DOES MENTALITY HELP TO MAKE AID EFFECTIVE: FOREIGN AID AND SOCIAL CAPITAL INTERACTION IN GROWTH PROMOTION

by

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Abstract

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This thesis revisits the issue of the impact of socio-cultural characteristics on economic outcomes. Specifically, it considers the effect of foreign aid on economic growth and its dependency on social capital. To contribute to the topic, I use the wide data sample including 80 developing countries covered in World Value Surveys from 1984 to 2014. Developing the previous groundwork, I advance the idea that social capital is more meaningful when regarded as multi-dimensional. In this thesis, I use PCA in order to get a composite social capital measure. Robustness check shows that this way it performs a way better than using single cultural measures or simpler definitions. Finally, it is found that the higher the social capital, the higher the return from foreign aid to economic. Moreover, this relationship holds when human capital and previous development are accounted which supports the previous findings in the research of economic growth and social capital.

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GLOSSARY

ODA. Official Development Assistance

GDP. Gross Domestic Product

WVS. World Value Survey

OLS. Ordinary Least Squares

PCA. Principal Component Analysis

PC. Principal Component

FE. Fixed effects

RE. Random effects

FSU. Former Soviet Union

Chapter 1

INTRODUCTION

After World War II, the United States provided billions of dollars in the reconstruction of the Western European economies. As initially planned by Marshall, foreign aid was dedicated to helping some countries (that temporarily were incapable) increase the population welfare in the long term. Since then the practice of assisting the countries, which are still on their way of development, became fairly popular. For decades, developed countries have given out a considerable piece of their budget on assisting those, who are in bigger need. The aid is believed to influence welfare via facilitation of economic and institutional development. This served the ground for the emerged branch of economic studies that examined the appropriability of foreign aid allocation.

Nonetheless, the studies on aid effectiveness diverge in conclusions over the years. Some economists uncompromisingly persuade the idea that the aid is a failure and is not effective at all. Others, however, are seeking for the channels where aid could bring use.

There is nothing strange in the attention of researchers for development assistance. Developing countries, which have not managed to form strong and independent institutions yet, still heavily rely on foreign assistance procuring the institutional development. Essentially, aid resources are expected to be utilized with the best possible output such as any revenues from taxpayers of the donor country. While gross aid amount increased drastically from the beginning of the century (see Figure 1), it is thereby essential to understand what environment is favorable for aid allocation. Therefore, the traditional question of the topic "Does aid work?" was modified to "When does aid work?"

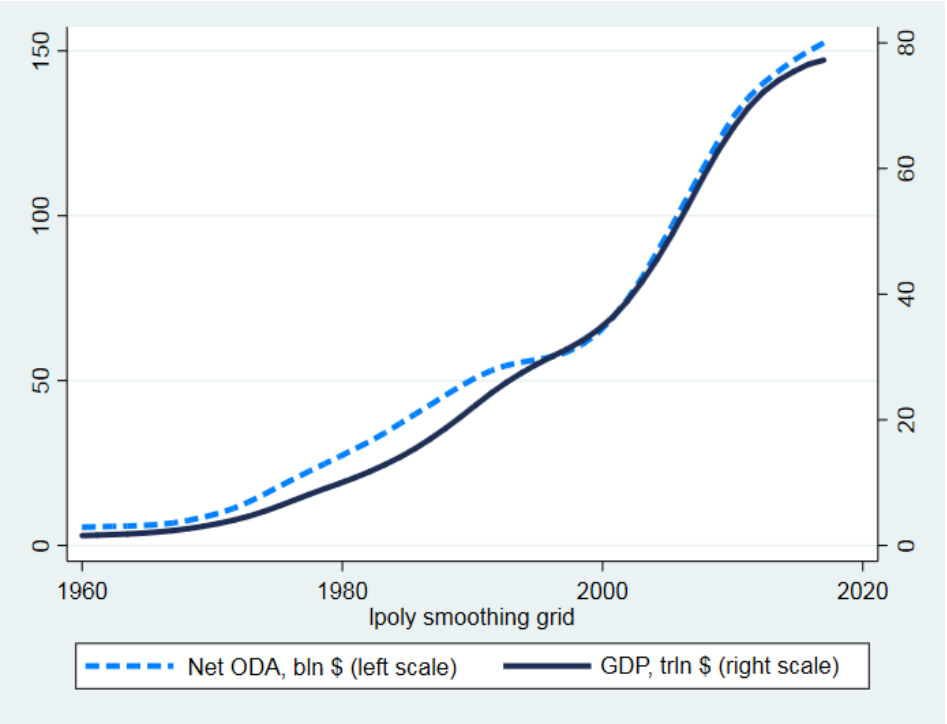

Figure 1. Gross ODA and Official Aid vs GDP, global, in current dollars

Describing the aid performance, we might be primarily interested in a recipient country. Possibly it is the differences between these recipients that lead to different post-aid outcomes. Every nation has its own characteristics that make them stand out among others. These characteristics include culture, worldview, and traditions peculiar to all nations and form the mentality of a nation. This can be viewed as a fundamental attribute that directly or indirectly affects the variety of outcomes. The mentality may well be embodied in the structure of a quietly abstract notion, social capital. Reasonably, the latter might be associated with the country's ability to make use of foreign aid.

Robert Putnam (Putnam, 2000) in his famous book "Bowling Alone: The Collapse and Revival of American Community" tried to understand why

community networks in the United States were getting weaker. He proposed to think of social capital as values of individuals facilitating the interactions between themselves. Cooperating with each other, individuals are able to create more value. The question is whether these mutual productivity-enhancing values of a certain society affect the performance of an aid designed to boost the country's development and ensure sustainability.

The previous research suggests that the aid effectiveness should be conditional on political regime, institutional quality, policy setup, but still there is not much attention for the socio-cultural background of a country. The studies revising the impact of social capital on aid effectiveness were limited due to data availability. They tend to envelop the essence of social capital, extracting its particular features to come up with inferences. This study aims to concentrate on the notion of the national mentality or culture and examine its interaction with foreign aid for the sake of promoting economic development.

Few famous studies suggest that so-called "social capital" is important for measurable economic performance (Knack and Keefer, 1997; Whiteley, 2000). During the whole timespan, while social capital is involved in economic studies, researchers approach this concept in many different ways. If one regards social capital as terms of societal reciprocity and cooperation, social capital can be measured by the level of formal communities in a society or societal fractionalization. If we view social capital as a setup of cultural traits, it is appropriate to measure social capital by the development of moral values in a society. The general idea behind different measurement models of social capital is that it can be covered from different sides, and all those measures might, in fact, explain the sole composite latent variable which stands for social capital as a whole.

The channel through which foreign aid enhances economic growth is investment. Social capital involving the level of society's reciprocity and

readiness to cooperate seems to be non-negligible when dealing with investment (Easterly, 2003). This finding can possibly contribute to the research set on foreign aid pass-through to the growth.

I use principal component analysis for the wide-range survey data to extract the most useful information about socio-cultural properties of developing countries, hereby constructing a principal factor which has a strong association with different sides of social capital (the choice of cultural traits is explained later). Finally, I aim to check the hypothesis that social capital has a robust positive impact on the effectiveness of foreign aid independently from the past economic development, past education level and quality of policies or institutions. Even so, good policies and institutions are known to be very useful in promoting growth (Burnside and Dollar, 2000). Nonetheless, significant evidence could substantially contribute to aid policy framework making the choice to provide assistance more justified.

I examine the hypothesis on a sample including 80 developing countries (Table 8) being present in at least one of six waves of the longitudinal World Value Survey (WVS) database. Classification of developed countries is taken from the appendix to the CIA World Factbook[1], which identifies developed and developing countries. It is important to note that several countries changed their status from developing to developed during the studied period, which should be accounted for in the estimation process. Still, the quality of the data available is not the best since it is difficult to collect country-wide survey data of a more or less high frequency. Social capital measures are collected once in a few years. I try to tackle this problem in several ways, for example, by interpolating the nation-aggregated social capital data (making an assumption that social capital is quite stable and its change over time can be

[1] CIA (2011). "Appendix B. International Organizations and Groups. World Factbook": https://www.cia.gov/library/publications/the-world-factbook/appendix/appendix-b.html#D

viewed as smooth). This and other methods are described in more detail in Data Description section.

The paper is structured as follows. Chapter 2 reviews the prior achievements in the literature on foreign aid determinants. In Chapter 3 the methodology of empirical analysis is presented and justified. The data used to provide empirical evidence are described in Chapter 4. In Chapter 5 main empirical results are discussed. Chapter 6 concludes.

Chapter 2

LITERATURE REVIEW

From the beginning of this century, the discussion of foreign aid effectiveness transforms from the question of whether it is effective to the question of when it is effective. Depending on various conditions it has a wide range of possible outcomes and can affect the economy and society in multiple ways.

2.1. Contribution of foreign aid

A range of economists argues that foreign aid may have positive indirect effects despite aiming at promoting growth. Suchwise Casella and Eichengreen (1994) find that aid helps to enhance economic stabilization. Their finding suggests that timely decided assistance should lead to earlier stabilization, as well as postponed assistance should be associated with the setback in reforms. D'Onofrio and Maggio (2015) investigate the case of Uganda to show that foreign aid is helpful in fostering trust in society. They show that the channel through which aid affects trust is inequality, and aid is more effective in regions with lower perceived inequality.

Another interesting issue was a pass-through from foreign aid to democracy. Nevertheless, Knack (2004) finds no positive impact of aid on democracy, even though outlining the possible ways aid could be useful in this direction. Later Djankov, Montalvo, and Reynal-Querol (2008) investigate a wide time span to infer the negative effect of foreign aid on democracy. After conforming the comparison, they come to a conclusion that aid is even a bigger curse than oil rents in terms of their harm to democracy.

2.2. Environment for effective aid

Meanwhile, the discussion of aid effectiveness in promoting growth is headed onto defining the properties of effective aid instance.

The debate on the plausible environment for aid allocation was ignited by the studies examining the performance of foreign aid conditional on the political regime (Boone, 1995) and policy setup (Burnside and Dollar, 2000). The former study argues that aid effectiveness does not vary among liberal or repressive political regimes. Easterly (2003) confirms Boone's finding that aid goes mostly on consumption, rather than investment. Boone also suggests that the short term aid supporting the new liberal regime should be more successful among the other programs. Burnside and Dollar find that aid positively affects growth in countries that adopt good policies. Their result was, however, tackled multiple times and from different sides.

Hansen and Tarp (2000 and 2001), Dalgaard and Hansen (2001), Lensink and White (2001) and Clemens and others (2012) come up with the evidence of countries with a bad policy environment that utilized the development assistance fairly well. The other group of studies claims that aid is ineffective regardless of the quality of policies (Easterly, 2003; Easterly, Levine and Roodman, 2004; Rajan and Subramanian, 2008; Eris, 2008). Moreover, Svensson (1999) and Alesina and Weder (2002) show that corrupt governments do not receive less foreign aid, despite that there is no evidence that an increase in foreign aid reduces corruption.

2.3. Emergence of social capital in development theory

The discussion of social capital becomes quite intensive after Putnam (2000) reclaimed the networks importance and mutual understanding for a given society. Despite a range of similar, but not equal, definitions of social capital, a range of them are believed to converge towards the definition offered.

One of the most notable features of social capital is its ambiguity, for which the concept is often criticized. However, this feature makes it simply immune to constructive criticism, since one has a lot of freedom defining social capital. OECD[2] distinguishes a couple of its forms dividing it into three categories: bonds (common identity), bridges (stretch beyond common identity, e.g., distant friendship), and linkages (links across the social ladder). Suchwise social capital appears to emphasize the productivity of sociability.

As it is actively discussed, socio-cultural characteristics apparently have an effect on economic development. First notable discussion of this relationship is tied by Helliwell and Putnam (1995). They find that the North-South differences in economic development in Italy can be advocated the differences in social cohesion. Soon previously mentioned Knack and Keefer (1997) find another evidence that social capital matters a lot for economic development. However, they challenge the previously used measure for social capital. While showing that the society's ability to form communities is not associated with economic performance, they find that trust and civic norms are the social factors that do matter a lot. Then Whiteley (2000) proves that social capital has no less impact on growth than human capital does, while it is the latter that has been a focus of endogenous growth theory.

Another piece of support for social capital importance for economic outcomes is offered by Zak and Knack (2001). They show that the level of

[2] What is social capital: https://www.oecd.org/insights/37966934.pdf

trust is positively associated with a rate of investment which in turn enhances economic development. Beugelsdijk et al. (2004) furtherly try to verify the previous results. They suggest that while Knack and Keefer (1997) might have achieved weakly robust results, later Zak and Knack (2001) were closer to the truth, as countries with low trust level improved the robustness of the result. Substantial analysis is provided by Bjørnskov (2005), who presents a three-stage OLS model to examine the transmission from social trust to economic growth. He finds that trust primarily affects schooling and the rule of law, and then growth is affected directly or through investment by those two. After that Tabellini (2006) utilizes European historical data measuring culture by indicators of individual values and beliefs to show that cultural factors have a strong positive relationship with the level of income. The way he defines culture is fairly similar to a broad definition of social capital.

Further Ponzetto and Troyano (2018) find that social capital affects economic growth through investment in human capital. They also come to implications that societies with higher social capital are better informed about their government and spend a higher portion of their gross income on public education.

2.4. Foreign aid and social capital

Regarding the relationship between foreign aid and social capital, Gugerty and Kremer (2000) were at the source of investigating the social capital effect on economic outcomes. Their case study shows the differences between three particular projects expected to promote social capital in Kenya. They find that it is the projects that were more directly aimed at increasing social capital had less impact on social capital.

The first cross-sectional trial to investigate aid-growth-social capital relationship was made by Baliamoune-Lutz and Mavrotas (2009). They consider social cohesion measured by ethnic fractionalization rate to study the social impact on aid effectiveness. The authors find that social cohesion and institutional quality boost aid performance. Moreover, once these factors are accounted the effect of policy environment tends to die out. This serves as a counter-argument against the results obtained by Burnside and Dollar (2000).

Another study focusing on aid-social capital interaction and their impact on economic development was done using Latin American sample of countries (Neira, Lacalle-Calderon and Portela, 2016). They measure social capital by the level of trust in the country. The authors come up with a result that the impact of aid on growth depends on the level of trust, which implies that aid is likely to be effective in case it is allocated to the trust-rich environment.

Many findings bring to the suspicion that among the channels, through which foreign aid can possibly affect economic development, there is a place for socio-cultural characteristics of a given region. But whether this effect is robust and has a direct influence on aid performance is still a subject to be researched.

Chapter 3

METHODOLOGY

3.1. General model

The empirical estimation starts from a pooled model constructed as in the case of aid-growth-policies nexus investigated by Burnside and Dollar (2000). The model can be derived from a neoclassical growth model. The aid is expected to have a positive effect on growth, which is likely to be temporal if there were diminishing returns to scale. Besides that, I suppose that the level of socio-cultural development of a recipient country might as well affect the extent to which the aid is effective. Hereby, aid is considered including its interaction with social capital when examining its impact on growth.

The general specification of a model to be estimated:

$$\Delta log\ GDP_{it} = \beta_0 + \beta_1 aid_{i,t-n} + \beta_2 social_{i,t-n} + \beta_3 aid_{i,t-n} \cdot social_{i,t-n} + \sum \beta_j X_j\ , \quad (1)$$

where $X_j$is a set of various controls.

The left-hand side variable is a growth rate defined as a difference of logarithms of the gross domestic product of a country. The right-hand side is a mixture of equations used by Burnside and Dollar (2000) and Tabellini (2006) including foreign aid, social capital measure, interaction term between foreign aid and social capital and the set of controls such as initial logarithm of GDP per capita, past education, past urbanization, region categorical variable (to capture geographical cross-effects) and the indicator for countries that became developed during the studied period. Considering the logarithm

of GDP at the beginning of a period is common in empirical growth literature for capturing the convergence effects. As proposed by Tabellini (2006), past educational level can be included as a control to avoid social capital being a proxy for human capital, while past urbanization rates are used to control for previous economic development. The subject of primary interest is the coefficient on interaction term between aid and social capital.

3.2. Social capital measures

3.2.1. Principal component analysis

In this analysis, we assume that social capital is a multidimensional feature, coming out in different socio-cultural traits. To measure the social capital, I follow the approach of Tabellini (2006) and combine four indicators to measure social capital: mutual trust, respect for others, obedience and individual freedom, which are based on answers of the World Value Survey. The logic, underlying the choice of indicators, is discussed thoroughly in the Data Description section. Sociological research suggests that these characteristics cover different significant sides of social capital, and combining them seems to be a decent measure of social capital (Banfield, 1958). Since these variables might be correlated, I use the principal component analysis (PCA) to reduce the dimensionality and create an uncorrelated independent variable that explains the most of variation of the four variables.

3.2.2. Other measures

While one still cannot be sure choosing the appropriate way to account for social capital, it is better to cover different sides of social capital. For this purpose, I define 8 distinct measures of social capital.

The first measure is defined as the first principal components of all four survey features (*pc_culture*). PCA constructs the variable such that respect and obedience get quite high loadings (see Table 1).

Table 1. Principal component loadings (unrotated)

PC1	Loadings
respect	0.60
trust	0.28
control	0.34
obedience	-0.67

Table notes: component is normalized (squares of loadings sum up to 1)

As long as trust, respect and individual freedom are expected to be positively associated with growth, and obedience might be negatively related to it, this measure will come as a net measure of social drivers of economic growth. This measure, however, might be difficult to interpret. Therefore, for the sake of simple interpretation I define the first principal component of three positive connections (trust, respect, freedom of choice) as a distinct measure of social capital (*pc_culture_positive*). Another measure of social capital is constructed out of two values considered by respondents as important to teach children, respect for other people and obedience (*pc_culture_children*).

Recall that the principal component out of all four variables had the highest loadings for respect and obedience. These two might be enough to depict social capital precisely. This specification can be treated as a transmissive value of social capital, meaning that socio-cultural characteristics that explain the mentality of a region are inherited from generation to generation. In addition, I consider a simple sum of all four measures (note that they are identically scaled) as another option to check whether it is sufficient to define social capital in some simple manner (*sum_culture*). Finally, it is possible that the associations with social capital can be explained primarily by a sole variable. This is suggested by previous researchers who had used, for instance, only trust to measure social capital. Thus, I will estimate the effect of social capital using each of four social traits separately to verify that.

If we look at the correlations between all proposed social measures (see Table 2), we can observe that the individual responses have very small cross-correlations, which is a support for our choice of independent measures. They might indeed cover the different sides of the socio-cultural profile of a given society.

Table 2. Correlation matrix for different measures of social capital

	trust	respect	obedience	control	pc_cult	pc_pos	pc_child
trust	1						
respect	-0.02	1					
obedience	-0.04	-0.04	1				
control	0.00	0.03	0.00	1			
pc_cult	0.29	0.61	-0.69	0.35	1		
pc _pos	-0.40	0.72	-0.01	0.59	0.51	1	
pc _child	-0.01	-0.72	0.72	-0.02	-0.90	-0.51	1
sum_cult	0.49	0.57	-0.62	0.31	0.98	0.39	-0.83

Another implication is that composite measures actually show a decent correlation with individual measures. On one hand, it is trivial, since composites are constructed out of these particles. On the other hand, a moderate magnitude of the correlation indicates that composites are not overweighted with some single variable, however, bear a part of the variance of each one.

Finally, too high correlations are observed only between different composite variables (e.g., the principal component of all four features versus principal component of three positively related to growth features, what we could expect given almost identical input for the construction of those two).

3.2.3. Factor analysis

It is important to notice that principal component analysis is not the only approach in empirical literature to construct composite indicators. An alternative way for such problems is factor analysis. Despite such methods like PCA or factor analysis are more popular for psychologists or social scientists who often deal with bulky survey data, they also find applications in economic literature. Recently, factor analysis was used to construct an indicator of pro-capitalistic views (Khodenko, 2013). Before proceeding, we need to discuss the appropriateness of using this approach.

Generally, factor analysis implies a formal model predicting observed features from some theoretical latent variable. PCA, in turn, is intended for reducing the number of dimensions by linearly combining the initial set. Since we assume that social capital is rather not one-dimensional, we can conclude that the approach of factor analysis does not fit our purpose. We do not intend to approximate social capital to theoretical latent factor. Therefore, for the following analysis, we stick to PCA.

3.3. Variables specification

Social capital and foreign aid enter the model in the lagged form, since their effect on growth is unlikely to be contemporaneous, but overseen in the near future. Some controls (such as urbanization rate and education level) are also included in lagged form. Tabellini (2006) used a 50-years lag for urbanization to sketch the previous development of a region, however, our source of data allows only 20-years lag to keep more complete observations for estimation. For the same reason, the lag for past education level is 10 years.

Dependent variable comes in a form of abnormal growth rate (corrected for global growth rate) over the following 5 years. This specification has two important qualities. First, it will allow dealing with the worldwide business cycle preventing misinterpretation of some negative results during crises. Second, it allows for longer effect as foreign aid is likely to affect the growth not only one period ahead.

Since aid effect depends on the size of a country, we have to consider a relative measure for ODA. For example, we could use ODA per capita or ODA as a share of GDP, both of which are continuous variables.

Another issue is the presence of negative values of net aid flow. They might stand for repayments of loans. We are primarily interested in the effect of aid inflows. For this reason, I exclude the observations with the negative values of aid.

Since the objective of this thesis is to examine the interaction between foreign aid and social capital (which is continuous in all of its specifications, too), using the continuous specification for both aid and social capital will make the further interpretation of results less intuitive. Taking a continuous specification might also prevent us from getting some general insights as some relationships might be significant for relatively high and nonlinear

changes. That is why I suggest analyzing the outcomes through breaking down one of the variables into a few ordinal categories.

I take the aid as a share of GDP and bin it into three categories: low, moderate or high share of aid. Looking at the distribution of ODA to GDP ratio, we can see that for nearly half of observations (country-years) the share of ODA in GDP is less than 1%. I use it as a threshold for countries that do not depend on aid. We observe that 90th percentile of the distribution is around 10% share, which is going to be one more threshold. As a result, we have three categories: low-dependency-on-aid countries (up to 1% of GDP as aid), medium-dependency countries (from 1% to 10% of GDP as aid) and countries that highly depend on foreign aid (amount of aid is more than 10% of GDP). Half of the total observations have a low aid share, another 40% of cases have a medium share, and only 10% are highly loaded by foreign aid (see Table 3).

Table 3. The distribution of aid share across the sample

Aid as share of GDP	Frequency	Percent
Low (up to 1%)	1,478	49.4
Medium (1-10%)	1,215	40.61
High (over 10%)	299	9.99

3.4. Interpolation of social capital

Another problem with the data is a low frequency of social measures. This substantially cuts the number of observations. We can make an assumption that social capital shows a pretty stable behavior (see Figure 2) with a slow

rate of change and no immediate shocks; hence, we can use a smooth interpolation for gaps between the waves of WVS.

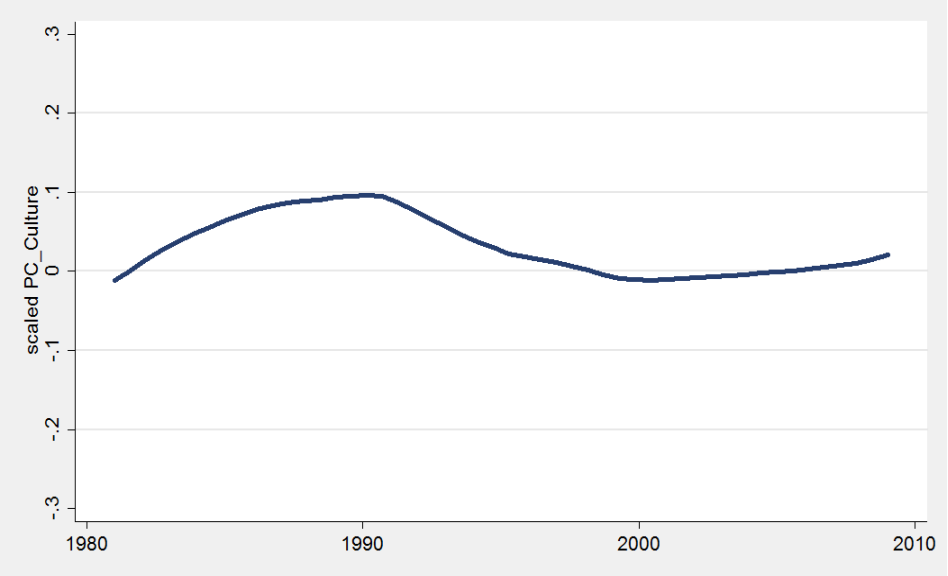

Figure 2. Dynamics of social capital measure

Notes: Graphed as an average value of the scaled principal component of social traits for the sample of frequently presented countries: Argentina, Chile, India, Mexico, South Africa, Turkey (available in 5-6 waves)

This way we can significantly expand the number of observations with the data remaining reasonably legitimate. I proceed interpolating all the features proposed as measures of social capital.

3.5. Econometric model

Another methodological issue is the appropriate econometric model. Often it is not clear what model fits a certain research question, data structure or

feature set the best. The key assumptions of different regression techniques can be interpreted with a different extent of strictness. In such situations, it is better to consider a range of distinct approaches and try to explain the differences between them.

Firstly, the data can be regarded as a pooled cross-sectional data or unbalanced panel. Implying we face a high quantity of missing values, we certainly need to start off with pooled OLS. However, it does not account for the fixed unobserved effect.

A more popular choice for an unbalanced panel is fixed effects estimator which is unbiased and consistent under certain assumptions. Fixed effects model consists of pooled OLS estimation of time-demeaned data (within transformation). Any time-constant explanatory variable is canceled out as a result of this process, thereby we will not be able to examine, for example, regional differences in effect on growth.

Alongside the fixed effects model researchers often include the random effects estimator. But in our case, we have countries as observations, which are unlikely to introduce any measurable randomness into the model. In Chapter 5 we also find a technical reason why random effects are inappropriate for this problem.

Chapter 4

DATA DESCRIPTION

The data used for the empirical analysis come from three sources.

The primary source of the data is the World Bank World Development Indicators Database. Therefrom, I take the data for GDP (in current dollars), net official development assistance and official aid received (in current dollars), and urbanization rate (urban population as a percentage of the total population).

This source is very convenient since it covers a wide variety of countries and plenty of economic, demographic and other indicators.

There are some insights in the data that have to be discussed. We observe that ODA burden is higher for poor countries (Figure 3), and this tends to hold over time, which can refer to some sort of aid trap, mentioned in the past research (Easterly, 2006). For this reason, the initial economic development is controlled for. The linear approximation of this association might be in fact misleading. Comparing growth rates across different aid share groups one can hardly observe any substantial prevalence of lower growth in the countries with a high aid share (see Table 4).

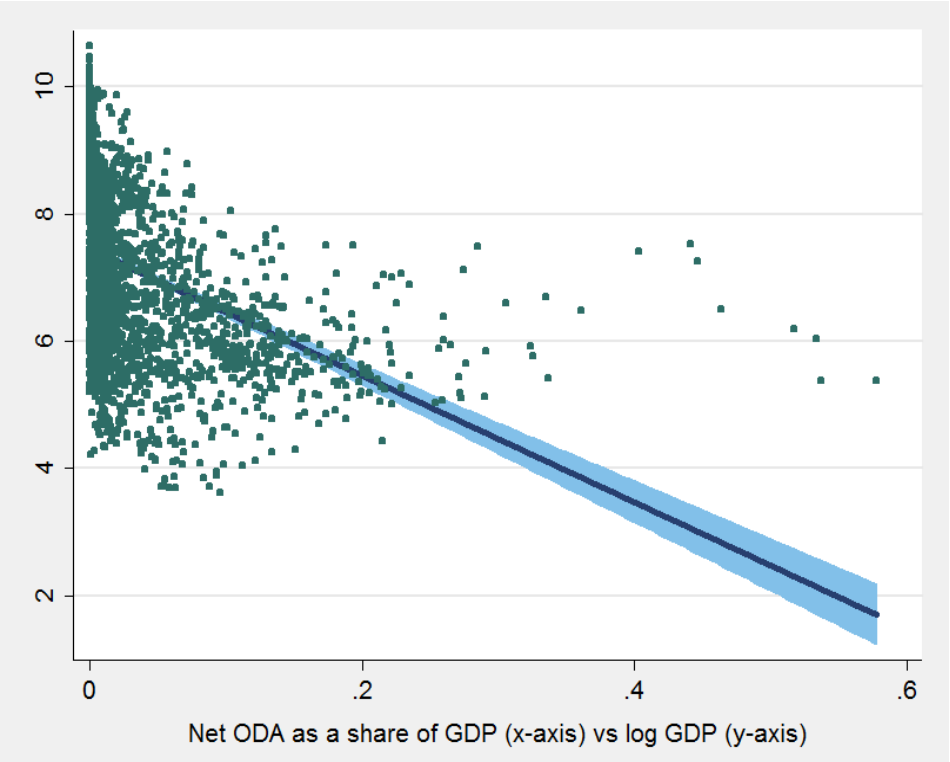

Figure 3. Net ODA as a share of GDP versus log GDP, 1960 – 2016

Notes: Rwanda-1994 observation is omitted as an outlier

Table 4. Aid share versus growth rate groups

	GDP growth rate			Total
	Negative	Moderate	High (10% +)	
Aid as share of GDP				
Low (up to 1%)	528	500	450	1,478
Medium (1-10%)	488	448	279	1,215
High (over 10%)	119	101	79	299
Total	1,135	1,049	808	2,992

Education is measured by the rate of tertiary attainment (as a percentage of the total population) and also taken from World Bank WDI Database. Following the previous research, we are going to capture the human capital using past education rate. For instance, Tabellini (2006) uses a considerably deep lag for education. World Bank database provides these data only from 1970, while social capital data start from 1984. Therefore, I go as deep as 10 years ago for past education rate.

The data for social capital is taken from WVS longitudinal aggregation consisting of 6 surveying waves from 1984 to 2014. The survey contains data for 80 developing countries (see Figure 4).

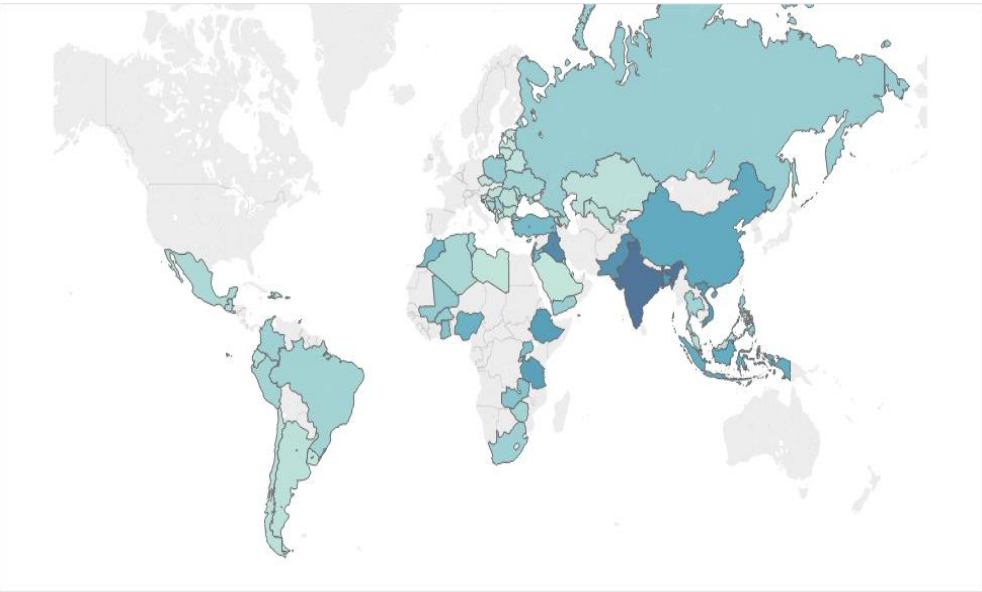

Figure 4. Distribution of gross aid amount across the world, 1960 – 2016,

Notes: for developing countries from WVS sample

WVS really involves a huge amount of cultural measures. But we need to pick up those that promote economic growth (and thus possibly affect aid performance, which is aimed at economic development, as well) and cover the different sides of social capital. Following the papers by Platteau (2000) and Tabellini (2006) on the relationship between social norms and economic development, I dwell upon such characteristics as mutual trust, respect, obedience and return from individual efforts.

Trust was previously shown as an important feature facilitating economic growth through its effect on investment or rule of law (Zak and Knack, 2001; Beugelsdijk, de Groot and van Schaik, 2004; Bjørnskov, 2005). Recall the simulations of prisoner's dilemma. The trust-rich interactions between prisoners are more likely to lead to an efficient outcome (Dixit, 2004). We should also mention the finding by Baliamoune-Lutz and Mavrotas (2009) that foreign aid is more effective in the trust-rich environment. To measure the trust level I use the response to the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"[3].

The dynamics of trust in developing countries are unpleasant: the level of trust declined over the last 30 years (see Figure 5). Social research attributes this change to a steady level of corruption in developing countries (Uslaner, 2002).

One more thing emphasized by Platteau (2000) is that the moral values of the society might stem from the qualities taught by parents. That is why I consider two options that come as corresponding answers to the following question: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up

[3] Hereinafter the question quotes are cited from WVS Wave 6 Official Questionnaire: http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp

to five". On the one hand, we have respect to others that could enhance social reciprocity and cooperation. The importance of this value comes from the level of distinction between limited and generalized morality in society (whether individuals exhibit moral norms subject to small groups of related people or the whole society). In hierarchical societies, opportunistic behavior towards people "outside circle" is considered as acceptable.

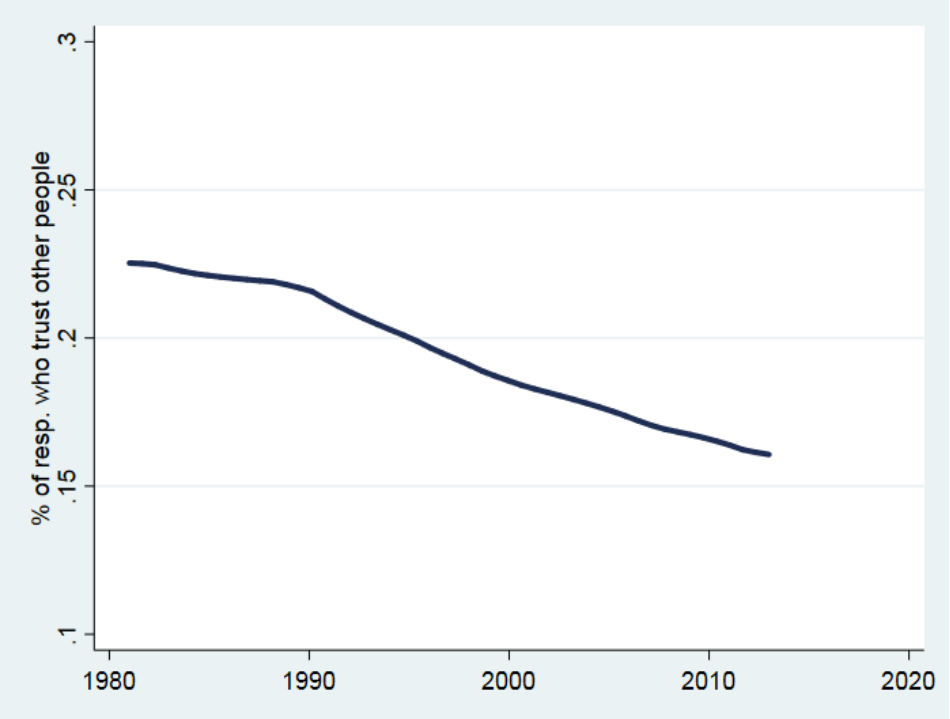

Figure 5. Dynamics of trust

Notes: Graphed as an average response for the sample of frequently presented countries: Argentina, Chile, India, Mexico, South Africa, Turkey (available in 5-6 waves)

Also typical for hierarchical societies when the individualism is disregarded, and individuals' behavior is rather instinctive than reasonable. In such environments, the state forces citizens to behave well, which we can project

on a micro-level: parents prevent the development of negative instincts of the children in order to bring them up as functioning members of the society (Banfield, 1958). Thus, obedience can possibly explain bad tolerance to individualism and associates with strict manners.

The dynamics of obedience during the last 30 years gives an interesting inference. The share of people who consider obedience as an important quality was increasing until the beginning of the new century. After that, the trend has broken down and obedience has started to decline (see Figure 6). This might be attributed to increasing globalization and the rise of democratic institutes in developing countries.

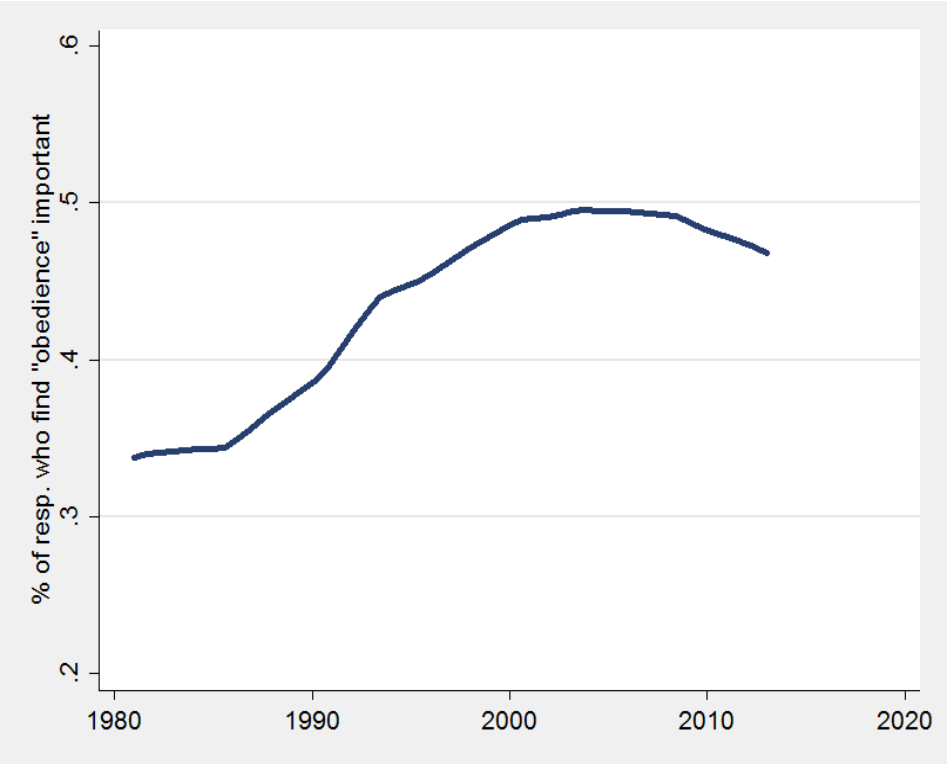

Figure 6. Dynamics of obedience

Notes: Graphed as an average response for the sample of frequently presented countries: Argentina, Chile, India, Mexico, South Africa, Turkey (available in 5-6 waves)

Another feature used to explain the nature of social drivers of growth is a sort of a perception of individual effort. It is a quite popular feature in various discussions of economic development. An individual, who realizes that his choices significantly affect his daily outcomes, is likely to be motivated to work harder to achieve more. On the contrary, people, who assign success to luck or other unrelated things, are associated with more passive behavior. I measure this effect as a feeling of control over one's own life, which is a surveyee's assessment of the question "Some people feel they have completely free choice and control over their lives, while other people feel that what we do has no real effect on what happens to them. Please use this scale (from 1 to 10) where 1 means "none at all" and 10 means "a great deal"

to indicate how much freedom of choice and control in life you have over the way your life turns out".

Chapter 5

ESTIMATION AND RESULTS

The estimation process consists of 2 different regression techniques (pooled OLS and FE), 3 different sampling approaches (complete one, without FSU block, and using interpolated social capital), and 8 different options to measure social capital. Permutation of all these cases yields 48 distinct equations.

Generally, FE gives more valid results as it counts for individual effects that are constant for the countries over time, while pooled OLS simply ignores them. This may violate the residual orthogonality. But if we are interested in some fixed effects as well (e.g., regional differences), this model does not allow us to track them. Moreover, we are able to verify after the estimation that pooled OLS is no less adequate than FE using Hausman test. For this reason, the results of pooled OLS are considered alongside.

Hereinafter in the main part of the chapter, I present the estimation results with a principal component of all social traits as a social capital measure (this one showed the best performance across the majority of the models). In addition, coefficients for region dummies and transitioned country dummy are omitted from the presentation (but they are included in the estimation). Several other important estimation tables with robustness check can be found in the Appendix. The complete estimation results are available upon request.

5.1. Pooled OLS

Generally, we can infer from the results of pooled OLS that social capital, as we expected, improves aid utilization. As the burden of foreign aid gets larger for the country, higher social capital becomes more important. But in any

case, an increase in social capital makes aid effect on growth more meaningful. The results are comparable with and without interpolated data, as well as are robust after controlling for human capital and past economic development levels (Table 5).

There is no substantial difference between using a complete sample or one without former socialist countries, despite that the data for all post-communist countries are available since 1990, and their appearance could have seriously distorted the distribution of social capital.

Another evidence that also holds further is that separate social traits were not significant in explaining economic growth (see Appendix). This supports the idea that social capital matters as a multi-dimensional composite factor.

5.2. Fixed effects

FE estimator helps eliminate time-constant effects (see results in the Appendix). Now the models with complete and FSU-out samples yield no significant associations. In case of FE alternative model with interpolated social capital reports high statistical significance, however explanatory variables do not explain the variation in growth very well (which is again apparent given the construction of social capital variable). Variables related to the aid, in turn, show insignificant results. But still, the empirics introducing interpolation are not very welcome. It requires additional assumptions that the feature evolves smoothly with no leaps. Its application is more useful for increasing the sample size than for describing the studied relationship more precisely. Thus, this approach is regarded as an alternative one.

Table 5. Estimation results of pooled model versus FE model (unmodified sample, without controlling for past education and urbanization)

VARIABLES	(1) POLS	(2) FE
log GDP per cap	-0.0693	-0.0615
	(0.0554)	(0.201)
human capital	-0.0137***	-0.0154
	(0.00310)	(0.00931)
past urbanization	0.00607*	0.0163
	(0.00320)	(0.0149)
medium aid share	-0.0632	-0.265
	(0.0752)	(0.334)
high aid share	0.584***	-0.0154
	(0.110)	(0.452)
social capital	0.109	-0.0538
	(0.215)	(0.313)
medium aid share · social capital	0.563*	0.871
	(0.315)	(0.872)
high aid share · social capital	0.886**	2.176***
	(0.372)	(0.669)
Constant	0.432	0.206
	(0.399)	(1.104)
Observations	103	103
R-squared	0.363	0.156

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.3. Random effects

RE estimator possesses the advantages of both pooled OLS and FE, thus it was given a try. The result achieved indicated an unusual issue, which, however, was useful to modify the technique for further estimation.

The coefficients of RE model obtained using Stata turned out to be the same as in pooled OLS case. This means that the data were not demeaned in any way. The extent of this demeaning, as we remember, depends on the variance of unobserved factors, i.e., it is zero in this case. But unobserved effects are not absent or constant. Simply, Stata sets this variance to zero when it is

negative because otherwise random effects cannot be built. Well, the wording "negative variance" really sounds ridiculous. But in random effects modelling, there are situations when the effect is weak or when some variance component of a random effect is associated with too few levels of the factor of interest. We exactly have a situation with a large number of units of observation and a small number of periods, which leads to larger standard errors (as we estimate an additional random parameter for every unit of observation). In such case, the variance component of RE turns negative.

Negative variance issue may also indicate negative serial correlation, and in case it is present in other models they become invalid, so we would rather check for autocorrelation. Using Arellano-Bond test for autocorrelation I examine the null hypothesis of no autocorrelation for 10 lags as the lags in our sample are different (in some countries social capital is measured with a gap of 2 years, in others, this gap can be a few times wider). For half of the lags, the null hypothesis is rejected, for another half, it is failed to reject (see Table 15 in Appendix). Nevertheless, we cannot ignore some presence of autocorrelation. To deal with it I utilize serial correlation robust standard errors.

5.4. Different sampling

Excluding of FSU countries did not increase the interpretability of a model in any way. Interaction terms become insignificant. With interpolated data interactions are also insignificant, however social capital, in general, is found to be positively associated with growth (Table 6).

Table 6. Pooled model results with different sample modifications

VARIABLES	(1) No CIS	(2) Interpolation
log GDP per cap	-0.112	-0.192***
	(0.0788)	(0.0415)
human capital	-0.0116**	-0.0106***
	(0.00481)	(0.00271)
past urbanization	0.00742*	0.00975***
	(0.00416)	(0.00262)
medium aid share	-0.200**	-0.0776
	(0.0957)	(0.0708)
high aid share	0.498	-0.0689
	(0.354)	(0.127)
social capital	0.201	0.277*
	(0.278)	(0.141)
medium aid share · social capital	0.222	0.346
	(0.444)	(0.301)
high aid share · social capital	0.663	-0.540
	(0.872)	(0.336)
Constant	0.686	1.248***
	(0.563)	(0.284)
Observations	75	442
R-squared	0.289	0.207

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

5.5. Marginal returns

To analyze the returns from aid to growth we can look at marginal effects. I compute the returns to growth rate after the discrete change of aid variable from the base level (low aid share) at different values of social capital.

The first thing to argue is that foreign aid comes as a categorical variable. Hence, the returns are computed not as a partial derivative, but as due to the discrete change of foreign aid category.

Another issue is that social capital is measured as the principal component. This indicator is synthetic and has no cardinal meaning. However, we still can

analyze the returns going down its range. After looking at its value distribution (see Figure 7), I choose 5 fixed values that can be regarded as very poor (-.6), poor (-.3), medium (0), high (.3), and very high (.6) social capital.

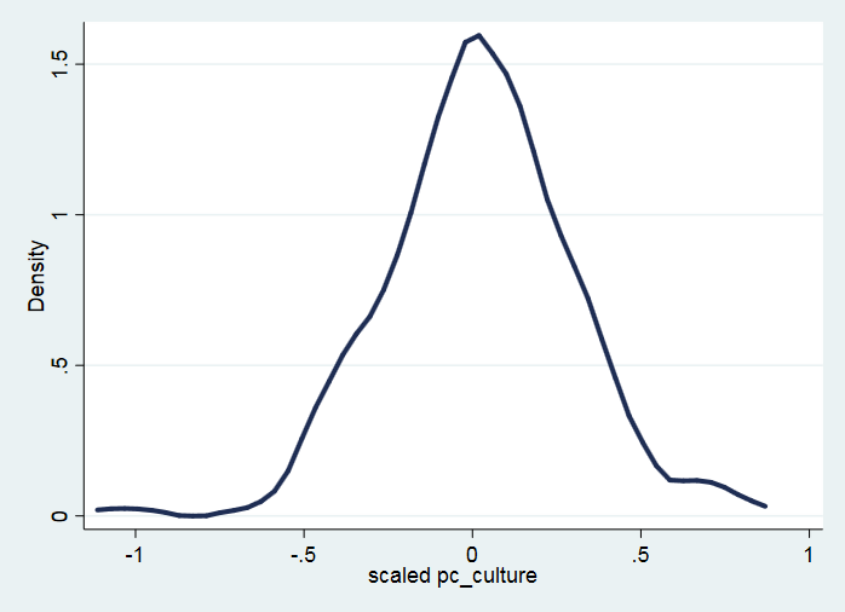

Figure 7. Ordinal distribution of social capital

Table 7. Average marginal returns from aid to growth at different values of social capital

	Delta-method Return	Std. Err.	z-score	p-value	[95% Conf. Interval]	
low aid share	(base outcome)					
medium aid share						
pc_culture=-0.6	-0.401	0.199	-2.01	0.044	-0.792	-0.011
pc_culture=-0.3	-0.232	0.117	-1.99	0.046	-0.461	-0.004
pc_culture=0	-0.063	0.057	-1.12	0.264	-0.174	0.048
pc_culture=0.3	0.106	0.092	1.15	0.251	-0.075	0.287
pc_culture=0.6	0.275	0.172	1.60	0.110	-0.062	0.612
high aid share						
pc_culture=-0.6	0.053	0.187	0.28	0.778	-0.314	0.419
pc_culture=-0.3	0.319	0.114	2.80	0.005	0.095	0.542
pc_culture=0	0.584	0.089	6.59	0.000	0.411	0.758
pc_culture=0.3	0.850	0.140	6.07	0.000	0.576	1.125
pc_culture=0.6	1.116	0.220	5.08	0.000	0.685	1.547

Let us refer to the discrete changes of aid factor as moderate aid gain (for the transition from low to medium aid share) and substantial aid gain (for the transition from low to high aid share).

First, we can observe that for moderate aid gain the return from the aid can be negative if social capital is low (Table 7; Figure 8). However, we can see that the aid return increases as social capital gets higher. This holds for both moderate and substantial aid gain. The effect of social capital on aid return is more important for a substantial aid gain, though.

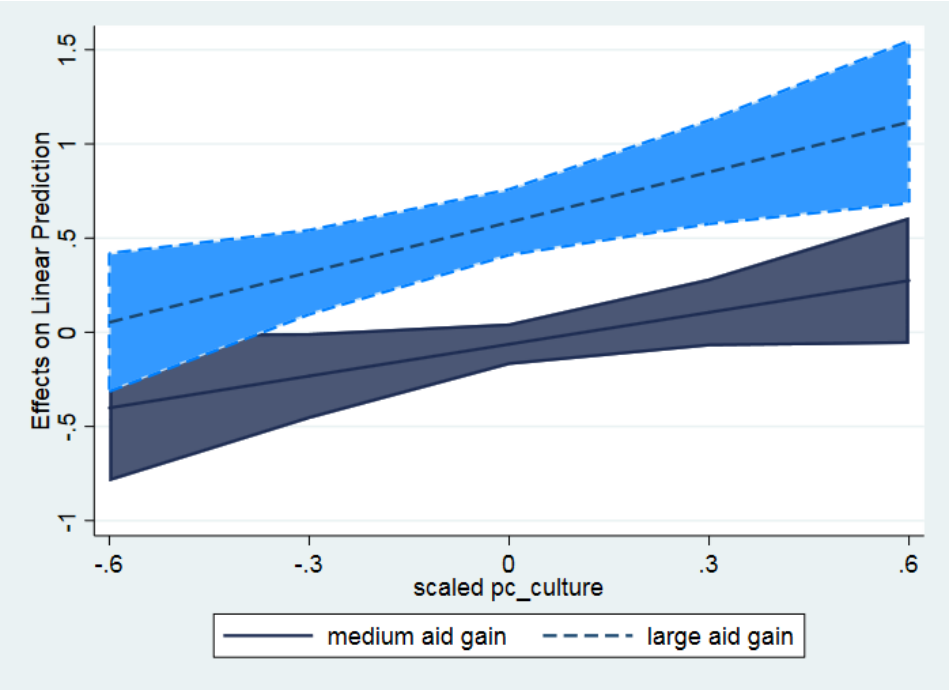

Figure 8. Average marginal returns from aid to growth with 95% CI

5.6. Post-estimation tests

During the hypothesis examination, both pooled and FE estimators were included. In such cases, researchers run the Hausman test to compare the validity of the approaches. The initial hypothesis of the test is that the studied effects are exogenous, thus can be adequately modeled by pooled OLS estimator. In our case, we compare potentially efficient but inconsistent pooled OLS estimator versus potentially consistent but inefficient fixed effects estimator. Running the test for our regressions (with unmodified sample) we receive the p-value of 0.9855. This means we cannot reject the null hypothesis, and there is no systematic difference between pooled OLS and FE coefficients. Thus, pooled OLS estimates are appropriate.

Since all the models incorporated into this analysis implement OLS algorithm in some way, we have to check whether key OLS assumptions hold. For this

purpose, some post-estimation tests were done subject to the best-estimated model which is pooled model with the unmodified sample.

Breusch-Pagan Lagrangean multiplier test is applied to the model with ordinary standard errors to test the heteroskedasticity. The null hypothesis of zero variance across entities was failed to reject with a p-value of 1.

Finally, there is no multicollinearity observed, since the mean variance inflation factor is 3.27, which is less than 10 (a thumb rule for multicollinearity detection).

Chapter 6

CONCLUSIONS

The past research on aid effectiveness avoided the attention to socio-cultural characteristics, which nevertheless were previously shown to be important when studying the economic performance.

The emphasis of this study was on different econometric and conceptual characteristics. This thesis attempted to tackle the question in a quite technical way considering numerous measures of social capital, different sampling approaches and a bundle of econometric models designed for pooled cross-section or panel data.

The model chosen as the most correct (based on regression statistics and post-estimation tests) tells us that there is indeed a positive relationship between social capital and foreign aid in their interaction for the growth promotion. Moreover, the effect of social capital on aid effectiveness holds when similar effects like human capital or previous economic development are accounted which supports the finding of Whiteley (2000).

We observe that the higher social capital, the larger the return from foreign aid to growth in magnitude. This yields one intuitive policy recommendation. If the effectiveness of certain development assistance depends on society's cooperation, activities that improve social traits (like the level of respect or trust to others) could enhance the effect of this aid inflow on the growth.

In addition, there is a piece of evidence that social capital has to be regarded as a multi-dimensional feature. Robustness check via re-estimating the models using separately trust, respect, obedience, and control, as well as simpler versions of composite, as a measure of social capital yields no significant results in general. Principal component analysis showed a good performance for this task.

Nonetheless, there are multiple things that can be improved in this direction of research. First, the versatile data for social capital which covers the whole world (such as WVS data) are gathered infrequently. Alternatives for this problem are using smaller geographical sample (if deeper or more frequent data are available) or waiting until more frequent data appears (which is likely with development of technologies).

Another option is to try analyzing 3 or 10 years (instead of 5) to track the growth rate for each observation. The results might be sensitive to these thresholds.

Also, the way foreign aid was introduced to the analysis was kind of peculiar. Still, it can be regarded in continuous form and defined in another relative form. Additionally, if we assume that growth in a particular year is affected not only by a single aid inflow but by a sequence of inflows, its effect can be considered as an average of aid inflows for a few previous years.

The concept of social capital also gives much freedom for choosing the way to define it in the analysis. While some attempts to measure it with a level of trust (Neira, Lacalle-Calderon and Portela, 2016) or ethnic fractionalization (Baliamoune-Lutz, Mavrotas, 2009) have been made, in the general growth literature the social traits were approached in few other ways (e.g., Putnam's formal memberships). Those could be incorporated in the aid field, as well.

WORKS CITED

Alesina, Alberto, and Beatrice Weder. 2002. Do corrupt governments receive less foreign aid? *American Economic Review* 92(4): 1126-1137.

Baliamoune-Lutz, Mina, and George Mavrotas. 2009. Aid Effectiveness: Looking at the Aid-Social Capital-Growth Nexus. *Review of Development Economics* 13: 510-525

Banfield, Edward C. 1958. The Moral Basis of a Backward Society. *Free Press*.

Beugelsdijk, Sjoerd, Henri L.F. de Groot, and Anton B.T.M. van Schaik. 2004. Trust and economic growth: a robustness analysis. *Oxford Economic Papers* 56: 118–134

Bjørnskov, Christian. 2005. How Does Social Trust Affect Economic Growth? *Southern Economic Journal* 78(4): 1346-1368.

Boone, Peter. 1995. Politics and the Effectiveness of Foreign Aid. *European Economic Review* 40(2): 289-329

Burnside, Craig, and David Dollar. 2000. Aid, Policies, and Growth. *American Economic Review* 90(4): 847-868

Casella, Alessandra, and Barry Eichengreen. 1994. Can Foreign Aid Accelerate Stabilisation? *Economic Journal* 106(436): 605-619

Clemens, Michael A. and others. 2012. Counting Chickens when They Hatch: Timing and the Effects of Aid on Growth. *Economic Journal* 122(561), Wiley: 590-617

Dalgaard, Carl-Johan, and Henrik Hansen. 2001. On Aid, Growth and Good Policies. *Journal of Development Studies* 37(6), Taylor & Francis: 17-41

Dixit, Avinash Kamalakar. 2004. Lawlessness and Economics - Alternative Models of Governance. *Princeton University Press*.

Djankov, Simeon, Jose Montalvo, and Marta Reynal-Querol. 2008. The curse of aid. *Journal of Economic Growth* 13(3): 169-194

D'Onofrio, Alexandra, and Giuseppe Maggio. 2018. Does Foreign Aid Fuel Trust?

Eastely, William. 2003. Can Foreign Aid Buy Growth? *Journal of Economic Perspectives* 17(3): 23-48

Easterly, William, Ross Levine, and David Roodman. 2004. Aid, policies and growth: comment. *American Economic Review* 94(3): 774-780

Easterly, William. 2006. The White Man's Burden. *OUP/Penguin*

Eris, Mehmet. 2008. Foreign Aid and Growth. *Economics Bulletin* 15(14): 1-14

Gugerty, Mary Kay, and Michael Kremer. 2000. Does Development Assistance Help Build Social Capital?

Hansen, Henrik, and Finn Tarp. 2001. Aid and growth regressions. *Journal of Development Economics* 64(2): 547-570

Helliwell, John F., and Robert D. Putnam. 1995. Economic Growth and Social Capital in Italy. *Eastern Economic Journal* 21(3): 295-307

Khodenko, Oleksii. 2013. How does confidence in the state authorities shape pro-market attitudes? http://www.kse.org.ua/download.php?downloadid=304

Knack, Stephen. 2004. Does Foreign Aid Promote Democracy? *International Studies Quarterly* 48(1): 251-266

Knack, Stephen, and Philip Keefer. 1997. Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *The Quarterly Journal of Economics* 112(4): 1251-1288

Lensink, Robert, and Howard White. 2001. Are There Negative Returns to Aid? *The Journal of Development Studies* 37(6), Taylor & Francis: 42-65

Neira, Isabel, Maricruz Lacalle-Calderon, and Marta Portela. 2016. Official Development Assistance, Social Capital and Growth in Latin America

Platteau, Jean-Philippe, 2000. Institutions, Social Norms, and Economic Development. *Harwood: Academic Publishers & Routledge.*

Ponzetto, Giacomo A. M., and Ugo Troiano. 2018. Social Capital, Government Expenditures and Growth

Putnam, Robert D. 2000. Bowling Alone: The Collapse and Revival of American Community. *New York: Simon & Schuster.*

Rajan, Raghuram G., and Arvind Subramanian. 2008. Aid and Growth: What Does the Cross-Country Evidence Really Show? *The Review of Economics and Statistics* 90(4)

Svensson, Jakob. 1999. Aid, Growth and Democracy. *Economics and Politics* 11(3): 275-297

Tabellini, Guido. 2006. Culture and Institutions: Economic Development in the Regions of Europe. *CESifo Working Paper Series* 1492, CESifo Group Munich

Uslaner, Eric M. 2002. Trust and Corruption. *The New Institutional Economics of Corruption*, Chapter 5

Whiteley, Paul F. 2000. Economic Growth and Social Capital. *Political Studies* 48(3): 443-466

Zak, Paul J., and Stephen Knack. 2001. Trust and Growth. *The Economic Journal* 111: 295-321

APPENDIX

Table 8. Country frequency table

Country	*Freq.*	*Country*	*Freq.*	*Country*	*Freq.*
Albania	2	Haiti	1	Poland	4
Algeria	2	Hungary	3	Puerto Rico	2
Argentina	6	India	5	Qatar	1
Armenia	2	Indonesia	2	Romania	3
Azerbaijan	2	Iran	2	Russian Federation	4
Bangladesh	2	Iraq	3	Rwanda	2
Belarus	3	Israel	1	Saudi Arabia	1
Bosnia and Herzegovina	2	Jordan	3	Serbia	4
Brazil	4	Kazakhstan	1	Singapore	2
Bulgaria	2	Kuwait	1	Slovak Republic	2
Burkina Faso	1	Kyrgyz Republic	2	Slovenia	3
Chile	5	Latvia	1	South Africa	6
China	5	Lebanon	1	Tanzania	1
Colombia	4	Libya	1	Thailand	2
Croatia	1	Lithuania	1	Trinidad and Tobago	2
Cyprus	2	Macedonia, FYR	2	Tunisia	1
Czech Republic	2	Malaysia	2	Turkey	5
Dominican Republic	1	Mali	1	Uganda	1
Ecuador	1	Mexico	6	Ukraine	3
Egypt, Arab Rep.	3	Moldova	3	Uruguay	3
El Salvador	1	Montenegro	2	Uzbekistan	1
Estonia	2	Morocco	3	Venezuela, RB	2
Ethiopia	1	Nigeria	4	Vietnam	2
Georgia	3	Pakistan	3	Yemen, Rep.	1
Ghana	2	Peru	4	Zambia	1
Guatemala	1	Philippines	3	Zimbabwe	2
				Total	184

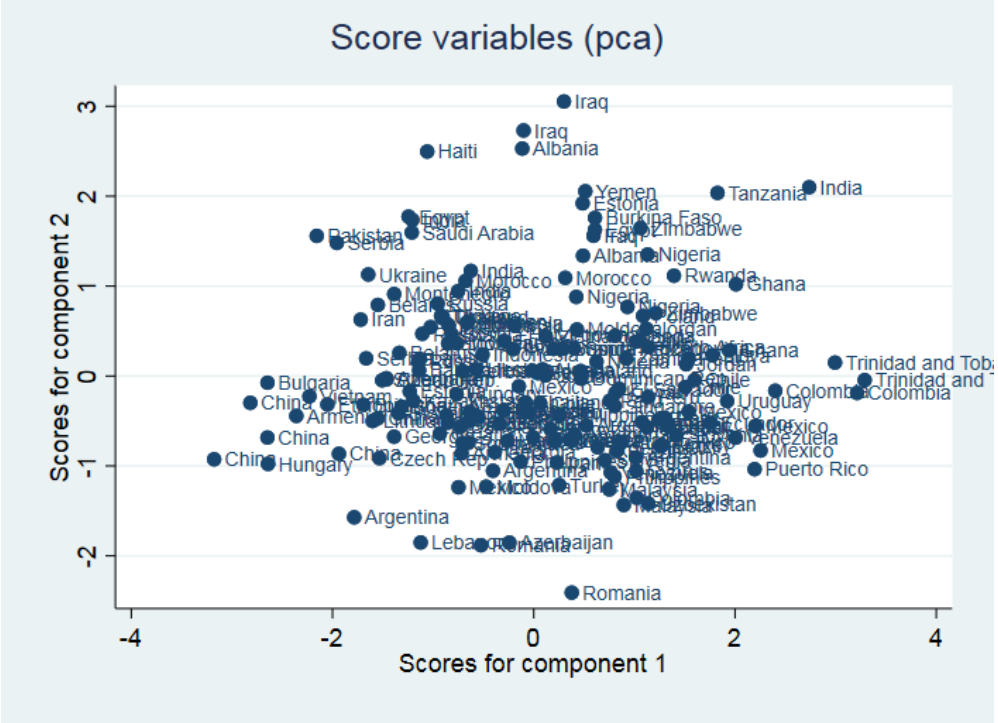

Figure 9. Social capital ordinal scores (PCA)

Estimation results (for region categorical variable the base is Africa):

Table 9. Pooled OLS model (complete sample)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	-0.0325	-0.0676	-0.0637	-0.0754	-0.0693	-0.0599	-0.0649	-0.0661
	(0.0578)	(0.0619)	(0.0551)	(0.0608)	(0.0554)	(0.0681)	(0.0554)	(0.0539)
Human capital	-0.0132***	-0.0138***	-0.0140***	-0.0147***	-0.0137***	-0.0153***	-0.0129***	-0.0132***
	(0.00283)	(0.00314)	(0.00317)	(0.00329)	(0.00310)	(0.00339)	(0.00308)	(0.00299)
Past urbanization	0.00642**	0.00797**	0.00698**	0.00769**	0.00607*	0.00810**	0.00619**	0.00596*
	(0.00309)	(0.00308)	(0.00301)	(0.00316)	(0.00320)	(0.00315)	(0.00309)	(0.00331)
became developed	0.0374	0.0288	0.0474	0.0230	0.0960	0.0100	0.100	0.0871
	(0.0986)	(0.0982)	(0.104)	(0.115)	(0.117)	(0.113)	(0.0967)	(0.119)
East Asia	0.425**	0.636***	0.603***	0.562***	0.454**	0.594***	0.552***	0.407**
	(0.173)	(0.182)	(0.172)	(0.183)	(0.183)	(0.178)	(0.181)	(0.186)
FSU	0.217	0.290**	0.277**	0.325**	0.151	0.298**	0.175	0.136
	(0.134)	(0.124)	(0.135)	(0.134)	(0.140)	(0.127)	(0.146)	(0.142)

Table 9 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Latin America	0.204	0.210	0.194	0.192	0.166	0.208	0.181	0.158
	(0.144)	(0.142)	(0.133)	(0.140)	(0.139)	(0.140)	(0.137)	(0.143)
Middle East & North Asia	0.161	0.216	0.224*	0.246	0.202	0.212	0.192	0.194
	(0.151)	(0.142)	(0.132)	(0.160)	(0.137)	(0.154)	(0.135)	(0.145)
South Asia	0.127	0.227	0.109	0.242	0.0675	0.250	0.0377	0.0861
	(0.190)	(0.184)	(0.195)	(0.199)	(0.219)	(0.199)	(0.189)	(0.217)
medium aid share	0.0507	-0.487	0.191	-0.177	-0.0632	-0.0240	-0.0705	-0.671*
	(0.135)	(0.485)	(0.167)	(0.592)	(0.0752)	(0.0853)	(0.0759)	(0.400)
high aid share	0.215	0.550	1.080***	0.793	0.584***	0.333**	0.501***	-0.529
	(0.247)	(0.444)	(0.192)	(0.654)	(0.110)	(0.167)	(0.115)	(0.493)
trust	0.810**							
	(0.373)							
respect		0.0775						
		(0.482)						
obedience			0.282					
			(0.287)					
control				0.430				
				(0.643)				
pc_culture					0.109			
					(0.215)			

Table 9 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
medium aid share · social capital	-0.267	0.698	-0.587	0.199	0.563*	0.273	-0.593**	0.568*
	(0.532)	(0.770)	(0.445)	(0.905)	(0.315)	(0.274)	(0.268)	(0.339)
high aid share · social capital	1.355	-0.244	-1.336***	-0.709	0.886**	-0.247	-0.946**	1.050**
	(0.879)	(0.603)	(0.412)	(1.134)	(0.372)	(0.296)	(0.393)	(0.434)
pc_culture_pos						-0.0254		
						(0.178)		
pc_culture_ch							0.0915	
							(0.196)	
sum_culture								0.239
								(0.250)
Constant	-0.0931	0.180	0.153	0.0496	0.432	0.218	0.346	0.148
	(0.432)	(0.417)	(0.397)	(0.468)	(0.399)	(0.462)	(0.395)	(0.444)
Observations	108	108	108	103	103	103	108	103
R-squared	0.343	0.312	0.324	0.323	0.363	0.326	0.335	0.370

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10. Pooled OLS model (without CIS countries)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	-0.0706	-0.110	-0.110	-0.0717	-0.112	-0.0645	-0.106	-0.110
	(0.0768)	(0.0906)	(0.0797)	(0.0850)	(0.0788)	(0.101)	(0.0773)	(0.0778)
Human capital	-0.00873**	-0.0113**	-0.0112**	-0.0135***	-0.0116**	-0.0133**	-0.0112**	-0.0107**
	(0.00407)	(0.00519)	(0.00509)	(0.00508)	(0.00481)	(0.00521)	(0.00498)	(0.00456)
Past urbanization	0.00674*	0.00853**	0.00849**	0.00892**	0.00742*	0.00915**	0.00817**	0.00698*
	(0.00391)	(0.00383)	(0.00387)	(0.00421)	(0.00416)	(0.00394)	(0.00382)	(0.00417)
became developed	0.100	0.122	0.125	0.0469	0.150	0.0756	0.170	0.140
	(0.169)	(0.161)	(0.172)	(0.183)	(0.190)	(0.174)	(0.168)	(0.188)
East Asia	0.371*	0.580***	0.586***	0.553**	0.452**	0.539***	0.567***	0.402*
	(0.186)	(0.203)	(0.203)	(0.218)	(0.219)	(0.192)	(0.198)	(0.215)
FSU	-	-	-	-	-	-	-	-
Latin America	0.145	0.136	0.139	0.127	0.125	0.125	0.138	0.126
	(0.146)	(0.144)	(0.143)	(0.144)	(0.150)	(0.142)	(0.143)	(0.152)
Middle East & North Asia	0.185	0.231	0.237	0.187	0.256*	0.180	0.216	0.259*
	(0.159)	(0.150)	(0.153)	(0.175)	(0.153)	(0.182)	(0.145)	(0.154)
South Asia	0.0634	0.115	0.0844	0.157	0.0599	0.153	0.0351	0.0672
	(0.210)	(0.208)	(0.230)	(0.252)	(0.271)	(0.240)	(0.215)	(0.256)

Table 10 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
medium aid share	0.0507	-0.487	0.191	-0.177	-0.0632	-0.0240	-0.0705	-0.671*
	(0.135)	(0.485)	(0.167)	(0.592)	(0.0752)	(0.0853)	(0.0759)	(0.400)
high aid share	0.215	0.550	1.080***	0.793	0.584***	0.333**	0.501***	-0.529
	(0.247)	(0.444)	(0.192)	(0.654)	(0.110)	(0.167)	(0.115)	(0.493)
trust	0.976**							
	(0.403)							
respect		0.141						
		(0.563)						
obedience			0.143					
			(0.387)					
control				-0.693				
				(0.784)				
pc_culture					0.201			
					(0.278)			
medium aid share · social capital	-0.241	0.0878	-0.262	1.263	0.222	0.229	-0.385	0.138
	(0.633)	(0.936)	(0.568)	(1.222)	(0.444)	(0.400)	(0.457)	(0.447)
high aid share · social capital	1.318	-0.526	-0.950*	-1.573	0.663	-0.353	-0.615	0.870
	(0.902)	(0.624)	(0.484)	(1.292)	(0.872)	(0.235)	(0.644)	(0.829)
pc_culture_pos						-0.178		
						(0.229)		

Table 10 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc_culture_ch							0.0400	
							(0.243)	
sum_culture								0.347
								(0.306)
Constant	0.145	0.478	0.501	0.819	0.686	0.272	0.562	0.302
	(0.541)	(0.536)	(0.507)	(0.605)	(0.563)	(0.670)	(0.527)	(0.593)
Observations	79	79	79	75	75	75	79	75
R-squared	0.327	0.259	0.263	0.284	0.289	0.287	0.262	0.304

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11. Pooled OLS model (interpolated sample)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	-0.146***	-0.187***	-0.166***	-0.186***	-0.192***	-0.189***	-0.176***	-0.185***
	(0.0390)	(0.0408)	(0.0393)	(0.0406)	(0.0415)	(0.0432)	(0.0417)	(0.0396)
Human capital	-0.0116***	-0.0123***	-0.0127***	-0.0099***	-0.0106***	-0.0115***	-0.0124***	-0.0103***
	(0.00272)	(0.00267)	(0.00261)	(0.00269)	(0.00271)	(0.00278)	(0.00270)	(0.00274)
Past urbanization	0.0105***	0.0105***	0.0117***	0.00902***	0.00975***	0.00959***	0.0115***	0.00965***
	(0.00252)	(0.00234)	(0.00253)	(0.00249)	(0.00262)	(0.00247)	(0.00262)	(0.00264)
became developed	-0.0230	-0.0760	-0.0368	-0.00906	0.0527	0.0128	-0.0116	0.0478
	(0.0837)	(0.0863)	(0.0882)	(0.0896)	(0.0965)	(0.0903)	(0.0877)	(0.0958)
East Asia	0.447***	0.545***	0.597***	0.466***	0.385***	0.544***	0.528***	0.356***
	(0.101)	(0.0914)	(0.105)	(0.0942)	(0.110)	(0.0961)	(0.108)	(0.109)
FSU	0.526***	0.587***	0.586***	0.636***	0.494***	0.646***	0.533***	0.484***
	(0.101)	(0.0948)	(0.103)	(0.102)	(0.105)	(0.103)	(0.110)	(0.106)
Latin America	0.0629	0.0620	0.0617	0.0342	0.0447	0.0638	0.0552	0.0414
	(0.0991)	(0.0966)	(0.0965)	(0.106)	(0.103)	(0.103)	(0.0996)	(0.103)
Middle East & North Asia	0.160*	0.217**	0.221**	0.271**	0.228**	0.263**	0.184*	0.219**
	(0.0968)	(0.0946)	(0.0956)	(0.107)	(0.102)	(0.105)	(0.0985)	(0.102)
South Asia	-0.00123	0.0429	0.0215	0.0539	-0.0423	0.0393	0.0186	-0.0548
	(0.104)	(0.101)	(0.107)	(0.105)	(0.121)	(0.105)	(0.111)	(0.120)

Table 11 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
medium aid share	-0.0841	0.721**	0.220	0.445	-0.0776	-0.0957	-0.0931	-0.639*
	(0.121)	(0.349)	(0.181)	(0.543)	(0.0708)	(0.0768)	(0.0660)	(0.368)
high aid share	0.394*	0.296	-0.197	0.685	-0.0689	0.00203	-0.0169	0.646*
	(0.207)	(0.485)	(0.313)	(0.644)	(0.127)	(0.0923)	(0.120)	(0.359)
trust	0.443*							
	(0.229)							
respect		0.852***						
		(0.300)						
obedience			0.260					
			(0.212)					
control				1.324**				
				(0.548)				
pc_culture					0.277*			
					(0.141)			
medium aid share · social capital	0.187	-1.244**	-0.764**	-0.761	0.346	-0.300	-0.246	0.518
	(0.398)	(0.537)	(0.384)	(0.832)	(0.301)	(0.231)	(0.289)	(0.334)
high aid share · social capital	-1.805*	-0.451	0.469	-1.050	-0.540	0.0789	0.513	-0.645
	(1.094)	(0.705)	(0.531)	(0.946)	(0.336)	(0.413)	(0.405)	(0.392)
pc_culture_pos						0.257**		
						(0.115)		

Table 11 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc_culture_ch							-0.0732	
							(0.145)	
sum_culture								0.344**
								(0.150)
Constant	0.762***	0.602**	0.822***	0.273	1.248***	1.182***	1.036***	0.819***
	(0.273)	(0.268)	(0.291)	(0.369)	(0.284)	(0.296)	(0.282)	(0.269)
Observations	473	466	466	457	442	442	466	442
R-squared	0.192	0.197	0.196	0.194	0.207	0.197	0.191	0.210

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12. FE model (complete sample)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	0.00487	-0.0757	-0.116	-0.0507	-0.0615	-0.0216	-0.0722	-0.0515
	(0.195)	(0.220)	(0.219)	(0.201)	(0.201)	(0.211)	(0.200)	(0.193)
Human capital	-0.0181*	-0.0175*	-0.0169*	-0.0183*	-0.0154	-0.0187*	-0.0158*	-0.0151
	(0.00940)	(0.0101)	(0.00959)	(0.00913)	(0.00931)	(0.00985)	(0.00900)	(0.00941)
Past urbanization	0.0190	0.0219	0.0231	0.0237	0.0163	0.0188	0.0199	0.0146
	(0.0144)	(0.0158)	(0.0142)	(0.0165)	(0.0149)	(0.0168)	(0.0132)	(0.0152)
became developed	0.0936	0.0670	0.0904	0.0623	0.0745	0.0744	0.0718	0.0713
	(0.198)	(0.195)	(0.162)	(0.194)	(0.193)	(0.190)	(0.189)	(0.203)
medium aid share	-0.392	-0.483	0.111	-2.671*	-0.265	-0.362*	-0.299	-1.186
	(0.332)	(0.856)	(0.755)	(1.500)	(0.334)	(0.206)	(0.347)	(0.920)
high aid share	1.496	1.939	1.197*	-3.143***	-0.0154	-0.233	-0.769*	-3.917***
	(1.117)	(1.398)	(0.715)	(1.030)	(0.452)	(0.285)	(0.458)	(0.922)
trust	1.263							
	(1.611)							
respect		0.135						
		(0.457)						
obedience			0.561					
			(0.751)					
control				-0.969				
				(1.450)				

Table 12 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc_culture					-0.0538			
					(0.313)			
medium aid share · social capital	-0.762	0.0115	-1.281	3.454	0.871	0.583	-0.950	0.802
	(1.508)	(1.440)	(1.531)	(2.346)	(0.872)	(0.589)	(1.030)	(0.935)
high aid share · social capital	-9.332**	-3.264	-3.531***	4.657**	2.176***	1.382**	-7.366**	3.591***
	(4.374)	(2.011)	(1.280)	(1.766)	(0.669)	(0.546)	(2.774)	(1.131)
pc_culture_pos						-0.137		
						(0.307)		
pc_culture_ch							0.108	
							(0.288)	
sum_culture								0.0841
								(0.439)
Constant	-0.644	-0.0153	0.0988	0.489	0.206	-0.140	0.215	0.148
	(1.226)	(1.112)	(1.128)	(1.031)	(1.104)	(1.300)	(1.065)	(0.967)
Observations	108	108	108	103	103	103	108	103
R-squared	0.154	0.133	0.148	0.164	0.156	0.148	0.147	0.152

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13. FE model (without CIS countries)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	-0.0447	-0.166	-0.139	-0.101	-0.104	-0.108	-0.137	-0.0968
	(0.282)	(0.301)	(0.280)	(0.249)	(0.252)	(0.287)	(0.254)	(0.246)
Human capital	-0.00925	-0.00717	-0.00823	-0.00954	-0.00833	-0.00822	-0.00844	-0.00820
	(0.00854)	(0.0107)	(0.00950)	(0.00903)	(0.00986)	(0.0109)	(0.00967)	(0.00980)
Past urbanization	0.0115	0.0146	0.0134	0.0162	0.00787	0.00929	0.0162	0.00631
	(0.0146)	(0.0162)	(0.0150)	(0.0199)	(0.0162)	(0.0183)	(0.0139)	(0.0164)
became developed	0.146	0.124	0.120	0.114	0.136	0.133	0.129	0.139
	(0.275)	(0.285)	(0.247)	(0.270)	(0.278)	(0.276)	(0.266)	(0.287)
medium aid share	-0.370	0.114	-0.352	-1.511	-0.519**	-0.418*	-0.665***	0.0482
	(0.330)	(0.947)	(0.691)	(1.436)	(0.193)	(0.221)	(0.181)	(0.610)
high aid share	-	-	-	-	-	-	-	-
trust	1.068							
	(2.002)							
respect		0.319						
		(0.573)						
obedience			0.496					
			(0.851)					
control				-1.019				
				(1.643)				

Table 13 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc_culture					0.0616			
					(0.329)			
medium aid share · social capital	-0.476	-0.905	-0.175	1.705	-0.490	-0.0276	1.280**	-0.488
	(1.653)	(1.630)	(1.401)	(2.216)	(0.425)	(0.501)	(0.480)	(0.595)
high aid share · social capital	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
pc_culture_pos						-0.00511		
						(0.356)		
pc_culture_ch							-0.000663	
							(0.295)	
sum_culture								0.181
								(0.477)
Constant	-0.0572	0.708	0.539	1.086	0.801	0.748	0.661	0.620
	(1.866)	(1.563)	(1.447)	(1.409)	(1.467)	(1.900)	(1.478)	(1.316)
Observations	79	79	79	75	75	75	79	75
R-squared	0.075	0.067	0.070	0.074	0.068	0.064	0.076	0.069

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14. FE model (interpolated sample)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP per cap	-0.342**	-0.400***	-0.373**	-0.429***	-0.389***	-0.422***	-0.378***	-0.387***
	(0.136)	(0.139)	(0.142)	(0.144)	(0.136)	(0.148)	(0.131)	(0.139)
Human capital	-0.0215**	-0.0217*	-0.0241**	-0.0186*	-0.0213*	-0.0211*	-0.0225**	-0.0210*
	(0.0106)	(0.0109)	(0.0111)	(0.00969)	(0.0108)	(0.0109)	(0.0108)	(0.0109)
Past urbanization	0.0748***	0.0753***	0.0732***	0.0622***	0.0745***	0.0674***	0.0776***	0.0744***
	(0.0211)	(0.0220)	(0.0209)	(0.0205)	(0.0268)	(0.0246)	(0.0206)	(0.0266)
became developed	0.110	0.153	0.182	0.206	0.179	0.179	0.194	0.182
	(0.128)	(0.120)	(0.118)	(0.143)	(0.120)	(0.116)	(0.134)	(0.118)
medium aid share	-0.372	-0.369	-0.0489	-2.190	-0.180	-0.120	-0.194	-1.258
	(0.289)	(0.947)	(0.229)	(1.905)	(0.149)	(0.197)	(0.132)	(0.784)
high aid share	0.0837	-1.520*	-0.666**	-2.739	-0.378	-0.175	-0.182	-1.782*
	(0.782)	(0.902)	(0.314)	(1.831)	(0.252)	(0.236)	(0.151)	(1.061)
trust	0.495							
	(1.469)							
respect		0.486						
		(0.700)						
obedience			1.102					
			(0.822)					
control				2.187				
				(2.675)				

Table 14 – continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc_culture					0.0870			
					(0.396)			
medium aid share · social capital	1.108	0.260	-0.335	3.362	0.652	0.377	-0.204	0.982
	(1.345)	(1.463)	(0.612)	(2.967)	(0.545)	(0.831)	(0.422)	(0.688)
high aid share · social capital	-1.753	1.754	0.808	4.134	0.818	1.138**	2.612**	1.287
	(3.469)	(1.376)	(0.796)	(2.844)	(0.581)	(0.521)	(1.014)	(0.963)
pc_culture_pos						0.349		
						(0.440)		
pc_culture_ch							0.180	
							(0.402)	
sum_culture								0.134
								(0.455)
Constant	-0.652	-0.416	-0.609	-0.756	-0.161	0.475	-0.395	-0.327
	(0.910)	(1.103)	(1.102)	(1.614)	(1.061)	(1.076)	(0.993)	(1.077)
Observations	473	466	466	457	442	442	466	442
R-squared	0.149	0.155	0.163	0.148	0.134	0.143	0.153	0.137

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15. Arellano-Bond test for serial correlation

Null hypothesis: no autocorrelation

Lag order	z-score	p-value
2	2.23	0.0259
3	-2.88	0.0039
4	1.68	0.0927
5	-0.85	0.3943
6	-1.06	0.288
7	-2.31	0.0208
8	-1.32	0.1854
9	-2.53	0.0114
10	-2.79	0.0053