ABSTRACT

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In the last decade, there has been a newfound interest within economics in culture, its effects on economic outcomes, and its historical determinants. Although significant progress has been made, there are still many large questions that remain unanswered. My dissertation addresses two of those, namely the effect of history on current levels of trust in political institutions and the twofold relationship between culture and economic outcomes.

My first chapter examines the effect of historical changes in political borders on current citizens' levels of trust in political institutions. Political trust also depends on current political institutions, so that a straightforward cross-country analysis would not be able to disentangle the effect of history from the effect of institutions. To address this problem, I compare regions that are part of the same country today and therefore share the same political institutions, but have had a different number of border changes in the past. I study six countries that have such within-country variation in border changes—Slovenia, Croatia, Serbia, Montenegro, Romania and Ukraine. Using data for five hundred years of border changes and three contemporary household-level surveys, I show that more frequent border changes in the past lead to lower current trust in political institutions. The estimated effect is large: border changes can explain 45% of the observed average difference in household-level political trust between the countries studied in my paper and the UK, which has enjoyed stable borders.

The second chapter examines immigrants' socio-economic outcomes. I use the variation in cultural distance between immigrants' birth and host countries to estimate the cost of adapting to a new cultural milieu. Using individual level data on immigrants from Europe, Canada and the US, I find that a increase of one standard deviation in the cultural distance between an immigrant's birth and host countries decreases the immigrant's expected earnings by 7.2% and has negative effect on numerous immigrants' social outcomes as well. As predicted by my model, the effect of cultural distance is the strongest for immigrants who arrived recently, and who immigrated at an older age.

ESSAYS ON HISTORY, CULTURE, AND ECONOMIC OUTCOMES

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Chapter 1: Do Less Stable Borders Lead to Lower Levels of Political Trust? Empirical Evidence from Eastern Europe

1.Introduction

Changes in political borders have happened quite often in history. The number of independent countries increased from 31 in 1815, to 56 in 1900, and to 157 in 1994 (O'Loughlin et al, 1998). Nevertheless, this big increase underestimates the overall number of political border changes, because it does not take into account border changes between already existing countries. For example much of Rivenska Oblast in today's Western Ukraine has belonged to eight different countries in the last 100 years. This means that individuals who were born there in 1913 may have lived in 8 different countries without ever moving out of their homes. It is very easy to imagine that frequent border changes affected how they perceive themselves as citizens and their views on the credibility of political institutions.

This paper examines the effect of border changes on one aspect of culture, namely on levels of political trust. The main finding is that individuals who live in a region that had more frequent border changes have lower levels of political trust. This substantially broadens the economic literature on border changes, which previously has focused on examining the effect of changing borders on trade patterns (McCallum 1995 and

Helliwell 1998) or finding the economically optimal size of a country (Spolaore and Wacziarg 2005, Etro 2003).

Trust in political institutions is crucial to democracy (Mishler and Rose, 2001). If people have more trust in political institutions, they are more likely to participate actively in political discourse, which may lead to better political decisions (Mishler and Rose, 2001, Rahn and Rudolph 2005). Further, if people have higher levels of trust towards the government, they will be less opposed to government reforms, making reforms easier to implement and thus more efficient (Levi and Stoker 2000, Luhiste 2006). Moreover, they will be more willing to comply with government demands, including taxpaying (Scholz and Lubell 1998, Levi and Stoker 2000).

The analysis presented in this paper adds to the literature on determinants of political trust. It introduces a new factor that has a significant and large effect on the level of political trust – the stability of political borders.[1] The main hypothesis tested is whether a region that changed its foreign rulers more often during the period from 1450 to 1945 has lower levels of trust in political institutions today. Additionally, my paper contributes to the cultural persistence literature by showing a novel mechanism of how events in the past can influence the current behavior of economic agents – through the choice of school names.

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[1] Determinants of political trust are usually divided into two broad categories – cultural and institutional. Cultural determinants originate outside the political sphere. These include beliefs and values that are rooted in cultural norms and communicated through early-life socialization. Institutional determinants of political trust are endogenous to the political system, and they depend on the overall performance of political institutions. A very good literature overview on this issue is given in Mishler and Rose (2001)

1.2 Identification strategy and conceptual framework

In order to understand fully what this paper is analyzing it is useful to clarify what is considered to be a border change. In this paper a border change is said to occur when a conflict, peace treaty, or the dissolving of an empire results in a region changing its ruling polity, so that the region switches from being part of one country to being part of another. Inhabitants of the region get a new state capital, experience a change of administration and have tax obligations to the new ruler of the region. If citizenship is defined in today's terms, these historical border changes would be equivalent to a situation where everybody in the region ceased to be citizens of an old country and became citizens of a new country.[2] For the purpose of this paper a change has to last for at least 6 years to be counted as a border change. In this way, frequent changes of borders during wars are omitted, which allows focusing on more permanent changes that could have a lasting effect on trust in political instructions.

In order to test empirically whether border changes can predict political trust, the identification strategy must take into account that current levels of political trust also depend on current political institutions. Therefore if one conducts a cross country analysis of the effect of historical border changes on current political trust, it will be very hard to distinguish the effect of different history from the effect of different current political intuitions.

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[2] Change in the polity that rules a region and change in political borders of a region denote the same thing and are used interchangeably throughout the paper.

To address this problem, the identification strategy of this paper focuses on within-country variation, that is on countries that have regions with different numbers of historical border changes. Therefore, the comparison is between regions that share the same current political institutions but differ in their historical experience, namely the frequency of changes in the polity that rules the region. This is the reason why the empirical part of the paper will focus on six south-eastern European countries that satisfy the aforementioned criterion on within-country variation in historical border changes - Slovenia, Croatia, Serbia, Montenegro, Romania and Ukraine. These six countries have an extremely rich history with frequent border changes. This is due to their geographic position, as they were situated between powerful empires or kingdoms that often fought wars with each other, including the Habsburg, Polish, Russian, Ottoman and Italian (Venetian) states.

As an example of how this identification strategy relates historical border changes to current levels of political trust, consider two regions within the same country. The two regions share the same set of current political institutions, that is the same parliament, government, president and laws, with courts and police that operate under the same set of rules and procedures. Let us assume that these regions differ in their historical experience, notably that one region has changed from one country to another country more often than the other one in the past. For example, the coastal region of Dalmatia in Croatia was under Turkish, Venetian, Napoleonic, Habsburg, Italian and Yugoslav rule in the last 500 years, while Northern Croatia changed its foreign rulers only twice in the same time period, from Habsburg to Yugoslav. Due to this different historical experience, people in those two regions have different levels of trust in political institutions today.[3]

The rest of the paper is organized in the following fashion. The next Section describes the dataset used and gives a short history of the region. The main explanatory variable, a Historical Change Index that measures intensity of border changes in the past, is described in detail in Section 3. Estimation strategy and main results follow in Section 4. Section 5 performs various robustness tests including an instrumental variable analysis to control for potential endogeneity. Section 7 describes potential persistence mechanisms and Section 7 concludes.

2.Datasets and a short history of sample countries

The effect of historical border changes on current levels of political trust is best examined by using an identification strategy focused on within-country variation in border changes. Because of this, data will be taken from six European countries that are composed of regions that exhibit large variation in numbers of border changes – Slovenia, Croatia, Serbia, Montenegro, Romania and Ukraine. These countries have a rich history and variety of border changes because of their geographical position; they were located between the powerful Habsburg, Russian, Ottoman and Venetian (Italian) empires. The following subsections describe datasets used in estimation and provide a short history of

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[3] For instance, in 2010 average trust in the court system, on a scale from 1 to 5, five being the best, was significantly lower in Dalmatia than Northern Croatia (1.89 vs. 2.25, t-stat of difference in means =4.1). Data source for this was Life in Transition Survey II, described in more detail in section 2.1

the region to explain why there is enough variation in the border changes occurring the past to allow for identification.

2.1 Datasets

The main data source for individual trust levels is the Life in Transition Survey (LiTS) I and II, collected by the European Bank for Reconstruction and Development (EBRD) in 29 countries. LiTS I was administered in 2006 and LiTS II in 2010. Besides socio-demographic information such as age, gender, and education, the survey collected information on trust in political intuitions, social trust, as well as measures of civic behavior. 1,000 households were interviewed in each country, based on a sample of 20 households in 50 different geographical locations (Primary Sampling Units, PSUs). Those locations can be specific villages, towns or parts of a bigger metropolitan area. The LiTS datasets give the exact name of each PSU, so one can easily locate them and gather the needed data about the specific PSU.

Another dataset used is the European Values Survey (EVS) from 2008. A drawback of the EVS is that it does not allow identification of the exact location of an individual respondent. It provides only information about the respondents' NUTS-3[4] region, which does not allow for as precise identification of relevant historical political border changes as does the exact location of PSUs given in the LiTS datasets. Because of this, results obtained with the EVS dataset might be considered less precise than the ones from LiTS.

[4]NUTS stands for Nomenclature of Units for Territorial Statistics, which is a European Union standard for the statistical subdivision of a country. The minimum number of inhabitants for a NUTS 3 region is 150,000 and the maximum is 800,000.

One reason for using the EVS survey is the benefit of having another independent dataset. Furthermore the EVS contains some questions that are not found in LiTS that are relevant for distinguishing possible mechanisms for how changes in borders might affect political trust. For example, EVS asks about the respondents' degree of identification with a geographical unit.

The main dependent variable represents trust in political institutions. The LiTS surveys measures respondents' current political trust using the following questions: [5]

To what extent do you trust the following institutions?

1) The presidency

2) The government/cabinet of ministers

3) The parliament

4) The courts

5) Political parties

6) The police

Answers to each of these questions are scaled from 1-5, where 1 stands for complete distrust and 5 for complete trust. Individual answers to those questions are commonly used in existing literature as a measure of political trust (Mishler and Rose 2001, Catterberg and Moreno 2006, Luhiste (2006) to name just a few).[6] If this paper's hypothesis is correct, then individuals in regions that had more frequent changes of

[5] The EVS question is formulated a bit differently - How much confidence do you have in the following institutions? Possible answers are on scale from 1 to 4, where 4 stands for "A great deal."

[6] Furthermore, I use aggregate measures of these answers (the sum and principal component) as robustness tests without much affecting the result.

polities ruling the region in the past will have lower trust scores on average, ceteris paribus.

This paper focuses on Balkan countries plus Ukraine in order to achieve a higher degree of reliability in mapping historical border changes into a single number.[7] All countries in the sample were influenced by numerous wars between the Habsburg, Russian and Ottoman Empires. The same set of core events (wars, peace treaties, rebellions) had an impact in all the countries in the sample.[8] Giving the same weight for the same events that affected multiple regions in the sample increases consistency in the measure of historical border changes.

An additional reason for not studying other countries is that it would complicate the analysis by including additional empires that influenced regional border changes - the Prussian, Swedish and Saxon empires in the case of Poland and the Baltic countries, for example. This could increase the heterogeneity of the sample and as a consequence decrease the potential explanatory power of the analysis, making causality harder to discern. Including countries from other parts of the world would make it more difficult to distinguish between the specific effect of a change itself, the effect of the new polity that rules the region, and specific characteristics of the region.

[7] Other countries for which the criterion of within-country variation in the number of historical changes is satisfied would be Poland, the Baltic countries and ex-colonial African and Asian countries, to name just a few.

[8] Examples of common events include the wars between the Habsburg and Ottoman Empires, and the rise of national states under the Ottoman Empire, sponsored by the Russian Empire.

2.2. A brief history of the region

The purpose of this concise description is to show that border changes in Slovenia, Croatia, Montenegro, Serbia, Romania and Ukraine were frequent and that there is enough variation in changes within any country to allow identification of the effect of past border changes on current levels of trust in political institutions. This very short history of the region gives an incomplete log of the changes that have happened in the countries under study. A more detailed overview can be found in Stavrianos (2000), Lampe (1989 and 2000) and Kann (1974).

This paper's main explanatory variable, the Historical Change Index, considers the time period between 1450 and 1945. The year 1450 is used as a starting point because at that time the Ottomans began their expansion into the North Balkans. The Ottomans started their expansion by conquering Serbia and all of Montenegro except its coastal parts. In the 16th century the Ottomans managed to bring the whole of Romania, most of Croatia and a huge part of Ukraine under their rule. Ottoman power and the size of its territories began to diminish after defeat in 1699 in its war against the Christian alliance of Venice, the Habsburg empire, Poland and Russia.

This decline in Ottoman power was exploited by the Habsburg and Russian Empires, which increased their territories in today's Croatia, Serbia, Romania and Ukraine. Those two Empires, together with Prussia, also participated in the partitioning of Poland in the 18^{th} Century, when previous Polish territories in Ukraine were seized by the Habsburgs and the Russians. After the partition of Poland, Russia continued expanding at the expense of the Ottoman Empire and played a very important role in forming national Montenegrin, Serbian and Romanian states in the second half of the 19^{th} century. All of those national states were formed around previous Ottoman provinces. The process of their border changes, for these states mostly expansion, continued during the Balkan wars in 1913 and in the aftermath of WWI.

Venice controlled the coastal parts of today's Slovenia, Croatia and Montenegro up to 1806, when Napoleon conquered Venice and brought it under French rule. After the fall of Napoleon, these territories became part of the Habsburg Empire. The Adriatic coast of the Balkans stayed under the Habsburg crown up until the end of WWI, when some parts were given to Italy and some became part of the newly-formed Yugoslavia.

In the peace treaties that followed the end of WWI, the Habsburg Empire was dissolved. West Ukraine became part of Poland and Czechoslovakia, Romania gained control over Transylvania, the South Slavic parts of the Habsburg Empire became part of Yugoslavia, and some parts of the Adriatic coast became part of the Italian Kingdom. The final borders of today's countries were established after WWII and have remained stable until today. Even though USSR and Yugoslavia dissolved those changes in borders affected the whole countries in the sample and could not be used in identification.

3. Main explanatory variable - Historical Change Index

This paper constructs a new variable – the Historical Change Index (HCI) - for the purpose of mapping various historic border changes into a single number. HCI measures the intensity of past changes of ruling polities in a given Primary Sampling Unit, PSU, from 1450 to 1945. More specifically, the HCI is constructed using two guiding principles:

HCI discounts events that happened further away in history more than recent events. It is not unreasonable to assume that events that happened 50 years ago have more impact on current political trust than events that occurred 500 years ago.

Changes that lasted longer have a greater weight. The longer one polity rules a region, the more people will become accustomed to it. As a consequence changes that lasted longer will have a bigger effect on a region's current culture, including levels of trust in political institutions. The reason for this assumption is a belief that, for example, the 176-year Ottoman rule in Transylvania in Romania had a different effect than the 27-year Ottoman rule in Podolia in Ukraine.

Applying these two principles to every change in political borders that happened in year *y* and lasted *l* years, the effect of the change is calculated in the following way:

$$effect\ of\ change_{l,y} = length\ effect_l\ x\ time\ discount_y \qquad (1)$$

Where

$$length\ effect_l = 1 - \frac{1}{(1+0.1)^l} \qquad (2)$$

$$time\ discount_y = \frac{1}{(1+0.004)^{1945-y}} \qquad (3)$$

The length effect is a concave function, which approaches 1 as the length of the change becomes longer. This specific form implies that after one generation, usually considered to be 25 years, the length effect is 0.9, i.e. 90% of the maximum possible length effect of the change has materialized in the first 25 years. In two generations the length effect becomes 0.99. After two generations have been raised, schooled and lived in the same country, families are well accustomed to the country and additional years will bring little change in a family's identification with the current country.

The time discount has a convex shape. This shape was chosen because it emphasizes recent events more and allows a greater differentiation between events that took place recently. For example, take two events that happened 50 years apart. Two events that happened in 1475 and 1525 will have very similar time discounts (0.15 vs. 0.18), while two events that happened in 1895 and 1945 will have significantly different time discounts (0.82 vs. 1). This is in line with the intuition that recent events matter more.

This kind of discounting has also been used in the previous literature, for example in Putterman et al. (2003). Those authors examine the history of statehood for 113 countries. They construct an index of state antiquity and show it affects recent growth rates of GDP. They discount over 2000 years of history and they use an annual discount rate of 0.1%, which means that an event that happened in the middle of their time period would have a time discount of 0.3. In this paper, to get a time discount of 0.3 for an event in the middle of the time period, a higher discount rate of 0.4% is applied.[9] This discount rate means that approximately 10% of the effect of a polity change is lost in one generation (a period of 25 years).

Having calculated the separate effects for every change of borders, the HCI is calculated as the sum of the effects of all border changes in each PSU, as shown in the following formula:

$$HCI_{region\ i} = \sum_{all\ changes\ region\ i\ experienced} effect\ of\ change_{l,y} \qquad (4)$$

This aggregation of all border changes affecting a PSU is the main explanatory variable used in this paper. It is referred to as the Historical Change Index (HCI). The HCI represents a mapping of all changes of a region's political borders in the 1450-1945 period into a single number, where a higher value of HCI corresponds to more frequent and significant changes of foreign rulers in the last 550 years of PSU history. Constructed in this way, the HCI uses three sources of variation in regional border changes: differences in the number of changes, the length of changes and how long ago the changes happened.

To give an example of how the HCI is calculated, consider all PSUs located in the Romanian region of Transylvania. Historically all changes in political borders that

[9] This is because the time period here is four times shorter (500 years compared to 2000 years) then in Putterman et al. (2003). Thus, to get the same ratios the annual discount rate in this paper has to be four times bigger.

affected Transylvania affected the whole region. This means that all PSUs located in Transylvania have the same value of the HCI.[10] Table 1 gives the list of changes that happened in Transylvania, as well as the measured effects of these changes and their total sum, the HCI score.

From Table 1 it can be seen that the most recent changes have a larger effect. Nevertheless, changes that happened almost 500 years ago (in this case the Ottomans' conquering of Transylvania in 1526) still have an impact on the HCI. This summarizes two features of HCI – it is a weighted sum of all changes that have happened since 1450 in a given PSU, where more recent changes have a larger effect. The HCI scores for all regions and their PSU's are given in Appendix D.

Robustness checks are performed on the HCI using different discount rates, as well as different functional forms for length and time discounts, notably linear and concave forms. Details about these alternative measures, as well as the results from using them can be found in Appendix A. The robustness tests show that the main results remain qualitatively similar under different specifications of the discount functions.

[10] This is true for most sample PSUs. In another words, most sample PSUs are part of a region which was never divided in the historical period after 1450. Whenever there was a change in foreign ruler the whole region was affected. This means that there are other PSUs in the same region that have the same value of HCI. Because of this, the description of the calculation of HCI in this section always uses region as a reference point. All PSUs that belong to a particular region and have the same border changes as the region are given the same value of HCI.

4. Estimation strategy and main results

This paper analyses the effect of border changes on political trust by comparing regions that are part of the same country today and therefore share the same set of current political institutions but have a different history of changes in their political borders. The next subsections describe my specific estimation strategy and results. Overall, I find that individuals living in regions with frequent historical border changes exhibit lower levels of political trust and indentify less with their current country today. Moreover this effect is stronger for older individuals and people who lived all their life in the same location, which gives additional support to paper's main hypothesis.

4.1 Estimation strategy

Given my within country identification strategy, the main estimation equation, evaluated using ordered probit and OLS, for an individual *i* who lives in PSU *j* in super region *k* is:

$$political\_trust_{i,j,k} =$$
$$\beta_0 + \beta_1 HCI_{j,k} + X'_{i,j,k}\beta_2 + PSUcharacteristics'_{jk}\beta_3 + \beta_4 super\ region_k + \varepsilon_{ijk} \quad (5)$$

The dependent variable of interest is individual trust in political institutions. Various self reported measures of political trust are obtained from the LiTS datasets and are used as dependent variables. These include trust in the president, parliament, government, police, local government, courts and parties. All standard errors are clustered at the PSU level.

The main explanatory variable of interest is the Historical Change Index, which is calculated at the PSU level. Larger values of the HCI represent more important, more recent and/or more frequent border changes for a given PSU. If more border changes in the past lead to lower levels of trust in contemporary political institutions, then one would expect a negative coefficient β_1 for HCI.

Since the analysis is at the individual level, individual respondents' characteristics are included in the covariates. Demographic characteristics such as age, gender, marital status, number of children, labor market status, education, self reported subjective income, religion and ethnic minority status are taken into account in the regression. Furthermore, individual beliefs that could affect levels of political trust are also controlled for. Those include current satisfaction with life and generalized trust.[11] The reason for including this last set of variables is to mitigate potential omitted variable bias. For example, it could be that frequent border changes lead to lower generalized trust levels. Due to this lower generalized trust, individuals in regions that changed their borders more often might display lower levels of political trust. To show that there is a direct effect of past border changes on current levels of political trust per se, generalized trust is included as a covariate in the regression.

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[11] This is the answer to the following question: "Generally speaking, would you say most people can be trusted or that you can't be too careful in dealing with people?" Answers are range from (1) – complete distrust to (5) – complete trust.

The last important group of explanatory variables are PSU characteristics. These include a measure of regional PPP GDP per capita as a proxy for local economic conditions.[12] The distance from the state capital is also added to the set of covariates, as one would expect that areas further away from the center of political power have less trust in political institutions.[13] Rural, urban or metropolitan status of the PSU is also accounted for with appropriate dummies.

The ethnic composition of a PSU might differ from the rest of the country, and this might both be associated with more frequent changes of borders and at the same time might independently affect levels of political trust. To take this possibility into account, the regression uses the percentage of the country's largest ethnic group living in the specific district. Furthermore, population density at the district level has also been included in the covariates. Locations with frequent wars and border changes might also have lower population densities and this lower population density might lead to lower levels of trust.[14] The last two variables defined at the PSU level are Empire weights, related to the time period spent under the Ottoman or Habsburg Empires. I include them because it is a known fact in the literature that a legacy of belonging to the Habsburg Empire is related with better quality of current institutions and the opposite is true for belonging to the

[12] The regional GDP measure was not available for Montenegro and Ukraine. In Ukraine the average regional wage was used instead, while for all regions in Montenegro, country-level GDP was used. Using either an absolute measure (in euros), a relative measure (index value where the country average was set to 100) or the natural logarithm of the absolute regional GDP does not have effect on the main results.

[13] Again, here both absolute (in km) and relative distance are used. Relative distances are scaled to be in a range 0 to 1 where 1 represents the most distant PSU in the country, while 0 is the capital city. Using two ways of defining distance did not cause change in the results of the analysis. Squared relative distance is chosen as the preferred measure as it appears to have the best fit in the regressions.

[14] For robustness purposes, regressions are also done without controlling for population density and share of the largest ethnic group, without significant change in results.

Ottoman Empire. Empire weights are constructed in the same way as in Dimitrova-Grajzl (2007) and explained in more detail in Appendix A.

The level of trust individuals have in their political institutions may also depend on how aligned their political preferences are with the political party currently in power. This could represent a problem for the chosen estimation strategy if political preferences are omitted but related to the PSU's history of border changes. For example, in Ukraine, the west part of the country usually votes for pro-European parties, while the eastern part of the country has preferences for pro-Russian parties. To control for this and similar problems, 21 superregional dummies are included in the regression.[15] This procedure of controlling for super-region fixed effects is also used in Acemoglu et al. (2011). The full list of variables as well as their description is given in Appendix B. Appendix D gives a list of all PSU's in LiTS II 2010 with the corresponding HCI and super-regions.

Endogeneity of the main independent variable, HCI, could cause a threat to estimation strategy proposed in this section. To address this potential problem instrumental variable analysis is preformed in Section 5.2 as one of the robustness test, showing that the main results of the paper are stable even when pure geographical variables are used as the instruments.

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[15] In Montenegro two superregional dummies are constructed. Serbia, Croatia and Slovenia have three, Romania four and Ukraine six. The number of superregional dummies is chosen to be proportional to the country size. The list of superregional dummies can be found in Appendix D.

4.2 .Results

This section gives results of analysis done on individual-level observations from Slovenia, Croatia, Serbia, Montenegro, Ukraine and Romania. Data sources are LiTS I (2006) LiTS II (2010) and EVS (2008). After discussing the baseline results, I discuss analysis on various subgroups, and perform a comparison of my sample countries with UK, which enjoyed stable borders over this time period. While I report results separately for each survey the same covariates are used in the main specification in all surveys, allowing for data to be pooled into a single regression. Pooled results do not differ appreciably from results for individual years[16].

4.2.1 Core Results and Magnitude of the Effect – LiTS I (2006) and LiTS II (2010)

The first six columns in Table 2 present the results of ordered probit regressions using trust in the president, government, parliament, courts, political parties and police. All those measures are self-reported by individuals and range from 1, complete distrust, to 5, complete trust. The seventh column contains results from a probit regression where the dependent variable is 1 if the individual voted in the last parliamentary or presidential election and 0 if she did not. These regressions, as well as all that follow, include a rich set of covariates as described in the previous section. Due to limited space only, the

[16] Results are available upon request from the author.

coefficients on the more interesting explanatory variables are reported in the tables. All standard errors reflect clustering at the PSU level.

In all regressions, the coefficient on HCI is negative and in the majority of them, it is significant, confirming the hypothesis that more stable borders lead to higher levels of current trust in political institutions. This result is confirmed in all datasets used in the paper as well under various robustness tests performed in latter section.

To see the magnitude of the effect of border changes in the past consider an individual born in Rivenska Oblast in West Ukraine in the first half of the 1910s, as mentioned in the introduction. Assuming this person has lived in the same house his entire life, he still has lived in seven different countries. If he had lived in Kharkiv Oblast instead, holding everything else constant, the estimates in Table 2 suggest he would have on average 0.62 points more trust in parliament on the 1 to 5 scale.[17] A comparison with the effect of other covariates helps to illustrate the size of the effect of historical border changes. For example, the income variable is defined as the answer to the following question:

Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest people and on the highest step, the tenth, stand the richest. On which step of the ten is your household today?[18]

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[17] The HCI index for Rivenska oblast is 2.32 while that of Kharkiv Oblast is 0. Kharkiv oblast is the only location in six countries studied in this paper that did not change their foreign ruler in the 1450-1945 period.

[18] In LiTS I data about household expenditure was also available. Using expenditure variable instead of subjective ladder self placement does not alter results. Self placement on a income ladder was chosen because the same variable exists in all three datasets used in this paper.

According to the results given in Table 2, if an individual goes from the lowest decile of income to the highest, his increase in trust in parliament will be 0.5. This increase is smaller than the effect of being born in Kharkiv instead of in Rivenska Oblast in the first half of the 1910s.

Consider two additional historic examples showing that the effect of past border changes has magnitudes comparable to other determinants of trust already known in the literature. First, imagine a region that switched country after WWI and then again after WWII.[19] The HCI value for this specific change after WWI would be 0.79.[20] This change alone would cause individuals in affected regions to have 0.178 less trust towards government, on a 1-5 scale.[21] This corresponds to the effect of a decline in income of 4 subjective deciles on the income ladder. Second, suppose a region became part of the country to which it belongs today as a result of the Berlin Congress in 1878. This event would have an HCI value of 0.76.[22] Again this effect would be the same as individuals dropping 4 deciles on the income ladder.

Other explanatory variables shown in Table 2 have the expected sign. If individuals are more satisfied with their life or have higher self reported income their trust in political institutions is higher. Citizens living in richer regions have higher trust in

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[19] In Slovenia the whole coastal area was given to Italy, as were some coastal parts of Croatia. Western Ukraine became part of Poland and Czechoslovakia. All these changes happened after WWI and lasted till the end of WWII.

[20] This is calculated using formulas (1), (2) and (3), for a change that happened 92 years ago and lasted for 27 years.

[21] Of course to get the complete picture one should add weight for changes that happened after WWII, when the regions in question become part of today's countries.

[22] This scenario is true for significant parts of Serbia, Romania and Montenegro.

political intuitions as do individuals with higher levels of generalized trust. As a robustness test regressions without generalized trust as an explanatory variable are estimated on all three data sets without much effect on the magnitude and significance of the HCI coefficient. Furthermore, HCI has no predictive power when generalized trust is used as a dependent variable, showing that individuals living in regions with more frequent border changes do not differ in generalized trust levels from other citizens[23].

Results presented in column seven of Table 2 show that more frequent border changes in the past have a negative effect on election participation. It seems that in regions that changed their foreign rulers more often, not only do individuals have lower trust in the political institutions, but additionally they vote less. This negative and significant effect of past border changes on voting turnout is also documented in the other two datasets.[24]

Table 3 shows results of the analysis using data from LiTS II 2010 survey. Dependent and explanatory variables are the same as those for 2006. Again, the coefficient of the historical change index is negative and significant for president and government at the 5% and 1% level respectively.

When comparing the magnitude of the HCI effect between 2010 and 2006, there is a clear pattern that shows a stronger effect in 2006. One possible explanation is that in 2010 all sample countries were hit by a Great Recession, while in 2006 all sample countries enjoyed strong positive GDP growth. As expected, this is reflected in the general levels

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[23] Results available from author upon request

[24] Those results are available from author upon request.

of political trust – average trust in political institutions fell in 2010 for all countries. The standard deviations of all answers about political trust also became smaller.[25] This fall in the variance of political trust could decrease the explanatory power of the HCI variable.[26]

4.2.2 Stayers and Movers

LITS II (2010) enables me to test an additional mechanism implied by this paper's hypothesis. It asks how long individuals have lived in their current localities. One of the possible answers is that an individual has never moved. This is useful, since the effect that this paper purports to document should be location specific, working through the location where the individuals were born, raised, educated and spent their entire lives. If my hypothesis is correct, then the effect of border changes should be highest for individuals who spent all their lives in the same location. For these individuals it is possible to capture the pure effect of location and its border changes without fear of contamination from individuals living in some other area with a different history of border changes.

Because of this, results obtained on the subsample of individuals who have never moved should more accurately represent the effect of living in a region that had a specific

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[25] For example, the standard deviation for trust in government in 2006 was 1.25, for trust in president 1.34, for trust in parliament 1.23 and for trust in courts 1.25. In 2010 the corresponding numbers were 1.18, 1.29, 1.12 and 1.18.

[26] A second possible reason is that in May 2006, Montenegro, after a successful referendum, declared independence and left the union with Serbia. The 2006 LITS was administered in October so citizens everywhere had a fresh memory of this breakup. This newly declared independence could prime individuals into thinking that no state lasts forever. This effect would be greater in regions that had a rich history of changing foreign rulers, i.e. where individuals could recall more changes of state their region participated in, and thus explain the difference between 2006 and 2010 results.

number of historical border changes. Table 4 presents regressions for the subsample of individuals who have never moved.[27] The effect of HCI increases and becomes more significant in all measures of political trust compared to the results presented in Table 3, confirming the main hypothesis. In the language of the treatment effects literature, individuals who lived all their lives in the same place are the ones who received the treatment, while those who moved are a control group. A regression based on individuals who moved is presented in Table 5. It shows no effect of HCI on political trust, which would suggest that early life socialization is an important channel for transmission of the effect of past border changes on current political trust.

4.2.3 Geographical identity

The last data set used in the paper is the EVS from 2008, which offers a possibility to check for geographical identification of individuals. As mentioned before, EVS is less suitable for my purposes since it does not identify the exact location where the individual lives, providing only the NUTS-3 (EU statistical region with 150 000-800 000 inhabitants) region of respondents. When the NUTS-3 region has more than one value of HCI (different parts of the NUTS-3 region have different numbers of changes of political borders in the past) the average is taken.[28] Therefore, results obtained using the EVS dataset should be considered less precise than those using LiTS I and LiTS II .

[27] Approximately 65% of the individuals in the sample have lived in the same location their whole life.
[28] This is true for approximately 30% of the NUTS-3 regions in the sample.

Results of the estimation of equation (1) for the 2008 EVS are given in Table 6. All the coefficients for HCI are negative and half are significant, consistent with the results from the two other data sources. The coefficients on the other covariates have the expected signs.[29]

What makes the EVS 2008 a valuable dataset for this paper is the question about identification with geographical location. More specifically one of the questions was:

Which of these geographical groups would you say you belong to first of all?

The possible answers include locality or region, country, Europe or the world. One of the possible mechanisms of how historical changes in political borders might have an effect on current levels of trust in political institutions is through a lower identification with the current country. If one does not identify with the current country, one will trust its political institutions less and will have a lower probability of voting. Table 7 presents results of the probit regressions where the dependent variable was an individual's identification with a geographical unit. The table clearly shows that individuals who live in regions that changed their foreign rulers more often in the past see themselves first as members of the region, and not their country, with no difference for their conception of themselves as global citizens.

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[29] In LiTSs individuals self reported which income decile they think they belonged to. In the 2008 EVS individuals are directly asked for the amount of their household monthly income. Income is then transformed into Euros and adjusted for purchasing power parity. In the regression, the natural logarithm of that income is used. This different way of income measurement in LiTSs and EVS might be responsible for the different significance of the income variable across the different analyses.

4.2.4 Aggregated trust measures

One way of summarizing the results presented in this section is to use principal components to aggregate answers to the questions about trust in all the different political institutions into a single number.[30] This single number for each individual is the first principal component of individual responses about trust in the president, government, parliament, police, courts and political parties.

The results obtained when the first principal component is used as the sole dependent variable in all three surveys are given in Table 8. The results unequivocally show that there is a significant negative effect of historical border changes on current levels of political trust in all three surveys.[31]

4.2.5 Young and Old

An additional test of this paper's main idea is conducted by splitting the sample by age into two groups –"old" and "young", allowing for heterogonous effects of border changes. Older individuals should have higher awareness of past border changes because they are more likely to have been alive when some of the changes took place. Furthermore, they are closer to generations that directly experienced changes of borders.

[30] Principal component analysis is a multivariate statistical technique, which reduces the set of potentially correlated variables into linearly uncorrelated variables called principal components. Components are constructed in a way such that the first principal component explains the largest possible amount of correlated variation from the data. For a review of the method as well as its applications to survey data see Vyas and Kumaranayake (2006).

[31] The highest statistical significance of the HCI coefficient is in the LiTS 2010 survey, which is not surprising, given that in this survey only non movers are taken into sample. Furthermore, using the sum of all answers about trust in the various political institutions as a different way of aggregating answers into a single number, does not change the coefficient associated with the HCI variable (results not shown but available upon request).

Therefore, HCI should have a higher negative effect for the subsample of older people. Looking at all three surveys and splitting the population by age, with age 50 as the threshold; the effect of HCI is more negative and significant for the older subsample, as shown in Table 9. Even though differences in coefficients for the young and old subsamples are not statistically significant; the pattern in all three independent datasets is clear - older individuals exhibit a larger and more significant negative effect of border changes on political trust, giving additional corroboration paper's main hypothesis.

4.2.6 Comparison with country without border changes – United Kingdom

The analysis performed up to this point allows for a simple calculation of the effect of border changes on the average level of trust for an entire sample country. First, the weighted average of HCI is constructed for each sample country using the following formula:

$$HCI_{country} = \frac{\sum_i HCI_i * population_i}{\sum_i population_i} \qquad (5)$$

where *i* indexes regions.

Country averages of HCI and trust are presented in Table 10. The average trust on a 1-5 scale towards parliament is given from LiTS II for each sample country. Average trust for the UK is also reported in Table 10. The UK is one of the rare countries in the world that has had relatively stable borders in the last 500 years and serves as a comparison with the countries studied in this paper.[32]

As can be seen from column 3 average trust in parliament was lower than in the UK, in all sample countries except Montenegro. Applying a coefficient of -0.16 for the effect of HCI on trust in parliament (from Table 3) I perform a simple calculation of what average trust in parliament would have been if these countries had enjoyed stable political borders as did the UK.[33]

Column 4 shows this calculated counterfactual trust in parliament, which significantly reduces differences between UK and sample countries. By construction average trust in parliament rises for all countries, and for Slovenia trust would be higher than in the UK. In the sample countries average trust in parliament goes up from 2.19 to 2.37 or from 2.02 to 2.20 if we exclude Montenegro as an obvious outlier. Eliminating border changes would reduce the difference in average trust in parliament between the UK and the sample counties by 45%. While perhaps over-simplified this back-of-the-envelope calculation shows the large effect of past border changes on current political trust.

5. Robustness tests

So far the results have consistently shown that individuals who live in regions with fewer changes in borders display lower levels of trust in political institutions, vote less and

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[32] There were two border changes in the relevant time period. In 1707, England and Scotland voluntarily united after having had the same monarch since 1603. In 1921, the Republic of Ireland gained its independence. One being a voluntary union without any change in administration and the other affecting a territory which is not in the current UK, neither of these would enter the HCI.

[33] Column 4 in Table 10 is thus equal to column 3, plus country average HCI multiplied by 0.16.

indentify less with the current state. This section addresses possible objections to the methodologies implemented up to this point. First, to control for possibility that lower levels of political trust are driven by bad government performance in specific regions objective and subjective measures of government performance are taken into account. Secondly, I use instrumental variables to correct for possible endogeneity of HCI. Finally, various placebo tests show that HCI does not affect other socioeconomic variables and that HCI is not merely proxying for the impact of past conflicts. All additional robustness tests confirm the main result- that more stable borders lead to higher levels of political trust.

5.1 Controlling for subjective and objective measures of political performance

One reason why individuals in regions with more frequent border changes could have lower levels of trust in political institutions is that political institutions in those regions might be performing poorly. It is not unreasonable to imagine that politicians might choose to put most of their resources and efforts into provinces that have been part of the country for a longer time and did not switch their rulers frequently in the past. Alternatively, due to the specifics of the region, the government might be less efficient and/or its results perceived to be worse in regions that changed their borders more often in the past. To address these possible problems, measures of government performance are added to equation (1).

Two measures of political performance are used for each survey. The first one is subjective and uses individual responses to a question on the performance of political institutions. The second one is more objective; it is the average rating of political institution performance of the nineteen other people (excluding the respondent) who live in the same PSU. Individual answers might be subjective and might be jointly determined with political trust, causing reverse causality issues. Usage of local averages should decrease those problems.

In LiTS II from 2010, the measure of political performance is constructed as the first principal component of the answers to the following questions:

- *Please rate the overall performance of the local administration*

- *Please rate the overall performance of the central government*

where answers range from 1,very bad to 5, very good. Results are given in Table 11, where for all columns the dependent variable is first principal component of various measures of political trust. The first column replicates results of Table 8, which serves as a comparison for the other results presented in the table.

Adding measures of government performance does not change the main results of interest. In the second column, the individual respondent’s rating of the performance of political institutions is added as a covariate. As expected the coefficient associated with this variable is positive and highly significant - if the individual is satisfied with government performance, she displays higher levels of trust in political institutions. In the last column, the average rating of the local administration and the national government by others in the same PSU is used as a covariate instead. The coefficient on this more objective measure is again positive and highly significant. In both cases, when measures of political performance are added, the coefficient on the HCI variable remains significant at 1% and hardly changes in magnitude.

LiTS I from 2006 does not have such a clear and direct question about government performance. Instead, a measure of government performance was constructed as first principal component of individual answers to the following questions:

The political situation in this country is better today than around 1989

There is less corruption now than around 1989

To what extent do you agree that law and order is important for your country?

Those questions do not give direct individual ratings of the performance of political institutions, but it is reasonable to assume that they can be used as a proxy for political performance. The results are presented in Table 12, which has the same structure as Table 10. Even after adding subjective and objective measures of the performance of political institutions, the coefficient of HCI remains negative and significant, as in Table 11.

For 2008, the EVS question that most closely measures the performance of political institutions is the following:

People have different views about the system for governing this country. Here is a scale for rating how well things are going: 1 means very bad; 10 means very good

Results of the analysis are given in Table 13. The structure of the table is the same as for Table 11 and Table 12. The first column replicates the results given in Table 8, and in the next two columns subjective and objective measures of political performance are added. The coefficient on HCI remains significant, although slightly smaller in magnitude. When the third column is compared with LiTS I and LiTS II (Tables 11 and 12), one can see that the significance on the measure of government performance by others in the same locality is lower. This could be due to the lower level of geographical precision in EVS.

5.2. Instrumental Variable Analysis

Could the estimates of the previous section be biased due to the presence of reverse causality? This seems unlikely given the timing of the measurement of HCI and current political trust. However, it is conceivable that political trust is highly persistent, meaning that trust in the past is highly correlated with trust today, and that regions with low political trust in the past were attractive targets for foreign invasion. This seems somewhat implausible: in practice, regions that have had the most frequent border changes are the ones lying between powerful empires. Examples include West Ukraine – lying between the Polish, Ottoman, Russian and Habsburg empires – or the Adriatic coast of the Balkan peninsula – lying between the Habsburg and Ottoman Empires and the Italian (or Venetian) Kingdom.

Nevertheless, this possible source of bias can be addressed using instrumental variables. To use an instrumental-variable estimation procedure one must have variable(s) that are not directly causally related with the dependent variable but are directly causally related with HCI. The instrumental variables used in the analysis are a measure of how easy it was for a region to be conquered and a measure of the region's strategic importance. Strategic importance is proxied by how distant the region is from the shortest line connecting capitals of conquering empires and a dummy for being a coastal region. The ease with which a region could be conquered is measured by average terrain roughness. The following paragraph discusses these instrumental variables in more detail.

The first instrument is terrain roughness. The existing literature (Nunn and Puga, (2012), Iyigun et al. (2011), Keegan (1993)) has documented the effect of geography, especially roughness of terrain, on the probability of military operations in a region. If the terrain is rougher, it is harder to conduct military operations and use siege weapons. This is the reason why one would expect that regions with higher average slopes should have a lower probability of being subject to a conflict. Furthermore, if a region is rough, it is less suitable for trade and transportation infrastructure, making it a less valuable possession. For these reasons one would expect that rougher regions would have lower levels of HCI.[34]

Average terrain roughness is calculated suing GIS software. Data comes from the GTOPO30 project, and contains the median of terrain slopes in 30-second intervals. These data were made publicly available as part of the Agro-Ecological Zones system, developed by the Food and Agriculture Organization of the United Nations.[35] For five of the countries in my sample, region maps were available, so it was possible to calculate average roughness of a region.[36] Unfortunately, region maps were not available for Montenegro. Because of this Montenegro is not included in the IV analysis.

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[34] Population density of the region, which is also correlated with the terrain roughness and might have an effect on levels of political trust, is part of a group of covariates that described PSU characteristics, and is therefore controlled for in all regressions reported in this paper.

[35] http://www.iiasa.ac.at/Research/LUC/GAEZ/index.htm

[36] More precisely, county maps were available for Slovenia, Croatia, Serbia, Romania and Ukraine so terrain roughness could be calculated on a even smaller geographical unit then region.

The second instrumental variable is a dummy for being a coastal region. The idea that coastal regions are more vulnerable to attack is also well known in the literature (Iyigun et al. (2011), Keegan (1993)). The intuition behind this is that coastal regions are strategically valuable, and various empires were naturally interested in having them in their possession. One would expect coastal regions to have switched their foreign rulers more often in the past and therefore to have a higher HCI.

The last instrument takes into account the strategic position of the region. Specifically, it measures the location of the region with respect to the straight line connecting the capitals of neighboring empires. All countries in the sample were strongly influenced by conflicts between the big empires that surrounded them. One could argue that this influence will be greater if a region is situated on the shortest path between two empire capitals, because this will make a region more strategically important. If a region is far away from the shortest route between two empire capitals, for example St. Petersburg and Vienna, then the region is less strategically important and thus has a lower probability of being affected by numerous wars and border changes between empires. Therefore, regions that are closer to the line connecting two empire capital cities are expected to have a higher HCI. This variable is constructed as a measure of the angles each PSU forms with the respect to the shortest line connecting two empire capitals. Construction of this variable is somewhat more complicated than the other two, and therefore the details of construction are left for Appendix B.

Regressions using these 3 instrumental variables are performed for all 3 datasets, with results given in Table 14. In all columns the dependent variable is the first principal component of the various measures of trust in political institutions. The only exception is Column 3, which presents the first stage of IV analysis, where HCI is the dependent variable. Regressions include the standard set of covariates used in the rest of the paper, and standard errors reflect clustering at PSU level.

The first column presents OLS results identical to those in Table 8. The reason for including this column is for comparison with column 2, which represents the same OLS analysis but on the sample excluding Montenegro, which had to be excluded because of the absence of data on the terrain roughness instrument. In LiTS I and LiTS II results with and without Montenegro do not differ much, but when Montenegro is excluded from EVS 2008, HCI loses its statistical significance.

Column 3 presents results of the first stage regression. The coefficients reported in this column show that the instruments have statistical power in predicting HCI. All these coefficients are statistically significant and have anticipated signs except for the roughness variable in EVS 2008. If a region is costal, then its HCI will be higher. The same is true if a region is less rough or has a smaller angle with respect to the line that connects two foreign empire capitals.

The second stage results are shown in Column 4. In all three datasets, the IV coefficient on HCI is negative, and it is significant for LiTS I and LiTS II. Furthermore, in every specification, the IV coefficient is larger in absolute value than the OLS coefficient given in column 2. This higher coefficient could be explained by heterogeneity in the effect of border changes. It could suggest, for instance, that HCI has a bigger effect on political trust in strategically more important regions.[37]

The results of the IV regressions obtained from LiTS I and LiTS II strongly reinforce the earlier results. F-test statistics and overidentification tests show support for the use of this set of instruments. However, this is not the case for EVS, where the overidentifying restrictions test rejects the exogeneity of the instruments. One possible explanation is the higher measurement error of the HCI variable in the EVS survey due to lower precision in determining an individual's exact location. Nevertheless the coefficient on HCI in the second stage remains negative and larger in magnitude than OLS, as in the other datasets used in the paper.

Overall, the evidence presented in Table 14 shows that when the main explanatory variable is instrumented with strictly exogenous geographical variables, the negative and significant effect of past border changes on current levels of political trust is preserved. These results confirm the hypothesis that historically more stable political borders lead to higher levels of current trust in political institutions.

5.3 Placebo tests

This section performs various placebo tests to show that HCI is not a significant predictor of other social and economic outcomes, notably participation in civil actions, generalized trust or individual measures of uncivicness. The measures of uncivicness are

[37] It could also suggest that reverse causality, measurement error in HCI, or omitted variable bias causes OLS coefficient to be biased towards 0.

related to individual views about morality and beliefs about what is right and wrong, not about relationships with political institutions. Such views and beliefs reflect very different aspects of culture than trust in political institutions. If the historical change index affected other socioeconomic variables besides political trust, for example measures of individual morality, this would challenge this paper's interpretation and might suggest that HCI is proxying for some other underlying process. Another placebo test uses a measure of past conflicts instead of HCI to check if the results could be explained instead by a history of conflict in a particular region.

5.3.1 Uncivicness and civil action

Uncivicness measures the degree of respect an individual has for legal and social norms. It is usually measured by an individual's attitude towards bribery, cheating on taxes or insurance, or claiming benefits that one has no right to (Algan et al. 2011). In order to present parsimonious results I calculate the first principal component of all answers about uncivicness use this as the dependent variable. Higher values of the first principal component mean that the individual is more uncivic. Appendix C lists the questions used. The results presented in Table 15 show that HCI does not have a significant effect on uncivicness. In other words, individuals living in the regions that changed their rulers more often in the past are neither more or less uncivic today.

5.3.2 Civil action

Another placebo test is conducted on individual measures of potential civic participation. In all three surveys the following questions were asked:

How likely are you to

- *Attend lawful demonstrations*
- *Participate in strikes*
- *Join a political party*
- *Sign petitions*

The possible answers are 1, have done, 2, might do and 3, would never do. Because these answers measure the same underlying phenomenon, willingness to perform civil action, aggregation of the four answers is justifiable. The results using the first principal component as a dependent variable are presented in Table 16. The HCI coefficient is insignificant in all three datasets. These results show that border changes in the past do not affect individual willingness to participate in civil action.

5.3.4 Past Conflicts

It could be that HCI captures not the effect of changes in foreign rulers, but the effect of the battles and conflicts related to border changes. For example, if a region changed its rulers often, the region also must have experienced many battles in the past. Perhaps HCI proxies for the effect of these battles - death, destruction and plunder. To examine this possibility, an additional placebo test is performed – one in which the HCI variable is replaced with a variable that measures the extent of historical conflict in the region. In this way it is possible to see if conflicts are the driving force of the effect of HCI on current levels of political trust.

Two datasets on conflicts are usually used in the literature. The first one is Correlates of War, which documents conflicts from the 1800s. The second one is a work in progress by Brecke (1999) called Conflict Catalogue, which is a compilation of annual records of all conflicts that occurred in Europe, North Africa and the Middle East since the 1400s.[38] Because of the longer time period, which coincides with the time studied in this paper, the Conflict Catalogue is used here.[39] Overall, there are over 1300 conflicts in the dataset, and 98 of them have a location within the six countries analyzed in this paper. For every conflict happening in year *y*, the time discounting formula (3) is used, giving conflicts that have happened more recently a higher weight. Summing up all weighted conflicts that have happened in a PSU's region for every PSU gives a new variable that reflects conflict intensity in a given region. That variable is called past conflicts and replaces HCI in the equation (4).

Regressions show that past conflicts cannot predict current political trust. Again the first principal component of various measures of political trust is used as the dependent variable. Results are reported in Table 17 and can be compared with Table 8, which uses HCI instead of *past conflicts* as the main explanatory variable. Table 17 presents clear

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[38] Conflict Catalogue defines conflict as "An occurrence of purposive and lethal violence among 2+ social groups pursuing conflicting political goals that results in fatalities, with at least one belligerent group organized under the command of authoritative leadership. The state does not have to be an actor. Data can include massacres of unarmed civilians or territorial conflicts between warlords." Conflict needs to have at least 32 deadly casualties to be measured.

[39] Conflict Catalogue is also used in similar literature, for example in Iyigun, Nunn, and Qian (2011), or Iyigun(2008).

evidence that the history of conflicts in the region does not affect current levels of political trust, nor they diminish the effect of HCI. One interpretation is that past conflicts themselves are not enough to have an impact on trust in political instructions, and that formal changes in the region's rulers were needed for individuals today to display lower levels of trust in political institutions.

6. Persistence mechanisms

There could be several mechanisms through which this historical experience works. First, if a region today is part of a country different from that of 50 years ago, and was part of yet another country 100 years ago, then the individuals living there might have a higher awareness of the fact that the current institutional arrangements might be temporary. They would be more likely to believe that there is a positive probability that they will be living in another country in the future. This would reduce the credibility of current institutions. The expectation that no state is permanent might lead citizens to identify less with the current state, and hence have less trust in its political institutions.

Second, frequent changes in borders might cause lower intergenerational transmission of patriotism and thus lead to lower levels of political trust. During most of the historical period relevant to this paper (the last 500 years) the family has been a very important social and educational structure. If grandparents, or even parents, did not grow up or go to school in the same country as their children, they cannot teach younger family members about legends, ideas and values that the current country represents. Mishler and

Rose (2001) state that early life socialization is one of the key determinants of political trust.

Third, when a new political identity takes over a particular region, it changes the administration of the region, at least at the higher levels (Putterman et al, 2003). This new ruling administration needs time to adjust to local circumstances, customs, and the way things are done in a particular region. Also it takes time for the local population to learn to trust the new administration. This time-consuming process could decrease trust in political institutions in areas where changes of administration happened more often.

Fourth, a change of power in a region is often accompanied by a changing ethnic composition of the region's inhabitants. Some people from the ethnicity of the old ruler of the region may leave, while others from the ethnicity of the new ruler may come. Examples of this include re-colonization of the border parts of the Habsburg Empire that were reconquered from the Turks, as well as the exodus of German and Italian-speaking inhabitants to their motherlands after WW II. These abrupt ethnic changes tear the existing social structure, as noted in Acemoglu et al. (2011), and might have adverse effects on social and political trust in the region.

One of the mechanisms that can explain the persistence of the effect of historical border changes and can be easily and precisely qualified is the choice of names for primary schools in a given region. If a school is named after a significant local figure, then individuals in that region are primed to recognize the importance of their own region. On the other hand, if a school is named after an individual who is significant at the country level and has no direct connection with the region, then individuals in that region are primed to feel national pride. Therefore, finding that schools in regions with higher HCI are more likely to be named after important local individuals, as opposed to important country level individuals, would suggest that the region's inhabitants identify more with the region and less with the country and may thus show less trust in country's political institutions.

To check for this possibility, I have analyzed primary school names in Slovenia, Croatia, Serbia and Montenegro.[40] Table E1 in the Appendix E gives the descriptive statistics of school names for these four countries. If a school is named after an individual who was either born or died in the school's region, then the school is said to carry a local name. If a school is named after an individual who was born and died in the current country, but not in the school's region, then that school is said to have a country-level name. Overall, in my sample, 35.7% of schools have local names, 22.4% have country names, and 41.9% have other names.[41]

Next, Table 18 shows results of analysis of whether the frequency of border changes in the past affects the share of schools with local or country names in the given region. The unit of observation is the region and the first two columns show the effect of HCI on the share of schools with local (column one) and country (column two) name. Columns three and four repeat the same analysis, but the units of observation, the regions, are weighted

[40] Data on school names were available at the official web pages of the ministry of education in those four countries.

[41] This last category also includes schools that are named after individuals for whom no information about place of birth or death could be found. They represent 3.8% of my sample schools.

by the overall number of schools in them. The last two columns add regional GDP, the share of national majority population and the distance to the country capital as controls.

Table 18 presents unequivocal evidence that the number of border changes in the past has had an effect on school names. If a region changed its rulers more frequently, it has a higher share of schools with local names and a lower share of schools with country names. School names do not change often and the region's inhabitants are familiar with the school names. Hence, school names can prime the region inhabitants to feel more or less favorable towards the current country political institutions. Documenting this persistence mechanism related to school names is one of the novelties of this paper.

Moreover, Table E2 in the Appendix E shows robustness tests, using two additional definitions of local names. In the first one, used in column two, schools named after an individual for whom no data about place of birth and death could be found are also considered as local schools.[42] In the second one, used in column three, the school is coded as local if it is named after an individual from another country.[43] If a school carries a name of a person from another country, individuals will be less primed to identify with the current state. Using either definition does not affect the main result – if a region changed its rulers more frequently in the past, schools in it will be more likely to have local names.

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[42] This is very reasonable assumption, if individual was so obscure that no information about his life could be found on the internet, then there is high probability that individual in question is just a locally known figure.

[43] Among the schools in Slovenia, Croatia, Serbia and Montenegro, 1.9% of schools are named after individuals from another country, mostly in the regions with high share of national minority population.

7. Conclusion

Borders in Europe have been redrawn many times in history, and as a consequence some regions have changed the states to which they belong quite often. For example Alsace-Lorraine has switched between France and Germany five times in the last 150 years. West Ukraine changed the country it belonged to eight times in the last 100 years. Intuitively, these changes seem likely to have an impact on how individuals living in those regions today perceive themselves as citizens, the levels of trust they have towards political institutions, and their degree of identification with the current state.

This paper confirms this intuition using within-country variation in the number of border changes between different regions within same country. Using three independent data sets on six East European countries with rich a history of border changes, the paper shows that more frequent past border changes do have a negative effect on contemporary levels of trust in political institutions. Moreover, people who live in regions that changed their ruler more frequently in the past participate less in voting.

Other findings corroborate the main idea of the paper. Individuals in regions that had frequent border changes identify less with the nation and more with the region or locality where they live. Moreover the effect of border changes is stronger for older individuals, as well as for individuals who lived all their life in the same place. HCI is not associated with other related socioeconomic outcomes like generalized trust, uncivicness and civil action, and its effect is not merely proxying to battles that the region experienced.

Furthermore, I discussed a possible mechanism that can explain how these past events may still play a significant role today. In regions that changed their rulers more frequently, schools today are more likely to carry a name of a locally important individual, and less likely to be named after an individual significant at the country level. Because people are familiar with the school names, this can prime them to be more aware of importance of their regions and thus display less trust in the current country's political institutions.

The effect of border changes on current political trust levels is large. For example, a change in rulers after WWI would have the same effect on trust in government as that produced by a 40% decline in income. In comparison with the United Kingdom, which had no border changes over the sample period, this effect could potentially explain 45% of the difference of trust in political institutions between countries in the sample and the UK. The effect of HCI on political trust persists even if one controls for objective and subjective measures of government performance. Instrumental variable estimates where past border changes are instrumented with pure geographical variables additionally confirm that more stable political borders do lead to higher levels of political trust.

8. Tables and Graphs

1. Tables used in the first chapter

Table 1-1. Example of calculating HCI for PSUs in Transylvania

Border change	Year	Length	Effect of change
Ottomans conquer north Balkans	*1526*	*173*	*0.18*
End of Habsburg- Ottoman war	*1699*	*219*	*0.37*
Peace treaty after WW I	*1918*	*82*	*0.89*
Sum of all changes - HCI			***1.46***

Table 1-2. Ordered probit regression of trust in various political institutions and voting participation in 2006 LiTS I

	president	government	parliament	courts	parties	police	voting
HCI	-0.14	-0.23**	-0.27**	-0.23**	-0.23**	-0.15	-0.23**
	(-1.38)	(-2.24)	(-2.58)	(-2.28)	(-2.41)	(-1.47)	(-2.18)
life satisfaction	0.13***	0.17***	0.15***	0.13***	0.09***	0.12***	0.01
	(5.88)	(7.92)	(7.15)	(6.39)	(4.50)	(6.52)	(0.22)
generalized trust	0.15***	0.15***	0.17***	0.13***	0.15***	0.11***	-0.01
	(8.11)	(8.14)	(9.09)	(7.41)	(8.48)	(6.35)	(-0.35)
income	0.03**	0.04***	0.05***	0.06***	0.05***	0.03*	0.03*
	(1.96)	(2.94)	(3.63)	(3.82)	(3.75)	(1.91)	(1.95)
relative regional GDP	0.01	0.03*	0.03**	0.01	0.02	0.01	0.02
	(0.59)	(1.72)	(1.96)	(0.69)	(1.05)	(0.81)	(1.11)
education FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
super-region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3881	3909	3908	3894	3893	3952	4050

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01 In all regressions standard errors are clustered at PSU level. The dependent variable is the answer to the question - To what extent do you trust the following institutions?(1) The Presidency (2) The government (3) The parliament (4) Courts (5) Political parties (6) The police. Values range from 1, complete distrust, to 5, complete trust. In the last column, the dependent variable is the binary answer to the question about voting in the last election. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-3. Ordered probit regression of trust in various political institutions in 2010 LiTS II

	president	government	parliament	courts	parties	police
HCI	-0.20***	-0.26***	-0.16*	-0.05	-0.09	-0.03
	(-2.73)	(-3.14)	(-1.76)	(-0.77)	(-1.19)	(-0.46)
life satisfaction	0.19***	0.19***	0.18***	0.17***	0.14***	0.16***
	(9.70)	(10.09)	(9.43)	(7.59)	(7.82)	(8.23)
generalized trust	0.14***	0.13***	0.13***	0.11***	0.11***	0.11***
	(10.57)	(9.75)	(9.39)	(7.57)	(7.56)	(7.39)
income	0.07***	0.09***	0.09***	0.06***	0.08***	0.04***
	(6.28)	(7.43)	(7.23)	(4.97)	(6.54)	(3.46)
relative regional GDP	0.22	-0.05	0.09	0.21	0.19	0.06
	(1.25)	(-0.29)	(0.42)	(0.98)	(1.10)	(0.32)
super-region FE	Yes	Yes	Yes	Yes	Yes	Yes
education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6885	6918	6890	6818	6850	6924

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Columns show the answers to the question - To what extent do you trust the following institutions? (1) The Presidency, (2) The government, (3) The parliament, (4) Courts, (5) Political parties, (6) The police. Values range from 1, complete distrust, to 5, complete trust. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-4. Ordered probit regression of trust in various political institutions in 2010 LiTS II, only non-movers

	president	government	parliament	courts	parties	police
HCI	-0.31***	-0.42***	-0.22**	-0.03	-0.18*	-0.09
	(-3.21)	(-3.97)	(-2.00)	(-0.35)	(-1.84)	(-0.95)
life satisfaction	0.21***	0.21***	0.20***	0.19***	0.15***	0.18***
	(9.51)	(8.80)	(8.86)	(7.09)	(6.80)	(7.18)
generalized trust	0.16***	0.14***	0.14***	0.12***	0.11***	0.11***
	(9.28)	(7.95)	(8.94)	(6.90)	(6.17)	(5.61)
income	0.08***	0.11***	0.09***	0.06***	0.09***	0.04***
	(5.60)	(7.58)	(5.63)	(4.19)	(6.33)	(2.67)
relative regional GDP	0.18	0.04	0.09	0.20	0.27	0.06
	(0.96)	(0.21)	(0.47)	(0.93)	(1.59)	(0.35)
super-region FE	Yes	Yes	Yes	Yes	Yes	Yes
education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4242	4250	4237	4207	4209	4264

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Columns show the answers to the question - To what extent do you trust the following institutions? (1) The Presidency, (2) The government, (3) The parliament, (4) Courts, (5) Political parties, (6) The police. Values range from 1, complete distrust to 5, complete trust. Sample is limited to individuals who never moved. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-5. Ordered probit regression of trust in various political institutions in 2010 LiTS II, only individuals who moved

	president	government	parliament	courts	parties	police
HCI	-0.04	-0.04	-0.04	-0.03	0.06	0.06
	(-0.56)	(-0.46)	(-0.40)	(-0.40)	(0.79)	(0.67)
life satisfaction	0.15***	0.17***	0.15***	0.15***	0.13***	0.12***
	(5.20)	(6.49)	(5.74)	(5.47)	(4.98)	(4.92)
generalized trust	0.13***	0.13***	0.12***	0.10***	0.12***	0.13***
	(7.19)	(7.16)	(6.34)	(4.82)	(6.03)	(6.82)
income	0.06***	0.05***	0.09***	0.06***	0.06***	0.05**
	(3.61)	(3.01)	(5.71)	(3.30)	(3.51)	(2.53)
relative regional	0.27	-0.24	0.09	0.18	-0.14	0.09
GDP	(1.14)	(-1.01)	(0.35)	(0.68)	(-0.62)	(0.37)
super-region FE	Yes	Yes	Yes	Yes	Yes	Yes
education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2605	2631	2617	2580	2608	2626

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Columns show the answers to the question - To what extent do you trust the following institutions? (1) The Presidency, (2) The government, (3) The parliament, (4) Courts, (5) Political parties, (6) The police. Values range from 1, complete distrust to 5, complete trust. Sample is limited to individuals who never moved. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU

Table 1-6. Ordered probit regression of confidence in various political institutions in 2008 EVS

	government	parliament	justice system	parties	police	civil service
HCI	-0.18	-0.16**	-0.16**	-0.01	-0.13*	-0.19
	(-1.34)	(-2.27)	(-2.03)	(-0.08)	(-1.85)	(-1.38)
life	0.04***	0.02***	0.04***	0.01	0.05***	0.03***
satisfaction	(3.80)	(2.73)	(5.18)	(1.15)	(5.65)	(3.49)
generalized	0.15***	0.21***	0.17***	0.22***	0.11**	0.16***
trust	(2.74)	(4.19)	(3.92)	(3.94)	(2.31)	(3.31)
income	0.03	0.02	-0.00	0.04	0.01	0.00
	(1.02)	(0.68)	(-0.21)	(1.58)	(0.39)	(0.07)
relative	0.24	0.14	0.25	0.08	0.22	0.04
regional GDP	(1.31)	(0.92)	(1.30)	(0.41)	(1.06)	(0.28)
education FE	Yes	Yes	Yes	Yes	Yes	Yes
super region FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4961	5012	5002	4987	5075	4931

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Columns 1-6: Q- How much confidence do you have in the following institutions (1) Government (2) Parliament (3) The justice system (4)Political parties (5) Police (6) Civil service Answer ranges from 1, not at all, to 4, a great deal. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-7. Identification with geographical groups in 2008 EVS

	belonging locally	belonging nationally	belonging globally
HCI	0.24***	-0.23***	-0.03
	(3.13)	(-3.45)	(-0.32)
life satisfaction	-0.01	0.02**	-0.00
	(-1.18)	(2.16)	(-0.33)
generalized trust	-0.07	0.03	0.05
	(-1.36)	(0.61)	(0.68)
income	-0.08***	0.07**	0.01
	(-2.58)	(2.25)	(0.26)
relative regional GDP	-0.14	0.26	-0.24
	(-0.69)	(1.46)	(-0.86)
education FE	Yes	Yes	Yes
super-region FE	Yes	Yes	Yes
Observations	5157	5157	5157

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level.

Analysis is done using probit regression. Columns 1-3 are different answers to the question: Which of these geographical groups would you say you belong to first of all? (1) Locality or town where you live or region of country where you live (2) Country (3) Europe or the world as a whole. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-8. Summary of results using first principal component as a dependent variable

	LiTS 2006	EVS 2008	LiTS 2010
HCI	-0.42**	-0.41**	-0.46***
	(-2.23)	(-2.38)	(-3.04)
life satisfaction	0.28***	0.07***	0.41***
	(8.20)	(4.43)	(10.16)
generalized trust	0.31***	0.36***	0.28***
	(9.80)	(4.04)	(9.40)
income	0.07***	0.02	0.17***
	(3.03)	(0.47)	(6.35)
relative regional GDP	0.24	0.37	0.33
	(1.26)	(1.18)	(1.02)
education FE	Yes	Yes	Yes
super region FE	Yes	Yes	Yes

Observations	3909	4669	3944
R^2	0.201	0.181	0.314

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01 In all regressions standard errors are clustered at PSU level. Dependent variable is the first principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-9. Splitting the sample into young and old individuals, where are 50 is taken as the threshold

	2006 LiTS I		2008 EVS		2010 LiTS II	
	young	old	young	old	young	old
HCI	-0.37	-0.50**	-0.29	-0.52***	-0.40**	-0.47**
	(-1.58)	(-2.40)	(-1.42)	(-3.09)	(-2.02)	(-2.54)
life satisfaction	0.22***	0.35***	0.08***	0.05**	0.14***	0.11***
	(5.57)	(6.20)	(3.87)	(2.38)	(5.67)	(3.80)
generalized trust	0.31***	0.31***	0.27***	0.46***	0.26***	0.35***
	(7.81)	(6.92)	(2.95)	(3.20)	(7.10)	(7.98)
income	0.10***	0.04	-0.03	0.10*	0.22***	0.16***
	(3.29)	(1.23)	(-0.75)	(1.78)	(6.28)	(4.40)
relative regional GDP	0.28	0.23	0.40	0.31	0.60*	-0.04
	(1.35)	(0.96)	(1.18)	(0.95)	(1.96)	(-0.09)
super-region FE	Yes	Yes	Yes	Yes	Yes	Yes
education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2352	1557	2815	1854	2564	1448
R^2	0.200	0.203	0.179	0.184	0.314	0.315

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Dependent variable is the first principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-10. Average trust in parliament on country level

Country	**Average HCI**	**Average trust in parliament**	**Average trust in parliament if country had no border changes**
Slovenia	*1.15*	*2.28*	*2.46*
Croatia	*1.19*	*1.88*	*2.07*

Serbia	*1.15*	*2.09*	*2.27*
Montenegro	*1.13*	*3.05*	*3.23*
Romania	*1.14*	*1.64*	*1.82*
Ukraine	*1.01*	*2.20*	*2.36*
Great Britain	*0*	*2.44*	*2.44*

Source: LiTS II 2010. Result in the last column are obtained using coefficient $\beta_1 = -0.16$ as the effect of HCI.

Table 1-11. Government performance and political trust in 2010 LiTS II

	political trust	political trust	political trust
HCI	-0.46***	-0.41***	-0.46***
	(-3.04)	(-3.35)	(-3.64)
pc political performance		0.61***	
		(18.50)	
average pc political performance by others in same PSU			0.61***
			(7.56)
life satisfaction	0.41***	0.28***	0.37***
	(10.16)	(8.15)	(9.26)
generalized trust	0.28***	0.21***	0.24***
	(9.40)	(7.61)	(7.81)
income	0.17***	0.14***	0.16***
	(6.35)	(6.30)	(6.17)
super region FE	Yes	Yes	Yes
education FE	Yes	Yes	Yes
Observations	3944	3625	3625
R^2	0.314	0.432	0.346

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. The political performance variable is an aggregate rating of local and national governments. Ratings range from 1, very bad, to 5, very good. Dependent variable is the first principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, relative PSU GDP, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-12. Government performance and political trust in 2006 LiTS I

	political trust	political trust	political trust
HCI	-0.42**	-0.36**	-0.31*
	(-2.23)	(-2.19)	(-1.83)
pc political performance		0.48***	
		(12.58)	
pc political performance - others in same PSU			0.56***
			(5.25)
life satisfaction	0.28***	0.17***	0.25***
	(8.20)	(5.03)	(7.13)
generalized trust	0.31***	0.26***	0.30***
	(9.80)	(8.10)	(9.25)
income	0.07***	-0.03	-0.02
	(3.03)	(-1.65)	(-1.33)
super region FE	Yes	Yes	Yes
education FE	Yes	Yes	Yes
Observations	3652	3338	3338
R^2	0.200	0.275	0.228

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level.

The dependent variable is the first principal component analysis of trust in various political institutions. The measure of political performance is the result of a principal component analysis based on answers to the questions of how much individuals agree with the following statements:(1) The political situation in the country is better today than it was in 1989 (2) There is less corruption now than there was around 1989 (3) To what extent do you agree that law and order is important for your country? Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, relative PSU GDP, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-13. Government performance and political trust in 2008 EVS

	political trust	political trust	political trust
HCI	-0.41**	-0.32**	-0.34**
	(-2.38)	(-2.32)	(-2.25)
pc political performance		0.29***	
		(13.91)	
pc political performance - others in same PSU			0.22*
			(1.94)
life satisfaction	0.07***	0.03**	0.07***
	(4.43)	(2.08)	(4.10)
generalized trust	0.36***	0.32***	0.37***
	(4.04)	(3.99)	(4.10)
income	0.02	0.02	0.04
	(0.47)	(0.54)	(0.87)
relative regional GDP	0.37	0.32	0.35
	(1.18)	(1.11)	(1.17)
super-regional FE	Yes	Yes	Yes
education FE	Yes	Yes	Yes
Observations	4669	4536	4536
R^2	0.181	0.286	0.186

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level.
The dependent variable is the first principal component analysis of trust in various political institutions.
The measure of political performance is how much does the individual agree with the following statement: People have different views about the system for governing this country. Here is a scale for rating how well things are going: 1 means very bad; 10 means very good. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-14. Results of IV analysis

	with Montenegro	*without Montenegro*		
	political trust (OLS)	political trust (OLS)	HCI (2SLS, 1st stage)	political trust (2SLS, 2nd stage)
HCI	-0.42**	-0.49**		-0.82**
	(-2.23)	(-2.59)		(-2.03)
Coast			0.63***	
			(3.92)	
Rough			-0.05***	
			(-2.87)	
Angle			-0.13**	
			(-2.51)	
Observations	3909	3278	3278	3278
R^2	0.201	0.179	0.873	0.177
F- statistic			13.8	
p-value for overidentification test			0.163	
	with Montenegro	*without Montenegro*		
	political trust (OLS)	political trust (OLS)	HCI (2SLS, 1st stage)	political trust (2SLS, 2nd stage)
HCI	-0.46***	-0.51***		-0.65*
	(-3.04)	(-2.99)		(-1.80)
Coast			0.64***	
			(3.94)	
Rough			-0.04*	
			(-1.91)	
Angle			-0.14**	
			(-2.46)	
Observations	3909	3278	3278	3278
R^2	0.201	0.179	0.873	0.177
F- statistic			7.7	
p-value for overidentification test			0.121	
	with Montenegro	*without Montenegro*		
	political trust (OLS)	political trust (OLS)	HCI (2SLS, 1st stage)	political trust (2SLS, 2nd stage)
HCI	-0.41**	-0.25		-0.55
	(-2.38)	(-1.31)		(-1.14)
Coast			0.42***	
			(2.67)	
Rough			0.06*	
			(1.79)	
Angle			-0.19**	
			(-2.49)	
Observations	4669	3895	3895	3895
R^2	0.181	0.169	0.863	0.169
F- statistic			4.8	
p-value for overidentification test			0.000	

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. First two columns are result of OLS regression, while the last two are done with 2SLS. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU GDP p/c, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-15. First principal component of uncivicness as the dependent variable

	LiTS 2006	EVS 2008	LiTS 2010
HCI	0.46	0.12	0.15
	(1.40)	(0.74)	(0.55)
life satisfaction	0.02	-0.02*	-0.01
	(0.56)	(-1.66)	(-0.22)
generalized trust	-0.07**	-0.02	-0.02
	(-2.41)	(-0.24)	(-0.68)
Income	0.03	0.07*	0.03
	(0.89)	(1.92)	(1.24)
relative regional GDP	0.03	0.23	0.21
	(0.93)	(0.88)	(0.57)
education FE	Yes	Yes	Yes
super region dummies	Yes	Yes	Yes
Observations	4308	4779	3883
R^2	0.179	0.141	0.095

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Depended variable is principal component of various measures of uncivicness. In all regressions standard errors are clustered at PSU level. Depended variable is principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-16. First principal component of civil action as the dependent variable

	LiTS 2006	EVS 2008	LiTS 2010
HCI	0.12	0.16	-0.04
	(0.81)	(1.06)	(-0.36)
life satisfaction	0.04	0.02*	0.04
	(1.43)	(1.98)	(1.29)
generalized trust	-0.01	-0.07	-0.02
	(-0.59)	(-0.82)	(-0.95)
income	0.00	-0.09**	-0.01
	(0.08)	(-2.44)	(-0.64)
relative regional GDP	0.01	-0.03	0.45
	(0.07)	(-0.14)	(1.61)
education FE	Yes	Yes	Yes
super region FE	Yes	Yes	Yes
Observations	4351	4615	4291

R^2	0.158	0.243	0.203

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Depended variable is principal component of various measures of civil action. *t* statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Depended variable is principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-17.Placebo test with past conflicts instead HCI as the main explanatory variable

	LiTS 2006	LiTS 2006	EVS 2008	EVS 2008	LiTS 2010	LiTS 2010
past conflicts	-0.06	-0.03	-0.12	-0.21	-0.09	-0.11
	(-0.34)	(-0.17)	(-0.86)	(-0.72)	(-0.48)	(-0.61)
HCI		-0.42**		-0.40**		-0.47***
		(-2.25)		(-2.15)		(-3.05)
life satisfaction	0.28***	0.28***	0.07***	0.07***	0.41***	0.41***
	(8.20)	(8.21)	(4.29)	(4.31)	(10.09)	(10.13)
generalized trust	0.31***	0.31***	0.37***	0.37***	0.28***	0.28***
	(9.88)	(9.80)	(4.05)	(4.04)	(9.21)	(9.39)
income	0.07***	0.07***	-0.00	-0.00	0.17***	0.17***
	(3.07)	(3.05)	(-0.11)	(-0.15)	(6.23)	(6.34)
relative regional GDP	0.03	0.04	-0.00	-0.00	0.23	0.31
	(0.83)	(1.21)	(-0.14)	(-0.15)	(0.66)	(0.95)
education FE	Yes	Yes	Yes	Yes	Yes	Yes
super region FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3909	3909	4669	4669	3944	3944
R^2	0.199	0.201	0.180	0.181	0.312	0.315

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Depended variable is principal component of trust in different political institutions. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU GDP p/c, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Table 1-18. Names of schools in a region and a region's HCI

	share of schools with local name	share of schools with country name	share of schools with local name (weighted by # of schools)	share of schools with country name (weighted by # of schools)	share of schools with local name (weighted by # of schools)	share of schools with country name (weighted by # of schools)
HCI	0.09**	-0.04	0.08***	-0.05***	0.13***	-0.05***
	(2.18)	(-1.54)	(3.02)	(-3.10)	(3.77)	(-3.25)
distance from capital					-0.15***	0.02
					(-3.12)	(0.47)
regional GDP					-0.05	-0.03
					(-1.33)	(-0.82)
share of national majority					0.00***	-0.00
					(3.76)	(-0.34)
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64	64	64	64	64	64
R^2	0.190	0.771	0.164	0.807	0.354	0.813

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01.Unit of observation is a region. If a school has been named after an individual who has been born or died in the school's region then the school is coded to carry a local name. If a school has been named after an individual who has been born or died in the current country, but not in the school's region, that the school is coded to have a country level name. In the last four columns units of observation are weighted by the number of schools in them. Data source are Slovenian, Croatian, Serbian and Montenegrin Ministry of Education.

Figure A1 Different discount rates used in calculating time discount

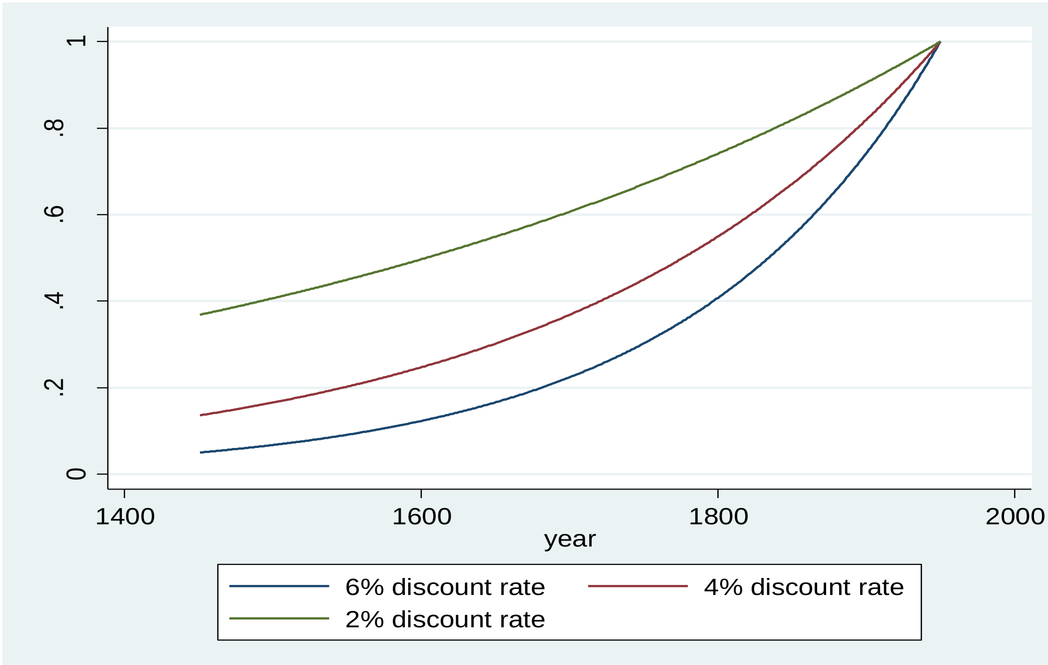

Figure A2.Different ways of calculating different length weights

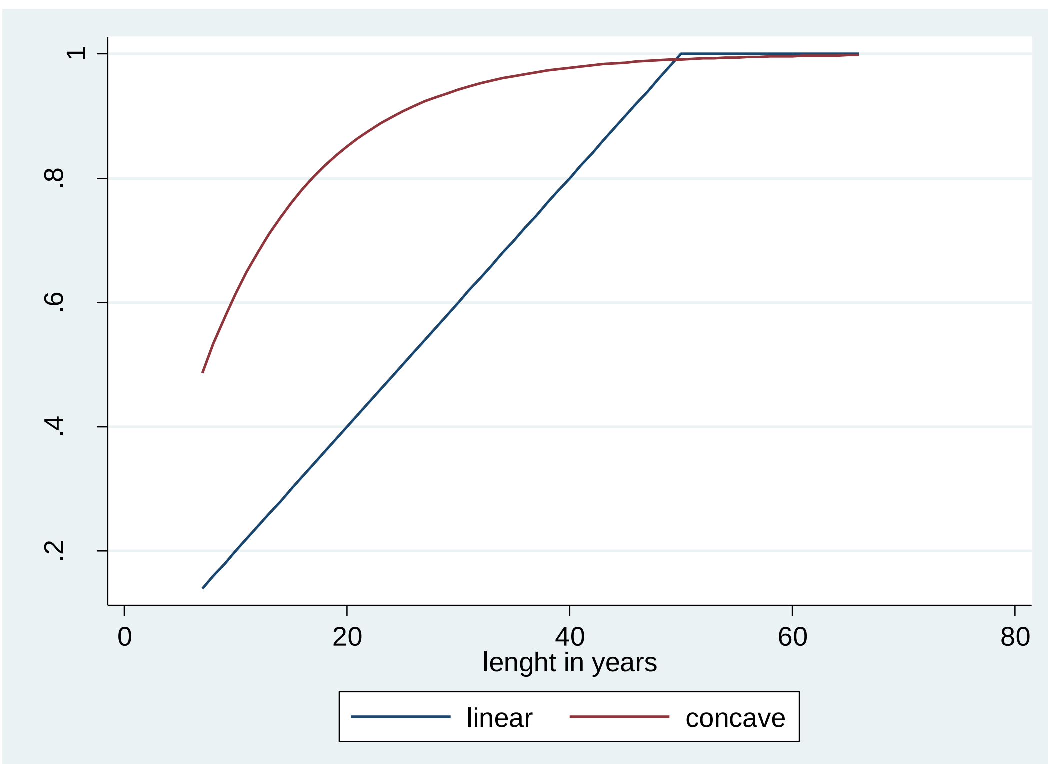

Table 1-19 Different ways of calculating HCI

	(1)	(2)	(3)	(4)	(5)	(6)
			2006 LiTS I			
HCI 0. 6%, linear	-0.57*					
	(-1.91)					
HCI 0.6%, concave		-0.53**				
		(-2.54)				
HCI 0.4%, linear			-0.42			
			(-1.62)			
HCI 0.4%, concave				-0.42**		
				(-2.23)		
HCI 0.2%, linear					-0.25	
					(-1.26)	
HCI 0.2%, concave						-0.29*
						(-1.78)
Observations	3909	3909	3909	3909	3909	3909
R^2	0.200	0.201	0.200	0.201	0.199	0.200
			2008 EVS			
HCI 0. 6%, linear	-0.68**					
	(-2.22)					
HCI 0.6%, concave		-0.44**				
		(-2.13)				
HCI 0.4%, linear			-0.56**			
			(-2.11)			
HCI 0.4%, concave				-0.41**		
				(-2.38)		
HCI 0.2%, linear					-0.32	
					(-1.64)	
HCI 0.2%, concave						-0.25*
						(-1.67)
Observations	4669	4669	4669	4669	4669	4669
R^2	0.181	0.181	0.181	0.181	0.180	0.180
			2010 LiTS II			
HCI 0. 6%, linear	-0.69***					
	(-2.78)					
HCI 0.6%, concave		-0.52***				
		(-2.92)				
HCI 0.4%, linear			-0.60***			
			(-2.90)			
HCI 0.4%, concave				-0.46***		
				(-3.04)		
HCI 0.2%, linear					-0.43***	
					(-2.83)	
HCI 0.2%, concave						-0.37***
						(-3.13)
Observations	3944	3944	3944	3944	3944	3944
R^2	0.314	0.314	0.314	0.314	0.314	0.314

t statistics in parentheses * $p<0.1$, ** $p<0.05$, *** $p<0.01$. In all regressions standard errors are clustered at PSU level. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU GDP p/c, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU and its square and population density in PSU.

Figure A3 different functional forms for time discounts

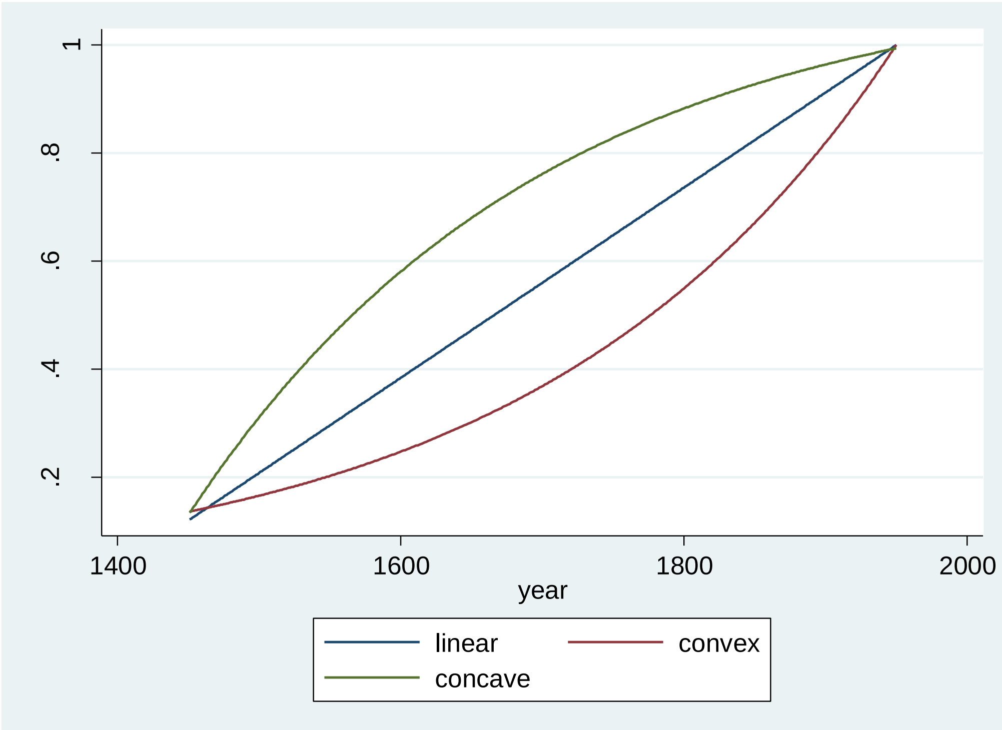

Table 1-20. Different ways of calculating HCI

	(1)	(2)	(3)	(4)	(5)	(6)
2006 LiTS I						
HCI concave, linear	-0.18					
	(-1.07)					
HCI concave, concave		-0.21				
		(-1.54)				
HCI linear, linear			-0.31			
			(-1.36)			
HCI linear, concave				-0.32*		
				(-1.91)		
HCI convex, linear					-0.42	
					(-1.62)	
HCI convex, concave						-0.42**
						(-2.23)
Observations	3909	3909	3909	3909	3909	3909
R^2	0.199	0.200	0.200	0.200	0.200	0.201
EVS 2008						
HCI concave, linear	-0.26*					
	(-1.66)					
HCI concave, concave		-0.21*				
		(-1.68)				
HCI linear, linear			-0.47**			
			(-2.22)			
HCI linear, concave				-0.33**		
				(-2.12)		
HCI convex, linear					-0.56**	
					(-2.11)	
HCI convex, concave						-0.41**
						(-2.38)
Observations	4669	4669	4669	4669	4669	4669
R^2	0.180	0.180	0.181	0.181	0.181	0.181
LiTS 2010						
HCI concave, linear	-0.34***					
	(-2.69)					
HCI concave, concave		-0.30***				
		(-3.09)				
HCI linear, linear			-0.48***			
			(-2.87)			
HCI linear, concave				-0.39***		
				(-3.09)		
HCI convex, linear					-0.60***	
					(-2.90)	
HCI convex, concave						-0.46***
						(-3.04)
Observations	3944	3944	3944	3944	3944	3944
R^2	0.313	0.314	0.314	0.314	0.314	0.314

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. In all regressions standard errors are clustered at PSU level. Variables included in the regression but omitted from table are: gender, age, age squared, employment status, religion, minority dummy, empire weights, PSU GDP p/c, PSU relative distance from the capital and its square, dummy if PSU is urban or rural, percentage of country's ethnic majority in the PSU district and its square and population density in PSU.

Figure 4. Lines connecting Bucharest, Vienna and Istanbul

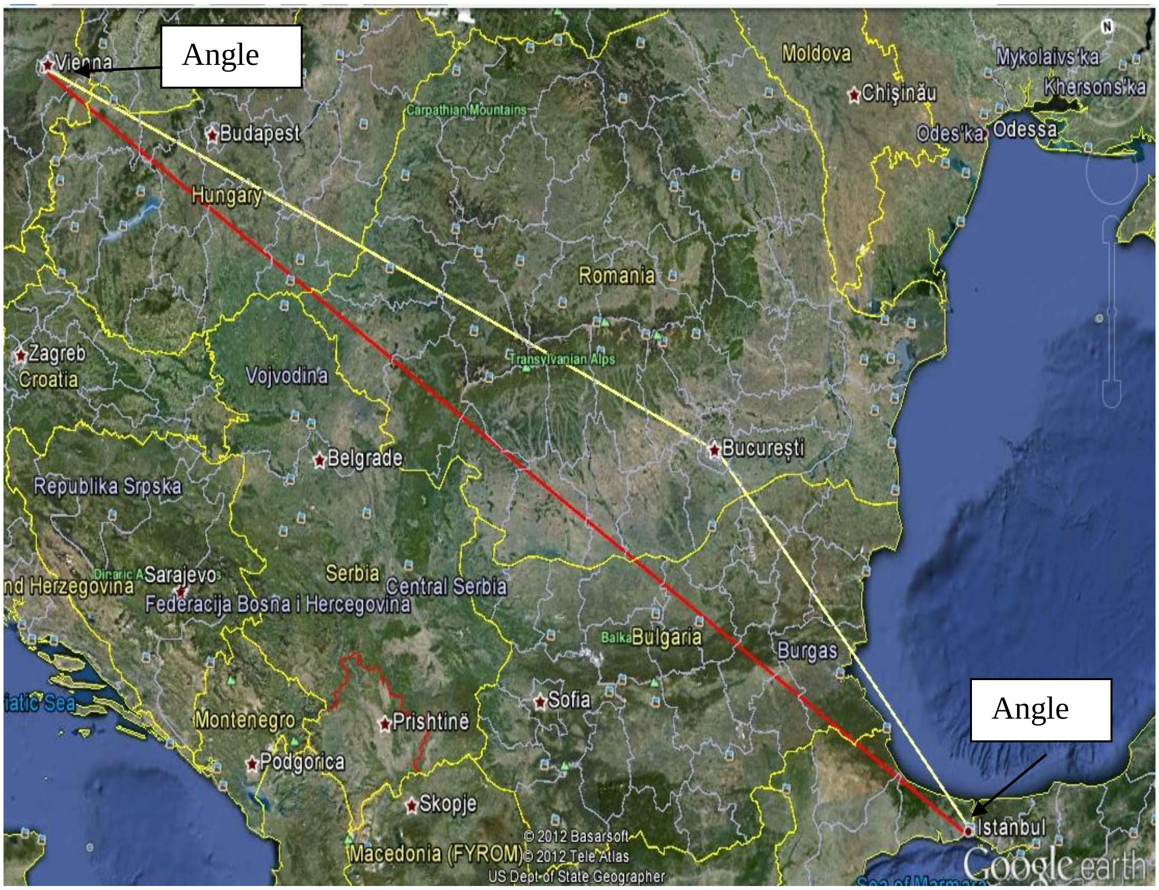

Table 1-21. Descriptive statistics for school names

country	number of schools	number of schools with local name	number of schools with country name
Slovenia	*450*	*138*	*19*
Croatia	*1145*	*342*	*161*
Montenegro	*208*	*115*	*11*
Serbia	*1219*	*486*	*487*

Table 1-22. Robustness tests for region's school names and Historical Change Index (HCI)

	share of schools with local name (weighted by # of schools)	share of schools with local name (weighted by # of schools)	share of schools with local name (weighted by # of schools)	share of schools with local name (weighted by # of schools)
HCI	0.08***	0.07***	0.09***	0.13***
	(3.90)	(3.03)	(3.89)	(4.26)
distance from capital				-0.15***
				(-3.16)
regional GDP				-0.06**
				(-2.02)
share of national majority				0.00**
				(2.07)
country FE	Yes	Yes	Yes	Yes
Observations	64	64	64	64
R^2	0.193	0.371	0.613	0.676

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.0.1Unit of observation is a region. If a school has been named after an individual who has been born or died in the school's region then the school is coded to carry a local name. In second column this definition is expanded to include schools named after individuals for whom no information on the place of birth or death could be found. In the last two columns schools named after individuals from another country is are also included into set of local schools. Data source are Slovenian, Croatian, Serbian and Montenegrin Ministry of Education.

Capter 2: The Costs of Adapting to a New Cultural Environment: Examining Immigrants' Outcomes

The nail that sticks out gets hammered – Japanese proverb

The squeaky wheel gets the grease – American proverb

1. Introduction

The cultural environment in a given society, comprised of social norms, beliefs and values, is one of the determinants of how individuals interact with each other (Rapport and Overing, 2013). But what would be the consequences if social norms, beliefs and values suddenly changed? How would individuals function in this changed cultural environment? Even though cultural environments change very slowly (Roland 2004), for one important subset of the population change is almost instantaneous. When migrants move to a new country, they change their cultural environment. As the two proverbs in the epigram might suggest, a Japanese worker who moved to the United States could find herself in a culture that is more individualistic than the one in which she grew up. Adapting to a different cultural environment represents a cost for individuals and might affect an immigrant's labor market success in the host country. Furthermore, new and less familiar cultural environments could also affect an individual's social outcomes.

Using variation in the distance between the cultural environments of immigrants' birth and host countries, I estimate the economic and social effects of changing cultural environment. Although the fact that culture plays an important role in economic outcomes has been well established in the literature (see for example Putnam, 2001, Guiso et al., 2008, and Guiso et al., 2009), there is an absence of work on what happens when the cultural environment changes and on quantifying the economic and social losses individuals face from such changes. Establishing the large cost of a change in cultural environment and quantifying it is the contribution of this paper.

The main finding is that changes in cultural environment matter a great deal: they have substantial economic and social consequences. My results are confirmed on the individual level using both European and US data. The bigger the distance between the cultural environment in which an immigrant was born and initially socialized and the cultural environment in which she currently lives, the bigger the loss of economic and social welfare. For example, in the US an increase of one standard deviation in the cultural distance between an immigrant's birth country and the US decreases an immigrant's expected weekly earnings by 7.2% and increases the probability of being unemployed by 8.8%. This would translate into 10% higher wages for a Swiss immigrant compared with exactly the same French immigrant in the US, given that Switzerland is 1.3 standard deviations culturally closer to the US than France. In addition, immigrants experiencing a bigger change in cultural environment are more likely to be involved in crime. They are also less interested in host country politics, show less trust in host country political and legal institutions, have worse health outcomes, and are less fluent in the host country language than immigrants from backgrounds culturally more similar to the host country.

I define cultural environment as aggregate country-level culture. The distance in cultural environment between an immigrant's birth and host countries is measured using

Hofstede's (2001) cultural dimension measures. Hofstede measured the culture of 82 countries on four different dimensions – individualism, power distance, masculinity and risk aversion.[44] Following standard procedures in the literature (as in Tadesse and White, 2009, Dodd et al. 2012, Aggarwal et al., 2012, Siegel et al., 2008, Beugelsdijk and Frijns, 2010, Anderson et al., 2011, Ahern et al., 2012) I construct measures of cultural distance between two countries as the Euclidean distance in four-dimensional cultural space.[45]

The hypothesis tested in this paper implies the following five heterogeneous effects. First, the more time an immigrant spends in the host country, the more adapted she becomes to the host country cultural environment. Therefore, the effect of cultural distance should be strongest in the first years after arrival in the host country. Second, if the immigrant has spent more years in her birth country, she has had a longer exposure to that cultural environment. Therefore the effect of cultural distance should be stronger for immigrants who were older when arriving in the host country. Third, because the effect of cultural distance should matter more for workers who perform creative, non-repetitive and non-manual tasks, the effect of cultural distance should be larger for more educated immigrants. Fourth, if an immigrant's birth country is more globalized, then she should have had more exposure to other cultures before she emigrated. Hence, the effect of cultural distance should be smaller for immigrants coming from more globalized courtiers. The last expected heterogeneous effect is that cultural distance should be less important for the second generation of immigrants. All five heterogeneous effects are

[44] I use other measures of cultural distance between countries as a robustness test, without significant change in the main findings. This is described in more detail in section 3.3.2

[45] Throughout this paper cultural distance will be used as shorthand for the distance in cultural environment between immigrants' birth and host countries.

economically and statistically significant in the data, yielding univocal support for the paper's main thesis.

Another important finding of the paper is that there is no "superior" cultural environment to be raised in. There are no generally optimal levels of individualism, power distance, masculinity or risk aversion that give the best labor market outcome. The effect of specific cultural dimensions by themselves is neither positive nor negative. Rather, what matters for an immigrant's job market and social outcomes is the match in cultural environments between host and birth countries.

Immigrants do not represent a random sample and to generalize from immigrants to the population in general I have to address issues related to potential self selection. In particular, unobservable factors affecting an individual's decision to emigrate might be related to cultural distance. I show that under very realistic conditions this will lead to underestimation of the effect of a change in cultural environment. This is confirmed by applying Heckman's selection procedure to the data. A second potential bias is related to the process of choosing a particular host country to settle in. I address this in two separate ways. First, I use Dahl's (2002) method for correction of selection bias in polychotomous models. Second, I use a quasi-natural experiment and examine only the subset of immigrants who emigrated during war times, when the decision on the destination of those fleeing their countries would have been dominated by political factors and reflect subtle economic calculations much less. Both procedures give consistent results, confirming that the results for immigrants are generalizable to the populations as a whole.

Using several US Censuses allows analysis of the evolution of the effect of cultural distance over time. One possibility is that the effect is decreasing: due to globalization people are more aware and more equipped to deal with different cultures. On the other hand the effect might be increasing due to changes in the structure of the US economy with a decline in manufacturing jobs and growth in the importance of the soft skills in the workplace (Buhler, 2001). I show that the second interpretation dominates: the effect is increasing over time. I also confirm this finding using data on Canadian immigrants.

I use both European and US microdata on immigrant men. Five waves of the European Social Survey (2002-2010) together with the 2008 European Values Survey provide data on 28 host countries with immigrants from 75 birth countries. This allows the use of host and birth country fixed effects. In this way, the specifics of each birth and host country are taken into account and the variation that identifies the effect of cultural distance comes from a specific pair of immigrant host and birth countries. Furthermore, analysis using the larger US 2000 Census yields the same conclusions as the European dataset, supporting the main hypothesis that distance in cultural environments does play a role in immigrants' socioeconomic outcomes.

As an interesting robustness test I also check if there is an effect of cultural distance on native workers in the US. I exploit the fact that the US is culturally a very heterogonous country with significant differences in culture between its regions. Thus, when US born workers move to another region, they also change their cultural environment. I find a negative and significant effect of this change on the labor outcomes of US born workers; however, the magnitude of effect is just 20% of the magnitude that immigrants face.

It is accepted in the economic literature that culture matters, that social norms, beliefs and values play a significant role in determining socioeconomic outcomes. Many studies have examined how culture affects economic outcomes. Knack and Keefer (1997), Putnam (2001) and Guiso et al. (2008), among others, examine the effect of social capital on economic performance. Grief (1994, 2006) models individualistic versus collectivistic beliefs and their effect on contracts, social structure and trade expansion in the medieval Mediterranean. Guiso et al. (2009) show that trust between nations and explain trade patterns. Barro and McCleary (2003) report on connections between religious beliefs and the economic growth of countries. Economic growth is studied in Gorodnichenko and Roland (2010), who show that individualism is the most important cultural trait that drives differences in growth across societies. This paper takes an additional step by showing not only that culture matters, but also that a change in cultural environment has important economic and social consequences, and documents the costs associated with adaptation to a new culture.

My paper connects this growing literature on the interplay between economics and culture with the voluminous literature on the labor market performance of immigrants. It contributes to the literature on immigrant labor market outcomes by examining a new determinant – the cultural distance between birth and host countries. The literature has identified time spent in the host country (Borjas, 1989, Card, 1993), local networks including marriages with natives (Edin et al., 2003, Furtadoa and Theodoropoulos, 2005, Beaman, 2010, Dustmann et al., 2011), and quality of birth country human capital (Chiswick, 1978, 1979; Mincer and Ofek, 1982 Borjas, 1992) as some of the main determinants of immigrant labor market outcomes. This paper adds the important effect of cultural distance.

The analysis presented here is complementary to work in the business economics literature, for example by Shin et al. (2006) and Van Vianen et al. (2005) which examine expatriates' adaptation to a new host country, but using a small and self-selected sample. It is also related to the works by Constant et al. (2006), Manning and Roy (2010), and Casey and Dustmann (2010) in the economics literature. Those papers examine the effect of an immigrant's identity – an immigrant's level of identification with the birth country and the host country. Casey and Dustmann (2010) find no correlation between an immigrant's identity and earnings in Germany. In contrast, I focus on the difference in the cultural environment in which immigrants are brought up and the cultural environment in which they currently live.

My paper moves beyond these disparate literatures by documenting the significant and large costs of a changing cultural environment. To the best of my knowledge, this is the first study that provides quantitative estimates of the cost of a change in cultural environment in terms of lower wages, higher unemployment, fewer weeks worked, and lower social outcomes. Given the attention paid to selection problems in the paper, its results on the effects of cultural change are generalizable to whole populations, rather than being specific to immigrants. Moreover, the effect survives numerous robustness tests and usage of different measures of cultural distance.

The rest of the paper is organized as follows. Section 2 presents the data and the estimation strategy as well as the different approaches to address immigrants' self selection. In Section 3 the main results regarding immigrant labor market outcomes are shown, together with numerous robustness tests. The effect of cultural distance on immigrant social outcomes is presented in Section 4. Section 5 documents how the effect of cultural distance evolved over time, how it depends on the number of birth country immigrants in the host country, and whether there is a single "superior" culture. Section 6 concludes.

2. Data, Estimation strategy, Selection Issues and Cultural Distance

This section describes the datasets used in the paper, details the estimation strategy and discusses the potential self-selection of migrants. It concludes with a description of Hofstede's cultural measures and how the central independent variable – distance in cultural environment between an immigrant's birth and host countries - is constructed.

2.1 Data and basic estimation strategy

My European dataset uses five waves of the European Social Survey (ESS) from 2002, 2004, 2006, 2008 and 2010, and the European Value Survey (EVS) of 2008. These surveys have data on 28 host European countries with immigrants from 75 birth countries. In addition to country of origin, the surveys include information on timing of immigration, as well as standard socio-demographic variables. First, I estimate the following basic equation on the sample of European immigrant men aged 16-65 who participate in the labor force:

$$socioeconomic\ outcome_{i,b,h} = f\left(cultural\ distance_{b,h},\ X_{i,b,h},\ countrymen\ share_{b,h},\ \delta_b,\ \delta_h,\ \varepsilon_{i,b,h}\right)\ (1a)$$

The observations in Equation (1a) are at the individual level for immigrant *i*, coming from birth country *b*, and living in host country *h*. The main dependent variable is the immigrant's household income, specifically immigrant *i*'s placement in one of ten income brackets (this being the nature of the survey question).[46] The independent variable of interest is the distance in cultural environments between host country *h* and birth country *b*, which is described in more detail in section 2.3. Finding a negative sign on the cultural distance coefficient would imply that a larger cultural distance between host and birth countries leads to a lower household income. Other dependent variables used are various immigrant social outcomes--immigrant crime rates, health outcomes, interest in host county politics, trust in host country political and legal instructions and command of host country language. Those additional social outcomes help to draw a more complete picture of the cost of adapting to new cultural environments.

The vector of individual controls, X_i, includes the immigrant's education, potential labor market experience, years since immigration, marital status and dummies for living in a rural, urban or metropolitan area. It also includes a dummy variable for education received in the host country, as labor markets may value differently schooling obtained in the birth country versus schooling obtained in the host country (Friedberg, 2000). Local unemployment is also included, measured at the NUTS-III level (European regions with approximately 0.5 - 1 million inhabitants).[47] Additionally, when the dependent variable is the immigrant's household income I include the number of household members and a dummy variable indicating whether the spouse is employed. As stated before, the sample

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[46] Ordered probit can be used as a regression method. However, there is no significant difference between the results obtained with OLS and ordered probit. I report OLS regression results because of the easier interpretation of the coefficients.

[47] Regional unemployment numbers are obtained from the Eurostat database.

is limited to immigrant men aged 16-65 who participate in the labor market. With this restriction, my European sample consists of approximately 3600 immigrants.[48]

The variable *countrymen* $share_{b,h}$ gives the percentage of the population of host country h that are nationals of birth country b.[49] This variable is included to account for potential network effects that can arise when a migrant moves to a host country that already has a significant population of immigrants from the same country (Fredriksson and Åslund, 2003, and Beaman, 2012).

I include birth (δ_b) and host country (δ_h) fixed effects (FE) in order to control for specific factors related to each country in the sample. In this way the identifying variation comes from a specific pair of countries and does not depend on any individual country characteristics.

In order to increase the generality of my empirical work, I also analyze the 5% sample of the US 2000 Census in a separate regression.[50] My US 2000 Census sample consists of 360,000 male immigrants aged 16-65 who participated in the labor force.[51] Because each birth country has only one cultural distance –from the US-- it is not possible to use birth country dummies due to perfect colinearity. Instead, birth country levels of GDP per capita and Human Development Index (HDI) are used as proxies for the quality of human capital in the birth country, a standard procedure in the literature (Borjas, 1989). An

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[48] Tables B1 and B2 in the Appendix B give the descriptive statistics for the most important variables in both the European and the US data set.

[49] World Bank Global Bilateral Migration Database was used as a datasource.

[50] The US census contains information on the exact annual earnings, which is the main dependent variable. This allows me to get more precise estimates of the cost of changing cultural environment than I could get based on the European data. Differences in the dependent variable, as well as some minor differences in the set of covariates prevent combining the US and European data into one, so separate regressions will be run for each dataset.

[51] My main results remain unchanged when I control for the selection into labor force using Heckman procedure and the number of children as an exclusion variable

additional way to address this issue is to add birth country-group dummies, e.g. Anglo-Saxon, West European, East European, African, Asian, Latin or Caribbean groups of countries. In this way the indentifying variation comes from comparing immigrants with other immigrants from the same country group, thus ensuring a more precise comparison and increasing the credibility of the results. As substitutes for host country dummies I add Metropolitan Standard Area (MSA) fixed effects. Therefore, the basic equation estimated with the US dataset is the following:[52]

$$labor\ market\ outcome_{i,b,US} = (cultural\ distance_{b,US},\ X_{i,b,US},\ countrymen\ share_{i,b},\ MSA_i,\ GDP_b,\ HDI_b,\ birth\ country\ group_b,\ \varepsilon_{i,b,US}) \quad (1b)$$

2.2 Immigrant self-selection

There are two possible self-selection biases that my estimation strategy has to take into account to produce consistent estimates of the effect of cultural distance for the general population. The first is selection into emigration and the second selection of a host country.

2.2.1 Selection into emigration

The potential bias related to selection into migration is due to the fact that observed migrants do not represent a random sample of citizens of their birth countries. This would not present a problem if this paper were interested only in the immigrant population.

[52] Countrymen share is taken at the PUMA level. PUMA is a statistical geographical unit smaller then MAS and has between 100,000-200,000 inhabitants. Additionally, to control for the strength of immigrant's countrymen community, their average time since immigration is also accounted, without much effect on the cultural distance coefficient.

However to be able to draw broader lessons of the effect on the general population, I have to account for self-selection into migration. The probability of emigration for individual i born in country b can be written as:

$$Prob\ (Emigration)_{i,b}$$
$$= f(birth\ country\ FE_b,\ X_{i,b}, unobserved\ individual\ culture\ _{i,b}, \varepsilon_{i,b}) \quad (2)$$

where vector $X_{i,b}$ stands for the usual set of observed individual socio-demographic characteristics.

If individuals self select into emigration based on some observable there is no problem for my estimation strategy. However, if selection into emigration is based on some unobservable characteristic that is also correlated with distance between host and birth country this might lead to inconsistency. Unobserved individual culture is a variable with those characteristics. It is reasonable to assume that self-selected emigrants will be more open to accepting and adapting to a new cultural environment and/or they feel more culturally distant from the birth culture and closer to another culture then the average citizen (Colier 2013). Both these effects would cause downward bias in the estimate of the effect of the cultural distance in Equation 1a. To be able to remove this kind of bias one has to observe both individuals who choose to emigrate as well as those who decided to stay in the specific birth country. My data allows me to do this just for immigrants whose birth countries are included in the EVS and ESS. Moreover, because this procedure entails restricting my data to the smaller sample of emigrants from European

OECD countries, I will use this procedure only as a robustness test in Section 3.3.5[53] Using Heckman's procedure to account for selection into emigration with parents' education as the exclusion variable, as in Bartram (2013), I show that accounting for selection into emigration removes downward bias. This is discussed further in Section 3.3.3.

2.2.2. Selection into a specific host country

A second potential bias is related to the fact that an individual who has already decided to emigrate faces a choice between many different host countries. An assumption needed to estimate consistently the effect of cultural distance on the general immigrant population is that cultural distance does not play a role in a migrants' choice of future host country conditional on other factors accounted for by equation 1a. Bias would arise if an immigrant's choice of host country is related to unobservables correlated with the cultural distance.

The immigration literature has identified size of diasporas in host countries (Beine et al., 2011, and Grogger and Hanson, 2011), difference in income inequality between host and birth countries (Borjas, 1989) and difference in after tax earnings between host and birth countries (Grogger and Hanson, 2011, Borjas, 1989, and Belot and Hatton, 2012) as some of the main factors that influence an immigrant's choice of destination. Even though all those factors are accounted for in my estimations, it might still be the case that the decision to which specific host country to migrate is potentially related to distance in

[53] Immigrants for whom both born and host country are included in the EVS make up approximately 55% of my European sample.

cultural environments and therefore cause bias.[54] To control for this possibility I will use two separate approaches - using a correction function and using a quasi natural experiment by limiting the sample to immigrants who moved out of their birth countries during a war.

The correction function approach

In this section I describe the basics of the correction function for multiple choice problems developed by Dahl (2002). He analyses returns on education in 50 US states plus DC, where workers are free to select their residence state based on possible earnings and other amenities. I choose to follow his approach because of the very similar nature of my selection issue: we both analyze workers choosing one among many possible places of residence.[55]

Dahl's (2002) approach is to set up an immigrant's problem of picking a new host country h out of a set of N possible host countries as a utility maximization problem, where individual utility depends on earnings and individual taste for a specific host country h. Due to the self-selection of immigrants, the error term in this utility function might be correlated with covariates, and this could cause bias. Appendix B provides a detailed description of both the selection problem in polychotomous choice models and the procedure that solves this multi choice utility maximization.

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[54] Analyzing the OECD immigrant database, I find that cultural distance does not have a significant effect on the size of the immigrant population from a specific birth country. Sharing the same language and the colonial connection between the immigrants' host and birth countries have high predictive power in estimating the size of the immigrant population in a given OECD country.

[55] The literature has developed several ways of addressing selection in polychotomous choice models. A very good review of the most important ones, together with the benefits and restrictions of each, is provided by Bourguignon et al. (2007).

The key insight of Dahl's approach is the Index Sufficiency Assumption (ISA). The ISA states that $p_{i,b,h}$ the probability that immigrant i, coming from birth country b would choose to settle in host country h, which is the probability of an immigrant's first best (and only observed) choice, is the single relevant factor in accounting for the potential bias. In this way, estimation equation (1a) can be extended to Equation 3, where $\lambda(p_{i,b,h})$ stands for the correction function which depends on the first best probability $p_{i,b,h}$.

$$socioeconomic\ outcome_{i,b,h} = f\left(cultural\ distance_{b,h},\ X_{i,b,h}, countrymen\ share_{b,h},\ \delta_b,\ \delta_h,\ \lambda(p_{i,b,h}), \varepsilon_{i,b,h}\right) \quad (3)$$

The ISA is the main assumption needed for consistent estimation of Equation 3. It reduces the dimensions of the immigrant's problem from choosing from N potential host countries to finding the probability of the first best choice, thus avoiding the curse of dimensionality. Additionally, it does not require additivity of the utility function or the independence of irrelevant alternatives assumption, which is necessary in nested logit models. Appendix A2 describes the procedure and how I estimated probabilities for Dahl's correction function.

War immigrants

Another way to overcome potential bias due to self-selection is to use a quasi-natural experiment and limit the sample to cohorts of migrants who emigrated during wartimes in birth countries. During war, the destination choice of emigrants fleeing their countries would have been more a reflection of political factors than subtle economic calculations.

Because of this, migrant destination can be considered more random, where potential self-selection on the basis of cultural distance is less pronounced.

I use the Correlates of War (CoW) database as a source of information on conflicts, and I focus only on conflicts happening on the territory of birth countries. Since the European dataset only reports year of immigration in an interval, I use the more precise US dataset where exact year of entry into the US is known and therefore it can be determined with certainty if immigration was happening during war in the birth country. My US 2000 Census sample consists of 360,000 male immigrants aged 16-65 who had positive earnings. Out of those 50,976 or 14.3% migrated during war times in their birth countries. Table 1 gives the numbers of war immigrants in the US by their birth county.

The CoW database classifies a country to be in a conflict if it commits more than 1000 troops to the war or suffers more than 100 battle-related casualties. For example, numerous skirmishes between India and Pakistan that took place after year 1947 satisfy the CoW definition, but they are not very likely to be the prime reason for emigration from those countries during conflicts. For a more relevant description of a conflict, I construct a measure of conflict intensity – conflict casualties per capita for the country involved.[56] The second column in Table 1 lists countries with the highest war emigration when the criterion of at least 50 war-related deaths per 1 million inhabitants is applied. Comparing the list of countries in the first and second columns of Table 1 shows that the list in the second column more closely reflects common perceptions of which countries have had conflicts large enough to cause emigration.

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[56] In the CoW database, information about war-related casualties has been provided for 85% of all wars. Wars without data on casualties were excluded from my sample.

2.3 Hofstede's cultural dimensions

In my study, I use Hofstede's cultural dimensions to measure the distance between the cultural environments of two countries. These measures have been used extensively in the economics literature (Gorodnichenko and Roland, 2010, 2011, Tadesse and White, 2009, Aggarwal et al., 2012, Siegel et al., 2008). They were originally based on Hofstede's study of employees at IBM subsidiaries in 40 countries in the 1970s. Since then, Hofstede's measures of culture have been expanded to 82 countries. Alternative measures of national culture developed in the literature using other data sources correlate with Hofstede's original measures (Gorodnichenko and Roland, 2011) confirming their validity.[57]

Hofstede and his team used four dimensions to classify the cultural environment of each nation. Power distance (PDI) expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally. It describes the level of hierarchy and regard for authority. Individualism (IND) captures society's preferences for a loosely-knit social framework in which individuals are expected to take care of themselves and their immediate families only (i.e. individualism) versus preference for a tightly-knit framework in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty (i.e. collectivism). Masculinity (MAS)—a now anachronistic term coined by Hofstede that I use simply to avoid confusion for those familiar with this database--measures the

[57] Those measures include World Value Survey scores (Dodd et al 2012), social practices scores from the GLOBE project (Dodd et al 2012), and measures developed by cross-cultural psychologist Shalom Schwartz (Schwartz 1994). I will use all of these alternative measures as a robustness test in Section 3.3.2

tendency of a culture to favor aggressive values, which emphasize competition and ambition as opposed to more caring values, which emphasize quality of life. Uncertainty avoidance (UAI) measures a society's tolerance for ambiguity and risk. Since Hofstede's dimensions are a set of values-based metrics, which reflect general societal attitudes, they do not change drastically over time (Hofstede, 1980).

Using these four cultural dimensions and their standard deviations, I calculate distance in cultural environment between a given pair of countries *i* and *j* using a widely used formula (as in Tadesse and White, 2009, Dodd et al. 2012, Aggarwal et al., 2012, Siegel et al., 2008, Beugelsdijk and Frijns, 2010, Anderson et al., 2011, Ahern et al., 2012) [58]:

$$Cultural\ distance_{i,j} = \sqrt{\frac{(PDI_i - PDI_j)^2}{\sigma_{PDI}^2} + \frac{(IND_i - IND_j)^2}{\sigma_{IND}^2} + \frac{(MAS_i - MAS_j)^2}{\sigma_{MAS}^2} + \frac{(UAI_i - UAI_j)^2}{\sigma_{UAI}^2}} \quad (4)$$

Where $\sigma_{PDI}^2, \sigma_{IND}^2, \sigma_{MAS}^2$ and σ_{UAI}^2 are variances of the corresponding cultural measures.[59] This is the standardized Euclidean distance between two countries' cultures in four-dimensional space.[60]

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[58] Cultural distance, calculated with Hofstede's dimensions, has been used in analyzing trade between countries (Tadesse and White, 2009), the flow of debt (Aggarwal et al., 2012) and equity (Siegel et al., 2008) between countries, home bias (Beugelsdijk and Frijns, 2010; Anderson et al., 2011), and the degree of cross-border merger and acquisition activity (Ahern et al., 2012).

[59] There are several advantages of using aggregate measure of cultural distance compared with just focusing on one individual cultural dimension. Aggregate measures of cultural distance use all four cultural dimensions, thus utilizing all available information. Moreover results obtained using aggregate distance can be easily compared with other cultural measures that have different cultural dimensions. Additionally, cultural dimensions can be correlated with each other (Individualism and Power Distance are highly negatively correlated in Hofstede's data, ρ=-0.54) which makes interpretation single cultural dimension effect harder. Results with individual cultural dimensions are presented in Section 5.2.

[60] Standard Euclidean distance is chosen as because it plays a prominent role in many important application contexts not only in economics, statistics, political science and decision theory, but in such diverse fields as DNA sequencing, cryptography, image recognition etc. (D'Agostino and Gostino, 2009). As a robustness

Table 2 lists selected country cultural distances from the US, together with country-specific values for all four cultural dimensions. As expected, the US cultural environment is closest to that of other Anglo-Saxon countries with Australia being the closest. Central American countries have the highest cultural distance from the US with Guatemala being the most distant. However there are some non intuitive rankings, like the fact the Iran is culturally closer to US than France, showing that Hofstede's cultural measures are capturing phenomena that are deeper than those that get reflected in popular judgments. Table 3 lists the same countries by their cultural distance from France. Comparison between these two tables reflects a very important feature of my measure of cultural distance--it is composed of four dimensions. Because of this countries that seem equally distant from the US, like France and Iran in Table 2, do not have to be culturally close, as the distance between France and Iran shows in Table 3.

3. Results

This section presents the main results of the paper, based on Equation 3 for the European datasets and Equation 1b for the US dataset. For both datasets I show that a changing cultural environment has both statistically and economically significant consequences on immigrants' labor market outcomes. Furthermore, the five heterogeneous effects implied by my hypothesis are found in the data. The results are substantively similar when self-selection into migration is taken into account, when Dahl's (2002) correction function for multi-choice selection models is used, and when analyzing the subset of immigrants who

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test regression with Mahalanobis distance, which takes into account correlation between dimensions, are preformed without significant change in the results.

moved during war times. Including covariates that might cause omitted variable bias, using other measures of cultural distance between a pair of countries, and allowing for different regional cultures in the US does not appreciably change the main results.

3.1 The core results

The dependent variable in the European dataset is an immigrant's placement on a household income scale, which is used in the questionnaires. In the US dataset, due to its size and the availability of more precise variables, I analyze three labor market outcomes – probability of being unemployed, number of weeks worked in the last year and immigrants' weekly earnings.[61] The main independent variable of interest, cultural distance, is constructed as shown in Equation (4), making it in units of standard deviation.[62] In all regressions standard errors are clustered on two levels – the birth country and the survey-host country in Europe, and the birth country and the Metropolitan Statistical Area (MSA) in the US.

Table 4 presents the main results for the European dataset where the dependent variable is an immigrant's placement on ten-step income scale defined for each host country separately. The first column shows the results of an OLS regression with the minimum set of covariates: distance between the cultural environments of immigrants' birth and

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[61] It is possible that immigrants misreport their labor market outcomes. This would be a problem if the propensity to give wrong information is related to the cultural distance. Because true labor market outcomes are not observed, the alternative possibility is to analyze the propensity of immigrants to refuse to give answers. I find that cultural distance does not play a role in immigrants' likelihood to refuse to answer questions about their labor market outcomes.

[62] Strictly speaking this is not correct. Cultural distance is calculated using standardized Euclidean distance which does not automatically make the distance in standard deviation units. However, the standard deviation for all possible 82*81/2 country pairs is 1.05, which from a practical point of view allows interpretation of distance as in units of standard deviation.

host countries, and birth and host country dummies. The regression reported in the second column includes a full set of control variables. In both cases, the coefficient on cultural distance is negative and significant. The last column includes a second-degree polynomial of immigration probabilities as a Dahl-type (2002) correction function, following Equation (3). In all three specifications the effect of cultural distance is negative and significant. Given the nature of the dependent variable it is nonintuitive to quantify the effect of cultural distance. This issue can be more appropriately addressed using the more precise US dataset.

A Hausman test confirms that adding the correction function in column three did not significantly change the coefficient of cultural distance. Moreover, a Wald test performed on the correction function shows no statistically significant self-selection into specific host countries, with a p-value of 0.78. On a first inspection, one might suspect that this is because of the low power of the correction function approach due to imprecision in the probabilities. However, this method uses the entire immigrant population data to estimate these probabilities making the low precision explanation not very likely.[63] An alternative explanation is that there is no selection on unobservables related with cultural distance, conditional on the extensive set of covariates used in Equation 3. This explanation is more plausible, especially when one considers the results of Section 3.3.6. In that section an alternative way of reducing any problem due to selection is applied, by using s only the sample of war immigrants, and there is no evidence of immigrants' selection on unobservables correlated with cultural distance.

[63] Section A.2 of the Appendix A describes how the probabilities used in the Dhal's (2002) correction function are constructed.

The next table presents analysis of the effect of cultural distance on immigrants' labor market outcomes using the US 2000 5% Census dataset. As discussed earlier, the US dataset is larger and some variables are more precisely measured, but due to perfect co-linearity, birth country dummies cannot be used.[64] An important feature of the US immigrant dataset is the overrepresentation of one birth country. Almost 40% of immigrants are from Mexico and by their sheer size they might influence the results. Because of this, an analysis without Mexican immigrants is also presented.

The first two columns of Table 5 show the effect of cultural distance on an immigrant's unemployment status. The first column gives the probit estimate of Equation (1b) where the dependent variable is an indicator variable for unemployment. The second gives the results of the probit regression excluding immigrants from Mexico. The effect of cultural distance is positive and significant in both regression specifications. The average unemployment rate in the sample is 5.2%. In the first column the average marginal effect of cultural distance is 0.46 percentage points. This means that a one standard deviation increase in cultural distance increases the immigrant's probability of being unemployed by 8.8%.

The third and fourth column in Table 5 presents the effect of distance in cultural environments on the number of weeks worked in the year before the census. Approximately 5% of immigrants worked zero weeks in that year and 55% worked all 52 weeks. To account for both the lower and upper censoring of the data, I use a Tobit

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[64] Because there is only one host country, the US, each birth country has only one cultural distance. Inclusion of the birth country dummies would cause perfect multicollinearity problem. To address this issue I instead control for birth country log of GDP per capita, HDI and Gini coefficient as well as birth country group(Anglo-Saxon, West European, East European, African, Asian, Latin or Caribbean group)

regression.[65] In both columns effect of cultural distance is negative and it is significant in the third column. Average number of weeks worked last year is 43.8 and the average marginal effect in the third column specification is -.82.

The effect of cultural distance on immigrant wages is shown in the last two columns of Table 5. The main dependent variable is the natural logarithm of immigrant weekly earnings, constructed in two steps. First, I divide annual earnings by the number of weeks worked in the last year and then take the natural logarithm. Next, weekly earnings are standardized at the MSA level to account for the fact that different MSAs have different wage variability and this might affect the results. The fifth column presents the basic results of an OLS regression with the usual set of covariates, and the sixth column excludes immigrants from Mexico. In both regressions, higher cultural distance between immigrants' birth country and the US is associated with statistically significant lower weekly earnings. For example, an increase of one standard deviation in cultural distance lowers weekly earnings by 7.2%. [66]

Overall, Table 5 shows strong evidence of the negative effect of cultural distance on immigrants' labor market outcomes. To get a sense of the size of the effect, consider an average immigrant from France. His yearly earnings in 1999 were of $53,800. His Swiss counterpart, with the same demographic characteristics, will have 11.4% lower probability of being unemployed, will work 1.2 weeks more in 1999 and will have 9.8% higher weekly earnings. This is due to the fact that Switzerland is 1.3 standard devotions

[65]Tobit has restrictive demands for consistency of estimation; it requires both normality of standard errors and homoscedasticity. Because of this, the more robust censored least absolute deviation (CLAD) estimator was also used, but it did not change significantly my main results.

[66]Table B4 in the Appendix B shows how the effect of the cultural distance changes as the set of covariates expands. As the new covariates are added the coefficient on cultural distance remains fairly stable.

culturally more closely to the US. Overall this will translate into 10.2% higher yearly earnings for a Swiss immigrant- he will earn $59,287 in 1999 while the French immigrant will earn $5,487 less.[67] This simple example shows that not only is there a negative association between immigrants' cultural distance and his labor market outcomes, but that negative effect is also economically important.

As stated before, the results from the European dataset in Table 4 and from the US dataset in Table 5 are not directly comparable because the dependent variables are not the same and there are some differences in the set of covariates. In order to make the results from the US and the European datasets comparable, household yearly income available in the US 2000 Census needs to be transformed into one of 10 income brackets, matching the dependent variable in the European dataset. Additionally, in the European dataset, birth county dummies have to be replaced with GDP per capita, HDI, Gini coefficient and birth country group dummies as in the US dataset.[68] Results of the regressions based on the European and US datasets with the same dependent variables

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[67]Another way to illustrate the size of the cultural distance effect is to compare it with other determinants of immigrants' labor market outcomes already known in the literature. Table B4 in the Appendix B presents results of the regression on immigrants' weekly wages when birth country GDP p/c is in standard deviation units, as is the case for cultural distance. This allows for direct comparison of the effects' magnitude in the fifth column of Table B4. The fourth column does not include the birth country HDI, because it is highly correlated with the birth country GDP. In both columns the size of the effect of cultural distance is comparable to the effect of birth country GDP. This shows that the cultural distance between immigrants' birth country and the US is as important in determining immigrants' wages as the level of the birth country GDP p/c, which proxies for the quality of human capital in the birth country (Borjas 1989).

[68]This conversion requires neglecting a lot of valuable information, mostly in the process of transforming the exact annual earning into income brackets. Because of this, the more precise separate regressions for European and US dataset are used throughout this paper.

and a harmonized set of explanatory variables is presented in appendix B, Table B5. It shows that the effect of cultural distance is 40% lower in Europe.[69]

3.2 Heterogeneous effects

If cultural distance has a causal effect on labor market outcomes, then there are further implications which if verified would serve as additional evidence for my hypothesis. In particular the effect of cultural distance should not be the same for every subgroup of immigrants. For more recent immigrants, immigrants who were older at the time when they arrived in the host country, more educated immigrants, and the first generation of immigrants, the negative effect of cultural distance on income should be higher. Additionally, the effect should be lower for the immigrants coming from more globalized countries. This section argues for the five heterogeneous effects and shows their consistency with data.

The first heterogeneous effect is related to time spent in the host country. When an immigrant first comes to a host country, the cultural environment is completely new to him. On the other hand, an immigrant who has spent many years in the host country is probably more accustomed to the host country culture, and has had more time to develop the soft skills needed to succeed in the host country labor market. Therefore, the effect of cultural distance should be strongest in the first years after arrival in the host country.

[69] Performing the same analysis with the sample of immigrants in Canada gives very interesting results. The effect of cultural distance is largest in the US, then Canada. It is lowest in Europe. One of the possible explanations for this finding might be due to labor market rigidities and variation in immigrant earnings – in the US, the land of vast immigrant possibilities, immigrants can make it big or be at the lower deciles of the income distribution. Europe provides more limited income options for immigrants, while Canada ranks in-between. This difference in variability of immigrant earnings has the potential power to explain the difference in the magnitude of the earnings in the three data sets analyzed in this paper.

Table 6 provides an overview of the heterogeneous effects of cultural distance for Europe.[70] The second column shows that the effect of cultural distance for immigrants who have spent less than five years in the host county is double that of those who spent more than five years. Table 7 performs a similar analysis for the US dataset.[71] The US dataset provides the exact year of arrival in the US, which permits more precise estimation of the heterogeneous effect, allowing years spent in the US to be split into more intervals. The results in the first column of Table 7 show a clear pattern – the effect of cultural distance declines monotonically with time

spent in the country. [72]

The second heterogeneous effect is related to the age of the immigrant at the time he arrived in the host country. An immigrant arriving at an older age has spent more time in the birth country, and has had a longer exposure to the birth country culture. Because of this he might have a harder time adapting to the host country culture. Therefore, the effect of cultural distance should be larger for immigrants who where older when arriving in the host country. The third column in Table 6 shows this is the case in Europe: immigrants who immigrated at age 25 or older have a significantly higher negative effect of the cultural distance on their income. This is also true for the US dataset, as shown in the second column in Table 7, where the effect of cultural distance rises monotonically

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[70]The first column replicates the third column from Table 4 and gives the general results using full specification.

[71] For the US data, heterogeneous results will be shown for the weekly wages.

[72]Additionally this effect can be shown with one specific cohort of immigrants is analyzed over time. In Table B8 in the Appendix B, I show results for the different samples of the same cohort in 1980, 1990 and 2000 US census. In the first column I analyze sample from immigrant cohort that entered the US in the 1975-1980 period, and in the second column, for the 1970-1975 immigrant cohort. In both columns there is an undisputable pattern– as immigrants spend more time in the US, the effect of cultural distance on their weekly earnings diminishes.

with age at arrival. The cultural-distance effect is non-existent for individuals who were less than five years old when arriving in the US, while for immigrants who immigrated when they were older than 40 years, a one standard deviation increase in cultural distance lowers weekly earnings by 15%.

The third heterogeneous effect is related to the educational attainment of immigrants. Cultural differences should be less important for workers who perform repetitive manual tasks than for workers in creative and managerial positions, where cultural subtleties are important and soft skills are crucial. Hence, the effect of cultural distance should be higher for more educated immigrants. The fourth column in Table 6 shows that this is the case in the European data while the last column in Table 7 shows the same for the US. In the US dataset, the effect of cultural distance on weekly wages for an immigrant with a college degree is two and a half times the effect for the immigrant with only a high school degree.[73]

The fourth heterogeneous effect of cultural distance can be observed when one compares the first and the second generation of immigrants. Second-generation immigrants are born and raised in the host country and therefore cultural distance between the birth county of their parents and the host country should play a smaller role in determining their labor market outcomes for them than for their parents.[74] This is shown in the last column in Table 6 for the European data. The effect of cultural distance for the second generation is

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[73] In this analysis wages in the US dataset were standardized on education level as well because variation in wages grows with education and this might influence my results. Additionally, when immigrants are dividend into blue and white collar occupations, the effect is stronger for white collar one, as predicted by this paper hypothesis.

[74] If the parents come from different countries I take the arithmetic average of their birth country culture.

negative and has a smaller magnitude than for the first generation, and it lacks statistical significance.

The 2000 US Census has no information on the parents' birthplace. Because of this I use the aggregate March Current Population Survey (CPS) from 1996 till 2004 to compare the first and the second generation of immigrants in the US. Differences in the covariates in the Census and the CPS data are minimal; March CPS only lacks question about language proficiency. To compare the effect of cultural distance between these two datasets, the first column of Table 8 shows the effect on first–generation immigrants using the US 2000 Census data without the language variable. The second column uses eight aggregated March CPSs as a data source and has the same set of covariates as the first column. The effect of cultural distance is almost identical in the two different US datasets. This gives additional credibility to the empirical evidence, showing that the effect is consistent, independent of the dataset used. The third column shows the effect of cultural distance on second-generation immigrants. The first generation effect is five times the second-generation effect. Comparing the decline in the effect of cultural distance between first and second-generation immigrants in the US and Europe reveals very interesting results. The decline is more pronounced in the US, which might suggest that the second generation of immigrants assimilates faster in the US than in Europe.

Last heterogeneous effect is related with birth country globalization at the time of immigration. If his birth country is more globalized, then an immigrant should have had more exposure to other cultures before he emigrated. This experience with different cultures in his birth country should prepare him to deal better with a new cultural environment in the host country. As a measure of globalization I use the KOF globalization index, created by Dreher (2006).[75] The KOF has annual data for 207 countries from 1970. This allows me to use birth country globalization level at the time when the migrant left the birth country, thus making my analysis more precise.

Table 9 shows how birth country globalization is related to the effect of cultural distance. In the first column I present regression results for Europe, and in the second for the US. In each dataset, I divide immigrants into three groups according to the globalization of their birth country at the time when they emigrated (low, medium and high globalization). A clear pattern emerges in Table 9: the more globalized the birth country is at the time of migration, the easier the adaptation to the new host country and the smaller the effect of cultural distance.

3.3 Robustness tests

The previous sections showed that there is both an economically and statistically significant effect of cultural distance on immigrants' labor market outcomes. This section examines whether these results still hold under a variety of robustness tests - the inclusion of variables that might offer an alternative explanation for the effect of cultural distance, use of different measures of cultural distance, controlling for selection into immigration, analyzing only the subsample of immigrants who emigrated during war in birth countries, and allowing for different regional cultures in the US.

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[75] It measures globalization of a country on three dimensions: economic globalization (trade flows, FDI, trade restrictions etc.), social globalization (number of tourists, number of McDonalds and Ikeas in a country, international phone calls and letters sent, etc.) and political globalization (participation in international political organizations, participation in international peacekeeping operations, number of embassies, etc). Using these three dimensions the KOF database constructs a single globalization index, which I use.

3.3.1 Extended set of controls in the European dataset

The first robustness test adds variables that are related to the cultural distance between two countries and have the potential to influence immigrants' labor market outcomes, i.e., variables that might cause omitted variable bias. These variables offer an alternative, non-causal, explanation how cultural distance is empirically related to immigrant earnings: the empirical effect of cultural distance exists purely because cultural distance is correlated with other variables affecting outcomes.

Physical distance between two countries is related to cultural similarities between those countries. If countries are close to each other they are more likely to have similar cultures. Additionally, if an immigrant comes from a country which is closer it might affect his labor market success. The second column of Table 10 shows that the effect of cultural distance is still negative and significant once the distance and the distance-squared between the capitals of the immigrant's host and birth countries are included. If an immigrant's birth and host country have a common border, an analogous argument can be made. The third column of Table 9 shows that inclusion of a dummy for the same border between an immigrant's birth and host country does not have an important effect on the estimated coefficient on cultural distance.

If an immigrant comes from a country with the same legal origin, it might affect his labor market outcome. He might be more familiar with the laws of a country and more used to legal proceedings. At the same time, the legal system of a specific country is related to the country's culture. There is a two-way interplay: the legal system and legal institutions influence the country's culture, and the country's culture has an effect on which legal system was chosen and how it evolved. Using data from Djankov et al. (2003) to identify countries with the same legal origins, the fourth column of Table 10 shows that the effect of cultural distance is negative and significant even after controlling for the same legal origin between birth and host countries.

Sharing the same language is another variable that might cause bias if omitted. Countries with the same language are generally culturally closer. Furthermore, being a native speaker in the host country is likely to positively affect the labor market success of immigrants. The fifth column in Table 10 shows that the effect of cultural distance is robust to inclusion of a dummy for sharing the same language.

Next, I test whether the share of the host country population with the same religion as the immigrant matters. There are two reasons for including this variable in the set of covariates. First, culture and religion are deeply connected and an immigrant who has the same religion as most of the host country population might have an advantage on the host country labor market. The second reason is related to network effects. As stated before, I control for the share of immigrants from the same birth country as this might have relevance to social network effects. However, network effects may not be limited to countrymen only. Individuals with the same religion might count as members of one’s social network that affects labor market success. The sixth column in Table 10 shows results from a regression when the share of the host country population with the same religion as the immigrant is added.[76] As in the previous cases, the coefficient on cultural distance remains negative and significant.

Finally, I include a dummy variable capturing the whether the immigrant's birth and host country belong to the EU at the time of immigration. Movement is much easier among EU members, and becoming a member of the EU might be related with cultural distance. The seventh column in Table 10 shows that controlling for the EU membership does not changes my results significantly.

The last column in Table 10 presents results from an OLS regression with all those variables added to the usual set of controls. The cultural distance still has a negative and significant coefficient. The overall conclusion from Table 10 is that the effect of cultural distance on immigrant income is not a consequence of some other underlying mechanism discussed in this section and that it has a direct casual effect on immigrants' labor market success.

3.3.2 Alternative measures of cultural distance

Throughout this paper I have been using Hofstede's measures of culture. However, there are other measures of culture that have been used in the literature. In this section I briefly describe them and present results using those alternative measures. I calculated cultural distance as standardized Euclidian distance, same as with the

[76] I perform similar analysis in the US dataset, but I use the share of immigrants who speak the same language in the immigrant's PUMA (a geographical unit smaller then MSA). Individuals who speak the same language might be member s of immigrants' social networks that affects labor market outcomes. Inclusion of this variable does not change my results significantly.

Hofstede's measures. Those measures are World Values Survey Measure, Schwartz Human Values Scale and GLOBE survey measures.

Ingelhart and Welzel (2005) use the World Values Survey (WVS) to characterize each country on two cultural dimensions. The first is along Traditional vs. Secular - Rational values. This dimension is mostly related to how religious the society is and what the role of the family is considered to be. The second dimension relates to Survival vs. Self-Expression skills. As societies develop, they shift from an overwhelming emphasis on economic and physical security toward an increasing emphasis on subjective well-being, self-expression and quality of life. These changes are captured in the second dimension of the Ingelhart and Welzel measure.

Schwartz (1994) developed his theory of cultural dimension by looking at the values held by college students and kindergarten teachers in a given society. He identifies universal values and measures how strongly they are emphasized in a given society. Those values are Achievement, Benevolence, Conformity, Hedonism, Power, Security, Self-direction, Stimulation, Tradition, and Universalism. The European Social Survey (ESS), a dataset used in this paper, has a Human Values Scale (HVS) appendix. HVS was designed with help from Schwartz, and it has 21 questions from which Schwartz's values can be obtained for countries participating in the ESS.[77]

The Global Leadership and Organizational Behavior Effectiveness (GLOBE) research was a survey of over 17,000 middle managers in 62 countries. It is similar to Hofstede's approach given that its primary focus was on the business community, but it distinguishes

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[77]Schwatz gives directions on how to construct values from HVS on the official ESS web site - http://ess.nsd.uib.no/ess/doc/ess1_human_values_scale.pdf

between more cultural dimensions; Performance Orientation, Uncertainty Avoidance, Humane Orientation, Institutional Collectivism, In-Group Collectivism, Assertiveness, Gender Egalitarianism, Future Orientation, and Power Distance. Results of the study are published in House at al. (2006), which also served as a data source for the country values in specific cultural dimensions.

Table 11 presents results for the European dataset using the alternative measures of cultural distance.[78] In all specifications the effect of cultural distance, independently of how it is measured and defined, has a negative effect.[79] It is significant in three out of four specifications. Moreover, since cultural distance is measured in standard deviation units in all specifications, the size of the effects are directly reflected in the relative sizes of the coefficients, which are of the same order of magnitude for all measures. In the US dataset, the effect of cultural distance is negative and significant in all specifications with very similar magnitudes, as presented in Table 12. Both tables point out to the same conclusion – the negative effect of cultural distance on an immigrant's labor market outcomes does not depend on the specific way of measuring culture. *3.3.3 Individual cultural distance vs. country cultural distance*

HVS was administered as an appendix to the ESS, one of the primary data sources used in this paper. This allows me to construct a measure of distance between an individual immigrant's culture and host country culture, taking Euclidean distance between individual cultural values and aggregated values of the host country. For

[78] Table B6 in the appendix B shows correlation matrix of these four measures of cultural distance. As expected all measures are positively correlated with the average correlation of 0.5

[79]The number of observations differs for each cultural measure because the measures do not cover the same set of countries. When analysis is performed on the set of birth and host countries for which data exists for all different cultural measures, the basic results do not change appreciably.

comparison purposes, the first column in Table 13 is identical to the third column of Table 11, showing the effect of cultural distance using Schwartz's HVS at the country level to cultural distance. The second column shows the regression where the cultural distance reflects differences between the individual immigrant and the host country. The effect of individual cultural distance is negative and significant.

The third column of Table 13 presents results from analysis when both the individual immigrant and the birth country cultural distance from the host country are included in the set of regressors. The coefficients on both cultural distances are significant and negative. Given that both distances are in standard deviations units, direct comparison of the magnitude of the effect is possible. The effect of cultural distance between immigrants' host and birth countries survives the inclusion of the individual cultural fit of immigrant and the host country.

3.3.4 Cultural, economic and genetic distance

If the economic structures of host and birth countries share many similarities then it would be easier for an immigrant to adapt to host country labor markets. Economic similarities between countries might be related with the cultural distance and hence the effect of cultural distance I am capturing might just be the consequences of the difference in economic structure. A similar argument applies to the genetic distance between an immigrant's birth and host country.[80]

[80] Genetic distance could positively affect labor market outcomes, for example in the form of less discrimination.

I mimic my cultural distance measure and defining a measure of distance in economic structure as the standardized Euclidean distance between two countries in four economic dimensions. Those dimensions are agriculture, industry, government expenditures, and exports as a share of GDP. For the measure of genetic distance I follow Cavalli-Sforza, Menozzi, and Piazza (1994), and define it as the probability that two alleles at a given locus selected at random from two populations will differ. The data come from Spolaore and Wacziarg (2009).

The first three columns in Table 14 show results for Europe, while the last contain results for the US. All six columns provide indisputable evidence that the effect of cultural distance is not just capturing genetic or economic differences between countries. Furthermore, Table 14 clearly shows that the cultural distance plays a bigger and more significant role in determining immigrants' labor market success then economic or genetic distance.

3.3.5 Controlling for selection into migration

Ideally, selection into emigration would be accounted for in all of my regressions, but as explained in Section 2.2.1 to do this I need to observe both individuals who chose to stay in the birth country and those who chose to emigrate. This would lower the generality of my analysis, limiting it only to immigrants born in European OECD countries, and therefore it is performed as a robustness test.[81]

[81] Moreover, analyzing only the set of immigrants from European OECD country would significantly reduce both my sample size and the variance in the cultural distance variable.

As discussed at length in Section 2.2.1, an individual who is more open to accepting new cultures and/or feels closer to other countries' cultures is more likely to emigrate (Colier 2013). This section attempts to address this issue using the Heckman (1979) selection procedure, using the same exclusion variable as in Bartram (2013) – parent's education. Parents' education influences the probability of emigration by altering the relative cost of moving to another country. Parents' social networks also influence the wage an individual can earn if he stays in the birth country. In the new host country, however, once immigrant education is taken into account, parents' education should not play a significant role in determining immigrants' outcomes.[82] As said before this can only be performed using immigrants from European OECD countries where I can observe both individuals who emigrated and those which decided to not move.

Table 15 presents results from regressions that account for selection into migration. For comparison purposes the first column repeats Table 4's third column, but estimated on the limited set of European-born immigrants. The coefficient of cultural distance is negative and significant, as in the whole sample reported in Table 4. The second column shows the same analysis but with the Heckman procedure that accounts for selection into migration in the first step. Correcting for selection, the coefficient on cultural distance is greater than in the case when no correction is performed. The interpretation of this result is that the negative effect of cultural change is larger for a random person in the birth country than for an individual who has made the decision to

[82] However, this assumption might not hold. For example, immigrants with more educated parents are more likely to have better cognitive skills, and better cognitive skills will increase immigrants' earnings. If immigrants' cognitive skills are not related with the cultural distance, then my estimates will not be biased. However, if immigrants with higher cognitive skills have chosen host countries with lower cultural distance, then my results will be underestimated.

emigrate. Results presented in this paper are obtained on immigrants, which makes these results an underestimation of the true effect of cultural change for the overall population.

3.3.6. War emigrants

The last robustness test is related to the selection host county by an immigrant. This issue has already been addressed using Dahl's (2002) correction function. As described in more detail in Section 2.2.2, an alternative way to tackle this potential problem would be to use quasi natural experiment and to focus just on those who moved during wartime in their birth countries. It is reasonable to assume that the destination of emigrants fleeing their countries during war time would be more a reflection of political factors than subtle economic calculations and thus can be seen as more random for the purposes of my analysis.

Table 16 gives the results of the analysis on the set of immigrants who emigrated during war in their birth countries.[83] The European dataset does not have the exact year when the immigrant moved to the host county, so this method can be applied only to the US. As shown in Table 16, analyzing only war immigrants gives the results very similar to those for the whole sample. A Hausman test shows no significant change in the coefficient on cultural distance in all three samples used in Table 16, additionally validating my hypothesis. [84]

[83] As stated before, the data source for war conflicts was the Correlates of War database. Table 1 gives the number of war immigrants in the US.
[84] The effects of knowledge of English and the size of the diaspora change when only war immigrants are analyzed, suggesting that immigrants' self-selection is related with these variables.

3.3.7 Regional culture in the US

The US is culturally a very heterogeneous country (Lieske, 1993). This feature can be exploited by allowing separate regions in the US to have different cultural environments. I define regional culture using two separate procedures--answers to the World Values Survey (WVS) and information about the ancestry of early immigrants who settled in each region. [85]

Besides the fact that regional cultural environment might be the more relevant measure and therefore using it is a valid robustness test, there are two additional advantages of using regional culture in the US. First, different cultural regions in the US act and can be analyzed like different host countries. In this framework birth country dummies can be used, possibly improving identification. Second, having more host countries allows use of Dahl's (2002) correction function to account for selective migration.[86] According to Dahl (2002) and Bourguignon et al. (2007), the best way to test the Index Sufficiency Assumption (ISA), underlying the validity of the correction function approach, would be to allow all possible probabilities, $p_{i,b,1}, \dots\dots p_{i,b,N}$, to enter Equation (3) as part of the polynomial correction term λ and to test whether these terms significantly change the estimated coefficients of interest. This is often impossible to do because it leads to a huge

[85] Using WVS cultural measures, cultural variation between 9 US regions is approximately 30% of the variation in the whole sample with 82 countries. When early immigrants are used to construct regional culture, variation between 9 US regions is 20% of the variation in culture in the whole sample with 82 countries.

[86] As in the European case, I construct the immigration probabilities that immigrant will finish in a particular US region fallowing Dahl's (2002) semi parametric approach. Immigrants are divided into cells according to their birth country, education, time of immigration and age at immigration. Then, using the US 2000 5% Census I calculated the probability that an immigrant from a given cell will finish in the specific US region. However, because these probabilities are calculated from a sample, and not from a population as in European data, I use bootstrapping for calculating the standard errors.

increase in the set of covariates and therefore to the curse of dimensionality. By dividing the US into nine Census regions, I am able to avoid this problem and test the ISA.[87]

The first approach to constructing the regional culture measure uses the WVS. As described in earlier in Section 3.3.2, Ingelhart and Welzel construct two cultural dimensions from the WVS: traditional vs. secular-rational and survival vs. self-expression. I use their cultural measures from the third, fourth and fifth waves of the WVS administered in the US in 1995, 1999 and 2006. I construct regional culture for nine Census regions by aggregating the cultural values of all of the region's inhabitants. Next, to measure cultural distance as before, I take the standardized Euclidean distance between the culture of an immigrant's birth country and the culture for the US region in which the immigrant lives.

The first four columns of Table 17 present results with this WVS measure of cultural distance. The first column shows the results when aggregate US culture is used (repeating the second column in Table 12). The results of the regression using regional culture to calculate cultural distance and including birth country fixed effects are presented in the second column. The third column adds Dahl's correction function, composed of the second polynomial of the first best probability. Finally, in the last column, I test for ISA by including the second polynomial of all probabilities. In all specifications the effect of cultural distance is negative and significant. Therefore, allowing for cultural heterogeneity in the US does not significantly change the main results. Additionally,

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[87] With nine possible host regions, the second polynomial of all probabilities consists of 54 factors. The general formula for the number of regressors in a second-degree polynomial correction function with N probabilities is $\sum_{i=1}^{N}(i+1)$.

comparing results in the third and fourth columns using Hausman test shows that taking into account all possible probabilities does not affect the results, confirming the ISA.

An alternative way of calculating regional culture in the US is to take advantage of information about the ancestry of early immigrants in each region. Because of cultural persistence, culture of early immigrants plays a significant role in contemporary cultural environment (Grosjean, 2011). I use the US 1880 100% Census for information about ancestry of early immigrants. For each of the nine census regions I obtain the share of each birth country among early immigrants ancestry. I calculate regional culture as the average of Hofstede's cultural measures of early immigrant birth countries, weighted by their respective share from the 1880 Census.

The last four columns of Table 17 present the regression results when US regional culture is calculated using data on early immigrants. The fifth column replicates the fifth column in Table 5 for the case when one aggregate measure of US culture is used. The sixth column treats US regions as culturally separate entities, which allows the use of birth country fixed effects. The seventh column adds Dahl's (2002) correction function, while the last column includes the second polynomial of probabilities that the immigrant will finish in any of the nine possible regions. The effect of cultural distance is again negative and significant in all cases and a Hausman test confirms that the coefficient does not change significantly across different specifications in columns six, seven and eight.

Table 17 provides an unequivocal message. Even accounting for the culturally heterogeneous regions in the US, I still obtain a negative effect of cultural distance on economic outcomes. Furthermore, I show that the core assumption for using Dahl's

(2002) correction function to account for possible immigrants' selection into specific host countries is valid.

3.3.8 Effect of cultural distance on US natives who moved to another cultural region

So far, I have analyzed the effect of cultural distance only on individuals who moved to another country. By allowing US regions to have different cultural environment, which construction is described in the previous subsection, opens a possibility for analyzing the effect of change in cultural environment for US natives who changed their cultural region. Natives who moved to another region within the US represent a significantly distinct sample than immigrants and face different constraints. They do not have to worry about knowledge of the local language, there are no legal status issues, the potential discrimination is smaller and their motivation and decision process related to moving to another region could be completely different from the one that immigrant workers face. Therefore, finding an effect of cultural distance on US-born individuals would yield strong additional support to my hypothesis that changing cultural environments is not costless, either for immigrants or for natives.

To test this hypothesis, I identify individuals from the 5% US 2000 Census who, in 1995, lived in the same US Census region they were born in, but in 2000 they lived in another US Census region.[88] Table 18 shows analysis of the effect of cultural distance on the US-born workers who moved to another cultural region within the US. In the first column, US cultural regions are constructed using information about ancestry of early immigrants, while the second column uses responses to the WVS of current inhabitants of

[88] Again, as in the case with immigrants, I focus on men, aged between 16-65, who participate in the labor force.

the region. In both specifications, the effect of cultural distance is negative and significant. However, the effect of the change in the cultural environment is just 20% of the effect that immigrants face.

4. Social outcomes

Up to this point, I have shown that changing cultural environments has significant consequences for labor market success. If changing cultural environment is not costless, it should also have consequences for social outcomes. The more unknown the cultural environment of the host country is, the worse the social outcomes should be for immigrants. This section provides evidence for this claim, thus giving support to the main idea of the paper –changing cultural environment lowers both economic and social wellbeing.

4.1 Interest in politics

The first set of social outcomes analyzed is related to an immigrant's participation in the political life of the host country. If the immigrant's birth and host countries share similar culture, then the issues discussed in politics will be similar (for example, gay rights, abortion, taxes, etc.). Because of the similarity in political discourse between host and birth countries, it would be easier for immigrants to follow politics in the host country. Therefore, immigrants from culturally closer countries should be more interested in the host country political life. This is shown in the first column in Table 19 using the European dataset. The dependent variable is an immigrant's interest in politics with answers ranging from 1(no interest at all) to 4 (very interested). An ordered probit analysis shows a negative and significant effect of cultural distance: if an immigrant comes from a culturally more distant country, he will be less interested in politics. The second column shows the results from a probit regression for immigrant participation in the last election.[89] Immigrants with a larger distance in cultural environments tend to participate less in elections, but the effect lacks statistical significance.

4.2 Trust in host country institutions

The second set of social outcomes is immigrants' trust in the host country political and legal institutions. If the cultural environment of the host country is more familiar to the immigrant, then he should have more trust in the host country institutions. Table 20 shows relevant evidence for Europe by examining an immigrant's trust in the host country parliament (first column), legal system (second column), police (third column), politicians (fourth column), political parties (fifth column) and a first principal component of all five political and legal institutions (sixth column). Cultural distance has a negative effect on all measures of trust in the host country institutions.

4.3 Language outcomes

Another social outcome that might be affected as a consequence of moving to a new and unknown cultural environment is command of the host country language. Because of lack of familiarity with the host cultural environment, immigrants might be less interested in the social life of the host country, follow politics less, watch TV and read newspapers in the host country language less, and have less social contact where the

[89] The second regression in Table 19 is restricted to immigrants with the voting rights, while the first regression controls for immigrant's voting rights in the host country.

host country language is used. All this will lead to worse knowledge of the host country language. In the US 2000 Census, immigrants assess their level of knowledge of English, and I use this information as an outcome variable in Table 21. In the first column, the usual set of covariates is used. The second column adds a variable quantifying how hard it is to learn English for someone who is a native speaker of the immigrant's mother tongue, using data from Chiswick and Miller (2005).[90] In both specifications, the effect of the cultural distance is negative and significant: the bigger the difference in cultural environment, the less fluent the immigrant will be in English language.

The European dataset does not have a variable that directly captures immigrant knowledge of the host country language. However, there is a variable that reports if the immigrant uses the host country language in communication within his household. The third column in Table 21 shows that the effect of cultural distance is negative and significant, as in the US dataset. Since I cannot control for difficulty of learning the host country language, the results in the third column should be considered less informative than those presented in the second column.

4 .4 Health and marriage outcomes

Adapting to less familiar cultural environment can be stressful and might have other negative consequences on immigrants' health. The first column in Table 22 shows results for Europe of an ordered probit regression when the dependent variable is immigrants' health. Immigrants self assess their health with answers ranging from 1 (very

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[90] It is based on how fast English-speaking students can learn other languages and it assumes symmetry in language learning difficulty between two languages.

bad) to 5 (very good). As the analysis shows, the bigger the difference in cultural environments, the statistically worse is immigrant self-assessed health.

Marriage market outcomes should also be affected by cultural distance. If an immigrant was born and raised in a culture similar to the host country culture, he will be more likely to marry a host country national. The second column of Table 22 shows a probit analysis with the dependent variable being a dummy equal to one if the immigrant married a wife born in the host country. Results show that if an immigrant grew up in a birth country that is more culturally distant, he will have a lower probability of marrying a spouse born in the host country. Unfortunately, information about the birth country of the spouse is available only in an 2008 EVS, with a much smaller sample size, which weakens the significance of the effect of cultural distance.

4.5 Crime

An immigrant's participation in crime is the last social outcome that is analyzed. If the immigrant's birth country has a very different culture from that in the current host country, it will probably also have different views on what is permitted in a given society and what is considered to be a crime. For example, cultural differences could affect differences in family laws, corruption-prevention laws, drug-abuse laws, bankruptcy laws, domestic violence laws, etc. Therefore, I expect immigrants coming from culturally more distant countries to have a higher probability of being involved in criminal activities.

As a data source on criminal activity of immigrants, I use the United States Department of Homeland Security (DHS) yearly reports on immigrant deportations.

Individuals are subject to deportation from the US if they are not United States citizens and have a conviction by a US court for a crime for which the maximum punishment is more than one year in prison. The DHS keeps a record of the aggregate number of deportations due to criminal conviction by immigrant nationality.[91] I use the total number of deportations in the four year period from 2000-2003, divided by the number of non-citizen immigrants of that nationality residing in the US taken from the 2000 Census. Table 23 gives the results of the regression when this percentage is used as an outcome variable for the 73 countries in my sample. Because this is a very different dataset from those used in previous regressions and one whose unit of observations is countries, the number of explanatory variables is limited. All the variables are in the units of standard deviations for easier comparison of the coefficient magnitudes. In the first column, cultural distance is the only explanatory variable. In the second column, murder rate in the immigrant birth country is added. According to Pinker (2011), this can be used as a good proxy for violence and crime in the birth country in international comparisons. In the third column, birth country GDP per capita was added and the fourth column also includes the birth country Gini coefficient. In all specifications, larger cultural distance leads to more deportations due to criminal convictions.[92]

[91] The DHS distinguishes between deportations due to criminal convictions (approx. 70,000 per year, or 40% of all deportations) and ones due to illegal immigration.

[92] If cultural distance between the US and the immigrant's birth country increases for one standard deviation, then according to the specification in the fourth column in Table 22 share of immigrant's deportation will increase for 0.19 standard deviations.

5. Characteristics of the cultural distance effect

Up to this point I have documented the extensive evidence of an intuitive social phenomenon which has not previously been empirically analyzed in the literature: changing cultural environment has real consequences for individuals in both the economic and social spheres. All regressions presented in this paper show that immigrants coming from culturally more distant countries have worse labor market outcomes as well as social ones.

This section goes one step further and analyzes three additional aspects of this phenomenon. First, I study how the cultural distance effect has evolved over time. Second, I show that the effect is truly one of mismatch between cultures rather than some 'superior' home-country culture being beneficial for the immigrant independent of host country. Lastly, I examine how does the effect of cultural distance depends on the size of immigrant's diaspora.

5.1 Change of the cultural distance effect over time

Cultural distance has a substantial effect on socioeconomic outcomes, but how did this effect change in the last 40 years? On the one hand, cultural adaptation costs may be decreasing over time: due to increased globalization, people are more equipped to deal with different cultures, as shown in Section 3.2 on heterogeneous effects. On the other hand, changes in the structure of the economy of developed countries would suggest otherwise because of the decline in manufacturing jobs and growth in the importance of soft skills in the workplace (Buhler, 2001).

To answer this question, I use the last three available US Censuses from 1980, 1990 and 2000.[93] I interact the main explanatory variable, cultural distance, with dummy variables for 1980, 1990, and 2000, and examine differences over time. The results are shown in the first column of Table 24.[94] The effect of cultural distance is increasing over time. In 1980, a one standard deviation increase in cultural difference leads to 5.7% lower weekly earnings, while in 2000, the same increase in cultural distance is associated with a decrease in earnings of 8.7%.

One possible explanation for this finding is the change in the composition of US immigrants during the time period under consideration. To address this possibility, I perform the same analysis for Canada. While the US experienced an increase in low-skilled immigration in the last 40 years, Canadian immigration in the same period is characterized by an increased share of high-skilled immigrants. The Canadian Census indentifies immigrants from 16 specific countries only, so results obtained on the Canadian sample should be considered less general than the ones from the US.

Before turning to the results over time, to check if cultural distance plays a role in immigrants' labor market outcomes in Canada, I analyze the effect of cultural distance on unemployment, months worked and monthly earnings in the 2001 Canadian census. There is a negative effect of cultural distance on all three labor market outcomes shown

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[93] Earlier US Censuses have different sets of variables and my European data does not have a time span long enough for this kind of analysis.

[94] In the time period in the question there has been a shift towards immigrants from less globalized countries. As shown in Section 3.2 globalization influences the effect of cultural distance, and because of this in Table 23 all regressions have an extra variable – globalization of the birth country at the time of immigration. Adding this variable lowers the magnitude of the effect by only 5%.

in the table B7 in the Appendix B; the effect is bigger than the one in Europe and smaller than the one in the US.[95]

The second column of Table 24 shows how the effect of cultural distance evolved in Canada. The effect of cultural distance over time is the same as in the US – in the last 30 years it has increased in magnitude.[96]

5.2 Individual cultural dimensions and 'most productive' culture

As previously discussed, the distance between cultural environments is a composite measure of the Euclidian distance between an immigrant's birth and host countries based on four cultural dimensions. Table 25 shows the results of regressions when the absolute distance in individual dimensions between two countries is used instead.[97] The first four columns represent regressions done on the European dataset, while the last four columns give the same regressions on the US dataset. Distance in all four cultural dimensions has a negative effect; in the US distance in individualism has the highest magnitude, while in Europe the largest effect is with distance in uncertainty avoidance.[98]

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[95] The Canadian dataset does not have the same question about language fluency as the US Census. Because of this, Table B4 should be compared with the first column of Table 12 where the US 2000 Census dataset is analyzed without the language variable. Direct comparison of the cultural distance effect between Europe, the US and Canada is not possible because the European and the Canadian dataset have different independent variables. However, both Canadian and European datasets can be compared with the US dataset. In Europe the effect is 40% smaller than in the US (Table B3) and in Canada the effect is 20% smaller than in the US (Table B6 for Canada and second column in Table 12 for the US).

[96]Interestingly, in the US increase over time is the highest for the most educated immigrates, while in Canada the increase in the effect is the most pronounced for the low educated immigrants.

[97] This is the same as the Euclidian distance, but now just in one dimension.

[98] Having different cultural dimensions with the most negative effect in Europe and the US is another reason why aggregate cultural distance is used in this paper, as opposed to using individual cultural dimensions.

Next, rather than analyzing differences in cultural dimensions, I study whether cultural levels in specific dimensions matter. I the paper I have emphasized the cultural distance effect, but alternative way to think about how birth country culture affects immigrants success is given in Equation 5:

$$income_{i,b,h} = f\left(birth\ country\ cultrue_{b},\ all\ other\ factors_{i,b,h}\right) \quad (5)$$

In this alternative setting birth country culture might affect the labor market success through two possible channels: either by the level of the birth country culture in specific dimension or by the absolute distance from the host country:

$$income_{i,b,h} = \beta_1 birth\ country\ culture\ level_b + \beta_2 absolute\ cultural\ distance\ betwen\ birth\ and\ host\ country_{b,h} + all\ other\ factors \quad (6)$$

If distances are more important than levels, the coefficient β_1 in Equation 6 should be smaller than β_2. Cultural level and cultural distance are in the same units, so direct comparison of the coefficients is possible. Tables 26 27 28 and 29 provide results from the estimation of Equation 6 in the European data for four cultural dimensions.[99] Additionally, because cultural levels and cultural distances are correlated, separate regressions for each variable are also reported. Overall, Tables 26 27 28 and 29 show that the distance in cultural environment between immigrant's birth and host country matters more than the cultural levels of the birth country in almost all specifications.

[99] This exercise could not be performed in the US due to multicollinearity problem.

An alternative way to address the question of whether distance or levels matter more is to ask if there are optimal levels of individualism, power distance, masculinity or risk aversion to be born and raised in, that give the best labor market outcomes. If so, then the combination of the different optimal levels would represent a ‘superior’ culture. If there is such ‘superior’ culture, countries close to it should to have the best economic outcomes. Hence, I construct ‘superior’ culture as the average of the cultures of the ten richest countries.[100] I calculate distance of each birth country from such ‘superior’ culture and add it to my set of covariates. Table 30 shows the results in the European and the US dataset -- distance from the ‘superior’ culture does not play a role. There is no ‘superior’ cultural environment to be raised in and what matters is the distance between birth and host country cultural environment.

5.3 Effect of cultural distance and the size of diaspora

Having big diaspora, i.e. the larger share of same nationals in the same geographical location is generally considered beneficial for immigrant, primarily through larger social networks (Dustmann et al., 2011, Edin et al., 2003), even though large diaspora can sometime have an negative effect as an increase in direct competition for jobs (Beaman, 2012). However, there is another effect, larger diaspora will slower the process of immigrant assimilation to the host country culture (Collier, 2013). This would make the effect of cultural distance stronger in the areas where there is a large immigrant’s

[100] Those are: Luxemburg, Singapore, Norway, Canada Hong Kong, US, United Arab Emirates (UEA), Switzerland, Netherlands and Austria. As a robustness test, I also use the average of the five richest countries, as well as the ten richest countries but without UAE, and using HDI instead of GDP p/c to indentify the richest countries, all without much effect on my results.

countrymen population. This is confirmed by my empirical analysis in the US and shown in the first column in of Table 31. [101]Taking one step further, assimilation process should be slower the smaller share of native population in MSA at the time of immigrants' arrival in the US. Thus the effect of cultural distance should be the strongest in MSAs with high immigrant share. This is shown in the second column in Table 30.

6. Conclusion

Culture matters. This paper studies a novel channel of interaction between culture and socio-economic outcomes by documenting the consequences of a change in cultural environment. I show that a change in values, beliefs and social norms of the surrounding environment has a significant negative effect on both economic and social outcomes.

Because a given cultural environment changes very slowly, I examine the effect of cultural change on immigrants. For them, the change in cultural environment depends on the cultural distance between their birth and host countries. The identifying variation used in this paper comes from comparing immigrants with different cultural distances between their host and birth countries. Using five independent datasets (the European Social Survey and the European Values Survey in Europe, the Census and the Current Population Survey in the US, and the Canadian Census), four different measures of cultural distance and two separate ways of accounting for immigrant self-selection, I present unequivocal support for this paper's main idea: the bigger the change in cultural

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[101] Because of possible self-selection of immigrants in specific MSA, the Dahl's correction function is constructed. The procedure used is the same as for correction function described in section 2.2.2. Immigrants are grouped into cells by birth country – education - time of immigration – age, and for each cell, the probability that an individual from that cell finishes in a specific MSA is calculated.

environment, the worse the labor market outcomes. Additionally, I show that a change in cultural environments has an effect on social outcomes: immigrants from culturally more distant environments have lower trust in political and legal institutions, are less interested in politics, have worse health outcomes, and are more likely to be involved in crime. Throughout the paper, I present unambiguous and robust evidence that the change in cultural environment diminishes overall immigrant welfare. Furthermore, the negative effect is also present for native workers who moved to another region within the same country.

The effect of cultural distance on labor market outcomes is large. A one standard deviation increase in cultural distance increases the probability of being unemployed for 8.8% and decreases weekly earnings for 7.2%. As an example consider two identical immigrants in the US, where one was born and raised in France and the other in Switzerland. Switzerland is 1.3 standard deviations culturally closer to the US, causing Swiss immigrants to earn on average $5,487 more in 1999 than an identical French counterpart. Moreover, examining previous Censuses in the US and Canada, I showed that the magnitude of the negative effect of cultural distance is increasing over time.

The exact mechanism by which cultural distance affects immigrants' labor market outcomes remains an open question. Immigrants from culturally more distant countries could be less productive, because they are less experienced in the specific ways that things are done in a given society. Moreover, new and unknown environment causes rise in the uncertainty and distrust which might prevent immigrants' from engaging in otherwise beneficial economic activities. A bigger cultural distance might lead to fewer social interactions with host country natives, and as a consequence to less valuable social networks. Besides having lower productivity, culturally more distant immigrants might face both employer and customer discrimination. All these factors lead to worse labor market outcomes. Identifying the specific channels of the cultural distance effect is the subject of further research.

7. Tables

2. Tables used in the second chapter

Table 2-1 War immigrants by the birth country in the US

rank	War on territory		> 50 deaths per million	
	Country	Country's share in overall war immigrant population	Country	Country's share in overall war immigrant population
1	India	24.2%	Philippines	46.4%
2	Philippines	23.6%	Colombia	10.8%
3	El Salvador	17.1%	Vietnam	7.2%
4	Colombia	5.5%	Peru	6.7%
5	Iran	4.7%	Guatemala	5.8%
6	Vietnam	4.4%	Iran	5.4%
7	Peru	3.7%	Russia	4.0%
8	Guatemala	2.9%	Turkey	2.3%
9	Russia	2.3%	Ethiopia	2.3%
10	Turkey	1.2%	Iraq	1.8%
11	Lebanon	1.2%	Lebanon	1.1%
12	Ethiopia	1.2%	Pakistan	1.1%
13	Nigeria	1.1%	Egypt	0.6%
14	Iraq	1.1%	Israel	0.6%
15	Pakistan	0.9%	Hungary	0.5%
16	China	0.9%	Indonesia	0.5%
17	Indonesia	0.8%	Thailand	0.4%
18	Ecuador	0.5%	Argentina	0.4%
19	Egypt	0.3%	Germany	0.3%
20	Israel	0.3%	Poland	0.3%
Total war immigrants	***50,976***		***26,786***	

Source: Correlates of War database

Table 2-2. Individual country values for cultural dimensions and cultural distance from the US

rank	country	PDI	IDV	MAS	UIA	distance from the US
1	US	*40*	*91*	*62*	*46*	0.00
2	Australia	*36*	*90*	*61*	*51*	0.31
3	United Kingdom	*35*	*89*	*66*	*35*	0.61
8	Switzerland	*34*	*68*	*70*	*58*	1.29
16	Belgium	*65*	*75*	*54*	*94*	2.64
18	France	*68*	*71*	*43*	*86*	2.67
19	Iran	*58*	*41*	*43*	*59*	2.72
46	Sweden	*31*	*71*	*5*	*29*	3.52
51	China	*80*	*20*	*66*	*40*	3.76
53	Mexico	*81*	*30*	*69*	*82*	3.79
66	Singapore	*74*	*20*	*48*	*8*	4.08
82	Guatemala	*95*	*6*	*37*	*101*	5.49

Source: Hofstede cultural measures, http://geert-hofstede.com/national-culture.html

Table 2-3. Individual country values for cultural dimensions and cultural distance from France

rank	country	PDI	IDV	MAS	UIA	distance from France
1	France	*68*	*71*	*43*	*86*	0.00
2	Belgium	*65*	*75*	*54*	*94*	0.77
23	Iran	*58*	*41*	*43*	*59*	1.89
39	Mexico	*81*	*30*	*69*	*82*	2.47
47	Australia	*36*	*90*	*61*	*51*	2.59
48	Switzerland	*34*	*68*	*70*	*58*	2.59
50	US	*40*	*91*	*62*	*46*	2.67
66	United Kingdom	*35*	*89*	*66*	*35*	3.22
71	Guatemala	*95*	*6*	*37*	*101*	3.30
74	China	*80*	*20*	*66*	*40*	3.44
78	Sweden	*31*	*71*	*5*	*29*	3.84
81	Singapore	*74*	*20*	*48*	*8*	4.26

Source: Hofstede cultural measures, http://geert-hofstede.com/national-culture.html

Table 2-4. Effect of cultural distance on immigrants' incomes—Europe.

	Income	Income	Income
Distance between cultural environments of immigrant's birth and host country	-0.21** (-2.18)	-0.17*** (-3.60)	-0.18*** (-3.48)
Host country FE	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes
Survey FE	No	Yes	Yes
Years in host country FE	No	Yes	Yes
Education FE	No	Yes	Yes
Correction function	No	No	Yes
F test for correction function	-	-	0.24
p value			p value 0.78
Observations	3619	3603	3603
R^2	0.162	0.565	0.565

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is ESS 1-5 from 2002-2010 and 2008 EVS. Dependent variable is individual household income (placement in one of 10 brackets).Covariates included in the regression in columns 2 and 3 but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years Standard errors based on clustering by both birth country and host countryXsurvey level.

Table 2-5. Cultural distance and immigrants' labor market outcomes—US.

	Unemployment (whole sample)	Unemployment (without Mexico)	Weeks worked (whole sample)	Weeks worked (without Mexico)	Weekly earnings (whole sample)	Weekly earnings (without Mexico)
Distance in cultural environments between immigrant's birth country and the US	0.04*** (3.69)	0.04*** (3.43)	-0.82** (-2.07)	-0.61 (-1.63)	-0.072*** (-3.29)	-0.079*** (-3.48)
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes
English proficiency FE	Yes	Yes	Yes	Yes	Yes	Yes
Years spent in US	Yes	Yes	Yes	Yes	Yes	Yes
Share of same nationals in PUMA	Yes	Yes	Yes	Yes	Yes	Yes
Birth country group FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	341531	209588	342449	211028	306476	188573
					0.300	0.302

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is the 5% US 2000 Census. In the first two columns dependent variable is dummy for being unemployed and probit is used as a regression method. Overall immigrants' unemployment rate is 5.4%, and the average marginal effect of distance in cultural environments is 0.46% for the first column specification. In the third and fourth column dependent variable is the number of weeks worked last year (in intervals) and tobit regression is used. Average number of weeks worked last year is 43.8 and the average marginal effect in the third column specification is -.82. In the last two columns dependent variable is logarithm of immigrant weekly earnings, transformed to standard normal distribution on each MSA level and the OLS regression is used. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, education FE, regional unemployment and wage rates, imputed years of US schooling, experience. Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level.

Table 2-6. Heterogeneous effects of cultural distance and immigrants' income- Europe.

	Income (1st generation)	Income (1st generation)	Income (1st generation)	Income (1st generation)	Income (2nd generation)
Distance between cultural environments of immigrant's birth and host country	-0.18*** (-3.48)	-0.15*** (-2.61)	-0.13** (-2.47)	-0.12** (-2.02)	-0.10 (-1.53)
Distance*Arrived less than 5 years ago		-0.12* (-1.66)			
Distance*Arrived older than 25			-0.08** (-2.07)		
Distance*College degree				-0.13** (-2.13)	
Host country FE	Yes	Yes	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes	Yes	No
Correction function	Yes	Yes	Yes	Yes	No
Observations	3606	3606	3606	3606	2411
R^2	0. 565	0.566	0.566	0.566	0.360

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is ESS 1-5 from 2002-2010 and 2008 EVS. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-7. Heterogeneous effects of cultural distance and immigrants' wages- US.

	Weekly earnings	Weekly earnings	Weekly earnings
Distance*Spent less than 5 years in US	-0.10***		
	(-5.21)		
Distance*Spent between 5 and 10 years in US	-0.08***		
	(-4.45)		
Distance*Spent between 10 and 15 years in US	-0.07***		
	(-3.96)		
Distance*Spent between 15 and 20 years in US	-0.05***		
	(-2.75)		
Distance*Spent between 20 and 30 years in US	-0.03		
	(-1.64)		
Distance*Spent more than 30 years in US	0.01		
	(0.84)		
Distance*Arrived when 0-5 years old		0.01	
		(0.54)	
Distance*Arrived when 6-15 years old		-0.00	
		(-0.28)	
Distance*Arrived when 16-20 years old		-0.02	
		(-0.87)	
Distance*Arrived when 21-25 years old		-0.07***	
		(-2.83)	
Distance*Arrived when 26-30 years old		-0.10***	
		(-4.89)	
Distance*Arrived when 31-35 years old		-0.12***	
		(-6.47)	
Distance*Arrived older than 35 years		-0.15***	
		(-6.68)	
Distance*No high school degree			-0.03*
			(-1.71)
Distance*High school degree			-0.05***
			(-2.75)
Distance*Some college			-0.05***
			(-2.85)
Distance*College degree			-0.10***
			(-3.93)
MSA FE	Yes	Yes	Yes
English proficiency FE	Yes	Yes	Yes
Years spent in US	Yes	Yes	Yes
Birth country group FE	Yes	Yes	Yes
Observations	306476	306476	306476
R^2	0.300	0.301	0.300

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census. Dependent variable is logarithm of immigrant weekly earnings, transformed to standard normal distribution on each MSA level and the OLS regression is used. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, education FE, regional unemployment and wage rates, imputed years of US schooling, experience, share of same nationals in PUMA (geographical unit smaller then MSA). Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level.

Table 2-8. Cultural distance and immigrants' earnings; first and second generation of immigrants-US.

	Weekly earnings (2000 Census, 1st generation)	Weekly earnings (1997-2004 March CPS, 1st generation)	Weekly earnings (1997-2004 March CPS, 2nd generation)
Distance in cultural environments between immigrant's (or parents') birth country and the US	-0.09*** (-3.61)	-0.10** (-2.50)	-0.02* (-1.81)
MSA FE	Yes	Yes	Yes
English proficiency FE	No	No	No
Years spent in US	Yes	Yes	No
Birth country group FE	Yes	Yes	Yes
Observations	306476	39593	15877
R^2	0.295	0.253	0.393

t statistics in parentheses . * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census in the first column and 1997-2004 March CPA in second and third column. Dependent variable is logarithm of immigrant weekly earnings, transformed to standard normal distribution on each MSA level and the OLS regression is used Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, regional unemployment and wage rates, imputed years of US schooling, experience, share of same nationals in PUMA (geographical unit smaller then MSA). Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level.

Table 2-9. Distance in cultural environments and economic outcomes of immigrants. Effect of the birth country globalization

	Income, 10 brackets (Europe)	Weekly earnings (US)
Low overall globalization of birth country*distance in cultural environments	-0.26*** (-3.54)	-0.13*** (-4.44)
Medium overall globalization of birth country*distance in cultural environments	-0.18*** (-2.80)	-0.08*** (-2.93)
High overall globalization of birth country*distance in cultural environments	-0.14** (-2.08)	-0.05*** (-2.85)
Host country FE	Yes	No
Birth country FE	Yes	No
Survey FE	Yes	No
Birth country group FE	No	Yes
Correction function	Yes	No
Observations	3594	293801
R^2	0.552	0.476

Data source ESS 1-5 from 2002-2010 and 2008 EVS in the first column and the 5% US 2000 Census in the second column. In the first column dependent variable is individual household income (placement in one of 10 brackets). In the second column dependent variable is immigrant weekly earned income, standardized on MSA level. OLS regression is used. Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS). Birth country globalization levels are taken at the time when immigrant was moving from birth to host country. Data source for globalization data was Dreher, Axel (2006). "Does Globalization Affect Growth? Evidence from a new Index of Globalization". Applied Economics 38 (10): 1091–1110

Table 2-10. Robustness test of the effect of cultural distance on economic outcomes of immigrants- Europe.

	Income	Income	Income	Income	Income	Income	Income	Income
Distance between cultural environments of immigrant's birth and host countries	-0.18*** (-3.48)	-0.19*** (-3.85)	-0.20*** (-3.69)	-0.23*** (-2.98)	-0.18*** (-3.31)	-0.13** (-2.13)	-0.18*** (-3.40)	-0.20** (-2.49)
Distance in 1000 km between capitals		0.21** (2.49)						0.14 (1.36)
Squared distance in 1000 km between capitals		-0.02* (-1.80)						-0.02* (-1.78)
Birth and host country share the same border			-0.19 (-1.50)					-0.01 (-0.05)
Birth and host country have same legal origins				-0.26 (-1.52)				-0.35* (-1.87)
Birth and host countries share the same language					-0.01 (-0.08)			0.17 (1.01)
Share of host country population with the same religion						0.03 (0.29)		0.03 (0.31)
Birth and host country members of the EU at the time of immigration							-0.05 (-0.30)	-0.07 (-0.27)
Host country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3603	3603	3603	3603	3603	3003	3603	3003
R^2	0.565	0.566	0.566	0.566	0.565	0.427	0.565	0.430

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS for all columns, except for six, where data source is only ESS 1-5 from 2002-2010, because there is not religion question in EVS2008. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-11. Robustness test with different measures of distance between cultural environments of immigrants' birth and host countries – Europe.

	Income	Income	Income	Income
Cultural distance (Hofstede)	-0.18***			
	(-3.48)			
Cultural distance (Ingelhart and Welzel WVS)		-0.18		
		(-1.65)		
Cultural distance (Schwartz HVS)			-0.13***	
			(-2.79)	
Cultural distance (GLOBE project)				-0.16*
				(-1.90)
Host country FE	Yes	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	Yes
Observations	3603	3823	1734	2259
R^2	0.565	0.561	0.534	0.541

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS. Dependent variable is individual household income (placement in one of 10 brackets). Main independent variable in each column is the distance in cultural environments between immigrant's host and birth country calculated using various measures of culture;
-in column 1 Hofstede (2001) measures
-in column 2 Ingelhart and Welzel (2005) WorldValue Survey cultural measure
-in column 3 Schwartz (2006) cultural measures constructed from Human Value Scale (part of the ESS dataset) using the appropriate instructions from http://ess.nsd.uib.no/ess/doc/ess1_human_values_scale.pdf
-in column 4 results from GLOBE project by House et al. (2004)
Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-12. Robustness test with different measures of distance between cultural environments of immigrants' birth country and the US.

	Weekly earnings	Weekly earnings	Weekly earnings
Cultural distance (Hofstede)	-0.07***		
	(-3.29)		
Cultural distance (Ingelhart and Welzel WVS)		-0.05**	
		(-2.14)	
Cultural distance (GLOBE project)			-0.04**
			(-2.13)
MSA FE	Yes	Yes	Yes
Education FE	Yes	Yes	Yes
English proficiency FE	Yes	Yes	Yes
Years spent in US	Yes	Yes	Yes
Birth country group FE	Yes	Yes	Yes
Observations	306476	290477	265281
R^2	0.300	0.299	0.299

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census. Dependent variable is immigrant weekly earnings, transformed to standard normal distribution on each MSA level. OLS regression is used. Main independent variable in each column is the distance in cultural environments between immigrant's host and birth country calculated using various measures of culture;

-in column 1 Hofstede (2001) measures

-in column 2 Ingelhart and Welzel (2005) WorldValue Survey cultural measure

-in column 3 results from GLOBE project by House et al. (2004)

Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, regional unemployment and wage rates, imputed years of US schooling, experience, share of same nationals in PUMA (geographical unit smaller then MSA). Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level.

Table 2-13. Cultural distance and immigrant's income. Using Human Value Scale – Europe.

	Income	Income	Income
Distance between cultural environments of immigrant's birth and host country	-0.13*** (-2.79)		-0.13*** (-2.67)
Distance between individual immigrants' culture and the host country culture		-0.09* (-1.96)	-0.08* (-1.87)
Host country FE	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes
Education FE	Yes	Yes	Yes
Correction function	Yes	Yes	Yes
Observations	1734	1718	1718
R^2	0.434	0.433	0.435

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010.Cultrual distance variables are constructed following Schwartz guide http://ess.nsd.uib.no/ess/doc/ess1_human_values_scale.pdf

Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-14. Effect of cultural, economical and genetic distance on immigrants' income in Europe and the US.

	Income (Europe)	Income (Europe)	Income (Europe)	Weekly wages (US)	Weekly wages (US)	Weekly wages (US)
Distance between cultural environments of immigrant's birth and host country	-0.18***	-0.18***	-0.18***	-0.07***	-0.06***	-0.06***
	(-3.49)	(-3.65)	(-3.69)	(-3.40)	(-2.91)	(-3.07)
Economic distance between immigrant's birth and host country	-0.02		-0.01	-0.03*		-0.03
	(-0.17)		(-0.16)	(-1.68)		(-1.62)
Genetic distance between immigrant's birth and host country		0.07	0.07		-0.02	-0.02
		(0.32)	(0.32)		(-1.50)	(-1.48)
Host country FE	Yes	Yes	Yes	No	No	No
Birth country FE	Yes	Yes	Yes	No	No	No
Survey FE	Yes	Yes	Yes	No	No	No
Years in host country FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth country group FE	No	No	No	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	No	No	No
Education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3603	3603	3603	306476	306476	306476
R^2	0.565	0.565	0.565	0.302	0.300	0.301

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. Data source for the first three columns is the ESS 1-5 from 2002-2010 and the EVS 2008 with dependent variable is individual household income (placement in one of 10 brackets). In the last three columns US 2000 Census is analyzed and the depended variable is the natural logarithm of immigrants' weekly earnings. Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS). Economic distance constructed as the Euclidian distance between two countries in the share of agriculture, industry, exports and government expenditures in the GDP. Country level data for those economic variables is obtained from World Bank.

Table 2-15. Cultural distance, trust and economic outcomes of immigrants. Controlling for the selection into immigration – Europe.

	Income	Income (controlling for selection into immigration)
Distance between cultural environments of immigrant's birth and host country	-0.11** (-2.26)	-0.13** (-2.32)
lambda		-1.27*** (-2.95)
Host country FE	Yes	Yes
Birth country FE	Yes	Yes
Survey FE	Yes	Yes
Years in host country FE	Yes	Yes
Correction function	Yes	Yes
Observations (Emigrants)	2394	60112
Observations (non-Emigrants)	0	57718
R^2	0.581	

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS. Dependent variable is individual household income (placement in one of 10 brackets). In second column selection into immigration is taken into account using Heckman procedure with parents' education as exclusion restriction variable. Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-16. Cultural distance and immigrant wages. Analyzing war immigrants – US.

	Weekly earnings (whole sample)	Weekly earnings (war on birth country territory)	Weekly earnings (>50 war deaths per million)
Distance in cultural environments between immigrant's birth country and the US	-0.07*** (-3.29)	-0.08*** (-2.83)	-0.07** (-2.06)
English proficiency FE	Yes	Yes	Yes
Years spent in US	Yes	Yes	Yes
Share of same nationals in PUMA	Yes	Yes	Yes
Birth country group FE	Yes	No	No
Observations	306476	45491	25867
R^2	0.300	0.273	0.265

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census. Dependent variable is immigrant weekly earned income, standardized on MSA level. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, education FE, regional unemployment and wage rates, imputed years of US schooling, experience. Two way clustering of standard errors was done on birth country and the MSA level. The second column only has immigrants who moved during war times in the birth country. The third column only has immigrants who moved during war times in the birth country with more than 50 war related deaths per million of birth country inhabitants. Information about wars was obtained from Correlates of War database.

Table 2-17. Allowing for regional culture in the US using Ingelhart and Welzel WVS measures and information about early immigrants.

	Using WVS measures				*Using early immigrants' country of origin*			
	Weekly earnings	Weekly earnings	Weekly earnings	Weekly earnings	Weekly earnings	Weekly earnings	Weekly earnings	Weekly earnings
WVS distance in cultural environments between immigrant's birth country and the US	-0.05**							
	(-2.14)							
WVS distance in cultural environments between immigrant's birth country and the US Region		-0.06**	-0.07***	-0.07**				
		(-2.45)	(-3.01)	(-2.51)				
Hofstede's distance in cultural environments between immigrant's birth country and the US					-0.07***			
					(-3.29)			
Hofstede's distance in cultural environments between immigrant's birth country and the US Region						-0.06**	-0.07**	-0.06**
						(-2.09)	(-2.35)	(-1.99)
Years spent in US	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Share of same nationals in PUMA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth country group FE	Yes	No	No	No	Yes	No	No	No
Birth country FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Correction function (1st best probability)	No	No	Yes	No	No	No	Yes	No
Correction function (all probabilities)	No	No	No	Yes	No	No	No	Yes
F test for correction function (with *p*-value)			8.47	2.73			39.79	4.44
			0.002	0.00			0.00	0.00
Observations	290477	290477	290477	290477	306476	306476	306476	306476
R^2	0.299	0.304	0.304	0.305	0.300	0.302	0.301	0.302

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census and the third, fourth and fifth wave of the WVS for information about regional culture in the US. Country of origin for the early immigrants was obtained using the 1880 100% US Census. Dependent variable is immigrant weekly earned income, standardized on MSA level. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, education FE, regional unemployment and wage rates, imputed years of US schooling, experience. Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level. US is divided into nine Census regions.

Table 2-18. Effect of cultural distance on the US born workers who moved to another region within the US

	Weekly earnings	Weekly earnings
Hofstede's distance in cultural environments between immigrant's birth country and the US	-0.0107*** (-2.75)	
WVS distance in cultural environments between migrant birth and current region the US		-0.0051*** (-3.28)
race FE	Yes	Yes
education FE	Yes	Yes
MSA FE	Yes	Yes
birth region FE	Yes	Yes
Observations	89633	89633
R^2	0.374	0.374

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census and sample is limited to US born men aged 16-65 who participate in the labor force who in 1995 lived in the same US Census region they were born in, but in 2000 they lived in another US Census region .Country of origin for the early immigrants was obtained using the 1880 100% US Census and used in calculations of regional culture in the first column. In the second column third, fourth and fifth wave of the WVS was used in to calculate regional culture in the US. Dependent variable is US born migrant weekly earnings standardized on MSA level. Variables included in regression but omitted from the table are: marital status, experience and dummy for being a member of the US army. Standard errors clustered on birth country level

Table 2-19. Cultural distance and political participation – Europe.

	Interested in politics	Voting on the last election
Distance between cultural environments of immigrant's birth and host country	-0.05* (-1.88)	-0.02 (-0.45)
Host country FE	Yes	Yes
Birth country FE	Yes	Yes
Survey FE	Yes	Yes
Correction function	Yes	Yes
Observations	3715	2558

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS. In column 1 depended variable is the individual interest in politics, with answers ranges from 1, not at all interested, to 4, very interested and ordered probit regression is used. In the second column dummy for voting on the last election is the depended variable and probit regression is used. Sample is limited only to immigrants who had the right to vote on the last elections. Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-20. Cultural distance and trust in the host country institutions – Europe.

	Trust in parliament	Trust in legal system	Trust in police	Trust in politicians	Trust in political parties	Trust in institutions
Distance between cultural environments of immigrant's birth and host country	-0.07 (-1.27)	-0.12* (-1.83)	-0.08** (-2.23)	-0.02 (-0.32)	-0.11* (-1.68)	-0.10* (-1.81)
Host country FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth country FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3519	3618	3695	3589	2810	2687
R^2	0.179	0.152	0.135	0.170	0.166	0.219

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS. In columns 1-5 is the individual trust in the following host country institutions (1) parliament (2) legal system (3) police (4) politicians and (5) political parties is the dependent variable. Answer ranges from 1, not at all, to 10, a great deal. In the last column the depended variable is the first principal component of the measures of trust in host county institutions from columns 1-5. In all columns OLS regression is used. Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-21. Effects of cultural distance on immigrant's command of the host country language in Europe and the US.

	Command of English language (US)	Command of English language (US)	Usage of host country language in immigrants' household (Europe)
Distance between cultural environments of immigrant's birth and host country	-0.30*** (-4.11)	-0.15** (-2.38)	-0.13*** (-2.89)
Difficulty of learning English		-1.94*** (-3.55)	
Host country FE	Yes	Yes	Yes
Birth country FE	No	No	Yes
Years in host country FE	Yes	Yes	Yes
Birth country group FE	Yes	Yes	No
Correction function	No	No	Yes
Observations	294603	294603	3675

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. In the first and the second column data from the US 2000 Census is analyzed. Depended variable is the individual command of English with answers ranging from 1, not speaking English all to 4, speaking very well. Data source for the third column is ESS 1-5 from 2002-2010. Dependent variable in the third column is a dummy if individual uses host country language as a primary language of household communication. Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS). Source for difficulty for learning English is Chiswick and Miller (2005). Immigrants for whom the native language is the host country language are dropped from the sample.

Table 2-22. Effects of cultural distance on immigrants' health and marriage outcomes – Europe.

	Self assessed health	Married to a spouse born in the host country
Distance between cultural environments of immigrant's birth and host country	-0.05* (-1.76)	-0.04 (-1.49)
Host country FE	Yes	Yes
Birth country FE	Yes	Yes
Survey FE	Yes	Yes
Years in host country FE	Yes	Yes
Correction function	Yes	Yes
Observations	4471	543

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01 . Data source ESS 1-5 from 2002-2010 and 2008 EVS in the first column and 2008 EVS in the second column. Dependent variable in the first column in immigrant self assessed health. Answers range from 1 -very bad, to 5- very good. Ordered probit regression is used in the first column. In the second column depended variable is a dummy equal 1 if immigrant married a wife born in the host country and 0 otherwise. Probit regression is used. Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-23. Cultural distance and immigrants' deportation due to criminal conviction – US.

	Deportation due to criminal conviction	Deportation due to criminal conviction	Deportation due to criminal conviction	Deportation due to criminal conviction
Distance in cultural environments between immigrant's birth country and the US	0.30***	0.17*	0.22**	0.19*
	(2.66)	(1.70)	(2.06)	(1.71)
Murder rate in the birth country		0.53***	0.56***	0.50***
		(5.31)	(5.50)	(4.27)
Birth country natural log of GDP p/c			0.14	0.14
			(1.33)	(1.31)
Birth country Gini coefficient				0.12
				(1.03)
Observations	73	73	73	73
R^2	0.090	0.352	0.368	0.378

t statistics in parentheses* p<0.1, ** p<0.05, *** p<0.01. Data source is the US 2000 Census and the DHS yearly statistics about deportation obtained from http://www.dhs.gov/immigration-statistics. Dependent variable is the ratio of overall number of immigrants from a specific birth country deported due to criminal convictions in four year period 2000-2003, divided first with the number of non-citizens immigrants from that specific birth country living in the US in 2000 and second with its standard deviation to make coefficient magnitudes easier to interpret. All variables are in the standard deviation units. The source for murder rates in the birth country was the United Nations Office for Drug and Crime.

Table 2-24. Evolution of the cultural distance effect in the US and Canada in 1980, 1990 and 2000 Census

	Weekly earnings (US)	Monthly earnings (Canada)
Cultural distance*Year 1980	-0.0663***	-0.0223
	(-3.18)	(-0.78)
Cultural distance*Year 1990	-0.0742***	-0.0520**
	(-3.82)	(-2.36)
Cultural distance*Year 2000	-0.0947***	-0.0655**
	(-3.38)	(-2.12)
Metropolitan area FE	Yes	Yes
Year FE	Yes	Yes
Year X State FE	Yes	Yes
English proficiency FE	No	No
Education FE	Yes	Yes
Year X Education FE	Yes	Yes
Birth country groups FE	Yes	No
Year X Birth country groups FE	Yes	No
Observations	611516	44061
R^2	0.285	0.258

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01 Data sources are 5% US 1980, 1990 and 2000 Censuses in column 1. In column 2 data sources are 1981, 1991 and 2001 Canadian Census. Dependent variable is immigrants' weekly earned income standardized on MSA level in the first column and immigrants' monthly earned income standardized on CSA level. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI and Gini coefficient, time dummies, marriage dummy, regional unemployment and wage rates, imputed years of US and Canadian schooling, experience, share of same nationals in region. Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Standard errors based on clustering by both birth country and MSA (CSA in Canada) level.

Table 2-25. Effects of cultural dimensions on immigrants' income in Europe and the US

	Income bracket (Europe)	Income bracket (Europe)	Income bracket (Europe)	Income bracket (Europe)	Weekly earnings (US)	Weekly earnings (US)	Weekly earning s (US)	Weekly earning s (US)
Absolute distance between birth and host country in the Power Distance dimension	-0.08 (-1.43)				-0.05** (-2.22)			
Absolute distance between birth and host country in the Individualism dimension		-0.18* (-1.89)				-0.11*** (-7.60)		
Absolute distance between birth and host country in the Masculinity dimension			-0.03 (-0.75)				-0.01 (-0.40)	
Absolute distance between birth and host country in the Uncertainty Avoidance dimension				-0.25*** (-5.27)				-0.04* (-1.71)
Host country FE	Yes	Yes	Yes	Yes	No	No	No	No
Birth country FE	No	No	No	No	No	No	No	No
Survey FE	Yes	Yes	Yes	Yes	No	No	No	No
Years in host country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth country group FE	No	No	No	No	Yes	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	Yes	No	No	No	No
Observations	3603	3603	3603	3603	306476	306476	306476	306476
R^2	0.546	0.547	0.546	0.549	0.296	0.299	0.295	0.296

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS in the first four columns, while in the last four columns source is the US 2000 5% Census. In the first four columns dependent variable is individual household income (placement in one of 10 brackets). In the last four columns dependent variable is immigrant weekly earned income, standardized on MSA level. OLS regression is used. Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, education FE, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS).

Table 2-26. Culture levels vs. cultural distance -Power distance. Europe.

	Income	Income	Income
Absolute distance between birth and host country	-0.52	-0.16	
in Power distance	(-1.26)	(-0.59)	
Birth country level of Power distance	-0.25		-0.34
	(-0.50)		(-1.08)
Host country FE	***No***	***Yes***	***Yes***
Birth country FE	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes
Correction function	Yes	Yes	Yes
Observations	3603	3603	3603
R^2	0.519	0.548	0.548

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS and OLS regression is used. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-27.Culture levels vs. cultural distance –Individualism. Europe

	Income	Income	Income
Absolute distance between birth and host country	-0.29	-0.81*	
in Individualism	(-0.61)	(-1.94)	
Birth country level of Individualism	0.13		0.66*
	(0.28)		(1.77)
Host country FE	***No***	***Yes***	***Yes***
Birth country FE	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes
Correction function	Yes	Yes	Yes
Observations	3603	3603	3603
R^2	0.518	0.549	0.549

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS and OLS regression is used. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level
.

Table 2-28.Culture levels vs. cultural distance –Masculinity. Europe.

	Income	Income	Income
Absolute distance between birth and host country	-0.09	-0.14	
in Masculinity	(-0.21)	(-0.63)	
Birth country level of Masculinity	-0.65**		-0.05
	(-2.20)		(-0.16)
Host country FE	***No***	***Yes***	***Yes***
Birth country FE	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes
Correction function	Yes	Yes	Yes
Observations	3603	3603	3603
R^2	0.519	0.548	0.548

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS and OLS regression is used. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-29.Culture levels vs. cultural distance –Uncertainty avoidance. Europe

	Income	Income	Income
Absolute distance between birth and host country in	-0.67**	-1.07***	
Uncertainty avoidance	(-1.99)	(-4.88)	
Birth country level of Uncertainty avoidance	-0.31		-0.63***
	(-1.10)		(-3.54)
Host country FE	***No***	***Yes***	***Yes***
Birth country FE	Yes	Yes	Yes
Years in host country FE	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes
Correction function	Yes	Yes	Yes
Observations	3603	3603	3603
R^2	0.520	0.551	0.550

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS and OLS regression is used. Dependent variable is individual household income (placement in one of 10 brackets). Covariates included in the regression but omitted from the table: working spouse, marriage dummy, number of household members, regional unemployment, potential work experience, share of same nationals in host country, urban and rural dummies, education FE, education in host country dummy, unemployment dummy, and dummy for host and birth country belonging to a same polity in the last 100 years. Standard errors based on clustering by both birth country and host country*X*survey level.

Table 2-30. ‘Most productive’ culture in Europe and the US.

	Income bracket (Europe)	Income bracket (Europe)	Income bracket (Europe)	Weekly earnings (US)	Weekly earnings (US)	Weekly earnings (US)
Distance between cultural environments of immigrant’s birth and host country	-0.13***		-0.12***	-0.07***		-0.10***
	(-3.42)		(-3.92)	(-3.29)		(-4.03)
Distance between immigrant’s birth country culture and the ‘most productive’ culture		-0.10	-0.00		-0.08**	0.06
		(-1.56)	(-0.04)		(-2.47)	(1.61)
Host country FE	Yes	Yes	Yes	No	No	No
Birth country FE	No	No	No	No	No	No
Survey FE	Yes	Yes	Yes	No	No	No
Years in host country FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth country group FE	No	No	No	Yes	Yes	Yes
Correction function	Yes	Yes	Yes	No	No	No
Education FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3603	3603	3603	306476	306476	306476
R^2	0.547	0.546	0.547	0.294	0.292	0.294

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source ESS 1-5 from 2002-2010 and 2008 EVS in the first three columns, while in the last three source is the US 2000 5% Census. In the first three columns dependent variable is individual household income (placement in one of 10 brackets). In the last three columns dependent variable is immigrant weekly earned income, standardized on MSA level. OLS regression is used Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, education FE, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS). ‘Most productive’ culture is constructed as an average of the values in specific cultural dimensions for the ten richest countries.

Table 2-31. Cultural distance and the immigrants' wages. Effect of diaspora size and the share of immigrants in the MSAs - US.

	Weekly earnings	Weekly earnings
Small diaspora*cultural distance	-0.04**	
	(-1.99)	
Medium diaspora*cultural distance	-0.10***	
	(-4.32)	
Large diaspora*cultural distance	-0.15***	
	(-5.01)	
Low share of immigrants*cultural distance		-0.04
		(-1.43)
Medium share of immigrants*cultural distance		-0.06***
		(-2.62)
High share of immigrants*cultural distance		-0.11***
		(-5.15)
MSA FE	Yes	Yes
education FE	Yes	Yes
English proficiency FE	Yes	Yes
Years spent in US	Yes	Yes
Share of same nationals in puma	Yes	Yes
Observations	306476	306476
R^2	0.296	0.296

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% US 2000 Census. Dependent variable is logarithm of immigrant weekly earnings, transformed to standard normal distribution on each MSA level and the OLS regression is used. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI index and Gini coefficient, marriage dummy, education FE, regional unemployment and wage rates, imputed years of US schooling, experience, share of same nationals in PUMA (geographical unit smaller then MSA). Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level. Size of diaspora was calculated at the PUMS level, while the share of immigrants is taken at the MSA level at the time when immigrant moved to the US.

Appendices

<u>*Appendices used in the first chapter*</u>

Appendix A1 – Alternative ways of calculating HCI

In this section series of robustness test will be preformed to show that main results of the paper are stabile when different ways of calculating HCI are used. In the specification used in the main body of the paper discount rate applied for calculating time discount was 0.4%. In the first robustness test time distance discounts will be calculated using 0.6% and 0.2% rates as well. Figure A.1 shows how those time distance discounts look in a given year, when appropriate discount rates are plugged in equation 3.

One of the alternative ways to calculate length effects would be to use linear form which would allow that each additional year of change in political borders of the region has the same effect. Length effect will not grow after change in borders has lasted for more than two generations time which is 50 years. After two generations have been raised, schooled and lived in the same country, the family is very well accustomed to the country and additional years will bring little change in a family's identification with the current country.

This linear specification of the length effect will be:

$$length\ effect_l = \frac{50 - l}{50} \quad if\ l < 50, and\ 1\ otehrwise \qquad (A.1)$$

Both linear and concave length effect, which is used in the paper, are shown in the Figure A.2. Results of this robustness tests for all three datasets used in the paper is given in the Table A.1. First two rows are using discount rate of 0.6%, third and fourth row 0.4% and last two are 0.2% when calculating time distance discounts. Even rows use concave way of calculating length effects, while odd rows use linear procedure give in equation A.1. Specification applied in the main body of the paper is in the 4th row of each dataset – one where time distance discount is calculated with discount rate of 0.4% and concave form is used for length effect.

Table A.1 shows that the highest coefficient associated with HCI are obtained when discount rate of 0.6 is used. On the other hand there is no clear pattern of how statistical significance of HCI changes with various ways of calculating HCI across 3 datasets. Overall negative and statistically significant results are preserved in almost all specification, which shows that negative effect of past border changes on current level of political trust is robust to changes in ways of HCI calculation.

More interesting robustness test, which can also tell something more about the nature of the effect of past border changes is using different functional forms for calculating time distance discounts. One used in paper is a convex one, and linear and concave will be constructed in the following way:

$$time\ discount\_linear_y = \frac{y - 1450}{500} \qquad (A.2)$$

$$time\ discount\_concave_y = 1.1 - \frac{1}{(1 + 0.004)^{y-1450}} \qquad (A.3)$$

Figure A.3 shows these three functional forms for time discounts – concave, linear and convex. Results obtained using these various functional forms for time discounts on three datasets are given in Table A.2. First two rows are obtained using concave form (equation A3), third and fourth with linear form (equation A.2) and last two with convex form (equation 2). As in Table A.1 even rows use concave way of calculating length effects, while odd rows use linear procedure give in equation A.1. Functional from that corresponds to the one used in the main body of the paper is given in the row 6.

From Table A.2 clear pattern emerges. Results show that the biggest and the most statistically significant effect of HCI is when convex time discounting is applied. This is line with the mechanisms described in this paper, which predict that marginal effect of each additional year should be higher for more recent events. Convex time discounting model has feature that the difference between two consecutive year effects is larger the closer one is to the current time.

Appendix B1 – list of variables used in the paper

Purpose of this appendix is to give a list of variables used in the paper, as well as short description on how those variables constructed and/or source of the variable.

HCI

Construction of a HCI was described in great detail in the paper. However two more things have to be noted. For a change to count it is required that it lasts for at least 6 years.[102] In this way, frequent changes of borders during WW I, WW II or other wars are

[102] To avoid double counting of the same polity reconquering the same area does not count, unless there was at least 50 year period between two rulings. This would mean that when Austria won Eastern Adriatic

omitted, which allows focusing on more permanent changes that could have had a long-lasting effect on political trust.

Furthermore for a change to be counted in HCI it must include a change in the political and military administration of the region. It is usually the result of a war. It excludes peaceful union forming between two countries, for example personal union of Poland with Lithuania and then with Saxony, or Hungarian Kingdom's decision to choose Habsburgs for their rulers after defeat from Ottomans in 1526.

Hapsburg weight and Ottoman weight

Economic literature recognizes different effects of these two empires that affected all 6 countries, as in Becker, Boeckh, Hainz, Woessmann (2011), Grosjean (2011) and Dimitrova-Grajzl (2007). Empire weights are constructed in the same fashion as in Dimitrova-Grajzl (2007). Each 25 years under certain empire prior to 1700 adds 1 to empire weights, while each 25 years after 1700 spent under empire rule adds 2 to the ruling empire weight. Left out rulers that are not captured by these Hapsburg and Ottoman dummies include Russian Empire, Polish kingdom, Venice, Napoleon, Italian kingdom, and since middle of 19^{th} century independent national states.

Furthermore, because of huge Hungarian minority in Romania which considered Habsburg Empire to be their national state, additional Romanian Habsburg variable is created. This intercept between Romanian country dummy and Habsburg weight variable allows influence of Habsburg Empire to be different in Romania then in other countries in the sample.

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shore back from Napoleon this change did not count since the time period between two Austrian rules was only 8 years.

life satisfaction

It is answer to how much does an individual agrees with the following statement:

All things considered, I am satisfied with my life now.

Possible answers range from 1- strongly agrees to 5- strongly disagree

generalized trust

This is the answer to the standard question in social survey:

"Generally speaking, would you say most people can be trusted or that you can't be too careful in dealing with people?"

Possible answers range from 1, complete distrust, to 5, complete trust.

income

Measures of income are not the same in all three datasets used in this papar. In LiTS I and II this was an answer to the following question:

Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest people and on the highest step, the tenth, stand the richest. On which step of the ten is your household today

where possible answers go from 1 to 10. In EVS 2008 income is reported more objective. Variable income is monthly household income corrected for PPP in euros.

Education FE

dummies that correspond to the following 6 educational levels: not finished primary school, finished primary school, finished high school, some college, finished college and post graduate education

Super - regional FE

There are 21 variables that represent super regional dummies. Number of superregional dummies is chosen to be proportional to the country size.

Montenegro – South and North Montenegro

Slovenia – West, Central and East Slovenia

Croatia – West, East and South Croatia

Serbia – North, Central and South Serbia

Romania – West, South, Central and North Romania

Ukraine - West, Center-West, Black Sea, Center, North, East

Gender

sex of the individual

Age, age^2

age and age squared of the individual reported in the survey. Using square of age allows for non linear effects.

Majority share, majority share^2

For each country the biggest ethnic group is indentified.[103] This variable gives the percentage of that ethnicity in the PSU region. Square of it allows for the non- linear effects. Source for this variable is the latest census data, which can be found on Wikipedia

Employment status

Dummy variable that is equal 1 if the individual has worked for salary in the last month prior to the survey

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[103] All countries in my sample are nation states; therefore Ukrainians are majority in Ukraine, Romanians in Romania, Montenegrians in Montenegro, Serbians in Serbia, Croats in Croatia and Slovenians in Slovenia.

Religion

This variable is individual's answer to a question about religious believes. Possible answers are Orthodox, Catholic, Muslim, Atheist and others

Rural, urban or metropolitan status of the PSU

three dummies that show if PSU is a rural, urban or metropolitan location.

Measure of economic output of the region

This is relative (comparing to the country average) measure of regional GDP per capita. Regional GDP measure was not available for Montenegro and Ukraine. In Ukraine the average regional wage was used instead, while for all regions in Montenegro, country-level GDP was used

distance, distance^2

This variable measures closest road distance from the PSU to the country's capital. Distance is then transformed into relative because of discrepancy in sizes of the country in the sample (Ukraine has above 600 000 km2, while Montenegro size is only 13 800 km2). Square of it allows for the non- linear effects. Source for this variable was Google maps software.

density

This variable gives population density in a given PSU region. Source for this variable is the latest census data, which can be found on Wikipedia

angle

This is one of the variables used as an instrument for HCI. For each country, the influencing Empires are indentified.[104] Lines that connect empire capitals are determined, and with usage of mapping software and cosine theorem angles of each location within country with respect to that line are calculated. Figure B.1 shows an example of those lines for the Romanian capital Bucharest. The empire capitals in question are Vienna (Habsburg) and Istanbul (Ottoman) and the line connecting them is shown in red color. In this way, for every location two angles are calculated. Each represents the angle between the line connecting a specific location with one of the empire capitals and line that connects empire capitals. In the example in figure 1 angle 1 will be at Istanbul between lines that connect it with Bucharest and Vienna, while angle 2 would be at Vienna between lines that connect Vienna with Bucharest and Istanbul. The maximum of those two angles is taken, and if the country was influenced by more than two Empires, like Croatia, Romania and Ukraine, maximum angles connecting different Empire capitals are added. This variable is called *angle*, and it is the last out of three IV variables used.

[104] For Slovenia those are Venice and Habsburg empire, for Croatia - Venice, Habsburg and Ottoman Empire, for Serbia - Habsburg and Ottoman, and for Romania and Ukraine - Ottoman, Habsburg and Russian Empire. As noted before, Montenegro is dropped from the sample due to unavailability of data for calculating terrain roughness.

Appendix C1 – placebo test

This appendix list questions used in robustness tests performed on various measures of uncivicness and civil action using all there available datasets. In LiTS I 2006 the following question is asked and the answers to it will serve as a measure of uncivicness:

In your opinion, how often is it necessary for people like you to have to make unofficial payments/gifts in these situations?

(1) Interact with the road police

(2) Request official documents from authorities

(3) Interact with the police on matters other than traffic and other than requesting documents

(4) Go to courts for a civil matter?

(5) Receive medical treatment in the public health system

(6) Receive public education

(7) Request unemployment benefits?

(8) Request other social security benefits

Answers are in the range (1) - Never to (5) – Always

Even though the question does not directly ask about the individual's own unofficial payments, it is commonly used as a measures uncivincess in social science literature. Overall the results of the analysis when answers to the questions about unofficial payments are used as the dependent variable, show no effect of HCI on measures of uncivicness. Results are available from author upon request.

In LiTS II question that can be used as a measure of uncivicness was the following:

Some people think that certain behaviors are always wrong, whereas other believe that there are occasions when breaking the rules may be justified. How wrong, if at all, do you consider the following behaviors to be?

1. Speeding to take somebody to the hospital in an emergency

2. Paying cash with no receipts to avoid paying VAT or other taxes

3. Selling something second hand without mentioning all of its defects

4. Making an exaggerated insurance claim

5. A public official asking for a favor or gift in return of services

6. Buying a university degree that one has not earned

7. Keeping an accidental overpayment from an employer

The possible answers range from 1, not wrong at all, to 4, seriously wrong. Results of the individual regressions on each answer show no statistical significance of HCI coefficient and are available from author upon request.

In the last survey used in this paper, EVS2008, the question about individual attitudes toward uncivicness is:

Please tell me for each of the following whether you think it can always be justified, never be justified, or something in between, using this card.

- *Claiming state benefits which you are not entitled to*
- *Cheating on tax if you have the chance*
- *Someone accepting a bribe in the course of their duties*
- *Paying cash for services to avoid taxes*

Answers in this case range from 1 - Never justified to 10 - always justified. Individual question results show that HCI does not play a significant role in any measure of uncivicness and are available from author upon request.

Another placebo test is conducted on individual measures of potential civic participation. In all three surveys the following questions were asked:

How likely are you to

- *Attend lawful demonstrations*
- *Participate in strikes*
- *Join a political party*
- *Sign petitions*

The possible answers are 1, have done, 2, might do and 3, would never do. Results for all three datasets confirm that HCI is not significant predictor for any of the measures of uncivicness. Those result are available from author upon request.

Appendix D1 –list of PSUs and their HCI and super-regions

This appendix gives the list of all PSU used in LiTS II 2010 together with their HCI and super-region they belong to.

PSU	**Super-region**	**HCI**
Croatia		
Apatovec	West Croatia	0.9
Belajske Poljice	South Croatia	1.77
Bestovje	Central Croatia	0.9
Dalj	Central Croatia	1.46
Donji Grad	Central Croatia	0.9
Drljanovac	West Croatia	0.9
Dubrovnik	South Croatia	1.95
Gaj	Central Croatia	0.9
Gornja Dubrava	Central Croatia	0.9
Gornja Vrba	Central Croatia	1.46
Jeducevac	West Croatia	0.9
Kamenmost	South Croatia	2.36
Karlovac	South Croatia	1.2
Kasel Stari	South Croatia	1.8
Koprivnica	West Croatia	0.9
Kras	West Croatia	2.67
Kruskovac	South Croatia	1.77
Maksimir	Central Croatia	0.9
Martinnjscinana	West Croatia	0.9
Matulji	West Croatia	2.67

Mraclin	Central Croatia	0.9
Nova Gradiska	Central Croatia	1.46
Novi Zagreb-Istok	Central Croatia	0.9
Okucani	Central Croatia	1.46
Osijek	Central Croatia	1.46
Pleternica	Central Croatia	1.46
Pribislavec	West Croatia	0.9
Primorski Dolac	South Croatia	1.8
Prosenik	West Croatia	0.9
Pula	West Croatia	2.67
Rijeka	West Croatia	2.67
Sesvete	Central Croatia	0.9
Sisak	South Croatia	0.9
Slavonski Brod	Central Croatia	1.46
Solin	South Croatia	1.8
Split	South Croatia	1.8
Stenjevec	Central Croatia	0.9
Terezino Polje	West Croatia	1.46
Topid	West Croatia	2.67
Topolovac	South Croatia	1.77
Treshnjevka-Jug	Central Croatia	0.9
Treshnjevka-Sjever	Central Croatia	0.9
Trnje	Central Croatia	0.9
Trpinja	Central Croatia	1.46
Virovitica	West Croatia	1.46
Zadar	South Croatia	2.67
Zaton	South Croatia	1.95
Cazma	West Croatia	0.9
	Montenegro	
Djechji Vrtich Lj.Popovich	North Montenegro	0.89
Djechji Vrtich Palchica	North Montenegro	0.89
Danilovgrad Ii	North Montenegro	0.69
Gradevinska Shkola "Marko Radevich"	North Montenegro	0.89
Jp Centar "Moracha"	North Montenegro	0.89
Ju Osh "Pavle Rovinski"	North Montenegro	0.89
Ju Osh "Sutjeska"	North Montenegro	0.89
Ju Osh Shtampar Makarije	North Montenegro	0.89
Jzu Dom Zdravlja	North Montenegro	0.89
Kucha Pprelevich Bozidara	North Montenegro	0.89
Mk	North Montenegro	0.89
Udruz.Pronal.I Autora Teh. Unapr.	North Montenegro	0.89
Zgr.Grad.Opsh.Tuzi(Ranije Osh"M.Lekich)	North Montenegro	0.89
Zgrada Vrhovnog Suda Rcg	North Montenegro	0.89
Bar	South Montenegro	0.89
Berane	South Montenegro	1
Bjelo Polje	South Montenegro	1
Budva	South Montenegro	1.8
Cetinje	North Montenegro	0.76
Herceg Novi	South Montenegro	1.8
Kolassin	North Montenegro	0.83
Kotor	South Montenegro	1.8
Mojkovac	North Montenegro	1
Niksic	North Montenegro	0.89
Plav	South Montenegro	1
Pljevlja	South Montenegro	1
Rozaj	South Montenegro	1
Tivat	South Montenegro	1.8
Ulcinj	South Montenegro	0.89
	Romania	
23 August	South Romania	0.89
Amarastii De Jos	West Romania	1.18
Barcanesti	South Romania	0.83
Breaza	North Romania	1.55
Bucuresti Sectorul 2	Central Romania	0.83
Bucuresti Sectorul 3	Central Romania	0.83
Bucuresti Sectorul 4	Central Romania	0.83
Bucuresti Sectorul 5	Central Romania	0.83
Bucuresti Sectorul 6	Central Romania	0.83
Caiuti	North Romania	0.86
Cuza Voda	South Romania	0.83
Floresti	Central Romania	1.46
Galateni	South Romania	0.83
Hidiselu De Sus	Central Romania	1.46
Ivanesti	North Romania	0.86
Mileanca	North Romania	0.86
Moftin	Central Romania	1.46
Municipiul Moreni	South Romania	0.83
Municipiul Adjud	North Romania	0.86
Municipiul Bacau	North Romania	0.86
Municipiul Baia Mare	Central Romania	1.46
Municipiul Brasov	South Romania	1.46
Municipiul Calarasi	South Romania	0.83

Municipiul Cluj-Napoca	Central Romania	1.46
Municipiul Constanta	South Romania	0.89
Municipiul Craiova	West Romania	1.18
Municipiul Dej	Central Romania	1.46
Municipiul Deva	Central Romania	1.46
Municipiul Focsani	North Romania	0.86
Municipiul Galati	North Romania	0.86
Municipiul Iasi	North Romania	0.86
Municipiul Petrosani	Central Romania	1.46
Municipiul Ploiesti	South Romania	0.83
Municipiul Ramnicu Valcea	West Romania	1.18
Municipiul Rosiori De Vede	South Romania	0.83
Municipiul Sibiu	Central Romania	1.46
Municipiul Suceava	North Romania	1.55
Municipiul Timisoara	West Romania	1.46
Oras Agnita	Central Romania	1.46
Oras Ghimbav	South Romania	1.46
Oras Saveni	North Romania	0.86
Ozun	South Romania	1.46
Pischia	West Romania	1.46
Rosia De Amaradia	West Romania	1.18
Sanpetru De Campie	Central Romania	1.46
Tartasesti	South Romania	0.83
Tepu	North Romania	0.86
Tomesti	North Romania	0.86
Valeni	West Romania	1.18
Zarand	West Romania	1.46
	Serbia	
Aleksandrovac	Central Serbia	1.11
Aleksinac	South Serbia	0.89
Arandelovac	Central Serbia	1.11
Bachki Petrovac	North Serbia	1.46
Bajina Bashta	Central Serbia	1.11
Beograd	Central Serbia	1.11
Bogatic	Central Serbia	1.11
Bor	North Serbia	1.11
Bujanovac	South Serbia	1
Chachak	Central Serbia	1.11
Choka	North Serbia	1.46
Gornji Milanovac	Central Serbia	1.11
Jagodina	Central Serbia	1.11
Kikinda	North Serbia	1.46
Kragujevac	Central Serbia	1.11
Kraljevo	Central Serbia	1.11
Krushevac	Central Serbia	1.11
Lajkovac	Central Serbia	1.11
Leskovac	South Serbia	0.89
Loznica	Central Serbia	1.11
Mali Idosh	North Serbia	1.46
Negotin	North Serbia	1.11
Nish	South Serbia	0.89
Nova Crnja	North Serbia	1.46
Novi Pazar	Central Serbia	1
Novi Sad	North Serbia	1.46
Odzaci	North Serbia	1.46
Panchevo	North Serbia	1.46
Paracin	Central Serbia	1.11
Pecinci	North Serbia	1.46
Pirot	South Serbia	0.89
Pozarevac	North Serbia	1.11
Priboj	Central Serbia	1
Prokuplje	South Serbia	0.89
Shabac	Central Serbia	1.11
Shid	North Serbia	1.46
Smederevo	North Serbia	1.11
Sombor	North Serbia	1.46
Sremska Mitrovica	North Serbia	1.46
Subotica	North Serbia	1.46
Trstenik	Central Serbia	1.11
Uzice	Central Serbia	1.11
Valjevo	Central Serbia	1.11
Vranje	South Serbia	0.89
Vrbas	North Serbia	1.46
Vrshac	North Serbia	1.46
Zajechar	North Serbia	1.11
Zrenjanin	North Serbia	1.46
Zabari	North Serbia	1.11
	Slovenia	
Ajdovshchina	West Slovenia	2.08
Apache	East Slovenia	0.9
Azhenski Vrh	East Slovenia	0.9
Beka	West Slovenia	2.08

Bochna	East Slovenia	0.9	Levpa	West Slovenia	2.08
Boracheva	East Slovenia	0.9	Ljubljana	Central Slovenia	1.2
Breg Pri Zagradcu	Central Slovenia	1.2	Logatec	Central Slovenia	1.2
Breginj	West Slovenia	2.08	Lokovica	Central Slovenia	0.9
Brezovica Pri Ljubljani	Central Slovenia	1.2	Maribor	East Slovenia	0.9
Celje	East Slovenia	0.9	Mestinje	East Slovenia	0.9
Chreta	East Slovenia	0.9	Murska Sobota	East Slovenia	0.9
Cirkovce	East Slovenia	0.9	Nedelji	East Slovenia	0.9
Col	West Slovenia	2.08	Novo Mesto	Central Slovenia	1.2
Dolenje Kronovo	Central Slovenia	1.2	Podmilj	Central Slovenia	1.2
Dolga Vas	Central Slovenia	1.2	Poljche	West Slovenia	1.2
Dolini	East Slovenia	0.9	Portorozh	West Slovenia	2.08
Fuzhine	West Slovenia	1.2	Postojna	Central Slovenia	2.08
Gabrje	Central Slovenia	1.2	Ptuj	East Slovenia	0.9
Gazhon	West Slovenia	2.08	Rajnkovec	East Slovenia	0.9
Golobinjek	Central Slovenia	1.2	Ravne Na Koroshkem	Central Slovenia	0.9
Goricah	East Slovenia	0.9	Ravnica	West Slovenia	1.2
Gorichica Pri Moravchah	Central Slovenia	1.2	Razori	Central Slovenia	1.2
Gornja Radgona	East Slovenia	0.9	Renche	West Slovenia	2.08
Gornji Dolich	Central Slovenia	0.9	Rova	Central Slovenia	1.2
Grachnica	East Slovenia	0.9	Rozhno	East Slovenia	1.2
Hrastulje	Central Slovenia	1.2	Rushe	East Slovenia	0.9
Ivanchna Gorica	Central Slovenia	1.2	Sedlashek	East Slovenia	0.9
Izola	West Slovenia	2.08	Sevnica	East Slovenia	1.2
Jesenice	West Slovenia	1.2	Shempeter Pri Gorici	West Slovenia	2.08
Jurovski Dol	East Slovenia	0.9	Shentjur	East Slovenia	0.9
Kamnik	Central Slovenia	1.2	Shkofja Rizha	Central Slovenia	1.2
Kljucharovci Pri Ljutomeru	East Slovenia	0.9	Shkofljica	Central Slovenia	1.2
Kochevje	Central Slovenia	1.2	Stanezhiche	Central Slovenia	1.2
Komendska Dobrava	Central Slovenia	1.2	Trate	East Slovenia	0.9
Koper	West Slovenia	2.08	Trbovlje	Central Slovenia	1.2
Koroshka Bela	West Slovenia	1.2	Trchova	East Slovenia	0.9
Kostanjevec	East Slovenia	0.9	Velenje	East Slovenia	0.9
Kovor	West Slovenia	1.2	Veliko Brdo	Central Slovenia	2.08
Kranj	West Slovenia	1.2	Zagaj	East Slovenia	0.9
Krapje	East Slovenia	0.9	Zagorje Ob Savi	Central Slovenia	1.2
Krshka Vas	East Slovenia	1.2	Zgornje Bitnje	West Slovenia	1.2
Krtince	East Slovenia	0.9	Zhelezniki	West Slovenia	1.2
Lemberg Pri Novi Cerkvi	East Slovenia	0.9		***Ukraine***	
Lendavske Gorice	East Slovenia	0.9	Berdychiv	Central-West Ukraine	0.54
Levec	East Slovenia	0.9	Birki	West Ukraine	2.32

Chasiv Yar	East Ukraine	0.5
Chernigiv	North Ukraine	0.56
Derjanivka	Central-West Ukraine	0.7
Desnyanskiy - School 306 - Balzaka	North Ukraine	0.31
Donetsk	East Ukraine	0.5
Drogobych	West Ukraine	2.28
Gola Prystan'	East Ukraine	0.5
Golosiivskiy - 40-Richchya October, 94	North Ukraine	0.31
Gorlovka	East Ukraine	0.5
Goroholina	West Ukraine	2.28
Green Guy	East Ukraine	0.5
Ilnicya	West Ukraine	2.28
Izyum	North Ukraine	0
Kalush	West Ukraine	2.28
Kamyanka	Central Ukraine	0.54
Kharcizk	East Ukraine	0.5
Kharkiv	North Ukraine	0
Khmelnytskyy	Central-West Ukraine	2.48
Kolomak	North Ukraine	0
Kominternivske	Central-West Ukraine	2.26
Kostyantinovka	East Ukraine	0.5
Kozyatin	Central-West Ukraine	0.7
Krasnodon	North Ukraine	0.37
Kremenchuh	Central Ukraine	0.31
Krivoy Rog	Central Ukraine	0.31
Kulykiv	West Ukraine	2.28
Kyseliv	West Ukraine	2.28
L'Viv	West Ukraine	2.28
Lugansk	North Ukraine	0.37
Luptsi	North Ukraine	0
Lypiv Rih	North Ukraine	0.56
Makeevka	East Ukraine	0.5
Melitopol	East Ukraine	0.5
Mykolaiv	Black Sea Ukraine	0.72
Nikopol	Central Ukraine	0.31
Novomyrgorod	Black Sea Ukraine	0.54
Novopskov	North Ukraine	0.37
Obolonskiy - Heroes Of Dnepr, 40A	North Ukraine	0.31
Oboznivka	Central Ukraine	0.31
Odesa	Central-West Ukraine	2.26
Oktyabrskoe	Black Sea Ukraine	0.5
Ol'Shans'Ke	Black Sea Ukraine	0.72
Pidgorone	Central Ukraine	0.31
Poliske	Central-West Ukraine	0.54
Radkivtsi	Central-West Ukraine	2.48
Rivne	West Ukraine	2.32
Salgany	Central-West	2.26
School 135	Central Ukraine	0.31
School N101 - Krasnogvardeiskiy - Balakereva	Central Ukraine	0.31
Serdytsya	West Ukraine	2.28
Sevastopol	Black Sea Ukraine	0.5
Severodonetsk	North Ukraine	0.37
Shevchenko - Artem St, 60 - „Institute Of Transport Of Oil"	North Ukraine	0.31
Simferopol	Black Sea Ukraine	0.5
Starolozuvatke	Central Ukraine	0.31
Sumy	North Ukraine	0.17
Svyatoshinskiy - Zodchih St, 44	North Ukraine	0.31
Tarasivka	North Ukraine	0.31
Ternopil	Central-West Ukraine	2.28
Tuchyn	West Ukraine	2.32
Uzin	North Ukraine	0.31
Velike Mishkove	East Ukraine	0.5
Vinkivtsi	Central-West Ukraine	2.48
Vinogradiv	West Ukraine	2.28
Vyshnopil	Central Ukraine	0.54
White Church	North Ukraine	0.31
Yarishivka	Central-West Ukraine	0.7
Zaporizhzhya	East Ukraine	0.5
Zastinka	Central-West Ukraine	2.28
Zhovtneve	North Ukraine	0.17
Zuya	Black Sea Ukraine	0.5

Appendices used in the second chapter

Appendix 2.A1 – Dahl's (2002) correction function approach

This Appendix describes in more detail mechanism behind Dahl's (2002) correction function approach. For an individual immigrant i from birth state b who chooses to move to host state *h*, the income function is equation (A1):

$$wage_{i,b,h} = \beta_1 cultural\ distance_{b,h} + \beta_2 X_i + \beta_3 local\_unemployment_{\ h} + \beta_4 countrymen\ share_{b,h} + \delta_b + \delta_h + u_{i,b,h} \quad (A1)$$

Individual wages are not observed for all states, just for the one where the immigrant has chosen to settle. Due to self-selection of immigrants, it might be the case that that error term $u_{i,b,h}$ does not have zero mean conditional on covariates, and this could cause bias in OLS estimates.

Immigrants choose their host country based on utility maximization. The utility of immigrant *i* from birth state *b* who moved into host country h can be presented as an additively separable function of earnings and tastes:

$$Utiliy_{i,b,h} = wage_{i,b,h} + taste_{i,b,h} \quad (A2)$$

Tastes represent all non earnings determinants that affect utility, which can be written as:

$$taste_{i,b,h} = \beta z_{i,b,h} + w_{i,b,h} \quad (A3)$$

where $z_{i,b,h}$ stands for a vector of individual characteristics like climate, political, language and religious distance between birth country *b* and host country *h*. $w_{i,b,h}$ is the error term. The overall utility can be written as:

$$Utiliy_{i,b,h} = Utility_{b,h} + e_{i,b,h} \quad (A4)$$

where $Utility_{b,h}$ denotes observable factors that affect the utility of individuals moving from country *b* to *h*. The term $e_{i,b,h}$ represents the sum of income and taste error terms, $e_{i,b,h} = w_{i,b,h} + u_{i,b,h}$.

An immigrant from birth country *b* will move to the host county *h* only if the move maximizes his utility. An indicator function, $M_{i,b,h}$, for an immigrant who chooses to immigrate from *b* to host country *h* is defined as:

$$M_{i,b,h} = 1 \quad iff \quad Utiliy_{i,b,h} = \max\left(Utiliy_{i,b,1}, Utiliy_{i,b,2} \ldots Utiliy_{i,b,N}\right) \ or$$
$$= 1 \quad iff \quad Utility_{\,b,h} + e_{i,b,h} \geq Utility_{\,b,m} + e_{i,b,m} \quad \forall m$$

$$M_{i,b,h} = 0 \ otherwise \qquad (A5)$$

In this way, the error term from the income Equation (A1), which represents selectivity bias of immigrant *I*, can be written as:

$$E\left[u_{i,b,h} | wage_{i,b,h} \ is \ observed\right] = E\left[u_{i,b,h} | M_{ijh} = 1\right]$$
$$= E\left[u_{i,b,h} | e_{i,b,h} - e_{i,b,m} \leq Utility_{b,h} - Utility_{\,b,m}, \forall m\right] \quad (A6)$$

In general, it will not be equal to 0, thus making OLS estimates biased. Bias will depend upon the joint distribution of $u_{i,b,h}$ and the error terms from all possible N migration equations (A4). Dahl (2002) reduces the dimensionality of this problem using the findings of previous work by Lee (1983).

Lee's approach starts with defining a joint density function of the error term in the income equation (A1) and the error terms of the selection criteria: $f_{b,h}(u_{i,b,h}, e_{i,b,1} - e_{i,b,h}, \ldots, e_{i,b,N} - e_{i,b,h})$. $F_{b,h}$ denoting the corresponding cumulative distribution. This cumulative function can also be written as:

$$F_{b,h}\left(r, Utility_{b,1} - Utility_{b,h}, \ldots, Utility_{b,N} - Utility_{b,h}\right)$$
$$= \Pr\left(u_{i,b,h} < r, e_{i,b,1} - e_{i,b,h} < Utility_{b,1} - Utility_{b,h}, \ldots., e_{i,b,N} - e_{i,b,h} < Utility_{b,N} - Utility_{b,h}\right)$$
$$= \Pr\left(u_{i,b,h} < r, max_m\left(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h}\right) < 0 \,|Utility_{b,1} - Utility_{b,h}, \ldots, Utility_{b,N} - Utility_{b,h}\right)$$
$$= G_{b,h}\left(r, 0 | Utility_{b,1} - Utility_{b,h}, \ldots, Utility_{b,N} - Utility_{b,h}\right) \quad (A7)$$

where $G_{b,h}$ represents well defined cumulative joint distribution function for $u_{i,b,h}$ and $max_m\left(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h}\right)$. In this case the following equivalence holds:

$$f_{b,h}(u_{i,b,h}, e_{i,b,1} - e_{i,b,h}, \dots, e_{i,b,N} - e_{i,b,h} | Utility_{b,1} - Utility_{b,h}, \dots, Utility_{b,N} - Utility_{b,h})$$
$$= g_{b,h}(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h}) | Utility_{b,1} - Utility_{b,h}, \dots, Utility_{b,N} - Utility_{b,h}) \quad (A8)$$

As Dahl (2002) notes, equation A8 has reduced the dimensionality of the error terms that must be accented for. It express an N-variate joint distribution in terms of a bivariate distribution of $u_{i,b,h}$ and maximum order statistics $max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h})$. The underlining assumption that is used in Lee's approach is the following one:

$$g_{b,h}\left(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h})\right) \text{ does not depend on } Utility_{b,1} - Utility_{b,h}, \dots, Utility_{b,N} - Utility_{b,h} \quad (A9)$$

Dahl (2002) relaxes this assumption by taking advantage of the observation that selectivity bias can be written as a function of the probability of selection given covariates:

$$g_{b,h}(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h}) | Utility_{b,1} - Utility_{b,h}, \dots, Utility_{b,N} - Utility_{b,h})$$

$$= g_{b,h}(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h}) | p_{i,b,1}, \dots, p_{i,b,N}) \quad (A10)$$

where $p_{i,b,N}$ represents the probability that immigrants *i* from birth country *b* will immigrate to host country *N*. Key insight of Dahl's approach is the index sufficiency assumption which states that only $p_{i,b,h}$, or the probability of immigrants' first best choice, is the only relevant probability is estimating (A10). Other probabilities add no new information. More formally, the Dahl index sufficiency assumption can be written as:

$$g_{b,h}\big(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h})\big|Utility_{b,1} - Utility_{b,h}, \ldots, Utility_{b,N} - Utility_{b,h}\big) = g_{b,h}\big(u_{i,b,h}, max_m\,(Utility_{b,m} - Utility_{b,h} + e_{i,b,m} - e_{i,b,h})\big|p_{i,b,h}\big) \quad (A\ 11)$$

Dahl gives a simple example of the index sufficiency assumption. If we consider two immigrants born in the same birth country b, who chose to immigrate to the same host country h, then the fact that their second choice of where to immigrate differs plays no role and cannot affect the error term $u_{i,b,h}$in the income equation (A1). In that case, a correction term $\lambda(p_{i,b,h})$ can be added to the income function:

$$wage_{i,b,h} = \beta_1 cultural\ distance_{b,h} + \beta_2 X_i + \beta_3 local\ unemployment_{\ h} + \beta_4 countrymen\ share_{b,h} + \lambda\big(p_{i,b,h}\big) + \delta_b + \delta_h + u_{i,b,h}, \quad (A12)$$

where $\lambda(p_{i,b,h})$ can be approximated with polynomial of Fourier series of $p_{i,b,h}$. In this way equation A12 can be estimated using OLS.

The Index sufficiency assumption reduces the dimensions of the correction function and thus avoids the problem of curse of dimensionality. Additionally, it does not require additivity of the utility function or the independence of irrelevant alternatives assumption, which is common in nested Logit models. However, it assumes that the covariance between the error term of the income equations, $u_{i,b,h}$, and the various error terms from the selection model in equation (A4) are only a function of $p_{i,b,h}$. According to Dahl (2002) and Bourguignon et al. (2007), the best way to test this assumption would be to allow all the possible probabilities, $p_{i,b,1}, \ldots\ldots p_{i,b,N}$ to enter the income function (A12) as part of the polynomial correction term. However, this would lead to a huge increase in dimensionality which could make the estimation impossible due to the curse of dimensionality. In my application, I will be able to include all probabilities in the correction function in the US dataset, where the US is divided into 9 census regions. Because of the high number of possible host nations it will not be an option in the European dataset.

Appendix 2A2 -Estimating probabilities for Dahl's (2002) correction function

In this subsection I describe how Dahl's (2002) correction function, $\lambda(p_{i,b,h})$ from Equation 3 can be approximated using a polynomial function or Fourier series of $p_{i,b,h}$. To obtain probabilities $p_{i,b,h}$ of immigrant *i* from birth country *b* choosing host county *h*, I use a non-parametric approach as in Dahl (2002). First, I divide immigrants into cells based on their demographic characteristics. Immigrants who have the same characteristics have similar costs and benefits of immigration to a specific host country and can be grouped into the same cell. Second, for each cell, I find the probabilities that the immigrant from that cell will end up in any of the possible host countries. Finally, $p_{i,b,h}$ is the probability that any immigrant from the same cell as immigrant *i* chooses host country *h* for his destination. I will describe this process in more detail separately for the European dataset.

In the European dataset immigrants are assigned to a specific cell according to their birth country, education level, and time of immigration, following Dahl's (2002) semi parametric procedure. This classification has been chosen based on the data availability. There are 79 possible birth countries, 3 possible educational levels (primary school, high school and college education) and 2 possible times of arrival in host country (prior to 1991 and after 1991). This results in 395 cells. Given that the number of immigrants that I observe in the ESS and EVS surveys represents just a small fraction of the overall number of immigrants, any immigration probability estimated from my dataset would not be very precise. Because of this, I extract immigration probability for each cell using the more comprehensive dataset created by Docquier, Lowell and Marfouk (DLM) 2009.

Docquier, Lowell and Marfouk (DLM) compiled a dataset on immigration by host and birth country, educational attainment and time of immigration. They used an OECD database containing aggregate information about all immigrants from 193 countries that entered any of the 34 OECD countries. Using the DLM dataset, I collect the exact number of overall immigrants for each of the cells I have in my dataset. The fraction of immigrants in a specific cell who immigrated to a given host country estimates the probability that any immigrant in the cell will follow the same immigration path. This is also true for my much smaller dataset, because there is no reason to believe that immigrants who take part in the ESS and EVS differ from the overall immigrant population. Because 93% of the immigrants in my European sample move to one of the OECD countries, this procedure gives probabilities $p_{i,b,h}$ for almost my entire sample.[105] Moreover, because I use true probabilities for the whole population, and not estimated ones from the sample, standard errors from the OLS regression in my European dataset will be consistent.

To give an example, Table B3 in Appendix B shows cell probabilities for a limited subsample of immigrants from Croatia who moved to Italy, Austria or Switzerland. As stated before, birth and host country cells are also divided based on education and the time of migration. For example, first row in Table B3 shows that out of all Croatian immigrants without high school degree and who immigrated before 1991, 1.9% of them ended in Italy, 5.7% in Austria and 9.7% choose Switzerland as a host country. Moreover, Table B3 shows that there is a substantial variation in the cell probabilities, thus allowing identification using correction function.

[105] Immigrants who moved to non-OECD countries (Russia, Croatia, Bulgaria, Serbia) are dropped from the analysis with the correction function.

3. Additional tables and graphs used in the first chapter

Table 3-1. Example of immigration probabilities for immigrants from Croatia which moved to Italy, Austria or Switzerland.

birth country	education	immigration period	% of immigrants choosing host country		
			Italy	*Austria*	*Switzerland*
croatia	no high school degree	1981-1991	1.9%	5.7%	9.7%
		1991-2001	0.0%	4.3%	7.6%
	high school degree	1981-1991	2.9%	5.5%	8.4%
		1991-2001	0.2%	25.6%	18.5%
	college degree	1981-1991	1.6%	1.4%	3.8%
		1991-2001	0.1%	11.7%	14.0%

Source: Docquier, Lowell and Marfouk (2009)

Table 3-2 Descriptive statistic for the European dataset. (N=3606)

Variable	***Mean (standard deviation)***	***Min***	***Max***
Household income	***4. 35 (2.7)***	***1***	***10***
Years of education	***13.03 (3.01)***	***8***	***18***
Potential experience	***22.67 (11.51)***	***0***	***52***
Age at arrival at host country	***22.83(11.43)***	***0***	***30***
Schooling in host country	***.27 (.44)***	***0***	***1***
Cultural distance	***2.57 (1.07)***	***0.39***	***5.42***

4. Additional tables and graphs used in the second chapter

Table 4-1. Descriptive statistic for the US dataset. (N=334243)

Variable	**Mean (standard deviation)**	**Min**	**Max**
Yearly earnings	**36518.89(45789.27)**	**5**	**354000**
Weeks worked last year	**46.30 (11.34)**	**7**	**52**
Unemployed	**.055 (.229)**	**0**	**1**
Years of Education	**12.40 (3.32)**	**8**	**18**
Potential Experience	**19.41 (11.80)**	**0**	**52**
Years in the US	**15.61 (11.48)**	**0**	**64**
Age at arrival in the US	**22.32 (10.94)**	**0**	**63**
Schooling in US	**.31**	**0**	**1**
Cultural distance	**3.43 (0.98)**	**0.30**	**5.10**

Table 4-2 -Effects of cultural distance and the immigrants' weekly earnings in the US.

	Weekly wage	Weekly wage	Weekly wage	Weekly wage	Weekly wage
Distance between cultural environments of immigrant's birth the US	-0.11*** (-2.74)	-0.08*** (-3.29)	-0.07*** (-2.97)	-0.07*** (-2.93)	-0.07*** (-3.29)
Immigrant is married		0.21*** (10.74)	0.21*** (9.04)	0.21*** (8.42)	0.21*** (8.53)
Log birth country GDP p/c, in standard deviation units				0.05* (1.84)	0.11** (2.22)
Birth country HDI					-0.60 (-1.43)
Birth country group FE	Yes	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Local labor market conditions	Yes	Yes	Yes	Yes	Yes
Experience	No	Yes	Yes	Yes	Yes
Education FE	No	Yes	Yes	Yes	Yes
Years schooling done in the US	No	No	Yes	Yes	Yes
Years spent in US	No	No	Yes	Yes	Yes
English proficiency FE	No	No	No	Yes	Yes
Share of same nationals in PUMA	No	No	No	Yes	Yes
Observations	306476	306476	306476	306476	306476
R^2	0.116	0.271	0.286	0.294	0.295

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01 Data source is 5% US 2000 Census. Dependent variable is log of immigrant weekly earned income, standardized on MSA level. Standard errors clustered on birth country level and MSA level

Table 4-3. Effects of cultural distance and immigrants income, comparison of the European with the US dataset.

	Income (European dataset)	Income (US dataset)
Distance between cultural environments of immigrant's birth and host country	-0.14***	-0.23***
	(-3.11)	(-3.99)
host country FE	No	No
birth country FE	No	No
years in host country FE	Yes	Yes
Birth country group	No	No
correction function	No	No
Observations	3606	346584
R^2	0.519	0.260

Data source ESS 1-5 from 2002-2010 and 2008 EVS in the first column and the 5% US 2000 Census in the second column. In the first column dependent variable is individual household income (placement in one of 10 brackets). In the second column dependent variable is immigrant weekly earned income, standardized on MSA level. OLS regression is used. Variables included in the regression but omitted from table are: marriage dummy, potential work experience, share of same nationals, education in host country, education FE, unemployment dummy. Additionally, the US regressions include birth country GDP, HDI and GINI coefficient and MSA FE. Standard errors based on clustering by both birth country and host country*X*survey level (in the US second level was MAS).

Table 4-4. Correlation between different measures of cultural distance used.

	Hofstede	**WVS**	**Schwartz**	**GLOBE**
Hofstede	***1***			
WVS	***0.4136***	***1***		
Schwartz	***0.2443***	***0.5256***	***1***	
GLOBE	***0.5408***	***0.5673***	***0.3604***	***1***

Table 4-5. Effect of cultural distance on immigrants' labor market outcomes in 2001 Census- Canada.

	unemployment	months worked	monthly wage
Distance in cultural environments between immigrant's birth country and Canada	0.01 (0.35)	-0.42*** (-3.73)	-.08*** (-2.71)
CSA FE	Yes	Yes	Yes
Education FE	Yes	Yes	Yes
Years spent in Canada	Yes	Yes	Yes
Share of same nationals in CSA	Yes	Yes	Yes
Observations	27574	27157	25707
R^2	.		0.127

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is 5% Canadian 2001 Census. Dependent variable is immigrant unemployment status in the first column, months worked in the second column and the natural logarithm of monthly wage standardized on CSA level in the last column. In the first column probit regression was used, in the second column tobit was used and in the last column OLS was used Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI and Gini coefficient, marriage dummy, regional unemployment and wage rates, imputed years of Canadian schooling, experience. Two way clustering of standard errors was done on birth country and the CSA level.

Table 4-6. Different cultural measures and immigrant unemployment on 1970-1975 cohorts- US.

	Wages (cohort that entered the US in 1970-1975)	Wages (cohort that entered the US in 1975-1980)
Cultural distance*year 1980	-9.72***	-10.90***
	(-3.71)	(-3.23)
Cultural distance*year 1990	-7.49***	-9.41***
	(-3.88)	(-3.86)
Cultural distance*year 2000	-7.00***	-7.44***
	(-2.74)	(-2.76)
metropolitan area FE	Yes	Yes
Years in the US FE	Yes	Yes
Birth country group FE	Yes	Yes
Observations	51669	74849
R^2	0.264	0.289

t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01. Data source is US 1980, 1990 and 2000 Census. Dependent variable is immigrant weekly earned income, standardized on MSA X year level. Variables included in regression but omitted from the table are birth country natural logarithm of GDP p/c, HDI and Gini coefficient, marriage dummy, regional unemployment and wage rates, imputed years of US schooling, experience, education FE, education X year FE, year FE, year X state FE, share of same nationals in PUMA (geographical unit smaller then MSA). Country groups FE are Anglo-Saxon, European, East European, Arab, Asian, Latin American, Caribbean and African dummies. Two way clustering of standard errors was done on birth country and the MSA level.

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