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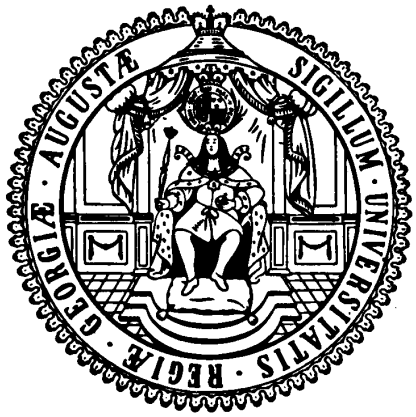

Discussion Papers

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Your development or mine? Effects of donor-recipient cultural differences on the aid-growth nexus

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Your development or mine? Effects of donor-recipient cultural differences on the aid-growth nexus

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Abstract

Development aid from the West may lead to adverse growth effects in the global South due to the neglected cultural context in the development framework. There is evidence that development agendas are mainly premised upon western thought and belief systems. Therefore, I hypothesize that the expected effect of development aid on the economic growth of recipients is impaired by cultural differences between western donors and aid recipients. I test this hypothesis empirically by augmenting an aid-growth model with proxy variables of cultural distance between donors and recipients. Namely, based on the theory of cultural transmission, I use donor-recipient weighted genetic distance, to capture vertical transmission of culture. Then, I use western education of the chief executive of the recipient country to capture horizontal transmission of culture. Results of OLS panel estimation in first differences for 1961-2010 period show that a one unit increase in donor-recipient genetic distance reduces the effect of aid on growth by 0.2 percentage points, if aid is increased by one percentage point. In turn, a one percentage point increase in aid yields, on average, 0.3 percentage point increase in growth after a decade, if the leader in power has western education.

JEL classification: O111; O170; O190

Keywords: aid effectiveness, cultural differences, genetic distance, western education

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1. Introduction

Despite its long history and plethora of studies, no correlation between development aid and the economic growth of recipient countries is found from raw macro-level data, whereas development aid effectiveness literature exhibits varying results (Doucouliagos and Paldam, 2009). For example, several studies report positive and statistically significant effects conditional upon the economic policy and physical climate of recipient countries (Burnside and Dollar, 1997; Dalgaard et al., 2004), while others report an unconditional and positive effect of aid on growth (Hansen and Tarp, 2001) or no statistically significant effect at all (Rajan and Subramanian, 2008). Clemens et al. (2012) analyze three aid-growth models (Boone, 1996; Burnside and Dollar, 1997; Rajan and Subramanian, 2008) and show that, in the short term, aid has a positive impact on growth. Moreover, Brückner (2013) also finds that aid has a positive effect on growth, as long as the simultaneity problem – lower growth more aid – is adjusted in the empirical analysis. Thus, findings of aid effectiveness literature are inconsistent and puzzling, which leaves room for further investigation. Doucouliagos and Paldam (2009) perform meta-analysis of aid effectiveness literature and point out that even in the studies where aid has a positive impact on growth, the size of the effect is too small to matter. This paper specifically explores the causes for this negligible effect of aid on growth.

In addition, the bulk of the literature on aid effectiveness investigates the effect of foreign aid on economic growth based on recipient country characteristics only, which include a range of economic and social factors such as trade policy, inflation, budget balance, institutions, ethno-linguistic fractionalization, geography, initial GDP per capita, etc.[1] Aid-growth models ignore the intervention aspect of development aid. This is particularly important when the intervention – development aid – comes from culturally distant societies. Western donors and aid recipients from the global South are often characterized by different belief systems and cultures due to their divergent historical, environmental, economic and political pasts, which suggests that the assumption of homogeneity of preferences in the aid-growth model does not necessarily hold – what matters most to the donor might not be a top priority for the recipient at particular point in time and place, which may also drive the mismatch between supply and demand in development transactions (Easterly, 2007). In this paper, I focus on the western donors and hypothesize that donor-recipient cultural differences matter and, the larger these differences between donors and recipients the less effective is aid. As a result, the theoretically expected positive effect of aid on growth is reduced or diminished due to the neglected cultural differences between donors and recipients.

My hypothesis is based on scholarly and anecdotal evidence. Often donor objectives are in conflict with local beliefs, preferences and values at particular points in time, space and context. This mismatch and neglect of country-specific circumstances leads to failures of development paradigms as documented by many scholars and practitioners (Hodler and Dreher, 2013; Coyne, 2013; Altaf, 2011; Moyo, 2009; Easterly, 2001; Escobar, 1995; Bauer, 1976).

Aid for development is an economic transaction that involves two or more parties. Economic theory tells us that such transactions are often plagued with information asymmetry problems that harm outcomes (Gibson et al., 2005; North, 1987). Due to its complex and latent nature,

[1] Dreher et al., 2013b, study the effects of donor-recipient differences in political ideology on the aid-growth nexus.

culture of the recipient and the donor and their interplay can greatly influence development aid transaction. Cultural differences may give rise to increased information asymmetry between donor(s) and recipients and negatively affect any potential growth impact of aid (Gibson et al., 2005).

Politically, development aid is an intervention from the West in the growth processes of the lower income countries in the global South, with promotion of development strategies premised upon western experience, culture and values (Sen, 2004). Often these interventions are led by time-specific development paradigms (Easterly, 2001) that mostly neglect the diversity of local beliefs and complexities in aid recipient countries (Escobar, 1995).

Thus, this paper is motivated by the aid effectiveness puzzle (Doucouliagos and Paldam, 2009) and scholarly debates on culture and development (Sen, 2004; Inglehart and Baker, 2000; Bauer, 1976; Escobar, 1995). The main hypothesis of this paper is that potential effectiveness of development aid, premised upon western culture, is undermined when uniformly applied in societies with different cultures and belief systems.

The main contribution of this paper is the empirical investigation of the role of cultural differences between donors and recipients in the aid-growth nexus. While there has been a vast amount of scholarly debate on the role of culture in development, none of the previous studies in the aid effectiveness literature has empirically examined the effects of donor-recipient cultural differences on the aid-growth relationship. Hence, on the one hand, this study fills a gap in the aid effectiveness literature by including a determinant of aid effectiveness that captures an important donor-recipient interaction factor, and on the other hand, it contributes to the political economy of development literature by studying the effects of cultural differences on development intervention.

Section 2 presents an interdisciplinary view on the cultural underpinnings of development paradigms. In Section 3, I briefly discuss various measures of cultural differences and explicate my choice of using proxy variables, such as donor-recipient weighted genetic distance and western education of a recipient country leader. Thereafter, I construct an aid-adjusted measure for genetic distance to average donor in Section 4. As detailed in Section 5, I closely follow the estimation methodology of Clemens et al. (2012) using their aid-growth model based on Rajan and Subramanian's (2008) study. I use this particular model for my analysis to stay on the neutral side, as this study finds no long-term effect of aid on growth, which is in line with the statistics based on raw data. My contribution is the inclusion of an interaction term of aid with proxy measures of donor-recipient cultural differences. I report the empirical results in Section 6, finding that the effectiveness of aid is significantly reduced with a greater genetic distance to the average donor and that western educated leadership has a statistically significant and positive impact on the aid-growth nexus with a ten-year time lag. I present tests for the robustness of my results in Section 7. Section 8 discusses the implications of my empirical findings.

2. Cultural underpinnings of development paradigms

The early development framework, in fact, emerged from modernization theories and practices in the West during the 20th century (Radcliffe and Laurie, 2006; Gilman, 2003; Escobar, 1995; Bauer, 1976). Modernization is usually described as the transition from a traditional society into a modern one. It is characterized, on one side, by cultural change (Inglehart and Baker, 2000) and, on the other side, by democracy, the development of a welfare state, egalitarianism, universal public education, income taxation and land reform (Gilman, 2003). Modernity is premised upon rational technology and scientific knowledge: "It is the model of the West detached in some way from its geographical origins and locus" (Gilman, 2003, quoting Edward Shils, p.1).

Furthermore, development discourses in the past century have been influenced by Talcott Parsons' functional sociology theory (1951) that certain types of thinking and behavior can benefit the modernization process (Gilman, 2003; Turner, 1999). A distinct characteristic of modernization is the change in beliefs and values that took place during the 20th century in the West (Inglehart and Baker, 2000). While changes in certain cultural beliefs and values accompanying modernization were *internal* to Western economies, in particular, to the United States (Rostow, 1990), these were imposed *externally* on the diverse populations in the global South via the development processes (Escobar, 1995). As Turner (1999) notes, in the 1950s and 1960s, policymakers in donor countries were encouraged to advocate modern cultural traits in aid recipient countries following Parsonian theory. Changing the beliefs, attitudes and behaviors of local people was seen as a way of "dragging them away from 'traditional' practices and introducing them to the modern Western culture" (Schech and Haggis (2000) cited in Radcliffe and Laurie, 2006, p. 233). One of the prominent exponents of post-development theory, Arturo Escobar, regards mainstream development as the imposition of Western modernity, progress and knowledge upon the diverse belief systems and cultures of the global South (Escobar, 1995).

Anecdotal evidence from aid-recipient countries shows that the differences in belief systems of donor and recipient countries can be part of the reason why development aid can be ineffective in positively influencing economic growth in the long run (Altaf, 2011; Moyo, 2009; Easterly, 2007).

In her 2009 book, Dambisa Moyo argues that foreign aid itself is largely responsible for Africa's underdevelopment. As she sees it, most aid paradigms and policies have been destructive for African economies as they have distorted incentives, perpetuated corruption and supported dysfunctional political elites. In relation to the aid paradigm for promoting democracy in African countries, Moyo writes: "In the early stages of development it matters little to a starving African family whether they can vote or not. Later they may care, but first of all they need food for today, and tomorrows to come, and that requires an economy that is growing" (Moyo, 2009, p.44).

Altaf (2011) presents a detailed account of the failure of the Social Action Program, which was developed by the government of Pakistan to fulfill the criteria of a donor organization without considering its appropriateness in the local setting. For instance, she describes a part of the program which carried out medical training for young women in rural areas. The project failed to be effective (women either emigrated for employment or were left unemployed) as it not only neglected gaps in the local healthcare system but also ignored

certain circumstances related to local culture: adverse perceptions about women's education and their employment in remote areas, superstitious thinking about vaccination and 'irrational' preferences for large families. As Altaf (2011) points out, the failure of the Social Action Program is not only a story of one program in one country but it is the story of the majority of aid programs in many developing countries.

In conventional economic theory, the heterogeneity of individual beliefs, preferences and attitudes has long been neglected. Economic theory is based on the assumptions of rationality and responsiveness to economic incentives. Meanwhile, scholars from other disciplines argue that the 'objective' economic rationality should not, and does not, always prevail when humans take actions in different times, places and contexts (Kahneman, 2013). Individuals rather follow a subjective rationality based on the existing options and alternatives for them. Pioneers in the field of evolutionary psychology, Cosmides and Tooby (1994), note that "our evolved psychology may have alternative modes of operation that prompt humans everywhere to find alternative sets of rules to be reasonable, depending on how closely their particular economic environment mimics various Pleistocene ecological conditions" (1994, p.331). That is, individuals in different societies with various complex systems follow subjective rationality rules that cannot be captured in economic models for development, especially when based on western culture and beliefs.

Following this rationale, it is plausible that often development agendas which are repeatedly built upon the assumption of so-called 'objective' rationality and homogeneity of preferences, do not fully take into account the cultural differences that exist between donors and recipients when designing development strategies. On that matter, Sen (2004) stresses the importance of studying how culture affects development in the presence of aid because it is highly influenced by the mainstream economists educated in the West. Nevertheless, since its inception, development aid promoted by donor countries has often failed to sufficiently address cultural specific factors in its development agendas, despite the persistent critique (Altaf, 2011; Moyo, 2009; Easterly, 2001; Bauer, 1976).

Initially, development aid was seen as the 'Big Push' necessary for poor countries to fill in their investment gaps, take off and get on the economic growth path. In his study, Boone (1996) finds that aid does not have a significant impact on investment but rather increases consumption and the size of government. Successive influential studies in the aid effectiveness literature find either positive (Clemens et al., 2012; Hansen and Tarp, 2001), conditional (Burnside and Dollar, 1997; Dalgaard et al., 2004) or no effects (Rajan and Subramanian, 2008) of development aid on growth. However, none of the aid-growth models have taken account of the differences in culture between donors and recipients which, I argue, is important because the development framework is not only highly influenced but also initiated by the thinking of 'experts' in the West (Sen, 2004).

Nevertheless, it is not easy to establish this (missing) link empirically since culture, as a type of local knowledge, is largely embedded in individuals and is hard to measure (Gibson et al. 2005). This characteristic of culture makes it more difficult for both the donor and the recipient to recognize its influence on development strategies. This paper attempts to fill this gap and empirically analyze the effect of donor-recipient cultural differences using data on donor-recipient genetic distance and the western education of recipient country leaders, as proxy measures for cultural similarity. Specifically, I test the hypothesis that donor-recipient cultural distance negatively affects the aid-growth nexus.

3. Measures for Cultural Differences

The concept of culture is defined differently depending on the type of literature and context. In economic literature, culture is mainly defined as beliefs, values, preferences and norms, transmitted from one generation to another in a fairly unchanged manner (Bisin and Verdier, 2001; Guiso et al., 2009; Spolaore and Wacziarg, 2009). Cavalli-Sforza (2001, p.175), a population geneticist, defines it comprehensively as one's "ability to learn from the experience of others, [which] is a special phenomenon that relies on communication. [It] enables us to accumulate prior discoveries and helps us profit from experience transmitted by our ancestors-knowledge that we would not have on our own." Meanwhile, social psychologists, Fishbein and Ajzen (1975), show that values, attitudes, preferences and behavior, ultimately, emerge from the beliefs that one holds, and a successful intervention targets the relevant beliefs.

Hence, in this paper culture is understood as a set of beliefs about the functioning of various aspects of life, which is shared by a group of people and is either communicated by parental teaching or learned from society at large.[2]

World Value Surveys (WVS) initiative attempts to measure cultural differences across countries. The data can be used for cross-country comparison of individual beliefs, values and attitudes on a variety of topics, such as democracy, religion, gender equality, traditions, globalization, citizen empowerment and life satisfaction. The coverage of countries ranges from 21 to 70, depending on the wave. Currently, there are six waves, starting with 1981 and the most recent wave ending in 2010. Inglehart and Welzel (2005), using WVS responses of different populations on diverse socio-political issues, find two dimensions that dominate the picture of cultural differences in the world: authority and well-being. The authority dimension depicts the divergence in traditional and secular-rational values. Well-being dimension depicts the divergence in survival and self-expression values. Most of the aid-recipient countries are characterized by survival and traditional values while most of the western donor countries are characterized by secular-rational and self-expression values.[3]

In regards to the first dimension, the most important values in a traditional society are religion, patriotism, respect for authority, obedience, and marriage, among others. Secular-rational societies hold the opposite stand on these values. In regards to the second dimension, societies characterized with survival values prefer security to liberty and exhibit intolerance of homosexuality, political passivism, distrust in outsiders and a low level of life satisfaction, among others. Societies characterized by self-expression values have the opposite stance. The findings of Inglehart and Welzel (2005) also suggest that values can change with modernization, and depending on the transition mode (agrarian to industrial and industrial to knowledge-society), different sets of values may change (traditional to secular rational and survival to self-expression).

The cultural dimensions of authority and well-being would have been the most relevant measures of cultural differences for the purpose of this study because of their close

[2]Although the explanation for persistent belief systems is beyond the focus of this paper, research shows that it is most likely determined by the environmental, political and historical past of the society (Cosmides and Tooby, 1994; Inglehart and Baker, 2000).

[3]An exception is the USA, which is characterized by self-expression and traditional values.

association with modernization and development processes. However, inconsistency of sample sizes throughout the waves, especially for developing countries, as well as endogeneity between cultural change and economic progress make it unsatisfactory for my analysis.[4]

Cavalli-Sforza (2001) establishes a conceptual framework on the relationship between genome and culture where both accumulate information to be passed on from one generation to another. It is important to highlight that genes do not affect culture because in contrast to genome, one has a choice upon keeping the culture and beliefs received from another person. Cavalli-Sforza (2001) mentions two modes of cultural transmission: traditional – through observation, teaching and communication – or through resources developed by modern technology – books, computers and other media. Therefore, a measure of genetic distance can be a good proxy for cultural differences rather than an instrument as certain genes are not necessarily correlated with certain beliefs but rather have similar accumulation and transmission process. Moreover, as Cavalli-Sforza (2001) explains, most of the variation in genes is between individuals and not 'races': genetic differences between observable physical characteristics of populations constitute a very small percentage of DNA and are mainly attributable to climate changes over long periods of time.

In their model of economics of cultural transmission and dynamics of preferences, Bisin and Verdier (2001) show that globally stable heterogeneous preferences can exist among populations when children either acquire beliefs, values and preferences from their parents and/or adapt and imitate the beliefs, preferences and values most prevalent in a society. That is, family and society are considered as substitutes in the socialization process. Hence, preferences and cultural traits are either transferred from parents to offspring, vertically, similar to parental genes, or acquired through imitation and adaptation processes in the society, i.e., horizontally. Bisin and Verdier's (2001) vertical cultural transmission can be related to the traditional way of cultural transmission, and their horizontal mode can be related to the resource-based cultural transmission discussed in Cavalli-Sforza (2001). In this study, I analyze both channels of cultural transmission.

[4]Other cultural dimensions, such as Hofstede and Hofstede (2001) and Schwartz (1994) are more limited in regards to score and sample. For example, Hofstede's cultural dimensions, which include individualism, power distance, masculinity and uncertainty avoidance, were initially conducted among IBM employees in several countries (40 countries in 1994 and 80 in 2001) to measure cultural differences towards life and the workplace. However, these cultural measures do not go beyond attitudes towards work and business matters. This is a context-specific story of self-reliance and does not tell anything about prevailing beliefs and attitudes in society towards non-work related areas of life, such as politics, religion, traditions and social issues. On the other hand, Schwartz (1994) suggests an alternative measure of cultural differences. Mainly, he composes seven cultural value types (conservatism, intellectual autonomy, affective autonomy, hierarchy, mastery, egalitarian commitment and harmony) into three cultural dimensions of (1) embeddedness versus autonomy, (2) hierarchy versus egalitarianism and, (3) mastery versus harmony. The embeddedness versus autonomy dimension is highly correlated with Hofstede's individualism/collectivism dimension (Gorodnichenko and Roland, 2010). Schwartz's cultural dimensions are more comprehensive, but the fact that the samples have been obtained from student and teacher populations only, makes it restrictive when interpreting results.

3.1 A Proxy for Vertical Transmission of Culture

Spolaore and Wacziarg (2009) develop an analytical framework linking genetic distance, as a measure for intergenerationally transmitted characteristics, with income differences across countries to explain long-term barriers to technology diffusion. Their findings show that income differences across countries are positively correlated not only to absolute genetic distance but also to relative genetic distance to the technological frontier.[5] Spolaore and Wacziarg (2009) use a type of genetic distance that measures the time since two populations shared common ancestors. This type of genetic distance captures the degree of ancestral relatedness among populations and, therefore, it also possesses accumulated information on the differences in intergenerationally characteristics, including beliefs and social norms (vertically transmitted characteristics). According to the authors, similarity in such characteristics between populations eases the communication and adaptation of practices conducive to socio-economic development – such as rapid human capital accumulation, lower fertility[6] and better political institutions. By extension, genetically distant populations face difficulties in interacting and communicating with one another, which language translation techniques cannot fully overcome, leading to resistance in adopting progressive practices (Spolaore and Wacziarg, 2009, p.513). The correlation between genetic distance and income differences is shown to be robust to geographic differences and to the share of European ancestry in a country's population. In addition, the authors point out that other cultural proxies often used in the literature such as religion, language and ethnicity are also captured by genetic distance because those are part of intergenerationally transmitted characteristics.[7]

Desmet et al. (2011) use genetic distance as a proxy for cultural distances for European populations. They show that genetically closer Europeans give similar answers to the World Value Surveys' questions on perception of life, religion, family and morals. In their study, Desmet et al. (2011) show that genetic distance is a preferred proxy for cultural differences, because, when controlled for linguistic and geographic distances, only the correlation between genetic distance and cultural distance continues to be positive and statistically significant at the five percent statistical significance level.

Thus, taking the results of previous research into account, in this study, I consider weighted genetic distance between populations as a proxy measure for cultural differences between donors and recipients.

[5]Spolaore and Wacziarg (2009) consider the US and the UK as being on the technological frontier

[6] In support of this argument, Caldwell (1976), points out that in Southern Nigeria contraceptives are widely available but used only among a small minority of women who accept western attitudes as a result of western education, contacts and media.

[7] These conclusions are linked with those of Bisin and Verdier (2000) who show that ethnic and religious minorities persist in the USA, in contrast to the "melting pot" theory, due to parental preferences for transmission of certain cultural traits to their offspring, such as strong preferences for marriages within same religion and ethnicity.

3.1.1 Aid-adjusted (weighted) genetic distance

In different individuals genes take different forms (alleles), which are strictly hereditary, i.e., A, B, O and AB blood types. Certain gene forms prevail more frequently in one society than in another due to migration and isolation; these differences in allele frequencies are used by geneticists to calculate distances between populations (Spolaore and Wacziarg, 2009).[8] Following Cavalli-Sforza et al. (1994), Spolaore and Wacziarg (2009) consider a type of genetic distance measure, also known as the "co-ancestor coefficient," which captures the time-span since two populations shared common ancestors. According to Spolaore and Wacziarg (2009), these genetic distances are based on population trees, similar to family trees: after splitting apart, differentiations in genes tend to accumulate over time, which results in a linear relationship between genetic distance and the time since two populations split apart. The authors focus on *neutral* characteristics of genetic variations (blood types), which mean the variation is due to a random drift rather than natural selection. This implies that the genes considered in calculating this type of genetic distance and those used in Spolaore and Wacziarg (2009) have no relation to physical fitness.

As Spolaore and Wacziarg (2009) clarify, this measure of genetic distance captures the probability that two gene forms (allele) selected randomly from two populations will be similar. The genetic distance measure takes a value of zero in the case of identical allele distributions across two populations, while it takes positive values where allele distributions differ. The larger the difference in allele distributions between two populations the higher is the genetic distance between them.

Using data from Alesina et al. (2003) and Cavalli-Sforza et al. (1994), Spolaore and Wacziarg (2009) construct a weighted genetic distance measure, which accounts for immigrant based countries, such as the United States, where the population is made up of genetically distant subpopulations. Spolaore and Wacziarg (2009) compute the weighted genetic distance between two countries in the following way:

$$wGD_{ij}^{W} = \sum_{n=1}^{N} \sum_{a=1}^{A} \left(s_{\text{in}} \times s_{ja} \times d_{na} \right), \tag{1}$$

where s_{in} is the share of group n in country i (own country), s_{ja} is the share of group a in country j and d_{na} is the genetic distance between groups n and a. It should be noted that this measure of weighted genetic distance is the current match between populations that does not change for a donor-recipient pair over the time period considered in this paper.

In terms of development aid effectiveness, the weighted genetic distance between two populations may matter more or less depending on the magnitude (involvement or degree of intervention) of the aid received. To capture this influence, I follow the method used in Dreher et al. (2013b) and compute an aid-adjusted measure of the above-described weighted genetic distance:

$$AwGD_{i,t} = \sum_{j=1}^{n} s_{ij,t} * wGD_{ij}^{W} \tag{2}$$

[8] A gene is commonly defined as a DNA sequence that codes for a protein (protein polymorphism). The data on allele frequencies for different genes for populations in the world can be found at http://alfred.med.yale.edu/ . Other details on specifics of genetic distances can be found in Cavalli-Sforza et al. (1994), Cavalli-Sforza (2001) and Spolaore and Wacziarg (2009).

where $s_{ij,t}$ is donor $j's$ share of total bilateral aid in country i, in period t. wGD_{ij}^{W} is the weighted genetic distance between recipient i and donor j. Thus, $AwGD_{i,t}$ is the aid-adjusted (weighted) genetic distance to the average donor for each recipient in period t. The correlation coefficient between wGD_{ij}^{W} and $AwGD_{i,t}$ is 0.9. In line with the argument in the previous section, larger aid-adjusted genetic distance between the recipient and the average donor indicates bigger differences in intergenerationally transmitted characteristics, including preferences, attitudes, values and beliefs. In accordance with the hypothesis of this paper, I expect aid effectiveness to decrease with larger aid-adjusted genetic distance to the average donor.[9]

That is, I use the aid-adjusted weighted genetic distance to capture vertical transmission of culture, which puts a little weighted on cross-cultural exposure and learning from non-traditional sources. For the latter, I consider western education of a recipient country leader to measure the differential horizontal transmission of culture, described in the following section.

3.2. A Proxy for Horizontal Transmission of Culture

I use recipient country leaders' education in the West to analyze the effects of horizontal cultural transmission between donors and recipients. Previous research shows that leaders educated for a prolonged period in donor countries tend to promote the culture of the respective host country back home and attract international investors (Constant and Tien, 2010). In addition, individuals with foreign education from democratic states promote democracy in their home countries (Spilimbergo, 2009). Gift and Krcmaric (2013) argue that leaders educated in the West are more likely to push for democratization due to their democratic socialization during studies in the US and the UK. That is, there is evidence that exposure and socialization in the West may lead to update and development of new set of beliefs and values that did not necessarily exist prior the exposure.

I focus on the leaders and not on the share of individuals educated in the West, because country leaders are responsible for internal and external policy at large, and development aid objectives need to be coordinated with a recipient country's leadership as described in The Paris Declaration on Aid Effectiveness (2005). Also Jones and Olken (2005) study country leaders' performance in terms of economic growth and monetary policy, and find that leaders play a significant role in the growth processes of their country, especially in authoritarian regimes. A study by Dreher et al. (2009) shows that the professional background and education of the head of the government, in the context of developing economies, matters for reforms. Hence, leaders matter especially in developing and fragile economies.

Following Gift and Krcmaric (2013), I code western education as a dummy variable (0/1), if the recipient country leader has studied either in the US or the UK. These two western donors are also the two largest in the international development. Also, modernization is historically seen as westernization (Hayek, 1973), and development policies are highly influenced by economics (Sen, 2004), which, in turn, is Americanized (Coats, 1997). Hence, following my argument in this paper, most development paradigms would be influenced by the preferences,

[9]Appendix C includes maps for aid-adjusted genetic distance to the average donor.

beliefs and culture existing in the US and the UK at large. Therefore, leaders' socialization in either the US or the UK should benefit the effectiveness of development aid due to efficient communication and understanding between the recipient country leader and a western donor. In addition to enhanced donor-recipient communication, western educated leaders might promote certain western values in own country such as self-reliance, creativity, critical thinking and long-term vision, which might further benefit development strategies in practice.

If my hypothesis holds, then I expect to find a positive relationship between aid and growth when a country's leader has been educated either in the US or the UK. This would imply decreased transaction costs in negotiating the strategies for development because underlying beliefs and values would be similar.

4. Data and Method

Bilateral aid is the gross disbursement of Official Development Assistance (ODA) from 23 Development Assistance Committee (DAC) donors, taken from the OECD's Aid Statistics database. Economic growth data is from Penn World Tables. The data on weighted genetic distance is from Spolaore and Wacziarg (2009) and the data on leaders' foreign education and education level is from Dreher et al. (2013b). As in Dreher et al. (2014, 2013a), this paper closely follows the approach in Clemens et al. (2012) and studies the interaction effect of genetic distance and bilateral aid on economic growth, using the extended aid-growth model from Rajan and Subramanian (2008). Additionally, I have extended the data up to 2010. That is, the panel data covers 66 countries from the period of 1961 to 2010.

The model in Rajan and Subramanian (2008), hereafter RS, is usually categorized as belonging to the "null strand" of aid effectiveness literature as they find that aid has no effect on growth (Clemens et al., 2012; Doucouliagos and Paldam, 2009). Similarly to the original RS study, most of the aid effectiveness literature uses instrumentation methods to tackle the endogeneity of aid. However, as Clemens et al. (2012) argue, based on the findings from Bazzi and Clemens (2013), these studies are supported by invalid instrumentation (mostly correlated with population) and GMM methodology (a "black-box"), which undermines the accuracy of the empirical results. Instead, Clemens et al. (2012) lag aid by one period to address the problem of reversed causality since the observations begin when majority of countries just started to receive aid. In addition to lagged aid, the authors use first differences to capture country specific time-invariant omitted variables. However, it controls only for main effects of omitted time-invariant recipient country characteristics but not their interaction with development aid. Hence, this paper follows the methodology in Clemens et al. (2012) but attempts to distinguish the effect of donor-recipient cultural distance on the aid-growth nexus by augmenting the model of RS with aid-adjusted genetic distance between recipients and the average donor. In this case genetic distance stays constant while aid varies over time, making aid-adjusted genetic distance also to vary over time. The reduced-form empirical model is as follows:

$$\Delta G_{i,t} = \beta + \delta \Delta Aid_{i,t-1} + \gamma AwGD_{i,t-1} + \zeta \Delta Aid_{i,t-1} * AwGD_{i,t-1} + \eta \Delta\left(Aid^2_{i,t-1}\right) + \\ + \theta \Delta X'_{i,t} + \epsilon_{i,t}, \quad (3)$$

where, $\Delta G_{i,t}-$ is (the change in) recipient country i's annual GDP per capita growth rate averaged over period t (five years), $\Delta Aid_{i,t-1}$ denotes the lagged (change in) total bilateral aid received by country i in the period $t-1$ as a percentage of total GDP, $AwGD_{i,t-1}$ is the lagged aid–adjusted measure of genetic distance as described in the previous section, and $\Delta Aid^2_{i,t-1}$ is (the change in) the squared term of aid to account for the nonlinear effects described in Clemens et al. (2012). $\Delta X'_{i,t}$ is (the change in) the vector of control variables as used in the original studies of RS[10] and $\epsilon_{i,t}$ is the error term. I am mainly interested in the effect of the interaction term on economic growth: ζ coefficient.

Similarly, in terms of horizontal cultural transmission, I augment the RS specification from Clemens et al. (2012) with leaders' education in the in the US or UK. Leaders' education level is also controlled for in the model. The reduced form of the empirical model is:

$$\Delta G_{i,t} = \beta + \delta \Delta Aid_{i,t-1} + \gamma \Delta F_{i,t} + \zeta \Delta Aid_{i,t-1} * \Delta F_{i,t} + \varphi \Delta EL_{i,t} + \eta \Delta\left(Aid^2_{i,t-1}\right) + \\ + \theta \Delta X'_{i,t} + \epsilon_{i,t}\ , \quad (4)$$

where $\Delta F_{i,t}$ indicates (the change in) leader's education in the US or UK. It is a continuous variable, since year's dummies have been averaged over five year periods. $\Delta EL_{i,t}$ is (the change in) the level of a leader's education ranging from illiterate to advanced (doctoral) degree. The control variables are defined as in equation (1).

In equation (1) and (2), in addition to the RS control variables, I also include controls for changes in multilateral aid, bilateral and multilateral repayments because the bilateral aid variable is in gross disbursements and there is no reason to assume that repayments and multilateral aid do not affect growth (Clemens et al. 2012).

4.1 Endogeneity concerns

Although Clemens et al. (2012) demonstrate that their estimation methodology takes care of the endogeneity of aid, the concern may still persist. Nevertheless, the interaction terms in equation (1) and (2) are still exogenous as long as one of the interaction terms is exogenous, as shown in Nunn and Qian (2012). Namely, the interaction between an exogenous term (genetic distance to average donor or education in a donor country) and a potentially endogenous term (bilateral aid) can be interpreted as exogenous since the main effect of the endogenous variable is directly controlled for in the estimation.[11] In my paper, I argue that weighted genetic distance to average donor and leaders choice of education in the US and UK is exogenous to the economic growth of recipient country in the following way.

[10]In the RS model the control variables are: natural log of initial GDP/capita, initial Sachs-Warner trade policy index, natural log of initial life expectancy, natural log of inflation, initial M2/GDP, budget Balance/GDP, revolutions and period dummies.
[11]Nunn and Qian cite section 2.3.4 of Angrist and Krueger (1999) for technical details.

In regards to exogeneity of weighted genetic distance, Gorodnichenko and Roland (2010, p.3) point out that "since there are no identified genetic reasons as to why some countries became wealthier than others, genetic distance is very likely to satisfy the exclusion restriction." In addition, data used to calculate the weighted genetic distance is independent of natural selection and physical fitness (Spolaore and Wacziarg 2009) and, thus, is independent of "survival of the fittest" explanation of economic growth.

On the other hand, the cultural transmission channel of genetic distance variable might not be straightforward. It might be the case that genetic distance measures differences in language or ethnicity instead. In the appendix, I present tests for these channels. The results show that the donor-recipient distance in ethnic, linguistic and ethno-linguistic fractionalization do not affect aid impact on growth.

In terms of leaders' education abroad it may be the case that those individuals who choose western education already embrace the culture of the destination country. This would indicate a self-selection problem and endogeneity. However, there is empirical evidence showing that US educated leaders do not necessarily vote in-line with the US on key issues during United Nations General Assembly voting (Dreher et al. 2013a). That is, the choice of western education does not essentially mean preference of western culture over one's culture. Instead, the exposure to the western lifestyle helps one to update and develop own beliefs and values, which can be negative or positive in regards to the destination (donor) country policies. In addition, as the regression in this paper show, there is no statistically significant correlation between change in economic growth and change in western educated leadership.

Additionally, anecdotal evidence shows that future leaders choose to study abroad because it is prestigious to do so and not because of the acceptance of (liberal) Western culture and beliefs. For instance, autocrats in China, Russia and Africa have themselves studied in the prestigious western universities or sent their children to the West without necessarily approving western values (Braw, 2014; Tschudi, 2013; Higgins and Fan, 2012).

5. Empirical results

5.1. Effects of Vertical Transmission of Culture

Table 1 displays OLS estimation results for equation (1). The dependent variable is the change in the average per capita GDP growth rate in all regressions. All variables in the (unbalanced) panel dataset are averaged over five years, covering 66 countries, with a total of 10 periods from 1961 to 2010. The model is augmented with the variable of interest, the interaction between gross bilateral aid and the aid-adjusted co-ancestor coefficient (genetic distance). The estimation is in first differences while aid is also lagged once. The aid-adjusted genetic distance is lagged but not differenced.[12]

Column 1 of Table 1 displays the results without inclusion of the variable of interest and its interaction term. As one can see, gross bilateral aid is positive but statistically insignificant for

[12]The difference would only capture the change in the aid weights. Nevertheless, in my test for robustness the results are also provided when the aid-adjusted genetics distance is differenced.

the whole period. This result is in line with Rajan and Subramanian's (2008) original results as well as the result in Clemens et al. (2012) when 'long-impact' aid is considered.[13] The next column includes aid-adjusted genetic distance, which has a negative effect on growth, statistically significant at the ten percent level. Based on the study of Spolaore and Wacziarg (2009), in this model the main effect of the aid-adjusted genetic distance to average donor can be interpreted as a (cultural) barrier to technological diffusion from donor countries.

Table 1. The effect of aid-adjusted genetic distance on the aid-growth nexus

Dependant variable: Economic Growth	(1)	(2)	(3)	(4)
Bilateral aid/GDP	0.153	0.128	0.399**	0.404
	[0.133]	[0.136]	[0.186]	[0.287]
Aid-adjusted genetic distance (AwGD)		-0.861*	-0.950**	-0.900**
		[0.457]	[0.460]	[0.452]
Bilateral Aid/GDP*AwGD			-0.213**	-0.183**
			[0.087]	[0.085]
Bilateral repayments/GDP	-0.375	-0.351	-0.446	-1.472*
	[0.282]	[0.287]	[0.293]	[0.870]
Multilateral Aid/GDP	-0.157	-0.105	-0.026	0.049
	[0.141]	[0.143]	[0.139]	[0.355]
Multilateral repayments/GDP	-1.506*	-1.114	-0.866	-4.231**
	[0.906]	[0.942]	[0.922]	[2.136]
Bilateral Aid/GDP squared				-0.001
				[0.006]
Bilateral repayments/GDP squared				0.303
				[0.211]
Multilateral Aid/GDP squared				-0.002
				[0.017]
Multilateral repayments/GDP squared				1.622*
				[0.905]
Adj. R-Squared	0.279	0.287	0.293	0.292
Number of Countries	66	66	66	66
Number of Observations	378	378	378	378

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies. Control variables are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

In the third column of Table 1, I interact aid-adjusted genetic distance to the average donor (23 DAC donors) with gross bilateral aid received from the 23 DAC donors.[14] The coefficient of gross bilateral aid is statistically significant at the five percent level and positive once the

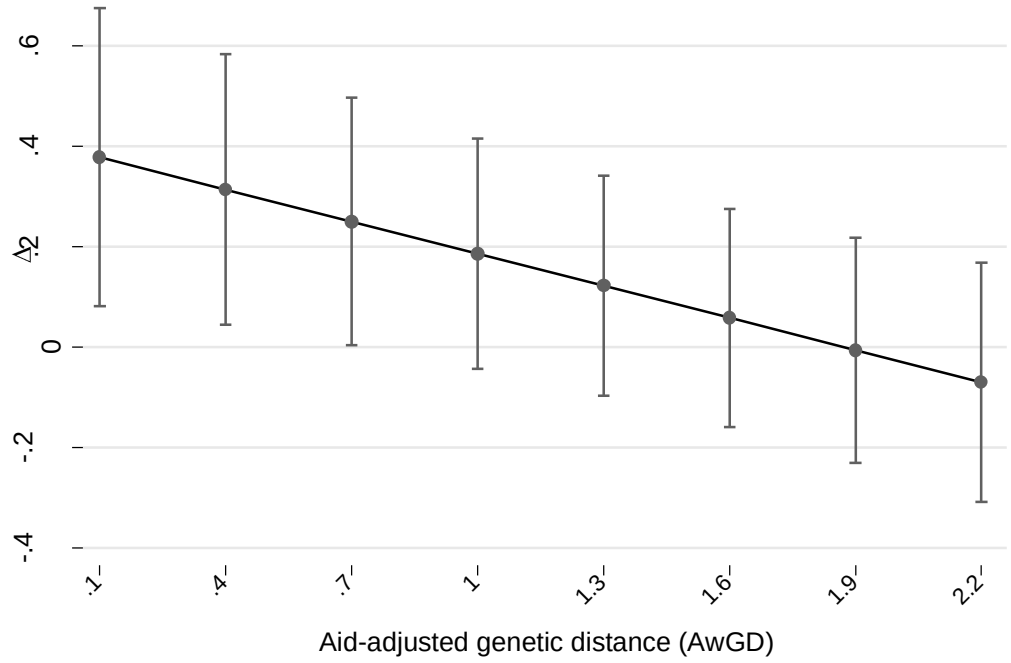
[13]Clemens et al. (2012) find that early-impact aid, mostly investment in infrastructure and tangible goods, has a positive impact on growth in the RS specification. However, in this study I focus on the impact of aid on long-run growth rather than short-term growth boosts.

[14]In tests for robustness an additional control variable is included for the bilateral aid received from donors who are not among these twenty-three.

interaction term is introduced. However, its positive effect is reduced by the aid-adjusted genetic distance to the average donor, implied by the statistical significance of the interaction term at the five percent level. Thus, an increase of one unit in the aid-adjusted genetic distance to average donor reduces the effect of aid on growth by 0.2 percentage points. The inclusion of squared terms of aid variables in column 4 shows that the statistical significance of aid is conditional on the size of the aid received. The positive sign of the squared term of the multilateral repayment could be signal for a self-reliant and growing economy.

The marginal effects graph for the estimation results in column 3, depicted in Figure 1, shows that the overall effect of aid remains positive to some extent, but once a country's aid-adjusted genetic distance to the average donor is larger than 1.9, the overall effect of bilateral aid gradually becomes negative. Countries with a very large genetic distance to the average donor include Tanzania and Botswana among 18 other countries, mostly from sub-Saharan Africa. Also, in the sample, on average, Poland has the smallest aid-adjusted (weighted) genetic distance to the average donor, 0.1, while The Republic of Congo has the largest aid-adjusted genetic distance to the average donor, 2.2.

Figure 1. Marginal effects of AwGD on the aid-growth nexus



The results in Table 1 suggest that aid effectiveness is significantly reduced with larger genetic distances between the recipient and the average donor. This also conforms with the notion that culturally (genetically) closer populations find it easier to communicate and understand each other, which leads to a faster adoption of growth-generating development polices.

Thus, on average, the expected effect of development aid on growth is impaired by half due to the cultural differences using aid-adjusted weighted genetic distance as a proxy. For example, the possible 0.4 percentage point increase in growth is, on average, reduced to 0.2 percentage points, if aid is increased by one percentage points, making the growth impact of aid negligible (Table 1, column 3). For very large differences, the overall effect of aid on growth also becomes negative as shown by marginal effects graph in Figure 1.

5.2 Effects of Horizontal Transmission of Culture

In this section, I replicate results of RS's specification from Clemens et al. (2012), taking into account the horizontal transmission of culture. I am interested to see whether recipient country leaders' (chief executive) education either in the US or the UK matters for the effectiveness of aid. I use the leaders' location of education (environment) as a proxy for societal transmission of culture in accordance with the theory of Bisin and Verdier (2001) and findings from the related literature (Gift and Krcmaric, 2013; Constant and Tien, 2010; Spilimbergo, 2009). First, I use binary data for the leader's education in the US/UK (0/1) and then I average the binary data over five year periods and obtain a continuous variable for education in the US/UK, ranging from 0 to 1. I expect a positive partial effect of aid on growth when the recipient country leader is educated in the US/UK, assuming he or she was exposed to the local socialization process. Western socialization of recipient country leaders may significantly facilitate communication and negotiation process as well as leaders might promote certain (liberal) beliefs and values back home that are common in the West.

In Table 2, I estimate equation (2) with OLS in first differences in an unbalanced panel setting. Recipient country leaders' education variables are also in first differences. My variable of interest is the interaction term between bilateral aid and the leader's western education. Table 2 shows the regression results for 66 countries from 1961 to 2010 averaged over five year periods. As in Table 1, column 1, aid has no significant effect on growth. In the second column I control for leaders education level and add western education variable, none of which have a significant effect on a country's economic growth. In the third column, bilateral aid is interacted with leaders' education in the US/UK to test whether, on average, changes in a leader's education in the US/UK affect the aid-growth nexus.

As one can see, the interaction term in column 3 is statistically significant at the ten percent level but the coefficient has a negative sign. That is, western educated leadership has adverse impact on the aid-growth nexus contemporaneously. This result is unexpected but possible.[15] To further investigate the issue, in column 4, I add another control variable for leaders' education abroad in general, including the US and UK. This helps to single out effect of the US/UK education from that of overall education abroad (25% of the sample has been educated in the US/UK). The coefficient of the main variable of interest remains negative but gains more statistical power. The results also show that, controlled for the effect of leader's education in the US/UK, in general, education abroad has a positive effect on the aid-growth

[15] Dreher et al. (2013a) also find that leaders educated in the US do not vote in line with the US in United Nations General Assembly voting.

nexus.[16] In column 5, I include squared terms of the aid and repayment variables, which increase the magnitude of the coefficient of the variable of interest and strengthen its statistical significance to the one percent level.

Table 2. The effect of leaders' education in the US/UK on the aid-growth nexus

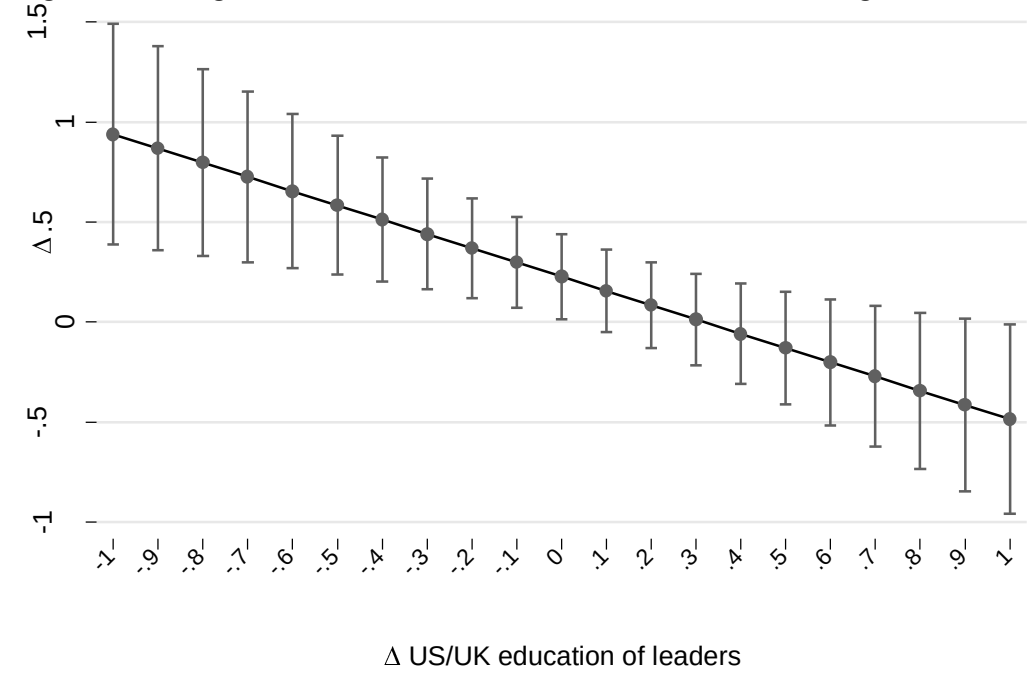
Dependant variable: Economic Growth	(1)	(2)	(3)	(4)	(5)
Bilateral aid/GDP	0.17	0.174	0.193	0.211*	0.286
	[0.137]	[0.140]	[0.133]	[0.128]	[0.254]
Ed US UK		0.472	0.551	0.374	0.261
		[0.471]	[0.455]	[0.632]	[0.636]
Education Level		0.035	-0.009	-0.026	-0.007
		[0.197]	[0.198]	[0.207]	[0.202]
Bilateral Aid/GDP*Ed US UK			-0.290*	-0.713**	-0.811***
			[0.167]	[0.284]	[0.312]
Education abroad (incl. US/UK)				0.206	0.331
				[0.667]	[0.703]
Bilateral Aid/GDP*Education abroad (incl. US/UK)				0.548*	0.623*
				[0.302]	[0.323]
Bilateral repayments/GDP	-0.393	-0.394	-0.405	-0.449	-1.919**
	[0.285]	[0.290]	[0.286]	[0.285]	[0.946]
Multilateral Aid/GDP	-0.167	-0.166	-0.176	-0.202	-0.221
	[0.143]	[0.147]	[0.143]	[0.143]	[0.371]
Multilateral repayments/GDP	-1.566*	-1.567*	-1.652*	-1.796**	-6.184***
	[0.917]	[0.937]	[0.898]	[0.911]	[2.055]
Bilateral Aid/GDP squared					-0.002
					[0.008]
Bilateral repayments/GDP squared					0.423*
					[0.230]
Multilateral Aid/GDP squared					0.006
					[0.018]
Multilateral repayments/GDP squared					2.106**
					[0.879]
Adj. R-Squared	0.28	0.277	0.281	0.283	0.288
Number of Countries	66	66	66	66	66
Number of Observations	378	378	378	378	378

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies.
Control variables are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

[16]When leaders' education in US/UK is not controlled for, the main and the interaction effect of foreign education and bilateral aid become negative and statistically insignificant at conventional levels.

Looking at the marginal effects of the estimation results from column 3, depicted in Figure 2, one can see that the effect of aid on growth turns negative when a country's leadership transitions from a non-western educated to a western educated one (positive change). Assuming that leaders educated in the US/UK also promote cultural change, mainly "westernization," then the negative sign of the coefficient can indicate initial resistance to the change from the public. This resistance may first increase costs of public transactions (reforms) and hurt growth, but then yield positive growth effects of aid with the adoption of cultural change by new generations.

Figure 2. Marginal effects of US/UK education on the aid-growth nexus



If the seeds planted for cultural transformation by the western-educated leaders sprout with a time lag and generational change, then one should expect the coefficient to switch sign when the education variables are lagged. In Table 2a, I replicate the analysis of column 3 in Table 2, and lag leaders' education variables twice to allow for generational change. The coefficient of the interaction term in the Table 2a, column 2, becomes positive and statistically significant at the ten percent level. In column 3, I use the same sample from column 2 but without the education lags and confirm that the change in the sign is not due to the change in the sample size.

Hence, in the long-run, the education of recipient country leaders in the US/UK pays off in terms of aid effectiveness as it, presumably, promotes cultural transformation together with economic reforms, which takes place due to the decreased information asymmetry and transaction costs between donors and recipient governments. In terms of the economic significance of a leader's education in the US/UK and aid's effect on growth, the results in

column 2, Table 2a, show that when a US/UK educated leader is in power, then one percentage change in aid leads to 0.3 percentage change in growth after a decade, statistically significant at ten percent level.

Table 2a. Lagged effects of leaders' education in the US/UK on aid-growth nexus

Dependant variable: Economic Growth	(1)	(2)	(3)
Bilateral aid/GDP	0.193	0.07	0.135
	[0.133]	[0.132]	[0.129]
Ed US UK	0.551	0.437	0.42
	[0.455]	[0.503]	[0.484]
Education Level	-0.009	-0.074	-0.058
	[0.198]	[0.206]	[0.199]
Bilateral Aid/GDP*Ed US UK	-0.290*	0.320*	-0.269*
	[0.167]	[0.185]	[0.159]
Education twice lagged	No	Yes	No
Adj. R-Squared	0.281	0.306	0.304
Number of Countries	66	66	66
Number of Observations	378	338	338

OLS panel estimation in first differences. All regressions include period dummies. Aid is lagged only once. Control variables are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions, multilateral aid, bilateral and multilateral repayments. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

6. Robustness tests

In Table 3, I test the robustness of the regression results in Table 1, column 3. In column 1, I use first differenced and lagged aid-adjusted genetic distance rather than that of in levels. In column 2, I control for the humanitarian aid, while in column 3, I control for the bilateral aid from new DAC and non-DAC donors (source OECD aid statistics).

In column 1, the differenced and lagged aid-adjusted genetic distance is significant at the ten percent level while the main effect of the gross bilateral aid is statistically insignificant. This might signal that differenced aid-adjusted genetic distance already captures the effect of changes in gross aid. The regression results show that the negative coefficient of the interaction term of bilateral aid and aid-adjusted genetic distance is robust to the inclusion of other aid controls and is statistically significant at the five percent level in columns 2 and 3.

Table 3. Robsutness test for the effect of aid-adjusted genetic distance on the aid-growth nexus

Dependant variable: Economic Growth	(1)	(2)	(3)
Bilateral aid/GDP	0.173	0.401**	0.380**
	[0.130]	[0.186]	[0.174]
Aid-adjusted genetic distance (AwGD)	-6.141**		
	[2.690]		
Bilateral Aid/GDP*AwGD	-1.633*		
	[0.954]		
Aid-adjusted genetic distance (AwGD)		-0.949**	-0.975**
		[0.461]	[0.458]
Bilateral Aid/GDP*AwGD		-0.214**	-0.216**
		[0.086]	[0.084]
Humanitarian Aid/GDP		-0.19	
		[2.083]	
Rest Bilateral Aid/GDP			1.207**
			[0.598]
Fst-differenced	Yes	No	No
Adj. R-Squared	0.285	0.291	0.305
Number of Countries	66	66	66
Number of Observations	378	378	378

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies. Controls are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions as well as multilateral aid, multilateral and bilateral repayments. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

In Table 4, I test the robustness of the results from column 3 and 4 in Table 2 and column 2 from Table 2a. To do so, I add additional control variables regarding the power constraints of the chief executive of the recipient country – the leader. Thus, in column 1, I control for the country's democracy level, using unified democracy scores from Pemstein et al. (2010). Depending on the level of democracy, the power of the executive might vary and more time may be required from policy changes to the implementation and the realization of results. The coefficient of the interaction in column 1 stays robust to the inclusion of the democracy variable, which is still negative but gains in statistical power. It is interesting to see that positive democratic change itself has a negative effect on growth, which is in line with several previous studies (Gerring et al., 2005; Helliwell, 1994).

Table 4. Robustness test for the effect of leaders' education in the US/UK on the aid-growth nexus

Dependant variable: Economic Growth	(1)	(2)	(3)	(4)
Bilateral aid/GDP	0.203	0.223*	0.12	0.188
	[0.138]	[0.134]	[0.147]	[0.133]
Ed US UK	0.69	0.568	1.013*	0.424
	[0.453]	[0.619]	[0.604]	[0.621]
Education Level	-0.04	-0.041	-0.055	-0.086
	[0.204]	[0.210]	[0.228]	[0.222]
Bilateral Aid/GDP*Ed US UK	-0.327**	-0.769***	0.358**	-0.699**
	[0.164]	[0.255]	[0.176]	[0.273]
Education abroad		0.123	-0.74	0.083
		[0.680]	[0.585]	[0.708]
Bilateral Aid/GDP*Education abroad (incl. US/UK)		0.573**	-0.114	0.493*
		[0.283]	[0.160]	[0.295]
Democracy	-1.025*	-1.033*	-1.086*	-1.161*
	[0.530]	[0.530]	[0.596]	[0.607]
Effective Executive	-1.882***	-1.863***	-1.706***	-1.576***
	[0.515]	[0.500]	[0.515]	[0.510]
Head of State	3.005**	3.016**	2.687**	2.472*
	[1.342]	[1.336]	[1.266]	[1.269]
Education lagged (2 periods)	No	No	Yes	No
Adj. R-Squared	0.306	0.309	0.327	0.329
Number of Countries	64	64	64	64
Number of Observations	357	357	320	320

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies. Control variables are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions as well as multilateral aid, multilateral and bilateral repayments.
Significance levels * p<0.10, ** p<0.05, *** p<0.01.

In column 2, I control for the changes in the 'effective executive', which is determined by the form of governance: monarchy, presidential, parliamentarian, military or socialist. The value ranges from 1 to 5, where higher values correspond to military and socialist dictatorships (Banks, 2011). One can see that transitioning into more authoritarian regimes has a negative impact on growth. I also include a variable for the type of 'head of the state' (monarch, president, premier, military, other – i.e., general secretary in communist regimes) as another measure to control for the leader's power constraints. The inclusion of variables on executive constraints and governance forms strengthens the statistical power of the interaction term between US/UK educated leadership and aid to the five percent level. In column 3, the leader's education variables are lagged twice. As can be seen, the interaction term is positive and statistically significant at the five percent level. In column 4, I replicate the results in column 2, using the sample from column 3 to confirm that the result is not driven by changes in the sample size. The coefficient of the interaction term is negative and of similar magnitude to column 2. In sum, the robustness checks confirm the main findings of the study.

7.1 Does genetic distance really capture cultural transmission?

One can argue that genetic distance is capturing differences in language, ethnicity and religion instead of beliefs and norms transferred from one generation to another. I test this by including distance in ethno-linguistic fractionalization and religion between donors and recipients, using data from Kolo (2012). I do not find any statistically significant effect of donor-recipient differences in religion; language or ethnicity on the aid-growth nexus (see Appendix B, Table B2) and significance of the genetic distance does not suffer from the inclusion of these variables. That is, those intergenerationally transmitted characteristics that are captured by genetic distance are beyond ethnicity, religion and language.

Next, I test whether inclusion of a measure of cultural differences would affect the coefficient of weighted genetic distance. If yes, that would be a sign that these cultural measures already capture some of the intergenerational transmitted characteristics. As described in section 3, dimensions of the World Value Surveys seem to be most relevant for this paper. Hence, I use the WVS's cultural dimension of well-being (waves 1-5) in the regression analysis of Table 1, column 3. The number of observations is reduced to 120 in the panel analysis, and covers 42 countries. Since some countries step in and out of different waves, the values for the years where observations are absent are replaced with those of before and/or after observations. The results are shown in Appendix B, Table B1, where one can see that both genetic distance and the well-being dimension are statistically significant, while societies with higher scores of well-being seem to gain more from aid in terms of growth. The magnitude of coefficient for genetic distance changes slightly, and the coefficient for well-being is statistically significant at the ten percent level. This result tentatively suggests that certain cultural values measured by the WVS can be part of intergenerationally transmitted characteristics captured by weighted genetic distance measure. However, results are weak and no strong conclusions can be drawn.

8. Conclusion and Implications

The findings of this paper provide empirical evidence for the anecdotal and scholarly debates on universalism and western-specific nature of development intervention from the West in the growth processes of the global South. The empirical results show that development intervention falls short when cultural (genetic) differences between donors and recipients are very large. Development agendas, premised upon western culture, fail in many culturally diverse environments because underlying preferences and belief system of recipient populations are not taken into account when aid projects and programs are sketched and applied in practice. The results of this study show that development strategies designed by western donors or influenced by western culture are effective only in environments that resemble western culture the most.

Given the negative effect of large cultural difference on aid effectiveness, one option for donors would be to focus on culturally closer regions and to engage in long-term commitments. For instance, since sub-Saharan Africa is culturally the most distant region from the western donor perspective, it might be wise to leave its development assistance to a culturally closer donor outside of the western league, if there is a demand for the intervention at all.

Another option would be to follow arguments of Thomas Bauer, Arthuro Escobar and William Easterly and leave the so-called development to the discretion of grassroots initiatives. Development assistance should come into action only, if there is an explicit and unbounded demand for it. For instance, when the government and the society in need ask for an intervention from the West and at the same time are willing to accept possible costs related to the changes in certain beliefs and practices, persistence of which contradict development strategies for women empowerment, institutionalized healthcare and medical interventions, environmental sustainability, democracy and etc.

A third option would be to keep development as it is, i.e. "western", but intensify cultural exchange and communication between individuals in donor and recipient countries and promote free movement of individuals across borders, i.e., more opportunities for study and work across countries. This will allow faster flow of ideas and exchange of belief systems both in the West and non-West and may help adjusting development thinking accordingly.

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Appendix A: Descriptive Statistics

Table 1, Column 3	observations	mean	std. dev.	min	max
GDP p.c. growth	378	1.55	3.05	-12.30	10.12
Bilateral Aid to GDP	378	3.01	3.87	0.01	26.69
Aid-adjusted genetic distance (AwGD)	378	1.02	0.53	0.06	2.22
Initial GDP p.c. (log)	378	8.12	0.87	5.34	10.27
Multilateral Repayments to GDP	378	0.16	0.30	0.00	2.08
Multilateral aid to GDP	378	1.68	3.07	0.00	19.01
Bilateral repayments to GDP	378	0.30	0.51	0.00	4.16
Initial life expectancy (log)	378	61.68	10.06	36.55	79.41
Openness	378	0.46	0.50	0.00	1.00
Inflation (log)	378	0.31	0.61	0.00	4.19
Initial M2 to GDP	378	5.07	12.92	0.00	105.70
Budget Balance to GDP	378	-0.09	0.51	-5.51	2.35
Revolutions	378	0.26	0.41	0.00	2.60

Table 2, Column 4					
GDP p.c. growth	378	1.55	3.05	-12.30	10.12
Bilateral Aid to GDP	378	3.01	3.87	0.01	26.69
Education in US/UK (leader)	378	0.32	0.42	0.00	1.00
Education abroad (leader)	378	0.62	0.43	0.00	1.00
Education Level (leader)	378	6.16	1.14	3.00	8.00
Initial GDP p.c. (log)	378	8.12	0.87	5.34	10.27
Multilateral Repayments to GDP	378	0.16	0.30	0.00	2.08
Multilateral aid to GDP	378	1.68	3.07	0.00	19.01
Bilateral repayments to GDP	378	0.30	0.51	0.00	4.16
Initial life expectancy (log)	378	61.68	10.06	36.55	79.41
Openness	378	0.46	0.50	0.00	1.00
Inflation (log)	378	0.31	0.61	0.00	4.19
Initial M2 to GDP	378	5.07	12.92	0.00	105.70
Budget Balance to GDP	378	-0.09	0.51	-5.51	2.35
Revolutions	378	0.26	0.41	0.00	2.60

Appendix B: Alternative measures

Table B1. WVS's well being cultural dimension and aid-adjusted genetic distance

	(1)	(2)	(3)
Aid-adjusted genetic distance (AwGD)	-0.177	-0.441	-0.496
	[0.517]	[0.500]	[0.488]
Bilateral aid/GDP	0.72	0.399	0.773**
	[0.520]	[0.386]	[0.373]
Bilateral Aid/GDP*AwGD	-0.578***	-0.562***	-0.571***
	[0.185]	[0.180]	[0.188]
Bilateral Aid/GDP*Authority	0.031		
	[0.246]		
Authority	-0.48		
	[0.295]		
Bilateral Aid/GDP*Well-being		0.351*	
		[0.204]	
Well-being		0.203	
		[0.448]	
Adj. R-Squared	0.334	0.329	0.328
Number of Countries	42	42	42
Number of Observations	152	152	152

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies. Controls are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions as well as multilateral aid, multilateral and bilateral repayments. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

Table B2. Distance in ethnolinguistic fractionalization versus aid-adjusted genetic distance

	(1)	(2)	(3)	(4)	(5)
Aid-adjusted genetic distance (AwGD)	-0.987**	-1.032**	-0.929**	-0.807*	-0.950**
	[0.465]	[0.465]	[0.461]	[0.447]	[0.460]
Bilateral aid/GDP	-0.286	-0.275	0.207	0.02	0.399**
	[0.498]	[1.029]	[0.231]	[1.014]	[0.186]
Bilateral Aid/GDP*AwGD	-0.172*	-0.257**	-0.14	-0.241**	-0.213**
	[0.090]	[0.101]	[0.100]	[0.101]	[0.087]
DELF	-0.234				
	[1.107]				
Bilateral Aid/GDP*DELF	0.846				
	[0.559]				
Language		1.56			
		[1.875]			
Bilateral Aid/GDP*Language		0.778			
		[1.132]			
Religion			0.334		
			[0.436]		
Bilateral Aid/GDP*Religion			0.315		
			[0.219]		
Ethnicity				-2.917***	
				[1.070]	
Bilateral Aid/GDP*Ethnicity				0.406	
				[1.138]	
Adj. R-Squared	0.293	0.291	0.294	0.302	0.293
Number of Countries	66	66	66	66	66
Number of Observations	378	378	378	378	378

OLS panel estimation in first differences. Aid variables are lagged once. All regressions include period dummies. Controls are: initial GDP p.c. (log), initial life expectancy (log), openness, inflation (log), initial M2/GDP, budget balance/GDP, revolutions as well as multilateral aid, multilateral and bilateral repayments. Significance levels * p<0.10, ** p<0.05, *** p<0.01.

Appendix C: Maps

Figure 1. Fst genetic distance to average donor (standard-deviation)

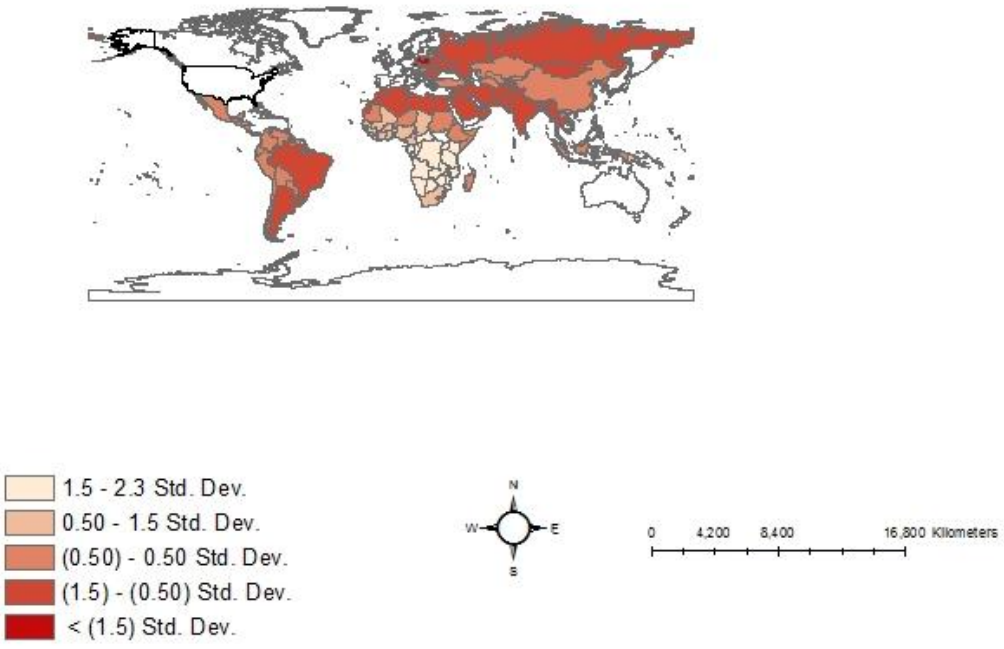


Figure 2. Fst genetic distance to average donor

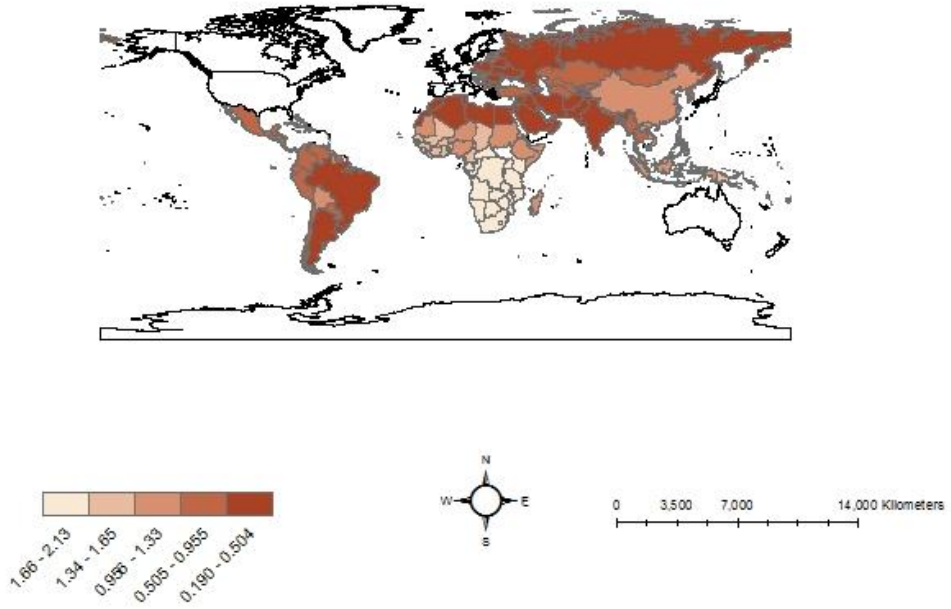
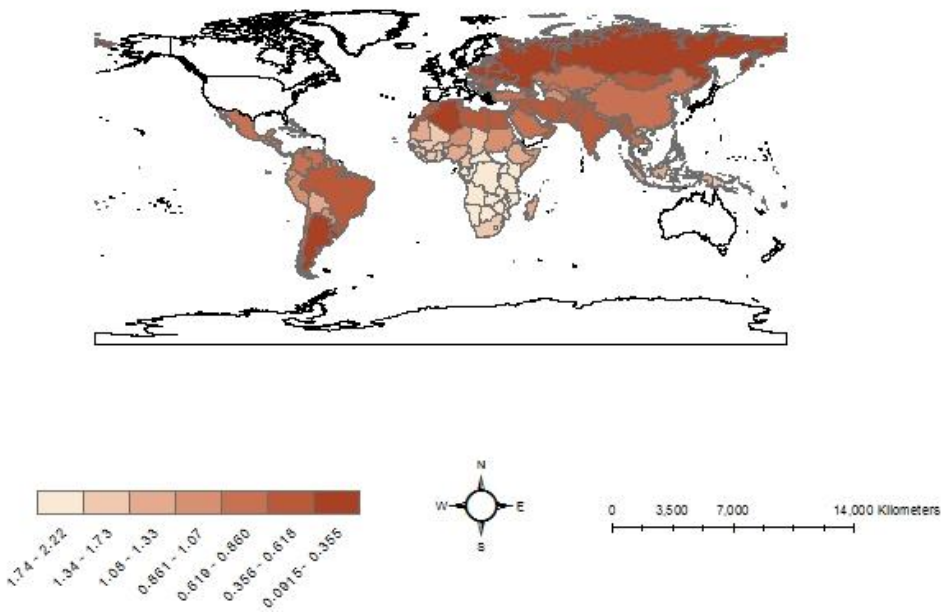


Figure 3. Aid-adjusted Fst genetic distance to average donor



Appendix D. Variable Definition and Sources

Variable	Definition	Sources
Bilateral aid/GDP	Average gross bilateral aid disbursements in percent of GDP.	OECD 2013, Table DAC2a
Weighted Genetic Distance	Weighted genetic distance between two populations, time since two populations split apart.	Spolaore and Wacziarg (2009)
Leader education abroad	Dummy variable if leader has been educated outside of home country (in the analysis it is a continuous variable due to period average).	Dreher et al. (2013a)
Leader education level	Categorical variable on the level of leaders educated starting from illiterate to doctoral level (in the analysis continuous variable due to period averages).	Dreher et al. (2013a)
GDP p.c. growth	Average annual growth rate of real GDP p.c. in constant international dollars.	Penn World Table 6.2 and World Bank (2007) for the year 2005*. Penn World Table 7.1 for 2006-2010.
Multilateral aid/GDP	Average gross multilateral disbursements as a percentage of GDP.	OECD 2013, Table DAC2a
Multilateral repayments/GDP	Average multilateral repayments as percent of GDP.	OECD 2013, Table DAC2a
Bilateral repayments/GDP	Average bilateral repayments as percent of GDP.	OECD 2013, Table DAC2a
Initial GDP p.c. (log)	Logarithm of initial GDP p.c. in international prices.	Penn World Table 6.2*, Penn World Table 7.1 for 2006-2010. (Feenstra et al., 2013)
Initial life expectancy (log)	Natural logarithm of first non-missing value in each period of total life expectancy.	World Bank (2007)*, World Bank (2012)
Openness	Wacziarg-Welch (2008) extension of the initial Sachs and Warner (1995) openness index, based on black market premium, average tariff rates, export marketing board, socialist regime and etc.	Wacziarg and Welch (2008) updated by Clemens et al. (2012)*. Extension of this index was updated as in Clemens et al. (2012), using Freedom House (2013) and IMF Staff reports for the 2006-2010 period.

Inflation (log)	Natural log of (1+consumer price) inflation.	World Bank (2005, 2007, 2012), IMF (2005) in Clemens et al. (2012)*
Initial M2/GDP	Money and quasi-money (M2) to GDP.	World Bank (2007, 2012)*
Budget Balance/GDP	Overall budget balance, including grants. Measured as cash surplus/deficit to GDP.	World Bank (2005, 2007, 2012), IMF (2005) in Clemens et al. (2012)*
Revolutions	Average number of revolutions per period.	Banks (2007, 2011)*, Banks and Wilson (2012)
Variables for Robustness Tests		
Humanitarian aid	Average humanitarian aid received from all donors as percent of GDP, averaged over the relevant period.	OECD 2013, Table DAC2a
Rest bilateral aid	Average gross bilateral aid received from recent DAC member and non-member countries not included in the regressions. (United Arab Emirates, Cyprus, Czech Republic, Estonia, Hungary, Island, Israel, Kuwait, Lithuania, Latvia, Poland, Romania, Slovak Republic, Slovenia, Thailand, Turkey).	OECD 2013, Table DAC2a
Democracy	Continuous variable (-2, 2), unified measure of democracy.	Pemstein et al. (2010)
Effective Executive	Who is the person exercising primary influence in the shaping of the major decisions affecting the nation's internal and external affairs (Monarch, President, Premier, Military or Other-communist regimes or ineffective leader).	Banks and Wilson (2012)
Head of State	Who is the head of the state (Monarch, Premier, President, Military or Other-hard to identify).	Banks and Wilson (2012)