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The effect of culturally different and culturally similar immigrants on voting outcomes in the United States of America

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Appendix

This paper investigates the effect of culturally similar and culturally different immigrant on voting outcomes in the United States from 2005 – 2019. Using the shift-share (IV) method, the results shows that both an increase in the share of culturally similar and culturally different immigrants results in a decrease in the Republican vote share. The decrease is less prominent for culturally different immigrants. The result remains constant after performing the robustness check. The results cannot be interpreted as causal due to insufficient evidence for the shift-share (IV) assumptions.

The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam.

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1. Introduction

The United States of America, often referred to as the “land of opportunity” has served as a magnet for immigrants. Especially the *American Dream* attracts individuals from across the globe seeking for better prospects and a brighter future. The *American Dream*, the idea that the United States is the land of opportunity, that allows equality, freedom, mobility, and prospect for everyone that works hard (Murtoff, 2023). Immigrant population in the United States (U.S.) keeps growing. Immigrants today account for 13.7% of the total U.S. population, which is almost three times the share in 1970 (4.8%) (Pew Research Center, 2022). Since the increase in immigrants, the focus on immigration policy also increased. The U.S. political system is a two-party system. Two parties dominate the political field: the Democratic Party and the Republican party. The Democratic Party generally supports left-leaning, progressive and liberal ideas. The left-wing party supports residency of certain undocumented immigrants. On the other hand, the Republican Party is conservative and right-leaning. In general, The Republican Party is in favor of strong border control and deportation of undocumented immigrants (U.S. Embassy & Consulate, 2023).

This paper investigates the effect of culturally similar and culturally different immigrants on the Republican vote share in the United States for the years 2005 – 2019. Previous research (further discussed in the literature review) shows that natives can have negative attitudes towards immigrants due to different factors. These negative outcomes can be translated into an increase in support for the right-wing (anti-immigrant) parties. This paper contributes to the current literature by investigating whether the attitude towards immigrants is contrasting for culturally different and similar immigrants. Also, this paper studies whether the results are different in regions where the exposure to immigrants is relatively high or low.

To study the effect of culturally similar and culturally different immigrants on voting outcomes in the United States, individual and election data is used. The paper utilizes ordinary least squares (OLS) and the shift-share (instrumental variable, IV) to form the results. The results shows that culturally similar, and culturally different immigrants decrease the Republican vote share. However, the decrease is stronger for culturally similar immigrants. Culturally different immigrants have a less negative effect on the Republican vote share. After performing a robustness check, the conclusion remains consistent. The higher the exposure to immigrants, the higher the decrease in the votes for the right-wing party. This conclusion is consistent for culturally similar and culturally different immigrants and shows evidence for the contact theory.

The results need to be interpreted with caution, due to insufficient evidence for the shift-share (IV) assumptions. Therefore, the results cannot be interpreted as causal but do show a correlation between culturally similar and culturally different immigrants, and the Republican vote share.

The remainder of the paper is organized as follows: Section 2 summarizes previous research. Section 3 describes the data sets, variables, and shows the descriptive statistics. Section 4 explains the methodology used and assumptions of the methodology. Section 5 presents the main results. Section 6 presents the results of the robustness check. Section 7 shows the results of the heterogeneity analysis. Lastly, section 8 and 9 discuss the limitations and conclusions.

2. Literature review

Immigration and political outcomes

Previous research about the relationship between immigrants and voting outcomes has been done, especially in Europe. For example, Brunner and Kuhn (2018) investigated the effect of immigration on anti-immigration policy in Switzerland. The hypothesis states that immigrants that are culturally different from natives, i.e., their norms and values differ substantially from the Swiss' norms and values, are perceived as a threat to natives' national and cultural identity. The perceived threat increases with the cultural distance between natives and immigrants. The cultural distance can influence the natives' attitudes towards immigrants, and therefore the voting outcomes. Using an instrumental variable approach, the results show that culturally different immigrants have a positive effect on anti-immigration policies. However, culturally similar immigrants do not influence the natives' attitudes. This paper is similar to the research of Brunner and Kuhn, however applied in the United States. The research of Brunner and Kuhn is adjusted to the Swiss political system, where citizens can vote directly for immigration policies. Brunner and Kuhn consider the votes for immigration policies as independent variable, while this paper considers the vote share of the right-wing party as independent variable. This research also studies whether the attitude towards immigrants changes, when individuals are more exposed to immigrants, which contributes to the study of Brunner and Kuhn (2018).

Similar research has been done by Harmon (2018). The paper investigates the impact of immigration and ethnic diversity on political outcomes in Denmark between 1981 and 2001. The increase ethnic diversity is measured as the increase in non-Western immigrants. Using an instrumental variable approach, the results show that an increase in non-Western immigrants decreases the political support for left-wing (pro-immigration) parties. Instead, the political support for right-wing (anti-immigration) parties increases. This research shows, similarly to Brunner and Kuhn (2018) that an increase in ethnic diversity leads to a shift in political power towards right-wing, and therefore anti-immigrant parties.

Dustmann, Vasiljeva, and Damm (2019) conduct similar research in Danish municipalities over the period 1986 – 1998. Also using an instrumental variable approach, the same results can be drawn as the study by Harmon (2018). Dustmann, Vasiljeva, and Damm (2019) add to the previous research by studying the difference in rural and urban areas. In rural areas, the support for right-wing, anti-immigration parties increases with immigration. However, in urban areas, an increased immigrant vote share decreases the vote share for right-wing parties.

In line with previous research, the research performed by Roupakias and Chletsos (2020) concludes that an increase in immigration increases natives' support for right-wing parties. At the same time, the political support for left-wing parties decreases. The results are mostly driven by the presence of non-OECD immigrants. The study has been done in Greece over the period 2004 – 2012, using an instrumental variable approach.

Mayda et al. (2022) discusses the political impact of high-skilled, and low-skilled immigrants in the United States over the period 1990 – 2016. Using the shift-share method, which is also the base for the paper, the authors find that low-skilled immigrants increase the vote share for the right-wing party. On the other hand, high-skilled immigrants and the Republican vote share have a negative relation. After performing several robustness checks, the conclusion remains the same.

In contrast to other studies, the study by Lonksy (2020) finds a negative effect of immigration on far-right party outcomes. The increase in immigrant share shifts the support from right-wing, anti-immigration parties towards left-wing, pro-immigration parties. The intuition behind this effect could be that the negative effect is only present in communities with a high initial immigrant share. This shows evidence for the contact theory, where the importance of contact between natives and immigrants is emphasized. The contact between the two groups

could decrease prejudices about immigrants. The subsequent section will elaborate further on the contact theory.

Contact theory & ethnic competition theory

This paper will also investigate whether the results on voting outcomes are different between areas where the immigrant share is relatively high or low. Higher exposure to immigrants, could change the attitude towards immigrants. This attitude can be translated into voting outcomes. In the literature two major theories are known about higher exposure to immigrants: the contact theory and the ethnic competition theory. Allport (1954) is one of the first to introduce the contact theory. Allport argues that a negative attitude towards immigrants can be formed due to (religious, ethnic, or racial) prejudice. The contact theory argues that intergroup contact, or higher exposure to immigrants, can decrease prejudice about immigrants. The decrease in prejudice translates into a less negative, or even positive attitude towards immigrants, as Amir (1969) argues. The conditions must be “favorable” to reduce prejudice. Pettigrew and Tropp (2006) contribute to the existing literature by finding evidence for the contact theory, using extensive data.

The ethnic competition theory posits that natives perceive immigrants as a threat, since they compete together on the labor market. Therefore, natives' attitude towards immigrants is negative, and increases as exposure to immigrants increases. Bélanger and Pinard (1991) are one of the first to introduce the ethnic competition theory. The authors argue that the necessary conditions for the ethnic competition theory to hold: 1) competition must be perceived as unfair, and 2) competitive relations between natives and immigrants should be mostly free from interdependence. Scheepers (2002) complement the theory by providing evidence for the theory. The author conducts research under 15 European countries and find that European citizens' wish to deny civil rights to legal immigrants, that are already living in the country. The effect is largest for citizens that have similar social positions to the legal immigrants. Both individuals and immigrants as a collective are perceived as a threat.

In conclusion, previous research shows natives' have overall a negative attitude towards immigrants. This negative attitude translates into political outcomes shifting towards right-wing policies and parties. This especially holds for culturally different immigrants. However, research also shows that frequent contact to immigrants can influence the negative attitude towards immigrants. Considering the contact theory, higher exposure to immigrants can

decrease the negative attitude towards immigrants, or even create a positive attitude towards immigrants. The ethnic competition theory argues that natives perceive to compete with immigrants, and therefore increases the negative attitude towards immigrants. Considering the previous literature, the hypothesis in this paper is that an increased culturally different immigrant share increases negative attitudes towards immigrants, which affects the right-wing party in the U.S. positively. The expected mechanism behind the result is similar to the mechanism in the research of Brunner and Kuhn (2018): culturally different immigrants could be seen as a threat to the American values and beliefs.

Due to the conflicting contact theory and ethnic competition theory, it is difficult to make expectations about the voting outcomes in regions with a higher or lower immigrant share. The contact theory would predict that in communities with a higher immigrant share, the attitude towards immigrants is less negative than in communities with a lower immigrant share, which is the case for both culturally similar and culturally different immigrants. According to the ethnic competition theory, increased exposure to culturally similar and culturally different immigrants increases the negative attitude towards immigrants, which translates in a higher vote share for the right-wing party.

3. Data

Data sets

The research employs three data sources. The first data source is the American Community Survey (ACS). The ACS contains individual data about natives and immigrants. Different variables are conducted from this dataset, country of origin, including age, income, marital status, ethnicity, educational attainment, and occupation. Data from 2005 (the first year that the ACS is published) until 2019 is used. The years after 2019 are excluded, since the COVID-19 crisis could bias the results. The individual data is on a Public Use Microdata Area (PUMA) level, where a PUMA is a region with 100,000 or more residents.

The second dataset is conducted from the CQ Press Library. This dataset contains data about the voting outcomes in the U.S. Voting outcomes from the Presidential and Senate election will be used, for every even year within the period from 2005-2019. The election data is on a county level.

Since the individual data and the election data are not on the same level, a third dataset is needed to convert the datasets to the same level. Data from the Missouri Census Data Center is used to convert the election dataset to a PUMA level. Therefore, the analysis is on a PUMA level. Also, the PUMA levels change in 2012. Therefore, another dataset from the Missouri Census Data Center is used to convert the data to the same 2012 PUMA levels.

Dependent variable

The dependent variable in this research is the Republican vote share, which is defined as:

$$r_{ite} = \frac{RepublicanVotes_{ite}}{TotalVotes_{ite}}$$

Where $RepublicanVotes_{ite}$ is the number of votes for candidate associated for the Republican Party in PUMA i , year t , and election e . $TotalVotes_{ite}$ is the total votes in PUMA i , year t , and election e .

Independent variable

The independent variables of the main analysis are two groups: a culturally similar immigrant group and a culturally different immigrant group. The assignment of the immigrants into these groups is based on the country of origin. The determination of whether a country is culturally similar or different from the U.S. is based on Inglehart and Welzel's Cultural Map. The value system is first introduced by Inglehart and Baker (2000). The cultural map is based on the World Values Survey (WVS). The WVS is conducted every five years in more than 120 countries. The WVS is a social survey which aim is to analyze countries' values, beliefs, and norms. The questions are divided into following topics: social values, attitudes and beliefs towards gender, family, and religion; attitudes and experience of poverty; education, health, and security; social tolerance and trust; attitudes towards multilateral institutions. The study allows to make cross-national and over-time comparisons.

After analyzing the WVS data, political scientists Ronald Inglehart and Christian Welzel identify two cultural dimensions:

- 1) Traditional values versus Secular-rational values
- 2) Survival values versus Self-expression values

Traditional values underscore the importance of religion, strong parent-child bonds, respect for authority, and traditional family values. Individuals who value the traditional values are also

more likely to reject abortion, divorce, euthanasia, and suicide. Traditional societies have higher levels of national pride and are more nationalistic.

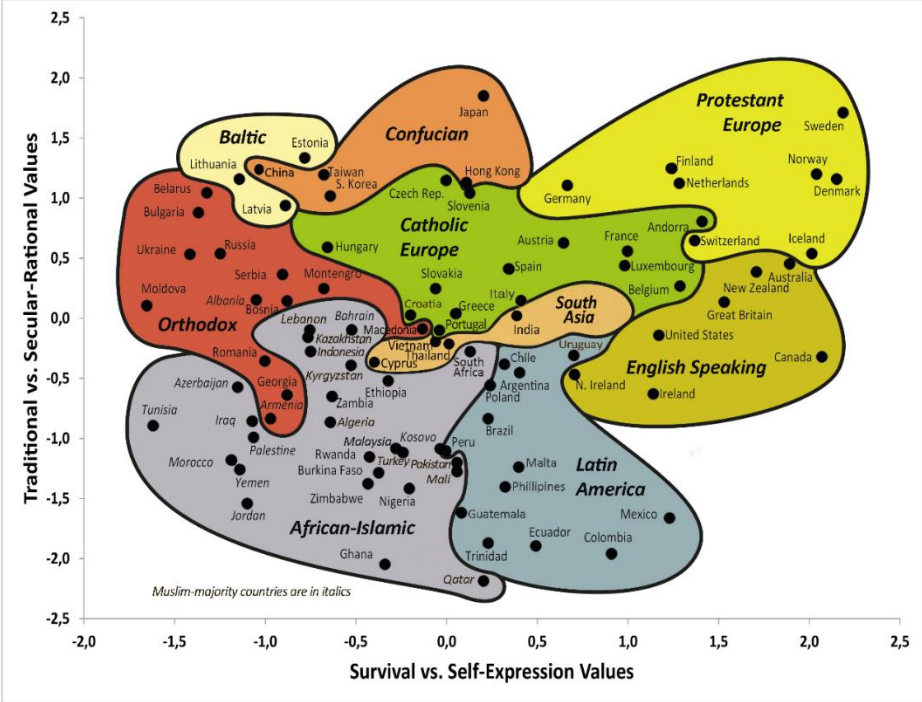
Secular-rational values are the opposite of traditional values. Societies with secular-rational values place less emphasis on religion, authority, or traditional family values. These societies relatively accept abortion, divorce, euthanasia, and suicide.

Societies with survival values are societies that have low individual autonomy and existential security. Therefore, these societies prioritize economic and physical security. Survival values are linked with low levels of trust, and societies feel threatened by ethnic diversity and cultural change. The latter leads to intolerance for the LGBTQ+ community and other minorities.

Self-expression values are typical for postindustrial societies. Since there is social and physical security, self-expression values prevail. These values include emphasizing tolerance, trust, personal expression, involvement in economic and political decision-making. The self-expression societies are tolerant for immigration, LGBTQ+ individuals, and gender equality.

The dimensions are visualized in the cultural map. Figure 1 shows Inglehart and Welzel's cultural map for the years 2010 – 2014. For scores below zero, traditional and survival values are important. For scores above zero, secular-rational and self-expression values are important.

Figure 1 – Inglehart and Welzel’s cultural map



Inglehart and Welzel mention in their research that cultural groups visualized in Figure 1 are subjective. For the main analysis, countries that have values similar to the U.S., will be placed in the culturally similar group. The remaining countries will be placed in the culturally different group. Since the assignment of the culturally similar countries is subjective, a ‘small’ group and ‘large’ group will be created, where the small group contains less countries than the larger group. Specifically, the small group contains the countries: Luxembourg, Belgium, New Zealand, Great Britain, Ireland, and Uruguay. Unfortunately, the data does not allow to use these exact countries. Therefore, the small, culturally similar group contains Western Europe (excluding France and Germany), United Kingdom, and England.

The large group contains the above countries and: Austria, France, Switzerland, Iceland, Australia, Canada. Again, the data does not allow to use these exact countries. Therefore, the large, culturally similar group contains Western Europe, United Kingdom, England, France, Australia, and Canada. The culturally different immigrant group includes all countries, except for the countries listed in the large culturally similar group.

The use of Inglehart and Welzel’s cultural map is based on the paper by Brunner and Kuhn (2018). The use of the cultural map is preferred since the cultural map is based on extensive survey data. The survey data covers, as described above, many different aspects of culture. Only considering for example language, religion or norms and values, covers only partly the definition of culture. Above that, the map is also convenient for comparing countries. The two dimensions make culturally similar and culturally different countries comprehensible.

Moreover, the cultural map is a constant measure for culture. What someone denotes under culture, can have different definitions for different persons. The questions in the survey are the same for all countries that the survey is deducted in. As a result, the measurement of culture is constant among all the questioned countries.

Descriptive statistics

Table 1 shows the descriptive statistics of natives, culturally similar (small and large group) and culturally different immigrants, using demographic characteristics. As can be seen in the table, the average age is for natives higher than for the immigrant groups. The average income is the highest among culturally similar immigrants, even higher than the average income among natives. The average income is lowest for the culturally different immigrants. Educational attainment has four different levels, where level 0 indicates that an individual has not completed any education. Level 1 indicates that an individual finished primary school.

Level 2 indicates that an individual has a high school diploma. Level 3 means that an individual has a diploma for any form of tertiary education. The average educational attainment is highest for culturally similar immigrant groups. However, each group has on average completed high school. The share of male and share of married are similar among the natives and culturally similar groups. The share of male is somewhat lower for the culturally different group, and the share of married is lower compared to the other three groups. The share of unemployed individuals is highest among culturally different groups. Note that an individual is also classified as unemployed when that person is not in the labor force, due to too young, retired or disabled.

Table 1. Descriptives statistics

	Culturally			
	Natives	Similar	Similar	Different
Average age	40.11 (0.00388)	32.67 (0.166)	36.93 (0.119)	32.40 (0.0434)
Average income	28,206 (8.184)	34,717 (681.3)	32,683 (389.5)	17,512 (96.77)
Average educational attainment	2.032 (0.000130)	2.289 (0.00747)	2.309 (0.00454)	2.085 (0.00196)
Share of male	0.490 (8.06e-05)	0.489 (0.00449)	0.490 (0.00286)	0.517 (0.00112)
Share of married	0.404 (7.91e-05)	0.405 (0.00441)	0.440 (0.00284)	0.386 (0.00109)
Share of unemployed	0.563 (8.00e-05)	0.540 (0.00448)	0.586 (0.00282)	0.635 (0.00108)
Observations	38,494,423	12,400	30,530	198,388

The table shows the averages and shares of different demographic characteristics over the years 2010-2019. The first column of culturally similar immigrant group represents the ‘small’ group, with less countries used in the country assignment. The second column of culturally immigrant group represents the ‘large’ group, with more countries used in the country assignment. Average income is measured in 2019 U.S. dollars. Educational attainment has four different levels, where level 0 indicates that an individual has not completed any education. Level 1 indicates that an individual finished primary school. Level 2 indicates that an individual has a high school diploma. Level 3 means that an individual has a diploma for any form of tertiary education. An individual is classified unemployed when he/she is unemployed or not in the labor force. Standard errors in parentheses.

For the results to be reliable, it is important that the groups are randomly selected, except for the treatment. The treatment in this case is being culturally similar or culturally different compared to the natives' culture. The mean of other (demographic) variables should not be significantly different from each other, which is tested using balance tests. If the difference in mean is significant, the variable should be included in the analysis. Table 2 shows the balance tests between culturally similar and culturally different groups. The first row reports the difference in mean for culturally similar immigrants, using the small assignment of countries, and culturally different immigrants. The second row shows the difference in mean for culturally similar immigrants, using the large assignment of countries, and culturally different immigrants.

Table 2. Balance tests

	Average age	Average income	Average educational attainment	Share of male	Share of married	Share of unemployment
Treatment small group	0.268 (0.171)	17,206*** (688.2)	0.204*** (0.00772)	-0.0273*** (0.00463)	0.0197*** (0.00454)	-0.0957*** (0.00460)
Treatment, large group	4.526*** (0.127)	15,171*** (401.3)	0.224*** (0.00495)	-0.0267*** (0.00307)	0.0541*** (0.00304)	-0.0494*** (0.00302)

The table reports the statistical difference in mean of several characteristics between culturally similar and culturally different immigrants. The first row reports the difference in means for the small group country assignment. The second row reports the difference in mean for the large group country assignment. Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

As can be seen in Table 2 all means for several demographic variables (except the average age in the first row of the table) are significantly different from each other. Therefore, all these variables will be controlled for in the analysis.

One concern might be that that the mechanism through which immigrants affect natives' attitudes is not culture, but for example economic factors. For example, immigrants compete with natives on the labor market, which natives could perceive as a threat. Also, the two immigrant groups could not only differ in culture, but also in skill level. As research of Mayda et al. (2022) show that natives perceive high-skilled and low-skilled immigrant differently. The following section will present descriptive statistics regarding the occupation of natives and the immigrant groups. The descriptive statistics give insights in the similarities and differences in

skill level between natives and the immigrant groups. Table 3 shows the five most common occupations among natives, and the immigrant groups.

Table 3. Five main occupations for natives, culturally similar and different immigrants

Occupation	Culturally			
	Natives	Similar	Similar	Different
1	Office and Administrative Support	Management, Business, Science	Management, Business, Science	Office and Administrative Support
2	Sales and Related	Office and Administrative Support	Office and Administrative Support	Management, Business, Science
3	Management, Business, Science	Education, Training, and Library	Education, Training, and Library	Education, Training, and Library
4	Installation, Maintenance, Production, and Repair Workers	Sales and Related	Sales and Related	Sales and Related
5	Education, Training, and Library	Food Preparation and Serving	Food Preparation and Serving	Installation, Maintenance, Production, and Repair Workers

The table reports the five most common occupations for natives, and the culturally similar (small and large group assignment) and culturally different immigrants.

Table 3 shows that among natives, and the immigrant groups the occupations are similar. For example, the occupations in management, business, and science, the occupations in sales and related and the occupations in office and administrative support occur in every group. The most common occupations for the two culturally similar groups are equivalent. Note that due to the structure of the data, the occupations had to be grouped. Unfortunately, the data is grouped into working areas. Therefore, the different skill levels are grouped in each working area. For example, the occupation group ‘management, business and science’ contains several managers in several working areas. The group contains chief executives, but also food service managers. Due to data limitations, the occupations listed in Table 3 and the educational attainment as reported in Table 1 are the best measurements for skill level.

As Table 2 already showed, all four groups on average completed high school. However, the educational attainment is (significantly) higher for culturally similar immigrants. To ensure that the results are driven by the difference in culture, and not skill level, the analysis controls for average occupation and educational attainment for each immigrant group.

4. Methodology

To estimate the effect of culturally similar and different immigrant on voting outcomes, both the ordinary least square (OLS) approach, and instrument variable (IV) approach with a shift-share design will be used. The shift-share method is widely used in economic literature, after introduction by Card (2001).

This research uses the shifts-share method to partly solve omitted variable bias. Only using OLS method leads to biased and noncausal results. The allocation of immigrants is namely likely correlated with demographic and economic trends, which are not controlled for in the OLS method. The shift-share method exploit the allocation of immigrants. The method argues that new immigrants are like to settle at places where previous immigrants are located. Therefore, the shift-share method (partly) solves for the omitted variable bias. To make the results more reliable, this paper utilizes the shifts-share method.

The IV approach in this paper is based on the research of Mayda et al. (2022). This paper adjusts the method to study the effect culturally similar and different immigrants, instead of the effect of high-skilled and low-skilled immigrants. The approach used in this paper is somewhat different than the method used in the paper of Mayda et al. Other papers construct the instrument using two groups from a country. For example, the paper of Mayda et al. constructs for each country a high- and low skilled immigrant group. These groups are aggregated among countries. In this paper, no distinction in immigrants from countries is made. The share of immigrant from each country is aggregated, without making a distinction between immigrants from each country. This approach is for example also used in Brunner and Kuhn (2018). Considering their research, it can be argued that no other assumptions must be made using this approach, then the assumptions mentioned in section 4. The calculation of the Republican vote share and the other steps of calculating the immigrant share is equivalent to the method used in the research of Mayda et al.

OLS method

Firstly, two OLS regressions will be performed. The equation is represented as follows:

$$r_{ite} = \delta_i + \delta_t + \delta_e + \beta_D \frac{D_{it}}{Pop_{it}} + \beta_S \frac{S_{it}}{Pop_{it}} + \beta_X X_{it} + \varepsilon_{ite}$$

Where r_{ite} is the Republican vote share in PUMA i , time t and election e . δ_i , δ_t , δ_e are respectively PUMA, time, and election fixed effects. β_D and β_S are the coefficients of interest. β_D shows the effect of culturally different immigrants on the voting outcomes, and β_S shows the effect of culturally similar immigrants. In the first regression, the culturally similar immigrant group represent the small group. In the second regression, the culturally similar immigrant group will represent the large group, as discussed in the Data section. β_X is the coefficient for different control variables, and X denotes the control variables.

Shift-share (IV) method

The OLS results likely contain biased estimates. Unobserved variables (captured in the term ε_{ite}) that are correlated with the Republican vote share and correlated with the culturally different and similar immigrant share, generate omitted variable bias. For example, the OLS estimates will contain bias if immigrants are attracted to locations where natives' attitude are more tolerant towards immigrants, and these attitudes are correlated with the voting outcomes. Moreover, local demographic and economic changes that attract new immigrants and affect the Republican vote share also induces bias. Therefore, the shift-share (IV) method as performed in the research of Mayda et al. (2022) will be used, to correct the bias. The IV method is adjusted to make the design fitting for the culturally similar and different immigrant groups. The shift-share method utilizes the allocation of immigrants in 2005, to predict the allocation of the inflow of immigrants in the years 2010 – 2019. The instrument is calculated in the following five steps.

First, the initial share in 2005 of the native population in PUMA i and immigrant population from country c in PUMA i are calculated:

$$sh_{US,i,05} = \frac{N_{i,05}}{\sum N_{i,05}} \text{ and } sh_{c,i,05} = \frac{N_{c,i,05}}{\sum N_{c,i,05}} \quad (1)$$

Second, the total predicted population per PUMA i at time t , is formulated. The total predicted population is the sum of the predicted native population and the predicted immigrant population:

$$\widehat{Pop}_{i,t} = \widehat{N}_{i,t} + \widehat{M}_{i,t} \quad (2)$$

Third, the predicted native population and the predicted immigrant population in PUMA I , at time t are calculated. To calculate the predicted native population, the initial share in 2005 (as calculated in the first step) is multiplied with the actual native population in time t . To calculate the predicted immigrant population, first the initial share in 2005 of country c is multiplied with the inflow of immigrants from country c from 2010 - 2019. Then these country outcomes are summed to establish the predicted immigrant population in PUMA i at time t . The equation is represented as follow:

$$\widehat{N}_{i,t} = sh_{US,i,05}N_t \text{ and } \widehat{M}_{i,t} = \sum_c sh_{c,i,05}M_{c,t} \quad (3)$$

Fourth, the distinction between culturally similar and culturally immigrant group is made. The predicted total culturally similar immigrants in PUMA i and year t is calculated by multiplying the initial allocation of immigrants in 2005 with the inflow of immigrants that are classified as culturally similar. The outcomes are summed over the culturally similar countries. The approach is similar for culturally different immigrants:

$$\widehat{S}_{i,t} = \sum_c (sh_{c,i,05}S_{i,t}) \text{ and } \widehat{D}_{i,t} = \sum_c (sh_{c,i,05}D_{i,t}) \quad (4)$$

Fifth, the instrument can be created, which is the predicted total culturally similar (different) immigrants divided by the total predicted population. The share of culturally similar immigrants will be calculated twice; once containing the countries of the small group and once containing the countries of the large group. The equation represents as follows:

$$\widehat{S}_{i,t}/\widehat{Pop}_{i,t} \text{ and } \widehat{D}_{i,t}/\widehat{Pop}_{i,t} \quad (5)$$

After these steps, the IV can be performed. The instrument will be regressed on the actual immigrant share in the first stage:

$$\frac{S_{i,t}}{Pop_{i,t}} = \delta_i + \delta_t + \delta_e + \gamma_S \frac{\widehat{S}_{i,t}}{\widehat{Pop}_{i,t}} + \gamma_x X_{i,t} + \varepsilon_{i,t,e} \text{ and} \quad (6)$$

$$\frac{D_{i,t}}{Pop_{i,t}} = \delta_i + \delta_t + \delta_e + \gamma_D \frac{\widehat{D}_{i,t}}{\widehat{Pop}_{i,t}} + \gamma_x X_{i,t} + \varepsilon_{i,t,e} \quad (7)$$

Where δ_i , δ_t , and δ_e are respectively PUMA, year, and election fixed effects. γ_D and γ_S are the coefficients of interest.

In the second stage the estimated coefficient from the first stage is used to estimate the effect of culturally different and similar immigrants on the Republican vote share:

$$r_{ite} = \delta_i + \delta_t + \delta_e + \alpha_S * \widehat{\gamma}_S + \alpha_x X_{i,t} + \varepsilon_{i,t,e} \text{ and} \quad (8)$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \alpha_D * \widehat{\gamma}_D + \alpha_x X_{i,t} + \varepsilon_{i,t,e} \quad (9)$$

Where α_D and α_S are the coefficient of interest. These variables denote the effect of culturally different and similar immigrant inflow on the Republican vote share.

Contact theory method

To test the contact theory, the PUMAs will be assigned to two groups: PUMAs with a high immigrant share and PUMAs with a low immigrant share. The immigrant share is calculated using the 2005 immigrant share. Using the immigrant share from 2005, allows to see the results when natives already had contact with immigrants, and allows time to form an attitude towards the immigrants.

Since the assignment of a high- and low immigrant share can subjective, the shares will be assigned in two different ways. First, a PUMA has a low immigrant share if the immigrant share is lower than the 25th percentile of the total immigrant share. A PUMA has a high immigrant share if the immigrant share is higher than the 75th percentile of the total immigrant share. The second way of assigning PUMAs is stricter than the first way. A PUMA has a low immigrant share if the immigrant share is lower than the 10th percentile of the total immigrant share, and a PUMA has a high immigrant share if the immigrant share is higher than the 90th percentile of the total immigrant share. Then, the OLS and IV regressions will be performed again using only the PUMAs that fall into one of these four categories.

Assumptions

The shift-share method is widely used in previous studies in the field immigration economics, including studies discussed in the literature review (Brunner and Kuhn 2018, Harmon 2018, Dustmann, Vasiljev and Damm (2019)). The method can be seen as reliable since it is reasonable to assume that existing immigrant from country c attract new immigrants from country c . However, the common identifying assumption must hold for the results to be reliable. The identifying assumption is that the predicted allocation of immigrants across PUMAs by country of origin in 2005 is uncorrelated with local economic and demographic characteristics in 2010 – 2019. Local characteristics that attract immigrants and affect the vote share can threaten identification. Testing for the identifying assumption reduces the concerns for omitted variable bias. If the identifying assumption holds, the exclusion restriction holds. The

instrument (predicted immigrant shares) only has an effect on the Republican vote share through the actual immigrant share. The assumption can be tested in three parts.

First, PUMAs might have persistent economic, cultural, and institutional features that attract immigrants and at the same time affect citizens' political preferences. This correlation causes omitted variable bias. Including PUMA fixed effects and economic and demographic controls reduces this bias but does not solve the concern completely.

Second, immigration and voting outcomes might have persistent reverse causation. The reverse causation can cause bias in the results. For example, suppose that the election outcomes are correlated over time. The estimates will be biased if in a PUMA the share of culturally different immigrants decreases, due to a high Republican vote share in the past election, and as a result of this the Republican vote share decreases in the next election. The correlation between the 2005 – 2009 Republican vote share and changes in predicted immigrant shares from 2010-2019 is tested, to address the concern. The results of this relationship are reported in the first row of Table 4. The coefficients show that the relationship between the changes in Republican vote share and the changes in predicted share of immigrants have a significant correlation. However, the coefficients are small. Therefore, the results cannot be interpreted as causal.

Third, the trends of other demographic and economic variables, that affect the voting outcomes, and are correlated with the change in the predicted share of immigrants, could threaten the causal estimate. This concern is addressed by finding the correlation between the 2005 – 2009 trends (using age, income, gender, marital status, and employment rate) and the change in predicted immigrant groups from 2010 – 2019. The results are shown in Table 4. Most of the coefficients are significant, but very small. Still, the claim of causal estimates cannot be made, due to small biases in the results.

Table 4. Correlation of the instrument with pre-trends

Change from 2005 - 2009	Predicted share of culturally		
	Similar immigrants	Similar immigrants	Different immigrants
Republican vote share	-0.000128*** (2.22e-05)	-0.00337*** (0.000406)	-0.000516*** (6.53e-05)
Average age	4.89e-06*** (1.22e-06)	3.55e-05* (2.03e-05)	2.63e-05*** (3.71e-06)
Average income	1.66e-08*** (6.65e-10)	1.30e-08 (8.56e-09)	4.82e-08*** (1.84e-09)
Share of male	0.000881*** (0.000206)	-0.00221 (0.00432)	0.00411*** (0.000614)
Share of married	-0.000600*** (9.05e-05)	-0.00475*** (0.00114)	-0.00281*** (0.000267)
Share of unemployed	0.000559*** (8.82e-05)	0.00152 (0.00126)	0.00129*** (0.000243)
Share of white individuals	-0.000204*** (4.51e-05)	0.00228** (0.000997)	-0.000576*** (0.000134)
Share of black individuals	-0.000263*** (4.61e-05)	0.000241 (0.000859)	-0.00124*** (0.000132)
Share of Asian individuals	-1.87e-05 (7.92e-05)	0.0550*** (0.00274)	0.000500** (0.000253)

The table reports the correlation between the change in the instrument (predicted share of culturally similar and different immigrants) from 2010 – 2019 and the change in different economic and demographic characteristics from 2005 – 2009. The shares are calculated for each PUMA. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Results

Table 5 shows the correlations between the immigrant groups and the Republican vote share, using the OLS method.

Table 5. OLS results of correlation between share of culturally similar and different immigrants and the Republican vote share

	Republican vote share	Republican vote share
Share culturally similar immigrants (small group)	-0.505* (0.279)	
Share culturally different immigrants (small group)	-0.0331 (0.0297)	
Share culturally similar immigrants (large group)		-0.144 (0.189)
Share culturally different immigrants (large group)		-0.0288 (0.0298)
Constant	0.427*** (0.0931)	0.423*** (0.0932)
Observations	9,087	9,087
R-squared	0.890	0.890

The table shows the results of the share of culturally similar and different immigrants on the Republican vote share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2005-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In contract to the expectations, the OLS results show that all the immigrant groups have a negative effect on the Republican vote share. In other words, an increase in the share of culturally different and similar immigrants lead to a decrease in the Republican vote share. The decrease in the Republican vote share is higher for culturally similar immigrants, for both the small and large group of countries. The decrease in the vote share for the right-wing party is less prominent for an increase in share of culturally different immigrants. Therefore, the attitude towards culturally different immigrants is less positive then towards the culturally similar immigrants. The correlation between the immigrant groups and the Republican vote share is negative.

The OLS results only show a correlation between the increase in immigrant groups and the Republican vote share. The results in Table 5 most likely contain omitted variable bias. Unobserved variables that are correlated with the Republican vote share and correlated with the culturally different and similar immigrant share, generate omitted variable bias. For example, economic and demographic variables that attract immigrants, and also affect the Republican vote share, that are not included in the OLS, can cause omitted variable bias. The shift-share methodology as described above, solves for these unobserved factors. The section below reports the first and second stage results.

Shift-share (IV) results

Table 6. First stage results of correlation between predicted and actual immigrant share

	Share culturally similar immigrants (small group)	Share culturally similar immigrants (large group)	Share culturally different immigrants
Predicted share culturally similar immigrants (small group)	4.346*** (0.349)		
Predicted share culturally similar immigrants (large group)		4.424*** (0.281)	
Predicted share culturally different immigrants			3.065*** (0.474)
F-statistic	155.22	247.58	41.75
Observations	5,070	5,070	5,070

The table shows the results of the first stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In the first stage, the predicted immigrant shares are regressed on the actual immigrant shares. Table 6 shows the first stage results for the different immigrant groups. The rule of the thumb describes that when the F-statistic of the first stage is higher than 10, the first stage is strong. The first stage needs to be strong for the reduced form to be reliable. All the first stage results have an F-statistic higher than ten. Also, all the coefficients are significant. Therefore, the first stage is strong, and this makes the second stage results reliable.

Table 7. Second stage results of correlation between share of immigrants and Republican vote share

	Republican vote share		
Share culturally similar immigrants (small group)	-4.763*		
	(2.500)		
Share culturally similar immigrants (large group)		-2.225***	
		(0.830)	
Share culturally different immigrants			-0.900***
			(0.208)
Observations	5,070	5,070	5,070
R-squared	0.647	0.649	0.637

The table shows the results of the second stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7 shows the reduced form results. The first column denotes the reduced form of the effect of the share of culturally similar immigrants (using small group of countries) on the Republican vote share. An increase of 1 percentage point in share of culturally similar immigrants results in a decrease in the Republican vote share of 4.763 percentage point. The result is significant on a 1% significance level. The second column shows that an increase of 1 percentage point in the share of culturally similar immigrants (large assignment of countries), results in a 2.225 percentage point decrease in the Republican vote share. The result shows that including a broader group of culturally similar immigrants, the decrease in the Republican vote share is less prominent, compared to the small group of culturally similar immigrants. The result is significant on a 1% significance level. As column 3 shows, an 1 percentage point increase in the share of culturally different immigrants results in 0.9 percentage point decrease in the Republican vote share. The result is significant on a 1% significance level. The effect of culturally different immigrant is less negative on the Republican vote share compared to culturally similar immigrants. The results could indicate that the overall attitude towards immigrants (translated into the vote share on the right-wing party) is positive. However, the effect of culturally different immigrants is less positive compared to culturally similar immigrants.

The IV results have the same conclusions as the correlations mentioned in the OLS results. Namely, the decrease in the Republican vote share is strongest for an increase in the culturally similar immigrant group (using the small group), and weakest for culturally different immigrants. However, the magnitude of the effect is stronger in the IV results. It can be concluded that the OLS results contain positive bias.

Contact theory results

As mentioned in the literature review, there are two main theories about the effect of high exposure to immigrants: the contact theory and the ethnic competition theory. The following section studies the effect of low or high exposure to immigrants, and which effect is dominant. Table 8 shows the OLS regression, using the small group of country assignment.

Table 8. OLS results of the contact theory using small group assignment

	Republican vote share			
	10th percentile	25th percentile	75th percentile	90th percentile
Share culturally similar immigrants	0.127 (2.962)	-2.645* (1.351)	-0.0214 (0.400)	0.305 (0.500)
Share culturally different immigrants	-0.366** (0.176)	-0.171 (0.108)	0.00555 (0.0376)	-0.0335 (0.0597)
Observations	890	2,224	2,319	927
R-squared	0.831	0.824	0.935	0.961

The first two columns represent the results of the share of culturally similar and different immigrant on the Republican vote share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The first column shows the correlation of culturally similar and different immigrants on the Republican vote share, in PUMAs with a low total immigrant share in 2005. For PUMAs with a low exposure to immigrants, an increase in the share of culturally similar immigrants has a positive correlation with the Republican vote share. The ethnic competition theory is dominating. The correlation is insignificant. An increase in the share of culturally different immigrants leads to a decrease in the Republican vote share. The coefficient is significant on a 5% significance level. The contact theory is dominating. The results contrast with previous literature.

The second column reports the results for a low immigrant share, using the 25th percentile of the total immigrant share in PUMAs. Both coefficients are negative, which could result in evidence for the ethnic competition theory. A low immigrant share has a negative effect on the Republican vote share.

The third column and fourth column contain the results for a high immigrant share. The third column reports a negative correlation on the Republican vote share for culturally similar immigrants, and a positive correlation for culturally different immigrants. However, for the fourth column, the signs are the opposite. The share of culturally similar immigrants has a positive correlation with the Republican vote share, and the share of culturally different immigrants has a negative correlation with the Republican vote share. In PUMAs with an increased immigrant share, and therefore a high exposure to immigrants, a positive correlation provide evidence for the ethnic competition theory. High exposure to immigrants leads to higher competition in the labor market, and therefore negative attitudes towards immigrants. This negative attitude translates into a positive correlation with the right-wing party. The negative correlation provides evidence for the contact theory, which argues that higher exposure to immigrants leads to positive attitudes towards immigrants. This translates into a lower share for the right-wing party.

Remarkable is that the decrease in the Republican vote share is less negative (except for the 75th percentile) for culturally different immigrants, compared to culturally similar immigrants. In the 10th and 90th percentile of immigrant share is the effect on the Republican vote share even positive for culturally similar immigrants, compared to a negative effect of culturally different immigrants.

Table 9. OLS results of the contact theory using large group assignment

	Republican vote share			
	10th percentile	25th percentile	75th percentile	90th percentile
Share culturally similar immigrants	-1.386 (1.724)	-0.640 (0.856)	-0.0356 (0.242)	-0.242 (0.342)
Share culturally different immigrants	-0.367** (0.179)	-0.179* (0.108)	0.0128 (0.0373)	-0.0241 (0.0588)
Observations	890	2,224	2,319	927
R-squared	0.831	0.824	0.935	0.961

The first two columns represent the results of the share of culturally similar and different immigrant on the Republican vote share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results for the large group assigned of countries are all (except for one coefficient) negative. Therefore, an increase in culturally different and similar immigrants results in a lower Republican vote share. The decrease is more prominent in PUMAs with a low immigrant share, which can give evidence for the ethnic competition theory. Higher exposure to immigrants leads to a less negative effect on the Republican vote share. Almost all coefficients are insignificant. Consistent for PUMAs with a low and high immigrant share, is that the negative effect is less prominent for culturally different immigrants. This result conflicts with the previous result mentioned in section 5. Note that the OLS results are subject to omitted variable bias, which could cause conflicting results.

As argued before in section 5 the OLS results could contain omitted variable bias. Unobserved variables that are correlated with the Republican vote share and correlated with the culturally different and similar immigrant share, generate omitted variable bias. The shift-share method solves (partly) for omitted variable bias. The following section presents the IV results.

Table 10, 11 and 12 show the first stage results of the predicted immigrant shares regressed on the actual immigrant shares. The first columns, that report the results for PUMAs

with an immigrant share lower than the 10th percentile. For all these PUMAs, the first stage is insignificant, and has F-statistics lower than ten. Therefore, the first stage is not sufficient, which makes the second stage results not reliable. In table ... the second column also has a F-statistic lower than ten. Therefore, also the first stage for the culturally similar immigrant (small group assignment) is not significant, and the second stage is not reliable. The other results in the tables are significant and the F-statistics is higher than ten.

Table 10. First stage results of correlation between predicted and actual immigrant share

	Share culturally similar immigrants, small group			
	10th percentile	25th percentile	75th percentile	90th percentile
Predicted share culturally similar immigrants (small group)	-2.754 (1.675)	1.524* (0.831)	3.994*** (0.582)	4.177*** (0.878)
F-statistic	2.70	3.37	47.03	22.65
Observations	520	1295	1233	484

The table shows the results of the first stage regression using the shift-share method. The first two columns represent the results of the predicted share of culturally similar and different immigrant on the actual immigrant share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the predicted share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 11. First stage results of correlation between predicted and actual immigrant share

	Share culturally similar immigrants, small group			
	10th percentile	25th percentile	75th percentile	90th percentile
Predicted share culturally similar immigrants (small group)	-1.564 (1.188)	3.149*** (0.560)	4.074*** (0.397)	3.581*** (0.449)
F-statistic	1.73	31.59	105.39	63.62
Observations	520	1295	1233	484

The table shows the results of the first stage regression using the shift-share method. The first two columns represent the results of the predicted share of culturally similar and different immigrant on the actual immigrant share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the predicted share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 12. First stage results of correlation between predicted and actual immigrant share

	Share culturally different immigrants			
	10th percentile	25th percentile	75th percentile	90th percentile
Predicted share culturally different immigrants	11.473 (10.414)	22.364*** (5.102)	1.783*** (0.298)	1.100*** (0.288)
F-statistic	1.21	19.22	35.87	14.59
Observations	520	1295	1233	484

The table shows the results of the first stage regression using the shift-share method. The first two columns represent the results of the predicted share of culturally similar and different immigrant on the actual immigrant share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the predicted share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 13 shows the results of the reduced form regressions. The table reports the effect of the shares of immigrant groups on the Republican vote share.

Table 13. *Second stage results of correlation between share of immigrants and Republican vote share*

	Republican vote share			
	10th percentile	25th percentile	75th percentile	90th percentile
Share culturally similar immigrants (small group)	34.09 (65.71)	-4.835 (44.71)	-6.747* (3.734)	-9.018* (5.164)
Share culturally similar immigrants (large group)	80.56 (65.23)	-10.45 (8.284)	-2.431* (1.294)	-2.036 (1.988)
Share culturally different immigrants	2.797 (4.114)	-1.230** (0.561)	-1.418*** (0.380)	-2.732*** (1.029)
Observations	520	1,295	1,233	484
R-squared (first row)	0.704	0.665	0.624	0.693
R-squared (second row)	0.215	0.646	0.635	0.712
R-squared (third row)	0.553	0.675	0.549	0.300

The table shows the results of the second stage regression using the shift-share method. The first two columns represent the results of the share of culturally similar and different immigrant on the Republican vote share, with only using data that falls into the 10th and 25th percentile and below of the total immigrant share. The third and fourth column show the results of the effect of the share of culturally similar and different immigrants, with only using data that falls into the 75th and 90th percentile and above of the total immigrant share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In Table 13 the first column reports the reduced form output of PUMAs with an immigrant share lower than the 10th percentile. As mentioned in the first stage results, the first stage was not sufficient. Therefore, these results are not reliable, and cannot be interpreted.

The second column shows the reduced form results for PUMAs with an immigrant share lower than the 25th percentile. The results for culturally similar immigrants, using the small group country assignment, cannot be interpreted due to the insufficient first stage results. The effect of culturally similar immigrants, using the large group assignment, on the Republican vote share is negative. A 1 percentage point increase in the share of culturally similar immigrants results in a 10.45 percentage point decrease in the Republican vote share. However,

this result is insignificant. On the other hand, a 1 percentage point increase in the share of culturally different immigrants results in a 1.230 percentage point decrease in the Republican vote share. This result is significant on a 5% significance level.

The third and fourth column report the reduced form results for PUMAs with an immigrant share higher than the 75th or 90th percentile. The effect of culturally similar immigrants (small group) on the Republican vote share is negative, and significant on a 10% significance level. A 1 percentage point increase in the share of culturally similar immigrants leads to a decrease in the Republican vote share of 6.747 percentage points in PUMAs with an immigrant share higher than the 75th percentile, and a 9.018 percentage point decrease for PUMAs with an immigrant share higher than the 90th percentile. The results for the share of culturally similar immigrants, using the large group assignment is similar. However, the magnitude of the effect is lower, and the results for PUMAs with an immigrant share higher than the 90th percentile are insignificant. A 1 percentage point increase in the share of culturally different immigrants also leads to a decrease in the Republican vote share. The share of votes for the right-wing party decreases with 1.418 percentage points in PUMAs with an immigrant share higher than the 75th percentile and decreases with 2.732 percentage points in PUMAs with an immigrant share higher than the 90th percentile. The results are significant on a 1 percentage point significance level.

The results provide evidence for the contact theory. As the immigrant share increases – and therefore also exposure to immigrants – the negative effect on the Republican vote share also increases. The results indicate that higher exposure to immigrants, lead to a less negative attitude towards immigrants, which translates into a decrease in vote share for the right-wing party.

Different results can be drawn from the OLS and IV results. The OLS results contrast with the results reported in section 5, whereas the IV results are consistent with the previously reported results. The IV results show that the immigrant shares have a negative effect on the Republican vote share. However, the decrease is less prominent for culturally different immigrants. The OLS results show the opposite results, where the decrease is more prominent for the culturally different immigrants. The OLS results contain omitted variable bias, which could be the reason for the inconsistent results.

6. Robustness check

Another measurement for the assignment of countries as culturally different or culturally similar can be based on Hofstede's cultural dimensions. Hofstede utilized surveys done in the large corporation IBM. This data gave insights into the cultural values of a country. After several validations, using other surveys, Hofstede's cultural dimensions were formed. The dimensions can take value between 0 and 100. As a rule of thumb, it can be said that every country with a value below 50 scores low on that dimension. On the other hand, every country with a value above 50 scores high on the dimension. (Hofstede, 2011). The six dimensions are labeled as:

1. Individualism. This dimension describes to what extent people feel independent. Citizens can make individual choices and decisions.
2. Power distance. This dimension describes to what extent less powerful members of institutions and organizations accept that power is distributed unequally.
3. Masculinity. This dimension describes the division of emotional roles between males and females. For example, in a masculine society, it is expected from men that they are tough.
4. Uncertainty avoidance. This dimension describes society's tolerance for uncertainty and ambiguity. It relates to the level of stress that a society experiences because of unknown factors.
5. Long-term orientation. This dimension relates to the choice to make effort for the future, present or past. A long-term oriented society prepares for the future. A short-term society rather 'lives in the moment' as views past as a moral compass.
6. Indulgence. This dimension describes the importance of enjoying life. An indulgent culture encourages to follow individuals' impulses and expresses that life should not be hard.

Two disadvantages of this model, compared to Inglehart and Welzel's cultural map, is first that the first four cultural dimensions are based on surveys that are mostly conducted in corporations and organizations. Inglehart and Welzel's cultural map is based on a survey with more differentiated individuals. Later replications of the Hofstede's cultural map are based on surveys with more differentiated individuals, but not as differentiated as the World Values Survey (WVS). Second, six different dimensions makes it more complicated to compare countries to each other. For example, country A could be similar to country B in one dimension but different on other dimensions.

However, as also argued in section 3, culture can have multiple definitions. Hofstede's culture map does cover several aspects of culture. The dimensions are updated and validated with extensive research. The questions are constant over countries, which makes the dimensions suitable for comparison.

Countries are assigned to culturally similar countries to the U.S. when that country scores equivalent on two or more dimensions. Equivalence implies in this case that the score is maximum five points more or five points less than the U.S. on a certain dimension. The culturally similar countries to the U.S. are the Netherlands, Australia, Germany, South Africa, Philippines, Great Britain, New Zealand, and Canada. Due to data limitations, the countries used in the analysis are: Western Europe, Australia, Germany, Philippines, Great Britain, and Canada. The immigrants migrating from a country are then assigned as culturally similar.

Immigrants are assigned to the culturally different group, if they migrated from a country that does not score similar to the U.S. on any dimension. Countries that score similar on one dimension are excluded from the analysis.

The cultural dimensions, visualized on a world map, are reported in the Appendix. Also, the descriptive statistics for the culturally similar and culturally different immigrants are reported in the Appendix. The descriptive statistics report that the average educational attainment, average age and share of male is similar among culturally similar and different immigrants. However, the average income is substantially lower for culturally different immigrants, compared to culturally similar immigrants. The unemployment rate is also higher for culturally different immigrants. The balance tests report significant differences for the demographic characteristics, which is why these variables are included in the analysis. The occupation levels are similar among both immigrant groups.

Tables 14, 15 and 16 report the results using Hofstede's cultural dimensions as a measurement for culture.

Table 14. OLS results of the correlation between culturally similar and different immigrants on the Republican vote share

	Republican vote share
Share culturally similar immigrants	-0.0528 (0.0384)
Share culturally different immigrants	-0.0281* (0.0155)
Observations	9,087
R-squared	0.892

The table shows the results of the share of culturally similar and different immigrants on the Republican vote share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2005-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 14 reports similar results to the OLS results in section 5. However, the magnitude of the coefficient for share of culturally similar immigrants is lower. The conclusion remains that the correlation between the share of culturally similar and different immigrants is negatively correlated with the Republican vote share. The effect is less negative for culturally different immigrants.

The OLS method only can report correlations due to unobserved variables that cause bias. The use of the shift-share method (partly) solves for the omitted variable bias. The table below shows the first stage results.

Table 15. First stage results of the correlation between predicted and actual immigrant share

	Share culturally similar immigrants	Share culturally different immigrants
Predicted share culturally similar immigrants	0.966*** (0.134)	
Predicted share culturally different immigrants		2.658*** (0.289)
F-statistic	52.04	81.61
Observations	5,070	5,070

The table shows the results of the first stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As can be seen in Table 15 for both culturally similar and different immigrants, the first stage results are sufficient. The F-statistic is higher than then, and the coefficients are significant.

Table 16 Second stage results of the effect of culturally similar and different immigrants on the Republican vote share

	Republican vote share	
Share culturally similar immigrants	-2.100 (5.439)	
Share culturally different immigrants		-0.966*** (0.164)
Observations	5,070	5,070
R-squared	0.637	0.604

The table shows the results of the second stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 16 reports the second stage results of the shift-share (IV) regressions. Similar to the results in Table 7, the share of culturally similar immigrants decreases the Republican vote share. The coefficient is similar to the coefficient of the culturally similar immigrants, using the large group assignment. A 1 percentage point increase in the share of culturally similar immigrants decreases the Republican vote share with 2.1 percentage point. This effect is insignificant. A 1 percentage point increase in the share of culturally different immigrants decreases the Republican vote share with 0.966 percentage point. This effect is significant on a 1% significance level. The magnitude of the coefficient is similar to the coefficient in Table 7. It can be concluded that both culturally similar and different immigrants decrease the Republican vote share. However, the effect is less prominent for culturally different immigrants.

Using a different measurement of cultural similar and different countries to the U.S. does not change the results. This is an indicator that the results are robust.

7. Heterogeneity analysis

The main results show that culturally similar, and culturally different immigrant have a negative effect on the Republican vote share. However, it would be interesting to see which immigrant groups are driving the results, using more immigrant groups. Using Inglehart and Welzel's cultural map, seven cultural groups can be created. Specifically, the groups are: English speaking countries, protestant Europe, catholic Europe, South Asia, Confucian countries, African-Islamic countries, and Latin-America (Baltic countries are excluded, due to data limitations). Similar to the main analysis, first an OLS regression will be performed and second the shift-share method will be used. The descriptive statistics, and most common occupations for these immigrant groups are reported in the Appendix. The descriptive statistics show that average age and share of male and married is similar among all immigrant groups. The educational attainment is also similar among the immigrant groups. However, only immigrants from Latin-America did not on average complete high school. The average income is higher for immigrants from Protestant Europe, English speaking countries, and Catholic Europe. The unemployment rate is also lower for these countries. The average income is lower, and unemployment rate is higher for immigrants from South Asia, Confucian countries, African-Islamic countries, and Latin-America. The occupations are similar among all immigrant groups.

First, Table 17 shows the correlation between the immigrant groups and the Republican vote share using the OLS method. The following equation belongs to the regression performed in Table 17.

$$r_{ite} = \delta_i + \delta_t + \delta_e + \beta_E \frac{English\ speaking_{it}}{Pop_{it}} + \beta_P \frac{Protestant\ Europe_{it}}{Pop_{it}} + \beta_C \frac{Catholic\ Europe_{it}}{Pop_{it}} + \beta_S \frac{South\ Asia_{it}}{Pop_{it}} + \beta_{CO} \frac{Confucian_{it}}{Pop_{it}} + \beta_A \frac{African\ Islamic_{it}}{Pop_{it}} + \beta_L \frac{Latin\ America_{it}}{Pop_{it}} \beta_x X_{it} + \varepsilon_{ite}$$

Where δ_i , δ_t , and δ_e indicate respectively PUMA, year and election fixed effects. X_{it} contain several economic and demographic variables. β_E , β_P , β_C , β_S , β_{CO} , β_A and β_L denote the coefficients of interest.

Table 17. OLS results with correlation between several immigrants groups and the Republican vote share.

Share of immigrants from	Republican vote share
English speaking countries	0.304 (0.265)
Protestant Europe	-0.414 (0.360)
Catholic Europe	-0.346 (0.306)
South Asia	0.0109 (0.150)
Confucian countries	0.128 (0.160)
African-Islamic countries	0.0219 (0.153)
Latin-America	-0.0671 (0.0580)
Observations	5,063
R-squared	0.939

The table shows the results of the several immigrant groups on the Republican vote share. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2005-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As Table 17 shows, the share of immigrants from English speaking countries, South Asia, Confucian countries, and African Islamic countries has positive correlation with the Republican vote share. The positive correlation is highest for immigrants from English speaking countries, and lowest for immigrants from African-Islamic countries. An increase in the share of immigrants from one of these regions results in an increase in the Republican vote share. The share of immigrants from Protestant Europe, Catholic Europe, and Latin-America has a negative correlation with the Republican vote share. An increase in the share of immigrants from one of these regions is decreases the Republican vote share. Every correlation is insignificant.

Shift-share (IV) results

The OLS correlations are likely biased, due to unobserved variables captured in the error term. Therefore, the shift-share method will be used to solve the bias. The reduced form equations are as follows:

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_E * \widehat{\mu}_E + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_P * \widehat{\mu}_P + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_C * \widehat{\mu}_C + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_S * \widehat{\mu}_S + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_{CO} * \widehat{\mu}_{CO} + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_S * \widehat{\mu}_S + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_A * \widehat{\mu}_A + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

$$r_{ite} = \delta_i + \delta_t + \delta_e + \sigma_L * \widehat{\mu}_L + \sigma_x X_{i,t} + \varepsilon_{i,t,e}$$

Where $\widehat{\mu}_c$ with $c = \{E, P, C, S, CO, S, A, L\}$ denote the first stage predictions. σ_c indicates the coefficients of interest.

Table 18 reports the first stage results for each of the immigrant groups. The predicted share of immigrants is regressed on the actual share of immigrants.

Table 18. First stage results of the correlation between actual and predicted immigrant shares

	Predicted share of immigrants from		Actual share of immigrants from				
	English speaking countries	Protestant Europe	Catholic Europe	South Asia	Confucian countries	African-Islamic countries	Latin-America
English speaking countries	3.712*** (0.318)						
Protestant Europe		9.257*** (0.615)					
Catholic Europe			6.900*** (0.887)				
South Asia				7.379*** (0.793)			
Confucian countries					4.737** (0.358)		
African-Islamic countries						15.913*** (1.065)	
Latin-America							-163.632 (171.368)
F-Statistic	135.84	226.56	60.54	86.64	175.19	223.22	0.91
Observations	5,070	5,070	5,070	5,070	5,070	5,070	5,070

The table shows the results of the first stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As Table 18 reports, the first stage result for each immigrant group is reliable. The coefficients are significant, and the F-statistic is higher than ten, except for the share of immigrant from Latin-America.

Table 19 shows the reduced form results, where the first stage coefficients are regressed on the Republican vote share.

Table 19. Second stage results of correlation between several immigrant groups and the Republican vote share

Share of immigrants from	Republican vote share						
English speaking countries	-2.542**						
	(1.126)						
Protestant Europe	-3.526***						
	(1.239)						
Catholic Europe	-5.192***						
	(1.065)						
South Asia					-0.944***		
					(0.333)		
Confucian countries						-0.677**	
						(0.292)	
African-Islamic countries							-0.837***
							(0.303)
Latin-America							5.844
							(6.656)
Observations	5,070	5,070	5,070	5,070	5,070	5,070	5,070
R-squared	0.647	0.647	0.635	0.639	0.648	0.650	-1.825

The table shows the results of the second stage regression using the shift-share method. The regressions include the following control variable on a PUMA level: share of male, share of married individuals, share of unemployed individuals, share of education levels, average age, average income, share of occupation, share of white, black, Asian, and other races. The control variables per immigrant group are: share of education level and share of occupation. The regressions also include PUMA, year, and election fixed effects. The analysis runs from the years 2010-2019. Standard errors are clustered on a PUMA level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In contrast to the biased OLS results, the IV results report negative effects on the Republican vote share for each immigrant group (except for the share of immigrants from Latin-America). All the coefficient (except for the share of immigrant from Latin-America) are significant on a 1% significance level. The decrease in the Republican vote share is highest for a 1 percentage point increase in the share of immigrants from Catholic Europe, namely a decrease of 5.192 percentage point. The decrease in the Republican vote share is lowest for immigrants from Confucian countries. A 1 percentage point increase in the share of immigrants from Confucian countries results in a 0.677 percentage point decrease in the Republican vote share.

The results are explainable when considering the results in section 5. Namely, the culturally similar immigrants are mainly from English speaking countries, Protestant Europe and Catholic Europe (depending on the small or large country assignment). The culturally different immigrants are partly from South Asia, Confucian countries, and African Islamic countries. Similar to the results in section 5 the decrease in the Republican vote share is higher for immigrant from English speaking countries, Protestant Europe and Catholic Europe, compared to the coefficients for immigrant from South Asia, Confucian, and African-Islamic countries.

The effect of the share of immigrant from Latin-American countries can unfortunately not be interpreted due to the insufficient first stage results.

8. Limitations

The research is subject to a few limitations. First, the assignment of countries into being culturally similar or different to the U.S. can be subjective. There are different ways to measure culture. For example, one could take language or religion as a measurement for culture. I argue that the use of Inglehart and Welzel's cultural map is one of the most convenient ways to measure culture. The cultural map is convenient to compare countries, the survey questions are constant among countries (which makes the measure of culture constant) and contains many aspects of culture. Also, the map is updated every five years. However, another could argue that the use of Inglehart and Welzel's culture map is not the best measure for culture. I try to address this concern by using Hofstede's cultural dimensions as a measurement for culture, which produces the same conclusions as using Inglehart and Welzel's cultural map.

Second, the data did not allow to the exact countries that the cultural map and dimensions suggest are similar to the U.S. For example, the data only contains the variable "Western Europe", where it is preferred to have these countries separated. The results are therefore not the precise outcome of the culturally similar and different countries.

Third, skills could differ between culturally similar and culturally different group. Due to different ways that immigrant compete with natives on the labor market, the attitude towards immigrants can be different through that mechanism. I try to address this threat for identification by including occupation and educational attainment in the analysis. However, these two aspects

are not perfect measurements for skill. Especially since the occupation levels, and rather working fields. Each occupation contains jobs that require different skill levels.

Fourth, the data and analysis does not allow to draw individual conclusions. For example, although assigned to the culturally different group since the immigrant migrated from a certain country, the immigrant can be perceived as culturally similar due to skin color, religion etc.

Fifth, culture is not equal to individuals' beliefs. Inglehart and Welzel's cultural map and Hofstede's cultural dimensions are culture measurements on a country level. The results from the cultural map and dimensions are not necessarily those for individuals. Similar to point 4, the results could be different on individual levels.

Future research could investigate other measurements that explain the attitude towards immigrants. For example, an individual's income could affect the attitude towards immigrants. The effect could also be different towards culturally similar and different immigrants. Another example can be differentiating between immigrants and refugees. Although both culturally different, immigrants and refugees can have a different effect on natives' attitudes.

9. Conclusion

The paper studies the effect of culturally similar and culturally different immigrants on the Republican vote share in the United States. Previous research already showed that natives have a negative attitude towards immigrants, and this negative attitude translates into a higher voting share for the right-wing party. Research of Brunner and Kuhn (2018) showed that culturally similar immigrants do not have an effect on the voting for anti-immigration policies in Switzerland, while culturally different immigrants have a positive effect on votes for anti-immigration policies.

To investigate the correlation between culturally similar and culturally different immigrants and voting outcomes in the United States, this paper utilized the shift-share method. Immigrants are assigned to the culturally similar, and culturally different immigrant group using the Inglehart and Welzel's cultural map. The hypothesis, based on previous research and the results of Brunner and Kuhn (2018) is that culturally similar immigrants do not have an effect on the vote share for the right-wing party. Culturally different immigrants influence the Republican vote share negatively. The expected effect is ambiguous when the exposure to immigrant

increases, due to the two conflicting theories: the contact theory and the ethnic competition theory.

The results show that culturally similar, and culturally different immigrants have a negative effect on the Republican vote share, surprisingly. However, the decrease in the Republican vote share is less prominent for an increase in the share of culturally different immigrants. The robustness checks, where the assigned of immigrants is based on Hofstede's cultural dimensions, indicate that the same results can be drawn as the main analysis. As exposure to immigrants increases, the decrease in the Republican vote share increases. This conclusion is equivalent for culturally similar and different immigrants. The heterogeneity analysis reveals that the decrease in the Republican vote share is highest for immigrants from English speaking countries, Protestant Europe, and Catholic Europe. The decrease in the vote share for the right-wing party is less prominent for immigrant from South Asia, Confucian countries, and African-Islamic countries.

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Appendix

Figure A1. Hofstede’s cultural map presenting the individualism dimension.



Figure A2. Hofstede’s cultural map presenting the power distance dimension.

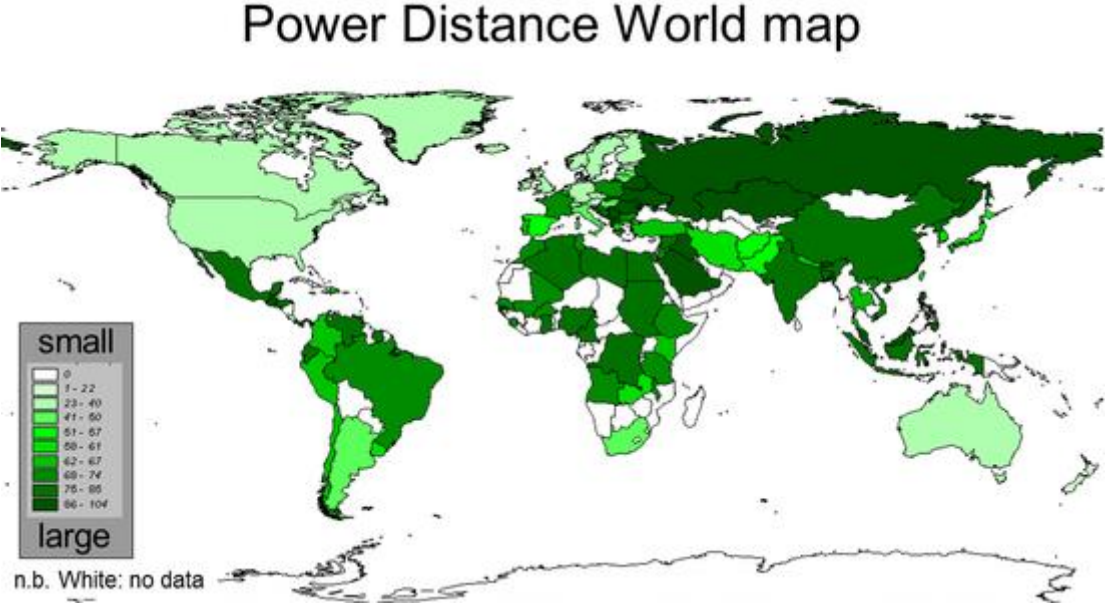


Figure A3. Hofstede's cultural map presenting the masculinity dimension.

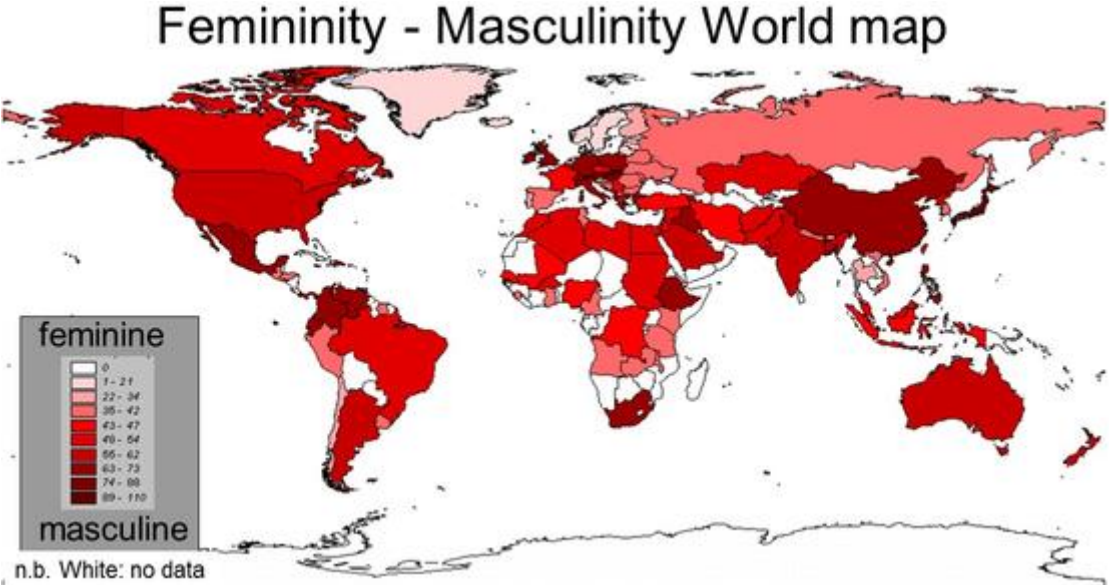


Figure A4. Hofstede's cultural map presenting the uncertainty avoidance dimension.

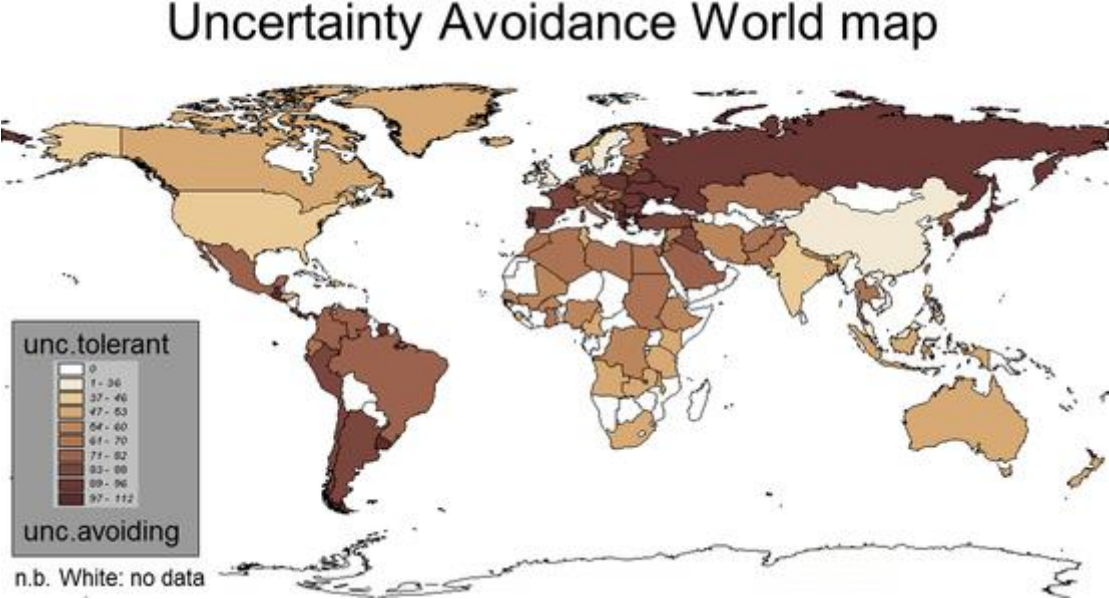


Figure A5. Hofstede's cultural map presenting the long-term orientation dimension.

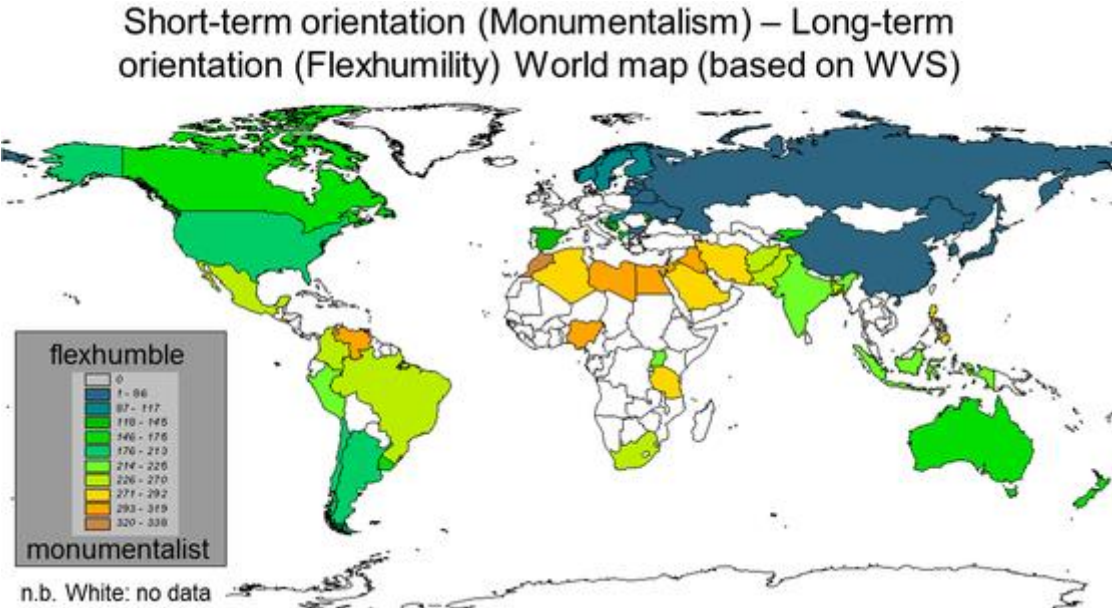


Figure A6. Hofstede's cultural map presenting the indulgence dimension.

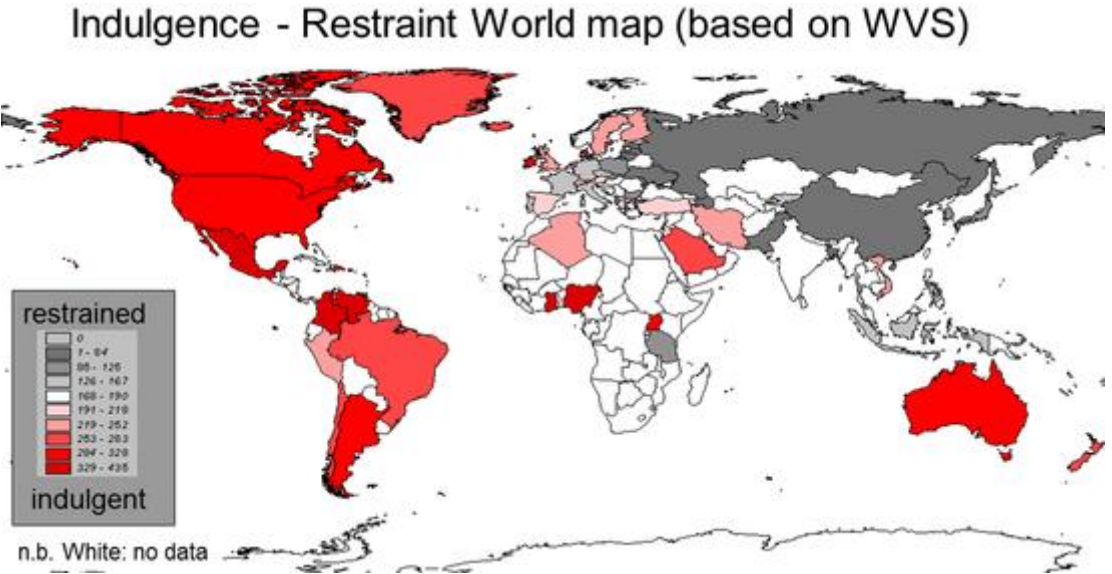


Table A1. Descriptive statistics for the heterogeneity analysis

	Culturally	
	Similar	Different
Average age	35.90 (0.0993)	32.41 (0.0474)
Average income	28,530 (290.9)	16,468 (103.2)
Average educational attainment	2.235 (0.00389)	2.077 (0.00215)
Share of male	0.490 (0.00238)	0.515 (0.00122)
Share of married	0.433 (0.00236)	0.383 (0.00119)
Share of unemployed	0.592 (0.00234)	0.646 (0.00117)
Observations	44,013	167,007

The table shows the descriptive statistics for culturally similar and culturally different immigrants in the robustness check. The table shows the averages and shares of different demographic characteristics over the years 2010-2019. The first column of culturally similar immigrant group represents the ‘small’ group, with less countries used in the country assignment. The second column of culturally immigrant group represents the ‘large’ group, with more countries used in the country assignment. Average income is measured in 2019 U.S. dollars. Educational attainment has four different levels, where level 0 indicates that an individual has not completed any education. Level 1 indicates that an individual finished primary school. Level 2 indicates that an individual has a high school diploma. Level 3 means that an individual has a diploma for any form of tertiary education. An individual is classified unemployed when he/she is unemployed or not in the labor force. Standard errors in parentheses.

Table A2. Balance tests for the robustness check

	Average age	Average income	Average educational attainment	Share of male	Share of married	Share of unemployment
Treatment	3.494*** (0.110)	0.0505*** (0.00264)	0.158*** (0.00444)	-0.0248*** (0.00268)	12,062*** (308.6)	-0.0545*** (0.00262)
Constant	32.41*** (0.0474)	0.383*** (0.00119)	2.077*** (0.00215)	0.515*** (0.00122)	16,468*** (103.2)	0.646*** (0.00117)

The table reports the statistical difference in mean of several characteristics between culturally similar and culturally different immigrants. The first row reports the difference in means for the small group country assignment. The second row reports the difference in mean for the large group country assignment. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A3. The five most common occupations for the robustness check

Occupation	Culturally	
	Similar	Different
1	Management, Business, Science	Office and Administrative Support
2	Office and Administrative Support	Management, Business, Science
3	Sales and Related	Education, Training, and Library
4	Education, Training, and Library	Sales and Related
5	Food Preparation and Serving	Installation, Maintenance, Production, and Repair Workers

The table reports the five most common occupations of culturally similar and different immigrants.

Table A4. Descriptive statistics for the heterogeneity analysis

	English speaking	Protestant Europe	Catholic Europe	South Asia	Confucian	African-Islamic	Latin-America
Average age	37.97 (0.132)	29.55 (0.134)	29.96 (0.175)	34.18 (0.136)	32.44 (0.0943)	34.18 (0.149)	32.28 (0.0803)
Average income	32,566 (418.9)	26,920 (440.7)	22,506 (498.8)	17,127 (271.5)	18,859 (226.7)	14,580 (266.1)	12,010 (144.9)
Average educational attainment	2.281 (0.00496)	2.163 (0.00637)	2.305 (0.00832)	2.291 (0.00627)	2.223 (0.00401)	2.043 (0.00633)	1.867 (0.00353)
Share of male	0.496 (0.00310)	0.503 (0.00386)	0.482 (0.00519)	0.492 (0.00340)	0.501 (0.00243)	0.476 (0.00351)	0.533 (0.00208)
Share of married	0.455 (0.00309)	0.360 (0.00370)	0.321 (0.00485)	0.498 (0.00340)	0.385 (0.00236)	0.376 (0.00340)	0.342 (0.00198)
Share of unemployed	0.593 (0.00305)	0.554 (0.00383)	0.541 (0.00518)	0.650 (0.00325)	0.671 (0.00228)	0.665 (0.00332)	0.660 (0.00197)
Observations	25,943	16,822	9,269	21,565	42,365	20,244	57,685

The table shows the descriptive statistics for different groups in the heterogeneity analysis. The table shows the averages and shares of different demographic characteristics over the years 2010-2019. The first column of culturally similar immigrant group represents the ‘small’ group, with less countries used in the country assignment. The second column of culturally immigrant group represents the ‘large’ group, with more countries used in the country assignment. Average income is measured in 2019 U.S. dollars. Educational attainment has four different levels, where level 0 indicates that an individual has not completed any education. Level 1 indicates that an individual finished primary school. Level 2 indicates that an individual has a high school diploma. Level 3 means that an individual has a diploma for any form of tertiary education. An individual is classified unemployed when he/she is unemployed or not in the labor force. Standard errors in parentheses.

Table A5. Five most common occupations for the heterogeneity analysis

Occupation	English speaking	Protestant Europe	Catholic Europe	South Asia	Confucian countries	African-Islamic	Latin-America
1	Management Business, Science	Management Business, Science	Education, Training, and Library	Computer and Mathematical	Education, Training, and Library	Office and Administrative Support	Construction and Extraction
2	Office and Administrative Support	Office and Administrative Support	Management Business, Science	Management Business, Science	Office and Administrative Support	Sales and Related	Office and Administrative Support
3	Sales and Related	Education, Training, and Library	Office and Administrative Support	Education, Training, and Library	Management Business, Science	Food Preparation and Serving	Farming, Fishing, and Forestry
4	Education, Training, and Library	Sales and Related	Sales and Related	Office and Administrative Support	Sales and Related	Management, Business, Science	Installation, Maintenance Production, and Repair Workers
5	Food Preparation and Serving	Personal Care and Service	Food Preparation and Serving	Sales and Related	Food Preparation and Serving	Installation, Maintenance, Production, and Repair Workers	Building and Grounds Cleaning and Maintenance

The table reports the five most common occupations for several immigrant groups.