizens exhibit higher institutional trust than lower educated citizens. Even though we could not observe the flipping in the effect, our findings indicate that a significant interaction effect is evident. Consequently, our findings are in line with the outcomes of the studies by Hakhverdian and Mayne (2012) and Agerberg (2018). The relationship between governmental performance and political trust is clearly moderated by the education level of a person. Referring to the theoretical framework of this paper, this indicates that education actually has a norm- and accuracy-inducing function which enables higher educated people to judge over the performance of their political institutions in a more reflected manner.
Based on the findings, it is possible to explain the ambiguous results in previous empirical studies. As described in the literature review, some researchers found that education fosters institutional trust, whereas others observed a decline in trust for higher educated persons. Seligson (2002) for example concludes in his study that high educated citizens are more likely to criticize and express lower trust towards political institutions. Instead, we suggest that higher educated people do not exhibit lower trust per se, but instead extensively consider the quality of the political institutions. Since the study of (Seligson, 2002) is based on data of four Latin American countries with a comparatively high degree of corruption, we might be better able to put his findings into perspective in light of the findings presented in this paper.
A similar conclusion can be drawn from the study of Anderson and Singer (2008) which points out a significant positive correlation between education and political trust. Based on the results of our analysis, we argue that the findings are related to an overall good performance of the governments in the sample, as the study solely considers 20 European countries which generally have comparatively low corruption levels (the CPI score of the 57 countries included into the analysis of this paper are displayed in table 1 in the appendix).
Another objective of our paper was to overcome the shortcoming of previous research due to the sole focus on democratic societies. Through including a larger set of countries and their respective democracy score, we are able to provide first empirical evidence that the mechanisms that form political trust of citizens are different in non-democratic compared to democratic states. We found that there is no substantial difference in the effect of corruption on political trust across the different education levels. However, lower educated citizens generally show a higher probability of trust as higher educated citizens in non-democratic. This fact once more indicates that the mechanisms of shaping political trust depend on the system of government.
Ironically, in democratic countries, there is a higher absence of high trust for the political institutions than in non-democratic countries. A possible explanation for the phenomenon is in line with an argument made in the theory section. It is likely that on the one hand the norms induced by education in non-democratic countries foster pro-governmental positions and on the other hand in democratic countries, open criticism of the government is tolerated and even a desirable outcome of education.

Certainly, our results are only valid under the assumptions of a correctly specified theoretical framework and an appropriate application of the methods. General approaches which include a large number of countries are likely to overlook necessary assumption and thus are especially error-prone. Consequently, in the following paragraphs, we will reflect on possible shortcomings of our analysis.
A first point of criticism is the sparsity of theoretical and empirical literature as basis for the application of the model on non-democratic countries. We therefore want to underline the need for further research regarding the mechanisms of education and governmental performance in forming political trust in non-democratic countries.
Another issue which should be noted is the selection of variables for the analysis. Since a world-wide approach requires a dataset including information on many countries, we were limited in the choice of the appropriate data. While the European Social Survey which was used in the paper of (Hakhverdian and Mayne, 2012) asks respondents to indicate trust into

politicians, the WVS does not ask this question. This makes our results less comparable and also poses the question if the index used in this paper is a valid measure of political trust. Nevertheless, the four questions of trust into parliament, parties, police and legal system, which were the basis of the political trust index in this study, show a relatively low interpersonal variation. This might indicate that an additional similar variable specifically asking for trust in politicians does not notably change the concept of political trust.

Another issue regarding the operationalization of our concept concerns the point that educational achievements are hardly comparable cross-nationally. A formal degree differs in the years of schooling and demand between the countries in our sample. However, an appropriate measure of education is not available on a global basis. Yet, we argue that a comparison between countries provides an instructive insight into the functioning of democracies and other regime types, despite the methodological difficulties.

Lastly, the choice of an ordered choice regression can be put into question. The used data clearly underlies a multilevel structure, as it is a composition of country- and individual level data. Instead of accounting for the multi-level structure solely by including region dummies as control variables, in future research, the ordered choice regression model should be compared to alternative model specifications, for example a random effects model as applied by Hakhverdian and Mayne (2012).

The short discussion of possible shortcomings of the analysis undoubtedly indicates that further research is clearly necessary to fully understand the described concepts at hand.

To sum up and conclude, in this paper we show that the positive relationship between education and political trust, is impaired by low quality institutions. We suggest that the complex mechanisms which form institutional trust should be further explored by social research. Thereby, the large number of countries that do not follow democratic principles should no longer be left aside. As corruption and more generally poor governmental performance is a persisting problem in democratic and non-democratic countries, explaining the emergence of trust under the consideration of individual and country specific factors remains a relevant topic for future research.

7 Appendix

Table 1: Countries with associated Survey Year, Region, CPI score and Democracy Score/Dummy

Country	Year	Region	CPI score	Dem. Score	Dem.Dummy
Algeria	2013	Middle East & North Africa	3.6	3.828	0
Argentina	2013	Latin America & Caribbean	3.4	6.842	1
Armenia	2011	Europe & Central Asia	2.6	4.089	0
Australia	2012	East Asia & Pacific	8.5	9.216	1
Azerbaijan	2011	Europe & Central Asia	2.4	3.148	0
Bahrain	2014	Middle East & North Africa	4.9	2.865	0
Belarus	2011	Europe & Central Asia	2.4	3.162	0
Brazil	2014	Latin America & Caribbean	4.3	7.379	1
Chile	2011	Latin America & Caribbean	7.2	7.541	1
China	2012	East Asia & Pacific	3.9	3.000	0
Colombia	2012	Latin America & Caribbean	3.6	6.626	1
Cyprus	2011	Europe & Central Asia	6.3	7.290	1
Ecuador	2013	Latin America & Caribbean	3.5	5.865	0
Egypt, Arab Rep.	2013	Middle East & North Africa	3.2	3.272	0
Estonia	2011	Europe & Central Asia	6.4	7.610	1
Georgia	2014	Europe & Central Asia	5.2	5.824	0
Germany	2013	Europe & Central Asia	7.8	8.310	1
Ghana	2012	Sub-Saharan Africa	4.5	6.020	1
Hong Kong SAR, China	2013	East Asia & Pacific	7.5	6.422	1
India	2012	South Asia	3.6	7.521	1
Iraq	2012	Middle East & North Africa	1.8	4.101	0
Japan	2010	East Asia & Pacific	7.8	8.081	1
Jordan	2014	Middle East & North Africa	4.9	3.764	0
Kazakhstan	2011	Europe & Central Asia	2.7	3.237	0
Korea, Rep.	2010	East Asia & Pacific	5.4	8.114	1
Kuwait	2014	Middle East & North Africa	4.4	3.778	0
Kyrgyz Republic	2011	Europe & Central Asia	2.1	4.344	0
Lebanon	2013	Middle East & North Africa	2.8	5.053	0
Malaysia	2012	East Asia & Pacific	4.9	6.409	1
Mexico	2012	Latin America & Caribbean	3.4	6.899	1
Morocco	2011	Middle East & North Africa	3.4	3.830	0
Netherlands	2012	Europe & Central Asia	8.4	8.988	1
New Zealand	2011	East Asia & Pacific	9.5	9.260	1
Nigeria	2011	Sub-Saharan Africa	2.4	3.833	0
Pakistan	2012	South Asia	2.7	4.566	0
Peru	2012	Latin America & Caribbean	3.8	6.467	1
Philippines	2012	East Asia & Pacific	3.4	6.298	1
Poland	2012	Europe & Central Asia	5.8	7.123	1
Qatar	2010	Middle East & North Africa	7.7	3.095	0
Romania	2012	Europe & Central Asia	4.4	6.542	1
Russian Federation	2011	Europe & Central Asia	2.4	3.921	0
Rwanda	2012	Sub-Saharan Africa	5.3	3.363	0
Singapore	2012	East Asia & Pacific	8.7	5.879	0
Slovenia	2011	Europe & Central Asia	5.9	7.765	1
South Africa	2013	Sub-Saharan Africa	4.2	7.904	1
Spain	2011	Europe & Central Asia	6.2	8.021	1
Sweden	2011	Europe & Central Asia	9.3	9.498	1
Thailand	2013	East Asia & Pacific	3.5	6.245	1
Trinidad and Tobago	2011	Latin America & Caribbean	3.2	7.156	1
Tunisia	2013	Middle East & North Africa	4.1	5.758	0
Turkey	2011	Europe & Central Asia	4.2	5.731	0
Ukraine	2011	Europe & Central Asia	2.3	5.941	0
United States	2011	North America	7.1	8.109	1
Uruguay	2011	Latin America & Caribbean	7.0	8.175	1
Uzbekistan	2011	Europe & Central Asia	1.6	1.736	0
Yemen, Rep.	2014	Middle East & North Africa	1.9	2.788	0
Zimbabwe	2012	Sub-Saharan Africa	2.0	2.671	0

Table 2: Variable Codebook

Variable (Var name in R)	Values/Type	Function	Level	Description/Details	Source
Country (country_name)	Factor variable	Orientation	Country	V2 in WVS. Table 1 above lists all 57 countries.	WVS
Political trust (political_trust _ordered)	0 to 4	Dependent Variable	Individual	Ordered variable based on WVS variables V117, V113, V116, V114: "Using this card, please tell me on a score of 0-10, how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly... [country]'s parliament?" The question is repeated for the national parliament, police, political parties, legal system. Recoding: First, each of the variables V117(parliament), police(V113), political parties (V116), legal system (V114) are coded from the original 1 to 4 scale into 4 dummy variables: 1 or 2 = 1; 3 or 4 = 0 Next step: for each observation, the ones are counted, resulting in an ordinal variable with 5 outcomes: 0 = no trust - 4 = a lot of trust	WVS
Education (edu)	0-3	Independent Variable	Individual	Ordered variable with 4 categories. Groups: 0= categories (0) and (1) 1= (2) remains a category by itself; 2= (3) and (4); 3= (5) and (6) Based on V248, "What is the highest level of education you have achieved?" (0) not completed primary education; (1) primary or first stage of basic; (2) lower secondary or second stage of basic; (3) upper secondary; (4) post secondary, non-tertiary; (5) first stage of tertiary; (6) second stage of tertiary.	WVS
CPI (cpi)	0-10	Independent Variable	Country	Corruption Perception Index. Perceived level of public sector corruption. Taps perceptions of corruption among country experts, Before 2012, measured a value between 0-10; after 2012 between 0-100. Rescaled to 0-10.	Transparency International
Democracy (democ_dummy)	0= non-democratic 1= democratic	Independent Variable	Country	Based on the EIU Democracy Index. Measures on a scale of 0 to 10 based on five categories: electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture. Based on the index scores the countries are grouped into authoritarian regimes, hybrid regimes, flawed democracies, and full democracies. 0= authoritarian or hybrid regimes 1 = flawed democracies or full democracies	EIU
Gender (male)	0=female, 1=male	Control	Individual	Gender of the respondent. V240 in WVS	WVS
Age (age)	numeric	Control	Individual	V242 in WVS	WVS
Income (income)	1-10	Control	Individual	Income level of the respondent. Based on V239 in WVS. 1 'Lower step'; 2 'second step' ...10 'Tenth step'	WVS
Religiosity (rel_dummy)	0 = not religious 1= religious	Control	Individual	Religious adherence of respondent. Based on V144 in WVS, dummy variable 1= religious (all religions in V144 in WVS, beside 0=None); 0 = not religious	WVS
Church attendance (church_dummy)	0 = not often 1= often	Control	Individual	Church attendance. 0 = 4 , 5, 6 or 7; 1 = 1, 2 or 3 Based on WVS "V145=How often attending religious services?" 1 'More than once a week' 2 'Once a week' 3 'Once a month' 4 'Only on special holy days' 5 'Once a year' 6 'Less often' 7 'Never, practically never'"	WVS
Social trust (trust_dummy)	0 = not trusting 1 = trusting	Control	Individual	Social trust of respondent. Based on WVS V24 1 'Most people can be trusted' 2 'Need to be very careful'"	WVS
Economic satisfaction (econ_satis)	1-10	Control	Individual	Basd on WVS V59 'Satisfaction with financial situation of household' 1 'Completely dissatisfied' - 10 'Completely satisfied'	WVS
GDP (gdp)	Numerical	Control	Country	GDP per capita. Gross domestic product at market prices (purchasing power standard per inhabitant). GDP of countries are matched with the data according to the survey year. Retrieved from: http://databank.worldbank.org/data/ reports.aspx?source=2&series=NY.GDP.PCAP.PP.KD#	Worldbank
Unemployment rate (unemployment)	Numerical	Control	Country	Level of countries unemployment. Unemployed persons as a percentage of the labor force. Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country. Retrieved from: https://data.worldbank.org/indicator/ SL.UEM.TOTL.NE.ZS?end=2016&start=1960&view=chart	Worldbank
Region (region)	Factor variable	Control	Country	Countries categorized in regions: East Asia and Pacific; Europe and Central Asia; Latin America & the Caribbean; Middle East and North Africa; North America South Asia; Sub-Saharan Africa Retrieved from: https://datahelpdesk.worldbank.org/knowledgebase/ articles/906519-world-bank-country-and-lending-groups	World Bank
Fair elections	0 = unfair elections 1 = fair elections	Robustness Check	Country	Free And Fair Elections Index based on the Bertelsmann Transformation Index. Range: 0-10 Recoded to a dummy variable. Below 6=unfair elections Retrieved from: https://tcdata360.worldbank.org/indicators/h7a147898?country=BRA& indicator=28751&countries=RUS,TUR,CHN&viz=line_chart&years=2006,2016	World Bank

Table 3: Results of the Ordered Logistic Regressions

	Dependent variable:		
	Political trust		
	Model	Model	Final Model
	(1)	(2)	(3)
Education Level 1 (ref=0)	0.322*** (0.054)	0.292*** (0.054)	0.753*** (0.078)
Education Level 2 (ref=0)	0.048 (0.046)	−0.019 (0.046)	0.313*** (0.066)
Education Level 3 (ref=0)	−0.199*** (0.050)	−0.245*** (0.050)	0.121* (0.071)
CPI	0.119*** (0.010)	0.167*** (0.010)	0.302*** (0.014)
Gender (ref=female)	−0.021* (0.013)	−0.014 (0.013)	−0.018 (0.013)
Age	0.00005 (0.0004)	0.0004 (0.0004)	0.001* (0.0004)
Religiosity(ref=not religious)	0.133*** (0.020)	0.140*** (0.020)	0.101*** (0.020)
Church attendance(ref=not often)	0.240*** (0.023)	0.227*** (0.023)	0.187*** (0.024)
Income	0.070*** (0.003)	0.066*** (0.003)	0.065*** (0.003)
Social trust (ref=not trusting)	0.365*** (0.015)	0.355*** (0.015)	0.380*** (0.016)
Economic satisfaction	0.056*** (0.003)	0.059*** (0.003)	0.058*** (0.003)
GDP	−0.005*** (0.001)	−0.006*** (0.001)	−0.005*** (0.001)
Unemployment rate	−0.035*** (0.001)	−0.026*** (0.001)	−0.023*** (0.002)
Europe and Central Asia (ref=East Asia and Pacific)	−0.465*** (0.022)	−0.537*** (0.022)	−0.471*** (0.022)
Latin America and the Caribbean (ref=East Asia and Pacific)	−1.409*** (0.026)	−1.279*** (0.027)	−1.328*** (0.027)
Middle East and North Africa (ref=East Asia and Pacific)	−0.648*** (0.026)	−0.902*** (0.029)	−0.888*** (0.029)
North America (ref=East Asia and Pacific)	−0.806*** (0.042)	−0.764*** (0.043)	−0.694*** (0.043)
South Asia (ref=East Asia and Pacific)	−0.508*** (0.030)	−0.357*** (0.031)	−0.417*** (0.032)
Sub Saharan Africa (ref=East Asia and Pacific)	−0.329*** (0.029)	−0.383*** (0.029)	−0.384*** (0.029)
Democracy		−0.427*** (0.019)	0.716*** (0.080)
Education Level 1 (ref=0)*CPI	−0.083*** (0.011)	−0.078*** (0.011)	−0.214*** (0.019)
Education Level 2 (ref=0)*CPI	−0.040*** (0.009)	−0.030*** (0.009)	−0.113*** (0.016)
Education Level 3 (ref=0)*CPI	−0.009 (0.010)	−0.002 (0.010)	−0.093*** (0.017)
CPI*Democracy			−0.778*** (0.114)
Education Level 1 (ref=0)*Democracy			−0.587*** (0.098)
Education Level 2 (ref=0)*Democracy			−0.758*** (0.105)
Education Level 3 (ref=0)*Democracy			−0.254*** (0.017)
Education Level 1 (ref=0)*CPI*Democracy			0.205*** (0.024)
Education Level 2 (ref=0)*CPI*Democracy			0.131*** (0.021)
Education Level 3 (ref=0)*CPI*Democracy			0.163*** (0.022)
Intercept 0|1	−0.427*** (0.057)	−0.425*** (0.057)	0.069 (0.069)
Intercept 1|2	0.358*** (0.057)	0.362*** (0.057)	0.856*** (0.070)
Intercept 2|3	1.343*** (0.057)	1.350*** (0.057)	1.850*** (0.070)
Intercept 3|4	2.176*** (0.057)	2.189*** (0.057)	2.694*** (0.070)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 4: Results Robustnesscheck

	Model 3		Subs.Model		Fair Elec. Model	
	Coef	SE	Coef	SE	Coef	SE
Education Level 1 (ref=0)	0.753	0.078	0.760	0.096	0.207	0.115
Education Level 2 (ref=0)	0.313	0.066	0.323	0.082	0.265	0.096
Education Level 3 (ref=0)	0.121	0.071	0.124	0.087	0.347	0.101
CPI	0.302	0.014	0.305	0.018	0.334	0.021
Gender (ref=female)	-0.018	0.013	-0.020	0.016	0.020	0.016
Age	0.001	0.000	0.001	0.001	-0.001	0.001
Religiosity(ref=not religious)	0.101	0.020	0.097	0.025	0.127	0.023
Church attendance(ref=not often)	0.187	0.024	0.188	0.029	0.283	0.027
Income	0.065	0.003	0.065	0.004	0.044	0.004
Social trust (ref=not trusting)	0.380	0.016	0.376	0.019	0.373	0.019
Economic satisfaction	0.058	0.003	0.058	0.004	0.074	0.004
GDP	-0.005	0.001	-0.005	0.001	0.002	0.001
Unemployment rate	-0.023	0.002	-0.023	0.002	-0.003	0.002
Europe and Central Asia (ref=East Asia and Pacific)	-0.471	0.022	-0.479	0.027	-0.255	0.029
Latin America and the Caribbean (ref=East Asia and Pacific)	-1.328	0.027	-1.329	0.033	-0.836	0.034
Middle East and North Africa (ref=East Asia and Pacific)	-0.888	0.029	-0.894	0.035	-0.626	0.051
North America (ref=East Asia and Pacific)	-0.694	0.043	-0.692	0.053	-0.626	0.046
South Asia (ref=East Asia and Pacific)	-0.417	0.032	-0.421	0.039	0.495	0.044
Sub Saharan Africa (ref=East Asia and Pacific)	-0.384	0.029	-0.387	0.036	0.027	0.043
Democracy	0.716	0.080	0.720	0.099	0.476	0.109
Education Level 1 (ref=0)*CPI	-0.214	0.019	-0.215	0.024	-0.107	0.028
Education Level 2 (ref=0)*CPI	-0.113	0.016	-0.114	0.020	-0.126	0.023
Education Level 3 (ref=0)*CPI	-0.093	0.017	-0.092	0.021	-0.151	0.024
CPI*Democracy	-0.778	0.114	-0.774	0.140	-0.229	0.144
Education Level 1 (ref=0)*Democracy	-0.587	0.098	-0.614	0.120	-0.580	0.123
Education Level 2 (ref=0)*Democracy	-0.758	0.105	-0.767	0.129	-0.740	0.130
Education Level 3 (ref=0)*Democracy	-0.254	0.017	-0.256	0.021	-0.243	0.023
Education Level 1 (ref=0)*CPI*Democracy	0.205	0.024	0.207	0.030	0.099	0.032
Education Level 2 (ref=0)*CPI*Democracy	0.131	0.021	0.134	0.026	0.158	0.027
Education Level 3 (ref=0)*CPI*Democracy	0.163	0.022	0.163	0.027	0.203	0.028
Intercept 0|1	0.069	0.069	0.076	0.085	0.802	0.101
Intercept 1|2	0.856	0.070	0.862	0.086	1.628	0.101
Intercept 2|3	1.850	0.070	1.855	0.086	2.687	0.101
Intercept 3|4	2.694	0.070	2.699	0.086	3.506	0.102
Observations	78,574		52,382		53,083	

References

Agerberg, M. (2018). The Curse of Knowledge? Education, Corruption, and Politics. *Political Behavior*.

Anderson, C. J. and Singer, M. M. (2008). The sensitive left and the impervious right: multilevel models and the politics of inequality, ideology, and legitimacy in europe. *Comparative Political Studies*, 41(4-5):564–599.

Bobo, L. and Licari, F. C. (1989). Education and political tolerance: Testing the effects of cognitive sophistication and target group affect. *Public Opinion Quarterly*, 53(3):285–308.

Catterberg, G. (2006). The Individual Bases of Political Trust: Trends in New and Established Democracies. *International Journal of Public Opinion Research*, 18(1):31–48.

Dahl, R. A. (1989). *Democracy and its Critics*. Yale University Press.

E Warren, M. (2004). What does corruption mean in a democracy? *American journal of political science*, 48(2):328–343.

Grabe, M. E., Kamhawi, R., and Yegiyan, N. (2009). Informing citizens: How people with different levels of education process television, newspaper, and web news. *Journal of Broadcasting & Electronic Media*, 53(1):90–111.

Hakhverdian, A. and Mayne, Q. (2012). Institutional Trust, Education, and Corruption: A Micro-Macro Interactive Approach. *The Journal of Politics*, 74(3):739–750.

Long, J. S. (1997). *Regression Models for Categorical and Limited Depen- dent Variables*. Thousand Oaks.

McKelvey, R. D. and Zavoina, W. (1975). A statistical model for the analysis of ordinal level dependent variables. *Journal of mathematical sociology*, 4(1):103–120.

Mishler, W. and Rose, R. (2001). What are the origins of political trust? testing institutional and cultural theories in post-communist societies. *Comparative political studies*, 34(1):30–62.

Newton, K. (1999). Social and political trust. In *The Oxford Handbook of Social and Political Trust*.

Pedahzur, A. (2001). The paradox of civic education in non-liberal democracies: The case of israel. *Journal of Education Policy*, 16(5):413–430.

Rose, R. and Mishler, W. (2002). Comparing regime support in non-democratic and democratic countries. *Democratization*, 9(2):1–20.

Seligson, M. A. (2002). The impact of corruption on regime legitimacy: A comparative study of four latin american countries. *The journal of Politics*, 64(2):408–433.

The Economist Intelligence Unit (2016). Democracy Index 2015. Democracy in and age of anxiety. Retrieved November 30, 2017, from.

Transparency International (2017). Corruption Perception Index 2017. Retrieved November 30, 2017, from.

Winship, C. and Mare, R. D. (1984). Regression models with ordinal variables. *American sociological review*, pages 512–525.

Ehrenwörtliche Erklärung

Ich versichere, dass ich den beiliegenden Project Report ohne Hilfe Dritter und ohne Benutzung anderer als der angegebenen Quellen und Hilfsmittel angefertigt und die den benutzten Quellen wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht habe. Diese Arbeit hat in gleicher oder ähnlicher Form noch keiner Prüfungsbehörde vorgelegen. Ich bin mir bewusst, dass eine falsche Erklärung rechtliche Folgen haben wird.

Mannheim, den 06.06.2018