RUHR
ECONOMIC PAPERS

Lisa Sofie Höckel

Individualism vs. Collectivism

How Inherited Cultural Values Affect Labor Market Outcomes of Second Generation Immigrants in the US

RWI #669

Imprint

Ruhr Economic Papers

Published by

Ruhr-Universität Bochum (RUB), Department of Economics
Universitätsstr. 150, 44801 Bochum, Germany

Technische Universität Dortmund, Department of Economic and Social Sciences
Vogelpothsweg 87, 44227 Dortmund, Germany

Universität Duisburg-Essen, Department of Economics
Universitätsstr. 12, 45117 Essen, Germany

RWI Leibniz-Institut für Wirtschaftsforschung
Hohenzollernstr. 1-3, 45128 Essen, Germany

Editors

Prof. Dr. Thomas K. Bauer
RUB, Department of Economics, Empirical Economics
Phone: +49 (0) 234/3 22 83 41, e-mail: thomas.bauer@rub.de

Prof. Dr. Wolfgang Leininger
Technische Universität Dortmund, Department of Economic and Social Sciences
Economics – Microeconomics
Phone: +49 (0) 231/7 55-3297, e-mail: W.Leininger@tu-dortmund.de

Prof. Dr. Volker Clausen
University of Duisburg-Essen, Department of Economics
International Economics
Phone: +49 (0) 201/1 83-3655, e-mail: vclausen@vwl.uni-due.de

Prof. Dr. Roland Döhrn, Prof. Dr. Manuel Frondel, Prof. Dr. Jochen Kluve
RWI, Phone: +49 (0) 201/81 49-213, e-mail: presse@rwi-essen.de

Editorial Office

Sabine Weiler
RWI, Phone: +49 (0) 201/81 49-213, e-mail: sabine.weiler@rwi-essen.de

Ruhr Economic Papers #669

Responsible Editor: Jochen Kluve

ISSN 1864-4872 (online) – ISBN 978-3-86788-776-2

Ruhr Economic Papers #669

Lisa Sofie Höckel

Individualism vs. Collectivism

How Inherited Cultural Values Affect Labor Market Outcomes of Second Generation Immigrants in the US

RWI

Bibliografische Informationen der Deutschen Nationalbibliothek

Die Deutsche Bibliothek verzeichnet diese Publikation in der deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über: *http://dnb.d-nb.de* abrufbar.

Das RWI wird vom Bund und vom Land Nordrhein-Westfalen gefördert.

http://dx.doi.org/10.4419/86788776
ISSN 1864-4872 (online)
ISBN 978-3-86788-776-2

Lisa Sofie Höckel[1]

Individualism vs. Collectivism

How Inherited Cultural Values Affect Labor Market Outcomes of Second Generation Immigrants in the US

Abstract

The labor market performance of second generation immigrants is a crucial determinant of integration. Labor market returns to their different cultural traits, however, have been rarely researched within the economic literature. This study provides insight on the link between the level of collectivism at the country of ancestry and labor market outcome of second generation immigrants in the US. Using 1994 - 2014 survey data, we analyze the relationship between inherited cultural values and the economic outcome of more than 21,000 male homogamous second generation immigrants. We use the historical disease environment of the country of ancestry as a measurement for collectivism since collectivistic values have been particularly advantageous in countries with a greater prevalence of disease-causing pathogens. We find that higher scores of collectivism are associated with higher labor force participation and income earned in the US. The number of hours worked and self-selection into jobs that require collectivistic traits are the main determinants of the positive impact of collectivism on earnings.

JEL Classification: A13, F22, J14, J24

Keywords: Labor force participation; occupational choice; migration; cultural values

January 2017

1 Lisa Sofie Höckel, RWI. *– I am grateful to Thomas K. Bauer, Julia Bredtmann, Ira N. Gang, Stephan Klasen, Manuel Santos Silva as well as conference participants at the EGI Conference 2015, the RGS Conference 2016, the SMYE 2016, the VfS Meeting 2016 and the EALE 2016 for valuable comments and suggestions. All remaining errors are my own.* *– All correspondence to: Lisa Sofie Höckel, RWI, Hohenzollernstr. 1-3, 45128 Essen, Germany, e-mail: lisa.hoeckel@rwi-essen.de*

1. Introduction

Cultural diversity induced by migration is beneficial to economically advanced host countries such as the US (Ottaviano and Peri, 2006). For the long run evaluation of migration, however, the labor market performance of second-and-higher generation immigrants is a "key yardstick" (Card, 2005).[1] Policy makers argue that the cultural ancestries of migrants need to be taken into consideration to ensure a successful (labor market) integration - especially in countries like the US, where the ethnic composition of immigrants has changed dramatically over time. While in 1970, 70.4 percent of the immigrant population originated from North America or Europe, by 2012 81.6 percent of the foreign born population came from Asia or Latin America (US Census Bureau, 2016). The labor market returns to different cultural traits, however, have been neglected in the empirical literature until recently.

This paper aims at partly filling this gap by investigating the impact of different cultural ancestries on the economic performance of second generation immigrants in the US. Within the cultural value sphere, we study the individualism vs. collectivism dimension which influences immigrants' preferences and expectations with respect to work values like cooperation, effort, and innovation. This dimension is particularly interesting since the traditional source countries of immigrants in the US tend to be individualistic whereas new source countries, such as China, are often collectivistically shaped.

Our paper is related to the economic literature on the labor market performance of immigrants. This strand of literature widely employs the epidemiological approach which uses source country characteristics as a proxy for the cultural values of immigrants (Fernández and Fogli, 2009; Blau et al., 2011; Hansen, 2013). Using the variation in source country labor force participation rate (LFPR) as a cultural proxy, Antecol (2000), for example, explains half of the variation in the gender gap in LFPR of first generation immigrants in the US. A disadvantage of most cultural proxies employed in the literature, is that they capture different unobservable factors, even

[1] Given current birth rates and immigration trends, the Pew Research Center (2013) predicts that all of the growth of the US working-age population between 2013 and 2050 will be accounted for by immigrants and their US-born children.

those outside the cultural dimension such as the economic and institutional conditions of the country of ancestry. The use of collectivism as a cultural value has the advantage of employing cultural theory to impose a pattern of cross-country similarities and dissimilarities. We connect the epidemiological approach to the literature on skill complementarities which shows that foreign-born workers specialize in different production tasks relative to comparably skilled natives (Green, 1999; Peri and Sparber, 2009). Ottaviano and Peri (2005) suggest that this might be due to different culture specific skills inducing different occupational preferences. However, the authors do not investigate potential disparities among immigrants with different cultural ancestry.

This paper contributes to the literature in three ways. First, we provide evidence on the channels through which cultural values shape labor market outcomes. Not only do we study the labor force participation, but also the occupational choice of second generation male immigrants, to show how cultural values influence income. We therefore take into consideration which abilities are relevant for the occupations chosen by second generation immigrants with collectivistic ancestry, as well as their individualistic counterparts.

Second, we employ a novel collectivism measure. In the existing literature the level of individualism is usually measured by Hofstede's individualism index which uses survey data on work attitudes of IBM employees. However, survey data on values as an indicator for cultural traits can be driven by omitted variables (e.g. economic development) which are correlated with collectivism. In contrast, our collectivism measure, the historical prevalence of infectious diseases in the country of ancestry, is drawn from biology and gives us confidence in exogenous variation. We follow Fincher et al. (2008) who argue that the regional variation in the prevalence of infectious diseases is a determinant factor in the origin of collectivism. They demonstrate that collectivism is likely to have emerged and persisted within populations with a historically higher prevalence of pathogens. By creating i.) a sharp distinction between in-groups and out-groups and ii.) a strong emphasis on tradition and conformity, collectivism evolved as a best response strategy to the dangers posed by mortality-causing pathogens.

Third, we are the first to analyze exclusively homogamous family constellations (i.e. families, in which both parents were born in the same country) to ensure that the effect of our cultural variable is unambiguous. If parents have different cultural backgrounds, taking only one parental ancestry into

consideration adds ambiguity to the interpretation of the results since there is no evidence on which parent is dominant in passing on his or her cultural heritage.

Using the epidemiological approach on US survey data, we find a strong positive effect of collectivism on labor force participation. This result gives indication that individuals with a collectivistic ancestry feel responsible for supporting their in-group. As a result they value their own leisure relatively less and they have relatively lower reservation wages. Thus, they are more likely to take jobs which do not fulfill them. We also find evidence of a positive effect of collectivism on income earned. This effect is mainly explained by the amount of hours worked and the occupation chosen. Finally, higher scores of ancestral collectivism are associated with occupations which require collectivistic abilities such as dependability, suggesting that individuals sort into occupation requiring skills on which they have a cultural comparative advantage.

The remainder of the paper is organized as follows. Section 2 gives a short overview of the economics of culture and outlines the relevant literature. Section 3 introduces the empirical strategy used and section 4 presents the results as well as the most relevant findings of this study. Concluding remarks are presented in section 5.

2. Background

2.1. Collectivism as a Cultural Value

The concepts of collectivism and individualism can be linked to the school of new institutional economics (see, for example, North, 1990). As cultural values, they are *informal institutions* which constrain human behavior and shape incentives. They are transmitted fairly unchanged from generation to generation and can be largely treated as constant throughout an individual's lifetime (Guiso et al., 2006). Cultural values persist in societies if disobedience results in a sufficient loss of reputation or feelings of guilt and anxiety.[2] This implies that cultural values sustain in immigrant communities if the compliance with the values is societally monitored within the group.

The influence of cultural values can be analyzed with respect to the direct impact on preferences and expectations and with respect to the indirect

[2]For more on cultural values in general, see, e.g. Greif (1994); Akerlof (1980); Elster (1989); Nunn and Wantchekon (2011); Akerlof and Kranton (2000).

effects of those preferences on economic outcomes. Our investigation focuses on the impact of the individualism-collectivism (IND-COL) dimension which is described as, "the most important dimension for capturing cultural variation" (Heine, 2008, p.189). Therefore, we adopt the following definition:

> *Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty (Hofstede et al., 2010, p.92).*

In collectivist societies, the relationship between in-group members is characterized by interdependence and intensity. The relationship is sustained through the preservation of traditions and members remain in their in-group even if it is costly. In individualistic societies, people tend to make "friends" easily but if in-group obligations get inconvenient, they quit the group and look for another one instead. Further, people emphasize their own uniqueness and are encouraged to explore their individual features. Innovations are incentivized since success is considered a result of an exceptional personality trait and rewarded with social status. In collectivistic societies, however, the drive towards individual achievement is less distinct. Therefore, collectivist societies reward the effort people invest in serving the group's goal as well as the ability to conform (Hofstede et al., 2010; Triandis, 1995).

Table 1 summarizes economically relevant differences between individualists and collectivists, and illustrates that characteristics emerging from the different societal emphases can have very different labor market implications. Based upon their characteristics, we predict collectivists to have a higher labor force participation rate. Given that collectivists feel responsible towards supporting their in-group, we expect them to be more likely to take unpleasant jobs. While some of their individualistic counterparts take time to find a job which fits their abilities best or pursue their individualistic happiness through studying or other means of self-fulfillment, we assume that the motivation to support one's in-group leads to a higher labor force participation of collectivists. Within the labor force, we assume collectivists to also work more hours. Collectivistic societies reward the effort displayed by their members and effort can be well demonstrated through a high amount of hours worked. We further assume that collectivists' in-group orientation reduces

Table 1: Collectivism vs. Individualism

	Collectivism	Individualism
Motivation	Obligation	Social Status
Work Values	Effort	Ability
Work Styles	Cooperation	Innovation
	Dependability	Independance

Source: Hofstede et al. (2010); Triandis (1995)

concerns for own leisure in the labor supply decision, thereby reducing reservation wages relative to individualists facing similar labor market conditions. Moreover, we assume people from individualistic societies to have a preference for jobs which require individualistic abilities such as independence and innovation and people from collectivistic societies to have a comparative advantage in jobs which are cooperation-intensive and require social skills like sensibility. The income earned by collectivists and individualists then partly depends on the returns to those different work characteristics.

2.2. Related Literature

The literature on the determinants of economic growth shows that collectivism is a relevant determinant of economic outcomes.[3] Gorodnichenko and Roland (2010, 2011), for example, develop an endogenous growth model which accounts for the IND-COL dimension and predict that individualism leads to more innovation because of the social rewards for achievement in individualistic societies. Collectivism leads to efficiency gains, but they are static unlike the dynamic effects of individualism. Using rainfall variation as an instrument for individualism, Davis (2016) finds that individualism has a positive effect on economic development. Licht et al. (2007) investigate the effect of individualism on formal institutions using grammar rules[4] as

[3]The growth literature on the importance of institutions is even more extensive (see, for example, Acemoglu et al., 2005; Alesina and La Ferrara, 2002; Levine, 2005; Greif, 1994; Tabellini, 2010).

[4]They classify languages in which the use of a pronoun ("I", "You", etc.) for the subject in a sentence is compulsory as relatively more individualistic than languages which do not require a compulsory pronoun and allow the identity of the subject in a sentence to be context-specific.

an instrument and find that individualism is positively correlated with basic social norms of governance (the rule of law, corruption, and democratic accountability).

A micro-economic strand of literature focuses on the cultural determinants of immigrants' economic outcomes. The empirical strategy most often employed is the so called "epidemiological approach" (Fernández, 2007) which uses source country cultural proxies (originally female labor force participation rates (FLFPR)) to explain the labor supply of female immigrants (see, for example, Antecol, 2000; Blau et al., 2011; Fernández and Fogli, 2009; Bredtmann and Otten, 2015). Antecol (2000) finds that the FLFPR of the country of ancestry explains half of the overall variation in the gender gap in LFPR of first generation immigrants in the US. The effect is smaller for second-and-higher generation immigrants which Antecol (2000) interprets as evidence for assimilation. Similary, Fernández and Fogli (2009) investigate fertility behavior of second generation female immigrants in the US and Bredtmann and Otten (2015) study the impact of both source and host-country characteristics for female immigrant labor supply in Europe. These studies exclusively consider cultural components with respect to gender roles, e.g. a woman's appropriate role in society. Further, FLFPR captures different unobservable factors, even those outside the cultural dimension like the economic and institutional conditions of the country of ancestry. Thus, the estimated effects could also be driven by systematic economic differences across countries of ancestry rather than by cultural differences.

A collectivism measurement, following cultural theory, has the advantage of being more explicit about why ancestries matter and why the differences in collectivism emerged. Hansen (2013) employs the epidemiological approach to test the influence of individualism on the annual income of male second generation immigrants. He measures the level of individualism at one of the parent's country of origin and uses the Hofstede index as a measure. Overall, he finds a small but significant positive effect of individualism on the annual income of male US respondents. Hansen (2013)'s approach has the disadvantage that only the origin of one parent is observed. According to Bisin and Verdier (2000), however, the inter-generational transmission of cultural values of parents with mixed cultural background can be complex. The findings of Hansen (2013) might be biased by the origin of the unobserved parent if there is a systematic bias in mating behavior (e.g., if individualists overproportionally marry US-natives). We extend Hansen's work by considering only parents from the same country of origin to capture a clearer effect of

cultural differences.

Our paper further connects the literature on cultural values to the strand on occupational substitutability of immigrants to study the underlying causes of income differences. Green (1999) investigates the occupational attainment of immigrants relative to native born Canadians and finds that immigrants choose different occupations compared to otherwise similar natives. Peri and Sparber (2009) confirm Green (1999)'s findings for the US and provide evidence that less educated foreign-born workers specialize in different production tasks than natives. Foreign-born workers with similar observable characteristics to natives seem imperfect substitutes in production because they posses unique skills that make them specialize in different occupations. Ottaviano and Peri (2005) suggest that this might be due to different culture specific skills which induce different occupational preferences. We built upon this hypothesis by investigating the differences in occupational choice between respondents with a individualistic and collectivistic ancestry.

3. Empirical Strategy and Data

3.1. Conceptional Framework

Our specification follows the epidemiological approach by investigating the performance of descendants of immigrants from different countries in the same host country. Fernández (2007) argues that people who emigrate leave their formal institutional environment behind, but take their cultural values with and pass them on to their children. For second generation immigrants, the institutional and economic conditions of the parents' country of origin should no longer be relevant since the children grew up facing the markets and formal institutions of the host country which are homogeneous to the descendants of all immigrants.[5] Inter-generationally transmitted cultural values, however, can still affect their preferences and beliefs.[6]

[5]In her denotation, Fernández (2007) refers to the science of epidemiology, in which patterns and effects of disease conditions are studied. Therefore, health conditions of immigrants are analyzed to test whether cross-country differences in diseases are environmental or genetic. In epidemiology, culture is regarded as a component of the environment. Therefore, differences in the disease patterns of natives and immigrants are not necessarily due to genetic differences. The underlying cause can also be the persistence of culture and its transferability through channels like diet or lifestyle.

[6]Note that our definition of culture only contains those dimensions of culture which are inherited rather than voluntarily accumulated.

To analyze the role of collectivism as a determinant of income earned of second generation male immigrants, we are therefore interested in the stylized model

$$ln(y_{ijst}) = \alpha + \beta Collectivism_j + \lambda' X_i + \delta' C_j + \rho_s + \gamma_t + \varepsilon_{ijst} \qquad (1)$$

where $ln(y_{ijst})$ denotes the natural logarithm of the total personal annual income (pre-tax) in US$ of second generation male immigrant i with country of ancestry j in state s and year t. The explanatory variable *Collectivism* corresponds to the historical prevalence of nine infectious diseases in his country of ancestry and is taken from Fincher et al. (2008). X is a vector of controls at the individual level and C contains control variables for the country of ancestry j. All regressions include state dummies ρ_s and year of survey fixed effects γ_t. ε_{ijst} is the error term. All reported standard errors are clustered at the country of ancestry level.

In the analysis, we focus on second generation immigrants who were born to homogamous families (i.e., families in which both parents were born in the same country). The consideration of second generation immigrants rather than first generation immigrants has the advantage that they are not exposed to immigration shocks that can lead to a temporary deviation from traditional cultural behavior. For example, language barriers, discrimination or greater uncertainty can prevent immigrants from acting in accordance to their cultural principles. Further, the investigation of second generation immigrants reduces a possible selection bias of migration.

The restriction to homogamous families is based on Bisin and Verdier (2000)'s model of endogenous cultural transmission. The authors demonstrate how parents are motivated to shape their childrens' cultural values by a, "paternalistic altruism" (Bisin and Verdier, 2000, p.962) and how parents intensify their efforts when family and societal values are substitutes. In their model, parents are most efficient in transmitting their cultural heritage if they both have the same cultural traits. Since there is no literature on which parent is dominant in passing his or her cultural heritage on if parents have different cultural backgrounds, it is preferable to only study homogamous families. The consideration of only one parent's cultural background could bias the results.

The epidemiological approach uses the portability characteristic of culture relative to a fixed institutional and economic environment to investigate

the impact of cultural values on economic performance. This allows us to disentangle the impact of collectivism from formal institutions and ensures that no reverse causality between economic performance and individualism occurs. Further, we employ historical data as a measure for collectivism. This has the advantage that historical data from the country of ancestry reflects the immigrant's ancestral circumstances, but does not suffer from endogeneity of recent development processes. If our historical measure at the country of ancestry level is able to explain part of the variation in economic outcomes of descendents of immigrants, growing up in the US, then it is because of the explanatory power of inter-generational transmission of cultural values.

A major threat to our identification strategy is whether collectivism is correlated with other characteristics of countries of origin that may affect immigrants' performance. For example, since individualistic countries have historically higher levels of income, education, etc., we would be worried if our cultural variable would be picking up those effects - that is, the effect of, for example, being an immigrant from a richer country of origin. Therefore, we include a vast number of control variables capturing economic, social, political, and historical characteristics of the countries of origin to ensure that our results are not being driven by potential confounders.

3.2. Data

The data employed for the analysis is the Current Population Survey (CPS), which we extracted from the IPUMS (Integrated Public Use Microdata Series) database (King et al., 2010). The CPS is a monthly US household survey conducted jointly by the Bureau of Labor Statistics and the US Census Bureau. Within the CPS, our data comes from the March Annual Social and Economic Supplement (ASEC). This data set is ideal because since 1994, the ASEC includes questions about the birthplace of the respondent's parents. Another advantage of the data is that it includes detailed variables on demographics (e.g. age, education[7], family size, marital status, race[8]) and labor market outcomes (employment status, personal in-

[7] *Years of schooling* provides the expected years of schooling to obtain a certain degree.

[8] We construct race dummies for *Black, Asian and Mixed race*. The reference race group is White/Caucasian. We also control for *Hispanic* origin. The ACS does not classify Hispanic as a race but as a country of origin. Thus, the covariate *Hispanic* and the (other) race dummies are not mutually exclusive.

come, usual hours worked per week, occupation). It further enables us to include year and state dummies.[9]

In our analysis, the main outcome variables are labor force participation, income earned and occupational choice of second generation immigrants. To be able to study the occupational choice in a meaningful way, we group the CPS occupational codes into 8 occupational categories, namely (1) Managerial Occupations, (2) Natural Scientists and Engineers, (3) Professional Specialty Occupations, (4) Technicians and Related Support Occupations, (5) Sales Occupations and Administrative Support Occupations, (6) Service Occupations and Farming, Forestry, and Fishing Occupations, (7) Precision Production, Craft, and Repair Occupations as well as (8) Operators, Fabricators, and Laborers. We can then harmonize our data set with the Occupational Information Network (O*Net) database. O*Net was developed by the US Department of Labor's and contains information on the key attributes and characteristics of occupations. Besides information about abilities, which has been the most prevalent technique for comparing jobs, the O*Net database provides information on work styles which influence the performance and the capacity to acquire skills and knowledge required for effective work performance of a particular job for 1,122 occupations performed in the US (O*Net, 2015). For different work styles the O*Net assigns each job a value between 0 and 100, where 100 corresponds to work values which are important to succeed at the particular job and 0 corresponds to characteristics which are irrelevant for the performance at the job. The categories employed by the O*Net have the advantage of being limited in range while accounting for variation in very detailed occupational classifications.

Since our main dependent variable is income[10], we restrict the sample further to the working age population from 15 to 64 and drop those respondents who are still in school and those who are employed by the military.

We use the historical prevalence of infectious diseases in the country of ancestry as an exogenous measure for our explanatory variable *Collectivism*. This measure is drawn from biology and relies on the assumption that psycho-

[9]The inclusion of the 51 state dummies is a particularly powerful test to identify the cultural effect. It implies both that (i) state level differences (e.g. economic cycles, governance, endowments) are not driving the collectivism coefficient and (ii) different migration patterns from distinct origins are not a source of bias.

[10]*Log Income* denotes the natural logarithm of the total annual (pre-tax) income of the respondent.

logical phenomena such as collectivism serve as anti-pathogen defense functions. Fincher et al. (2008) argue that the regional variation in the prevalence of infectious diseases is a determinant factor in the origin of cross-cultural differences in cultural values. Collectivism is likely to have emerged and persisted within populations which historically had a greater prevalence of pathogens since it comprises two particular features which provide defense against the dangers posed by morbidity causing pathogens. First, collectivism emphasizes a sharp distinction between in-groups and out-groups. In a disease environment, this inhibits the exposure to novel pathogens. Collectivist populations are wary of contact with foreigners which reduces the risk of being infected by unusual pathogen imported by out-groups. Second, the strong emphasize on conformity in collectivist societies ensures that specific norms and traditions which serve as buffers against pathogen transmission are preserved.[11] A higher level of tolerance could encourage deviation from the status quo and thus lead to higher risks to self and others. Fincher et al. (2008) assume ecological effects on culture to require some time lag and pathogen prevalence to be causally precedent to collectivism. Therefore, they employ old epidemiological atlases to rate the prevalence of nine different kinds of disease-causing pathogens on a 4-point coding scheme for 160 geopolitical regions.[12] The nine infectious diseases are leishmanias, schistosomes, trypanosomes, leprosy, malaria, typhus, filariae, dengue and tuberculosis. They are coded 0 if they were never reported or completely absent; 1 if they were rarely reported; 2 if they were moderately or sporadically reported and 3 if the disease occurred on an epidemic level at least once or is currently present at severe levels.[13] Each disease rating is converted into

[11]Sherman and Billing (1999) illustrate the functioning of traditions in the context of food preparation. They argue that the cultivation of culinary spices is costly given that the resources could otherwise be devoted to more nutritional crops. Since spices are powerful antibiotics, however, their cultivation is especially beneficiary in regions where bacterial infestation of food is problematic. Thus, they are more likely to be cultivated in regions where the prevalence of infectious diseases is high.

[12]Murray and Schaller (2010) also estimate a seven-item index (excluding leprosy and tuberculosis) for 230 geopolitical regions, which is less highly correlated with other collectivism measures. In our robustness analysis in section 4.3, we refer to the seven-item score because it is available for more countries than the more accurate nine-item score. In particular, it includes Caribbean islands and South American countries which are relevant countries of ancestry for US immigrants.

[13]The prevalence of tuberculosis is based on another source and coded according to a

z-scores (i.e. standardized) and computed as the mean of the z-scores of the nine separate disease items. The mean of the overall index is approximately 0, positive scores refer to a disease prevalence which is higher than the mean and, therewith, collectivism and negative scores refer to a disease prevalence which is lower than the mean and thus, individualism. Figure 1 illustrates the collectivism measure across world regions and shows that Western countries such as the US or Europe tend to be individualistic while most Asian and African countries are collectivistic.

Our collectivism measure is highly correlated with other collectivism scores and has been used in the economic literature before (e.g., Gorodnichenko and Roland, 2012). The most prevalent individualism score in the existing literature is the Hofstede individualism index which uses cross-country matched survey data on work attitudes of IBM employees in different countries. However, this approach is controversial since survey data can pick up general cross-country differences rather than precisely measuring culturally subjective and sensitive values. Further, critics claim that a study conducted in one particular company cannot be generalized to the entire cultural system of a country. In comparison, our disease measure gives us more confidence in unbiased estimations.

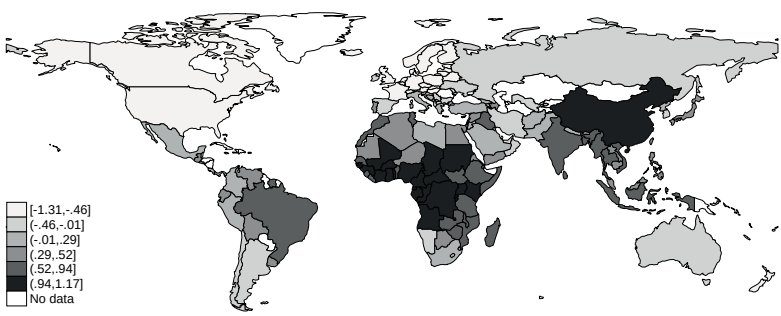

Figure 1: Historical Disease Prevalence

We also include a set of control variables at the country of ancestry level (life expectancy, GDP per capita, primary school enrollment, LFPR) to ensure that our collectivism variable does not capture the economic de-

3-point scheme.

velopment of the country of ancestry. All country controls are derived from the World Bank's World Development Indicator (WDI) Series (World Bank, 2015). Lastly, we include covariates to control for the cultural proximity between the US and the country of ancestry. We use the population weighted distance between the countries to adjust for the geographic distance between the country of ancestry and the US[14], the Levenshtein distance of languages[15] to control for differences in language proficiency of second generation immigrants and the variance between gene frequencies across populations to capture the degree of relatedness between the two countries (Spolaore and Wacziarg, 2015). The additional country controls for Table A3 are provided by Gorodnichenko and Roland (2010).

Based on the above criteria, we end up with a sample size of 21,303 male respondents and 51 countries of ancestry for which we have information on the collectivism score. For a list of source country groups see Table A4 in the appendix. Birthplaces which cannot be matched to a specific country or which cannot be attached to *Collectivism* are excluded. In order to make meaningful comparisons, we also exclude countries with less than 20 observations.

3.3. Descriptive Statistics

Table 2 presents selected statistics of the sample. The main variable of interest, *Collectivism*, ranges from -1.31 to 1.16. The most individualistic countries are Canada (z-score: -1.31), Switzerland (-1.08) and the United Kingdom (-1.01). The most collectivist countries are Nigeria (1.16), China (1.03) and India (0.94). The average of 0.10 indicates that our sample is skewed towards collectivism. Out of the total 21,303 second generation immigrants, the average respondent has almost 13 years of education which corresponds to 1 year of higher education. The mean age is around 37 years and the mean household consists of 3 family members; 51 percent are married and more than half are of Hispanic origin.[16] 78 percent of second generation

[14]Derived from the CEPII (2015).

[15]The measure used by Isphording and Otten (2013) takes the average similarities across a specific set of words as a measure for linguistic distance.

[16]Hispanics account by far for the largest proportion of homogamous families. Suro and Passel (2003) forecast that second generation Hispanics will account for the largest percentage of the US population by 2050 since fertility rates and the probability to marry within the own ethnic group are particularly high among Hispanic immigrant.

male immigrants in our sample participate in the labor force and the mean annual personal income (pre-tax) is 40,131 US$. The standard deviation of 52,277 US$, higher than the average itself, illustrates the wide range of income variation in our sample.

Table 2: Summary statistics

	Mean	Std. Dev.	Min	Max
Collectivism	0.10	0.51	−1.31	1.16
Work characteristics				
Labor force participation	0.78	0.42	0	1
Income (in thousands)	40.13	52.28	0	110.02
Usual hours worked per week	42.11	10.39	1	99
Individual characteristics				
Years of schooling	12.95	3.13	0	22
Age	36.88	13.54	15	64
Family size	3.38	1.83	1	16
Married	0.51	0.50	0	1
Ethnicity				
White	0.80	0.40	0	1
Black	0.03	0.17	0	1
Asian	0.15	0.35	0	1
Mixed ethnicity	0.01	0.09	0	1
Hispanic	0.54	0.50	0	1
Observations		21,303		

Table 3 illustrates how the countries of ancestry differ with respect to economic relevant characteristics and their cultural proximity to the US. The GDP per capita ranges between 538 current US$ in Cambodia and 63,316 current US$ in Norway. The mean life expectancy of approximately 74 years corresponds to the average life expectancy in Barbados. The LFPR is especially high in Southeast Asian countries (e.g. Laos, Vietnam, China, and Thailand). The country with the lowest population weighted distance to the US is Canada and the country the furthest away is Cambodia. Four countries in our sample have plain English as a mother tongue and thus a Levenshtein linguistic distance of 0. While countries like Canada and England are genetically similar to the US, Nigeria is the country with the largest weighted genetic distance to the US.

The different countries of ancestry are not equally represented in our sample. Figure 2 illustrates that the distribution of the collectivism score

Table 3: Country summary statistics (1994-2014)

	Mean	Std. Dev.	Min	Max
Collectivism	−0.02	0.59	−1.31	1.16
Country characteristics				
GDP per capita	14,542.49	15,768.08	538.05	63,316.10
Labor force participation rate	60.37	8.66	43.51	81.83
Life expectancy	73.59	6.20	48.51	81.65
Primary school enrollment	92.76	7.07	65.29	99.98
Cultural proximity				
Weighted distance	8,305.29	3,290.92	2,079.30	14,023.45
Linguistic distance	84.75	27.53	0.00	104.06
Genetic distance	0.56	0.57	0.00	1.49
Observations		51		

within the US sample is skewed towards the right with a sample mean of 0.10. This implies that our sample mainly consists of second generation immigrants with a collectivistic ancestry. The median score is 0.28, since most second generation immigrants were born to Mexican (7,705) parents. Children to Puerto Rican (2,957), Italian (1,544), Philippine (1,195) and Canadian (937) parents also occur frequently in our sample.

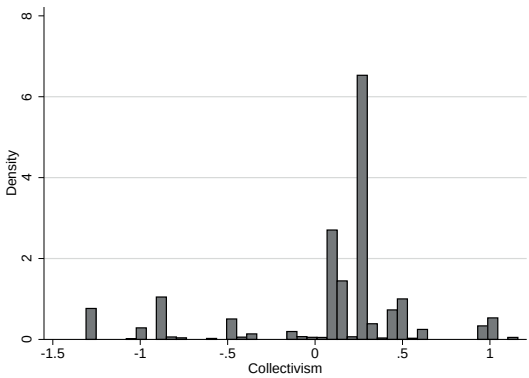

Figure 2: Sample Distribution of Collectivism

Table 4: Comparative summary statistics

	Collectivists		Individualist		
	Mean	Std. dev.	Mean	Std. dev.	t-test
Individual characteristics					
Years of schooling	12.61	3.01	14.44	3.20	−1.83***
Age	34.93	13.06	45.36	12.25	−10.43***
Family size	3.50	1.87	2.87	1.53	0.62***
Married	0.47	0.50	0.67	0.47	−0.20***
Ethnic origin					
White	0.77	0.42	0.94	0.24	−0.17***
Black	0.03	0.17	0.02	0.12	0.02***
Asian	0.17	0.38	0.04	0.19	0.13***
Mixed ethnicity	0.01	0.09	0.00	0.05	0.01***
Hispanic	0.66	0.47	0.04	0.20	0.62***
Work characteristics					
Labor force participation	0.76	0.43	0.83	0.37	−0.07***
Income (in thousands)	35.78	47.85	59.03	64.95	−23.26***
Usual hours worked per week	41.61	10.19	44.02	10.91	−2.41***
Observations	17,313		3,990		21,303

*Notes: – The table shows descriptive statistics for the two sub-samples of second-generation immigrants from (i) collectivistic and (ii) individualistic countries of origin. The last column shows the difference in mean values between the two samples. Significance stars indicate the result of the respective t-test. * p<0.10, ** p<0.05, *** p<0.01.*

Table 4 exhibits the difference in the characteristics of second generation immigrants with collectivistic ancestry compared to their individualistic counterparts.[17] Respondents with collectivistic ancestry are on average younger, less educated and more likely to be Hispanic. Further, they earn less and are less likely to participate in the labor force. The number of observations demonstrates that the majority of our sample consists of respondents with a collectivistic ancestry and the t-tests show that collectivists and individualists differ significantly for all characteristics displayed.

4. Results

4.1. Extensive Margin

The log income distribution in our sample is segmented between a left "peak" of zero incomes and a second segment with positively (normally) distributed incomes. We, therefore, begin our econometric analysis by investigating if a collectivistic ancestry affects the probability of participating in the labor force.

For the extensive margin, we estimate a probit model[18] where the dependent variable is a binary indicator for labor force participation. Table 5 reports the average marginal effect of three different specifications. It displays a positive and significant impact of our variable of interest on the probability to participate in the labor force. Column (1) reports the results of the regression with only individual controls included, column (2) with individual and country controls and column (3) further includes measures for the cultural proximity. A one unit (i.e. standard deviation[19]) higher score of collectivism, which, for example, corresponds to the difference between China and Greece, indicates a 1.8 percentage point higher probability to participate in the labor force in column (1). The individual covariates are significant and the signs of the coefficients are as expected. As found in previous studies, the effect is positive for education, being married and for age.[20] Factors negatively asso-

[17] For simplicity we divide the sample into two segments, a collectivistic one with a disease prevalence larger than the average and an individualistic one with a disease prevalence smaller than the average.

[18] Comparable estimates with a logit model.

[19] Note that the standard deviation corresponds to the 51 countries included in our sample rather than the 160 countries for which the collectivism score is available.

[20] The average marginal effect results do not display that we control for age squared to allow for a potential non-linear relationship of age and LFP.

ciated with labor force participation are the number of household members. We further incorporate ethnic origin dummies to ensure that our results are not biased by discrimination. Column (2) controls for covariates at the country of ancestry level since the effect of *Collectivism* could be driven by the economic development of the source country. Labor force participation rate as well as primary school enrollment at the country of ancestry influence the probability to participate in the labor force significantly. Notably, the inclusion of country of ancestry controls increases both the size and the significance of our variable of interest. This can be explained by the counteracting effects of collectivism and economic development. On average, individualistic countries are richer and more developed than collectivistic countries. This is correlated with higher average human capital of their citizens and therewith a higher endowment to assimilate in the US. Once we control for the economic development of the country of ancestry, however, the opposing effects are disentangled. In column (3), we further control for the cultural proximity of the country of origin and the US. This specification captures the advantage in the labor market which immigrants from countries similar to the US might have. Column (3) displays our preferred specification.

4.2. Intensive Margin

In Table 6, we investigate the impact of collectivism on income earned for those in the labor force using the same controls as in the previous specification. While our variable of interest has a robust effect on LFP in all three specifications, the impact on income earned only becomes significant once we include our full set of relevant controls. However, in our preferred specification (3), a one unit higher *Collectivism* score increases income earned by almost 5 percent. This result is both statistically and economically relevant, implying that a one unit more collectivistic ancestry has approximately the same impact on income as half a year of schooling. The individual characteristics resemble those of Table 5 with respect to their signs while the effect of different ethnic origins changes. Being black affects the LFP negatively while Hispanics earn on average 11 percent less than their non-hispanic counterparts. With respect to the country characteristics, primary school enrollment stays a significant predictor of income earned and among the cultural proximity indicators, the genetic distance has a significant impact on income earned. Overall, our model can explain about 25 percent of the variation of income and illustrates that the income of second generation immigrants is positively

Table 5: Extensive margin specification

	Labor force participation		
	(1)	(2)	(3)
Collectivism	0.018**	0.024***	0.030***
	(0.008)	(0.008)	(0.011)
Individual characteristics			
Years of schooling	0.022***	0.022***	0.022***
	(0.003)	(0.002)	(0.002)
Age	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)
Family size	−0.007***	−0.007***	−0.007***
	(0.002)	(0.002)	(0.002)
Married	0.109***	0.107***	0.107***
	(0.016)	(0.014)	(0.014)
Ethnic origin (ref.: white)			
Black	−0.040***	−0.037**	−0.043**
	(0.014)	(0.018)	(0.019)
Asian	−0.050***	−0.055**	−0.036
	(0.019)	(0.025)	(0.030)
Mixed ethnicity	0.002	0.004	0.006
	(0.014)	(0.013)	(0.014)
Hispanic	−0.012	0.009	−0.009
	(0.015)	(0.012)	(0.015)
Country characteristics			
GDP per capita		0.004	0.005
		(0.006)	(0.006)
LFPR		0.002**	0.001*
		(0.001)	(0.001)
Life expectancy		−0.002	−0.003
		(0.002)	(0.002)
Primary school enrollment		0.002**	0.003**
		(0.001)	(0.001)
Cultural proximity			
Weighted distance			−0.004
			(0.003)
Linguistic distance			0.006
			(0.019)
Genetic distance			−0.005
			(0.016)
State controls	Yes	Yes	Yes
Year controls	Yes	Yes	Yes
Pseudo-R^2	0.369	0.372	0.372
Observations		21,303	

*Notes: – Probit results are reported as marginal effects evaluated at covariate means. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.*

correlated with a collectivistic ancestry.[21]

To investigate the drivers of this effect, Table 7 displays the impact of various work characteristics. In our preferred specification, column (3) of Table 6, we do not include work characteristics because they are likely to be endogenous to income earned. However, they can hint to relevant mechanisms. Thus, we control for hours worked and occupational choice in Table 7. The introduction of hours worked in column (1) reduces the coefficient of *Collectivism* notably in size and significance. In column (2) we further include occupational dummies, which makes our *Collectivism* variable insignificant. This gives strong indication that occupational choice is one of the main channels of the positive effect of *Collectivism*. In columns (3) and (4), we report the estimates on the number of hours worked. Using the controls of our preferred specification, we find that a one unit more collectivistic ancestry increases the weekly number of hours worked by more than one. The strong and significant effect of collectivism even holds if we control for occupations (column (4)), which indicates that even within the same job, respondents with a collectivistic ancestry work more.

We further test whether a collectivist ancestry affects the occupational choice of second generation immigrants. Descriptively, Figure 3 displays the density of second generation immigrants in eight occupation categories according to their cultural ancestry.[22] The figure illustrates that second generation immigrants with individualistic ancestry are more likely to work in managerial occupations, engineering, professional specialty occupations and technician jobs. Collectivistic second generation immigrants on the other hand choose jobs in sales and administration, service occupations, in precision production or as laborers. It seems that the probabilities of being employed in a particular occupational category vary along the individualism-collectivism dimension.[23] However, Figure 3 only provides descriptive trends and the difference in occupations could also be explained by individual characteristics

[21] To ensure that the positive effect of *Collectivism* is not driven by outliers we run quantile regressions which are robust to extreme value points. Table A1 reports the estimates and shows that the effect of *Collectivism* is mainly driven by the median percentile.

[22] For simplicity we divide the sample into two segments, a collectivistic one with a disease prevalence larger than the average and an individualistic one with a disease prevalence smaller than the average.

[23] Figure A1 shows the distribution of all occupations taken by second generation immigrants with collectivist or individualistic ancestry.

Table 6: Intensive margin specification

	Log of income		
	(1)	(2)	(3)
Collectivism	0.017	0.024	0.049**
	(0.014)	(0.022)	(0.023)
Individual characteristics			
Years of schooling	0.098***	0.098***	0.098***
	(0.003)	(0.003)	(0.003)
Age	0.118***	0.118***	0.118***
	(0.006)	(0.006)	(0.006)
Age squared	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)
Family size	−0.047***	−0.047***	−0.047***
	(0.005)	(0.005)	(0.005)
Married	0.401***	0.399***	0.399***
	(0.019)	(0.019)	(0.019)
Ethnic origin (ref.: white)			
Black	−0.107**	−0.084	−0.078
	(0.052)	(0.058)	(0.054)
Asian	−0.022	0.007	0.033
	(0.030)	(0.049)	(0.056)
Mixed ethnicity	−0.109*	−0.099*	−0.096
	(0.060)	(0.057)	(0.057)
Hispanic	−0.143***	−0.116***	−0.112***
	(0.019)	(0.024)	(0.029)
Country characteristics			
GDP per capita		0.008	−0.005
		(0.015)	(0.012)
LFPR		−0.000	−0.000
		(0.002)	(0.002)
Life expectancy		−0.002	−0.002
		(0.005)	(0.005)
Primary school enrollment		0.004	0.006*
		(0.003)	(0.003)
Cultural proximity			
Weighted distance			−0.003
			(0.006)
Linguistic distance			−0.053
			(0.049)
Genetic distance			−0.049*
			(0.029)
State controls	Yes	Yes	Yes
Year controls	Yes	Yes	Yes
Adjusted R^2	0.244	0.244	0.244
Observations		16,189	

*Notes: – Results are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.*

Table 7: Work specification

	Log of income		Hours worked	
	(1)	(2)	(3)	(4)
Collectivism	0.035*	0.024	1.139***	0.780**
	(0.019)	(0.016)	(0.407)	(0.335)
Individual characteristics				
Years of schooling	0.087***	0.058***	0.326***	0.186***
	(0.002)	(0.002)	(0.029)	(0.027)
Age	0.086***	0.074***	1.146***	0.984***
	(0.006)	(0.006)	(0.079)	(0.064)
Age squared	−0.001***	−0.001***	−0.014***	−0.012***
	(0.000)	(0.000)	(0.001)	(0.001)
Family size	−0.036***	−0.030***	−0.377***	−0.327***
	(0.005)	(0.004)	(0.057)	(0.043)
Married	0.321***	0.261***	2.554***	1.929***
	(0.013)	(0.017)	(0.283)	(0.303)
Work characteristics				
Usual hours worked per week	0.025***	0.022***		
	(0.001)	(0.002)		
Occupation dummies	No	Yes	No	Yes
Adjusted R^2	0.336	0.393	0.094	0.167
Observations	15,948			

*Notes: – Results are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, ethnic origin, country and cultural controls are not reported.*

such as differences in education (cf. Table 4).

We therefore estimate a multinomial logit model[24] where the occupational choice is the outcome variable which consists of categories of occupations. As a reference group, we choose engineer. Table 8 provides the estimates for the average marginal effect of *Collectivism* on the different occupation categories. The table reports, in line with Figure 3, that *Collectivism* has a negative and significant effect on the probability of being employed in engineering as well as working as a technician. Being a manager or working in a service occupation is positively correlated with collectivism. The size of the effects are economically relevant. A one standard deviation higher level of *Collectivism* increases the probability of working in a managerial occupation, for

[24]Comparable estimates are yielded with probit and logit models.

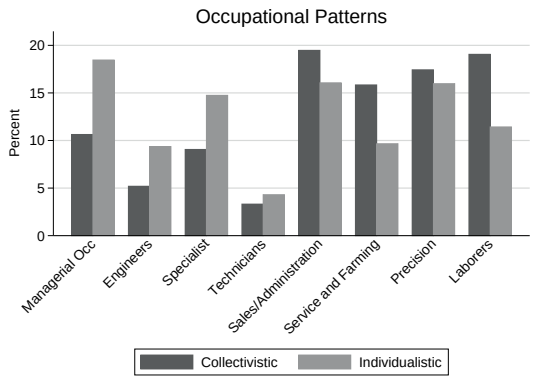

Figure 3: Occupational Pattern

example, by 2.2 percent. For the other occupational categories, the impact of *Collectivism* is insignificant, implying that the difference of frequency in categorical employment cannot be explained by collectivism, but rather by other individual characteristics. Adding on Patel and Vella (2007) who show that immigrants with different background self-select into different occupations, our results point to a self-selection along the cultural dimension which persists for second generation immigrants.

The O*Net data allows us to investigate the cultural implications further. In Table 9 we test if second generation immigrants with a collectivistic ancestry are more likely to pursue a profession in which collectivistic values are required. Column (1) and (2) display the impact of *Collectivism* on the likelihood of having a job which requests the collectivistic values *concern for others*[25] and *dependability*[26]. The trend is obvious and supportive of our hypothesis. Second generation immigrants with a collectivistic ancestry are significantly more likely to pursue professions which require to be sensitive towards others and reliable - both characteristics which are typically fostered in collectivistic communities. In columns (3) and (4), we report the nega-

[25]Jobs which require being sensitive to others' feelings and needs and being helpful and understanding on the job.

[26]Job requires being reliable, responsible, and dependable, and fulfilling obligations.

Table 8: Occupational Choice

	(1)
Managerial Occ	0.022^{***}
	(0.008)
Engineer	-0.014^{***}
	(0.005)
Specialist	0.005
	(0.007)
Technician	-0.013^{***}
	(0.005)
Salesman	-0.008
	(0.011)
Service	0.027^{**}
	(0.012)
Precicion Worker	-0.012
	(0.012)
Laborer	-0.008
	(0.012)
Pseudo-R^2	0.112
Observations	16,201

*Notes: – Multinomial logit results are reported as marginal effects evaluated at covariate means. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, individual, country and cultural controls are not reported. 307 observations (in 8 states) are excluded due to limited within state occupational variation.*

tive but insignificant effect of *Collectivism* on the probability of having an occupation which requires individualistic traits such as the ability of *innovation*[27] and *independence*[28]. These specifications allow us to address selection

[27]Jobs which require creativity to answers to work-related problems and to develop new ideas.

[28]Jobs which requires developing one's own ways of doing things, depending on oneself to get things done and guiding oneself with little or no supervision.

concerns indirectly. A possible driver of the positive effect of *Collectivism* on income earned could be a selection bias on immigration to the US. In collectivistic countries, people with an individualistic value set could feel misplaced and could therefore be more likely to immigrate to the individualistic US. Passing on their individualistic values, their children would then represent a collectivistic country although the values transmitted to them are rather individualistic than collectivistic. If it was true that our results are driven by the selection of individualistic respondents of collectivistic countries, we would expect that *Collectivism* is negatively correlated with jobs requiring collectivistic values. A positive correlation of *Collectivism* and collectivistic jobs, however, points to an impact of collectivistic values on the occupational choice of respondents with a collectivistic background. Since Table 9 reveals such a positive relationship, we can reject the hypothesis that our results are mainly driven by a selection bias. Instead, we conclude that the consideration of cultural shaped preferences seems to be a vital determinant in explaining the occupational choice, income earned and the labor force participation decision of second generation immigrants in the US.

Table 9: Work style specification

	Collectivistic		Individualistic	
	(1) Concern for others	(2) Dependability	(3) Innovation	(4) Independence
Collectivism	0.987**	0.564**	−0.584	−0.034
	(0.395)	(0.250)	(0.406)	(0.247)
Individual characteristics				
Years of schooling	0.980***	0.790***	1.261***	0.988***
	(0.097)	(0.074)	(0.052)	(0.089)
Age	−0.132**	0.070***	0.416***	0.065
	(0.060)	(0.023)	(0.056)	(0.046)
Age squared	0.002**	−0.001**	−0.005***	−0.000
	(0.001)	(0.000)	(0.001)	(0.001)
Family size	−0.027	−0.164***	−0.373***	−0.141***
	(0.100)	(0.044)	(0.046)	(0.051)
Married	0.429*	0.941***	1.797***	1.099***
	(0.221)	(0.117)	(0.181)	(0.222)
Adjusted R^2	0.067	0.147	0.133	0.110
Observations		16,508		

*Notes: − Results are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, ethnic origin, country and cultural controls are not reported.*

4.3. Robustness Checks

We test the robustness of our results by using alternative measures as an explanatory variable. In columns (1) and (3) of Table 10, we replace our collectivism measure by the collectivism index which includes seven rather than nine infectious diseases. Although Murray and Schaller (2010) claim that this measure is less precise than the index with nine diseases, it has the advantage that it is available for 59 instead of 51 countries represented in our sample. The countries missing for *Collectivism*, but available for the *Prevalence of 7 Infectious Diseases* include Cuba, Haiti and the Dominican Republic which have considerable immigration flows to the US. Therefore the use of the *Prevalence of 7 Infectious Diseases* as the explanatory variable increases our sample size by 1,488 observations. In comparison to our findings, column (1) displays comparable, however less significant results for the extensive margin. Column (3) exhibits a strong and significant effect at the intensive margin.

Columns (2) and (4) exhibit the estimates of our preferred specification using Hofstede's individualism index for 46 countries of origin. The effect of individualism is small and insignificant for both models. The (unreported) strong and significant effects of the country characteristics indicate that source country effects are relevant, however Hofstede's individualism index fails to extract the effect of individualism. This implies that Hofstede's index might be an imprecise measure of individualism, which would be in line with the critic claiming that Hofstede's survey captures general country conditions rather than actual values of individualism.

We further assess if our results are driven by a particular country in our sample. Therefore, Table 11 reproduces the main specification without Mexican (columns (1) and (4)), Puerto Rican (columns (2) and (5)) and Chinese (columns (3) and (6)) observations. The Mexican second generation immigrants are excluded because they account for 36 percent of our sample and are therewith by far the largest country represented. The Puerto Ricans are omitted because they are national born US-citizens[29] and thus do not necessarily qualify as immigrants. We further disregard Chinese observations because of China's high level of collectivism. In the US, Asian immigrants

[29]Puerto Rico is an unincorporated United States territory. We included them into our main specification because they differ significantly from the US with respect to language, history and culture.

Table 10: Alternative measures specification

	LFP		Income	
	(1)	(2)	(3)	(4)
Alternative measures				
Prevalence of 7 infectious diseases	0.024**		0.129***	
	(0.010)		(0.034)	
Hofstede's individualism index		−0.001		0.001
		(0.000)		(0.001)
Pseudo/ Adjusted R^2	0.378	0.397	0.172	0.187
Observations	22,791	18,028	17,655	13,997

*Notes: – Columns (1) and (2) report probit results as average marginal effects. The results of column (3) and (4) are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, ethnic origin, country and cultural controls are not reported.*

are often the best performing immigrant group (see, e.g., LaLonde and Topel, 1992; Chiswick, 1983; Mattoo et al., 2008). Thus, the Chinese collectivists could drive our positive effect. Columns (1)-(3) of Table 11 show that the extensive margin results are robust to the exclusion of possible outliers and columns (4)-(6) suggest a stronger effect of *Collectivism* once the potential outlier countries are excluded.[30] Table 11 gives us confidence that the positive effect of collectivism is not driven by potential outlier countries.

Our results are restricted to homogamous families since they are most likely to coherently transmit the cultural background of the country of ancestry. For completeness, we re-run our baseline regression for heterogeneous family constellations while focusing on the collectivistic background of only one parent. We cannot control for the cultural background of the other immigrant parent, e.g. it is unclear if there is a systematic bias in mating behavior and therewith different reinforcements of cultural heritage. Table 12 displays the specifications with the collectivistic ancestry of only the father (columns (1) and (3)) or the mother (columns (2) and (4)). We find slightly smaller but comparable results to our baseline regression at the extensive margin for both parents. At the intensive margin, we only find insignificant results with a larger coefficient for fathers implying that fathers are more successful

[30] We also find large and strong significant effects of *Collectivism* if we exclude all Asians from our sample.

Table 11: Specification without country sub-samples

	LFP			Income		
	(1)	(2)	(3)	(4)	(5)	(6)
Collectivism	0.031***	0.026**	0.032***	0.091***	0.096**	0.139***
	(0.010)	(0.010)	(0.010)	(0.031)	(0.036)	(0.040)
Pseudo/ Adjusted R^2	0.320	0.398	0.373	0.166	0.188	0.174
Observations	13,598	18,346	20,651	10,812	14,198	15,990

*Notes: – Columns (1) and (4) display results without Mexicans, columns (2) and (5) without Puerto Ricans and column (3) and (6) without Chineses. Column (1)-(3) report probit results as average marginal effects. The results of column (4)-(6) are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, ethnic origin, country and cultural controls are not reported.*

in passing their cultural values on to their sons. However, mixed cultural background leads to less pronounced impact of collectivism.[31]

This section illustrates that our results are robust to various specifications. Besides the robustness checks shown here, Table A3 provides estimation results with additional controls for the country of ancestry such as controls for the prevalent religion, legal origin and geographic characteristics. We further run unreported regressions which include more indicators of economic development in the country of ancestry (e.g. secondary enrollment, GDP growth, public healthcare[32] and country controls of 1970[33]) and find significant effects of *Collectivism* at the extensive margin and confirm the

[31]Table A2 considers families of which one parent is born in the US and the other one is born abroad. This has the advantage that the cultural background of both parents is clear. However, we expect the results to be weaker than in our baseline regression because the cultural values of both parents do not reinforce each other. Further, the native parent has a larger network to implement his cultural background and therewith an advantage in influencing the child. In all specifications the coefficient of *Collectivism* is insignificant, which supports the hypothesis that a foreign born parent struggles to pass on his or her values if the counterpart is a native American. The results in Table A2 and Table 12 highlight the sensitivity of outcomes with respect to different family constellation.

[32]In addition to its role as a human health proxy, public healthcare variables can also be related to the degree of public social security. This might be of relevance since, whenever an extensive public safety net exists, collectivist networks (of informal risk sharing) partially lose their *raison d'être*. (See the discussion of Davis (2016)).

[33]Country controls of 1970 reflect the condition of the country of ancestry when the average cultural trait of the parents was formed.

Table 12: Specification with foreign parents

	LFP		Income	
	(1) Father	(2) Mother	(3) Father	(4) Mother
Collectivism	0.026***	0.026***	0.029	0.022
	(0.010)	(0.009)	(0.018)	(0.022)
Pseudo/ Adjusted R^2	0.367	0.368	0.250	0.248
Observations	24,826	24,971	18,909	19,012

*Notes: – Column (1)and (2) report probit results as average marginal effects. The results of column (3) and (4) are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, year, state, ethnic origin, country and cultural controls are not reported.*

direction of the effect at the intensive margin.

Our regression analysis reveals that the inclusion of these variables does not alter our results substantially. The results also do not change if we estimate the baseline regression using a tobit model, which accounts for the high concentration of zero incomes at the low end of the income distribution. We also run regression with interactions between *Collectivism* and different decades as well as with interactions between state and year. Overall, we find strong econometric support that *Collectivism* significantly increases the probability of participating in the labor force and indication that there is a positive effect of collectivism on income earned.[34]

5. Conclusion

This paper is motivated by the importance of immigration for economically advanced nations as well as by the growing interest of economists in the influence of cultural values on economic outcomes. Following the epidemiological approach and using survey data from the US, we investigate the impact of collectivism on the economic outcome of homogamous second generation male immigrants. We use the historical disease prevalence of their parents' country of origin as a measure for collectivism since collectivistic values (e.g., sharp distinction between in- and out-groups or consciousness of

[34]All regression results are available from the author upon request.

tradition) evolved as particularly advantageous strategies in countries with a greater prevalence of disease-causing pathogens.

We find a robust positive effect of collectivism on labor force participation. This result gives indication that respondents with a collectivistic ancestry feel responsible for supporting their in-group and thus are more likely to also pursue employment even if it does not fulfill them. We also obtain evidence of a positive effect of collectivism on income earned. This effect is mainly driven by hours worked and the occupation chosen. We show that higher scores of ancestral collectivism are associated with occupations which require collectivistic abilities such as dependability. Our findings are robust to the use of alternative measures of collectivism and different data compositions.

Our study contributes to the literature by emphasizing the importance of inherited cultural values for the labor market outcomes of second generation immigrants. In particular, we provide unique evidence on the relationship between cultural skills and occupational choice. Our findings can be interpreted as an encouragement to policy makers to consider cultural differences in their labor market integration policies. They further suggest that labor market integration of second generation immigrants from culturally distant countries to the US works particularly well. Immigrants with a collectivistic ancestry seem to find employment in jobs that require a particular skill set for which they have a cultural advantage. Therefore, more research is needed to investigate how immigrants with different cultural skills can complement US natives on the labor market.

6. References

Acemoglu, D., Johnson, S., Robinson, J. A., 2005. Institutions as a fundamental cause of long-run growth. In: Handbook of economic growth. Vol. 1. Elsevier, pp. 385–472.

Akerlof, G. A., 1980. A theory of social custom, of which unemployment may be one consequence. Quarterly Journal of Economics 94 (4), 749–775.

Akerlof, G. A., Kranton, R. E., 2000. Economics and identity. Quarterly Journal of Economics 115 (3), 715–753.

Alesina, A., La Ferrara, E., 2002. Who trusts others? Journal of Public Economics 85 (2), 207–234.

Antecol, H., 2000. An examination of cross-country differences in the gender gap in labor force participation rates. Labour Economics 7 (4), 409–426.

Bisin, A., Verdier, T., 2000. "beyond the melting pot": cultural transmission, marriage, and the evolution of ethnic and religious traits. Quarterly Journal of Economics 115 (3), 955–988.

Blau, F. D., Kahn, L. M., Papps, K. L., 2011. Gender, source country characteristics, and labor market assimilation among immigrants. Review of Economics and Statistics 93 (1), 43–58.

Bredtmann, J., Otten, S., 2015. The role of source-and host-country characteristics in female immigrant labor supply. MPRA Working Paper No. 44544.

Card, D., 2005. Is the new immigration really so bad? Economic Journal 115 (507), 300–323.

CEPII, 2015. Cepii geodist database. [accessed 08.28.2015].
URL `http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=6`

Chiswick, B. R., 1983. An analysis of the earnings and employment of asian-american men. Journal of Labor Economics 1 (2), 197–214.

Davis, L. S., 2016. Individual responsibility and economic development: Evidence from rainfall data. SSRN 1746884, Working Paper.

Elster, J., 1989. Social norms and economic theory. Journal of Economic Perspectives 3 (4), 99–117.

Fernández, R., 2007. Alfred marshall lecture women, work, and culture. Journal of the European Economic Association 5 (2–3), 305–332.

Fernández, R., Fogli, A., 2009. Culture: An empirical investigation of beliefs, work, and fertility. American Economic Journal: Macroeconomics 1 (1), 146–177.

Fincher, C. L., Thornhill, R., Murray, D. R., Schaller, M., 2008. Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. Proceedings of the Royal Society of London B: Biological Sciences 275 (1640), 1279–1285.

Gorodnichenko, Y., Roland, G., 2010. Culture, institutions and the wealth of nations. NBER Working paper 16368. National Bureau of Economic Research.

Gorodnichenko, Y., Roland, G., 2011. Which dimensions of culture matter for long-run growth? American Economic Review 101 (3), 492–498.

Gorodnichenko, Y., Roland, G., 2012. Understanding the individualism-collectivism cleavage and its effects: Lessons from cultural psychology. Institutions and Comparative Economic Development 150, 213–236.

Green, D. A., 1999. Immigrant occupational attainment: Assimilation and mobility over time. Journal of Labor Economics 17 (1), 49–79.

Greif, A., 1994. Cultural beliefs and the organization of society: A historical and theoretical reflection on collectivist and individualist societies. Journal of Political Economy 102 (5), 912–950.

Guiso, L., Sapienza, P., Zingales, L., 2006. Does culture affect economic outcomes? Journal of Economic Perspectives 20, 23–48.

Hansen, C. W., 2013. Economic growth and individualism: The role of informal institutions. Economics Letters 118 (2), 378–380.

Heine, S. J., 2008. Cultural psychology. WW Norton, New York.

Hofstede, G., Hofstede, G. J., Minkov, M., 2010. Cultures and Organizations: Software of the Mind. McGraw-Hill, New York.

Isphording, I. E., Otten, S., 2013. Linguistic barriers in the destination language acquisition of immigrants. Journal of Economic Behavior and Organization 150, 30–50.

King, M., Ruggles, S., Alexander, J. T., Flood, S., Genadek, K., Schroeder, M. B., Trampe, B., Vick, R., 2010. Integrated public use microdata series, current population survey: Version 3.0. [machine-readable database].

LaLonde, R. J., Topel, R. H., 1992. The assimilation of immigrants in the us labor market. In: Immigration and the workforce: Economic consequences for the United States and source areas. University of Chicago Press, pp. 67–92.

Levine, R., 2005. Law, endowments, and property rights. NBER Working paper 11502. National Bureau of Economic Research.

Licht, A. N., Goldschmidt, C., Schwartz, S. H., 2007. Culture rules: The foundations of the rule of law and other norms of governance. Journal of Comparative Economics 35 (4), 659–688.

Mattoo, A., Neagu, I. C., Özden, Ç., 2008. Brain waste? educated immigrants in the us labor market. Journal of Development Economics 87 (2), 255–269.

Murray, D. R., Schaller, M., 2010. Historical prevalence of infectious diseases within 230 geopolitical regions: A tool for investigating origins of culture. Journal of Cross-Cultural Psychology 41 (1), 99–108.

North, D. C., 1990. Institutions, institutional change and economic performance. Cambridge University Press, Cambridge.

Nunn, N., Wantchekon, L., 2011. The slave trade and the origins of mistrust in africa. American Economic Review 101 (7), 3221–3252.

O*Net, 2015. O*net data descriptors. [accessed 08.28.2015].
URL http://www.onetonline.org/find/descriptor/browse/Work_Styles/

Ottaviano, G. I., Peri, G., 2005. Rethinking the gains from immigration: Theory and evidence from the us. NBER Working paper 11672. National Bureau of Economic Research.

Ottaviano, G. I., Peri, G., 2006. The economic value of cultural diversity: evidence from us cities. Journal of Economic Geography 6 (1), 9–44.

Patel, K., Vella, F., 2007. Immigrant networks and their implications for occupational choice and wages. IZA Discussion Papers, No. 3217.

Peri, G., Sparber, C., 2009. Task specialization, immigration, and wages. American Economic Journal: Applied Economics 1 (3), 135–169.
URL http://www.jstor.org/stable/25760175

Pew Research Center, 2013. Second-generation americans - a portrait of the adult children of immigrants. Research report, Pew Research Center, Washington, D.C.

Sherman, P. W., Billing, J., 1999. Darwinian gastronomy: Why we use spices spices taste good because they are good for us. BioScience 49 (6), 453–463.

Spolaore, E., Wacziarg, R., 2015. Ancestry, language and culture. NBER Working paper 21242. National Bureau of Economic Research.

Suro, R., Passel, J. S., 2003. The rise of the second generation: changing patterns in hispanic population growth. Study, Pew Hispanic Center, Washington, D.C.

Tabellini, G., 2010. Culture and institutions: economic development in the regions of europe. Journal of the European Economic Association 8 (4), 677–716.

Triandis, H. C., 1995. Individualism & collectivism. Westview Press, Boulder and Colorado.

US Census Bureau, 2016. Us census bureau website. [accessed 01.28.2015].
URL http://www.census.gov/

World Bank, 2015. World development indicators (wdi). [accessed 08.28.2015].
URL http://data.worldbank.org/

Appendix

Table A1: Quantile specification

	Log of income				
	(1)	(2)	(3)	(4)	(5)
	0.10	0.25	0.50	0.75	0.90
Collectivism	0.073	0.036	0.069***	0.018	0.017
	(0.085)	(0.032)	(0.020)	(0.020)	(0.029)
Observations	16,522	16,522	16,522	16,522	16,522

*Notes: – The results are obtained from quantile regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, individual covariates, year, state, ethnic origin, country and cultural controls are not reported.*

Figure A1: Occupational Choice

Table A2: Specification with one foreign parent

	LFP		Income	
	(1) Father	(2) Mother	(3) Father	(4) Mother
Collectivism	0.011	0.009	−0.014	−0.042
	(0.007)	(0.009)	(0.025)	(0.034)
Psuedo/ Adjusted R^2	0.265	0.303	0.239	0.239
Observations	14,647	14,334	11,804	12,023

*Notes: – Column (1) and (2) report probit results as average marginal effects. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, individual covariates, year, state, ethnic origin, country and cultural controls are not reported.*

Table A3: Specification with further controls

	LFP			Income		
	(1)	(2)	(3)	(4)	(5)	(6)
Collectivism	0.049***	0.032***	0.027**	0.064	0.068	0.031
	(0.008)	(0.009)	(0.012)	(0.043)	(0.042)	(0.038)
Adherence shares						
Catholic	−0.088			−0.487		
	(0.074)			(0.351)		
Protestant	−0.045			−0.663		
	(0.086)			(0.449)		
Other christan	−0.041			−1.003**		
	(0.095)			(0.480)		
Orthodox	−0.129*			−0.536		
	(0.070)			(0.339)		
Jewish	0.053			−0.351		
	(0.079)			(0.373)		
Muslim	−0.171**			−0.806**		
	(0.075)			(0.329)		
Hindu	−0.225***			−0.216		
	(0.077)			(0.338)		
Buddhist	−0.115			−0.690*		
	(0.081)			(0.393)		
Other eastern religions	−0.095			−1.672**		
	(0.141)			(0.796)		
Other religions	0.038			−0.494		
	(0.066)			(0.306)		
Non-religion	−0.085			−0.632**		
	(0.071)			(0.304)		
Legal origin						
English		−0.049			0.169	
		(0.043)			(0.169)	
French		0.014			0.053	
		(0.024)			(0.120)	
German		0.009			0.024	
		(0.023)			(0.095)	
Geographic characteristics						
Latitude			−0.000			−0.006**
			(0.001)			(0.002)
Longitude			0.000			−0.003***
			(0.000)			(0.001)
Pseudo/ Adjusted R^2	0.401	0.399	0.398	0.188	0.187	0.188
Observations		18,301			14,166	

*Notes: – Column (1)-(3) report probit results as average marginal effects. The results of column (4)-(6) are obtained from OLS regressions. Heteroskedasticity robust standard errors that cluster at the country of ancestry are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Intercept, individual covariates, year, state, ethnic origin, country and cultural controls are not reported.*

Table A4: Collectivism Measures

Country	**Disease9**	**Disease7**	**IDV**
Afghanistan	0.23	0.15	
Albania	-0.25	0.03	
Algeria	0.47	0.63	
American Samoa		-0.41	
Antigua		-0.27	
Argentina	-0.12	0.03	46
Armenia	0.10	0.15	
Australia	-0.25	-0.14	90
Austria	-0.77	-0.65	55
Azerbaijan	0.33	0.29	
Azores	0.47	0.63	27
Bahamas		-0.51	
Bangladesh	0.62	0.66	
Barbados		-0.15	
Belarus	-0.75	-0.78	
Belgium	-1	-0.78	75
Belize		0.28	
Bermuda		-0.63	
Bhutan	0.44	0.27	
Bolivia	0.34	0.30	
Bosina and Herzegovina	0.00	0.03	
Brazil	0.93	1.06	38
Bulgaria	-0.35	-0.10	30
Burma (Myanmar)	0.64	0.53	
Cambodia	0.45	0.28	
Cameroon	1.17	1.20	
Canada	-1.31	-1.18	80
Cap Verde		-0.26	
Chile	-0.45	-0.22	23
China	1.03	1.03	20
Colombia	0.27	0.53	13
Congo	0.97	0.95	
Costa Rica	0.12	0.18	15
Croatia	-0.44	-0.38	33
Cuba		0.00	
Cyprus	-0.34	-0.25	
Czech Rep	-0.87	-0.78	58
Denmark	-0.98	-0.91	74
Dominica		-0.02	
Dominican Republic		-0.13	
Ecuador	0.34	0.30	8
Egypt	0.44	0.76	38
El Salvador	0.3	0.42	19
Eritrea	0.52	0.37	
Estonia	-0.62	-0.78	60
Ethiopia	0.71	0.77	27
Fiji	-0.07	-0.39	
Finland	-0.75	-0.78	63
France	-0.46	-0.40	71
Georgia	0.10	0.16	
Germany	-0.87	-0.78	67
Ghana	1.16	1.19	20

Continued on next page

Collectivism Measures - continued

Country	Disease9	Disease7	IDV
Great Britain	-1.01	-0.78	89
Greece	0.08	0.29	35
Grenada		-0.53	
Guam	-0.17	-0.52	
Guatemala	0.42	0.56	6
Guinea	1.06	1.06	
Guyana		0.64	
Haiti		-0.01	
Honduras		0.16	
Hong Kong	0.27	0.37	25
Hungary	-1.00	-0.78	80
Iceland	-1.19	-1.18	
India	0.94	0.91	48
Indonesia	0.63	0.51	14
Iran	-0.15	-0.16	41
Iraq	0.54	0.40	38
Ireland	-0.45	-0.23	70
Israel	0.52	0.53	54
Italy	0.16	0.40	76
Ivory Coast	1.06	1.06	
Jamaica	0.18	0.25	39
Japan	0.43	0.25	46
Jordan	0.16	0.39	
Kenya	0.95	0.92	27
Korea South	-0.11	-0.28	18
Kosovo	-0.23	-0.11	25
Kuwait	-0.34	-0.25	38
Laos	0.45	0.28	
Latvia	-0.62	-0.78	70
Lebanon	0.36	0.65	38
Liberia	0.73	0.80	
Libya	0.04	0.24	38
Lithuania	-0.75	-0.78	60
Macedonia	-0.25	0.03	
Malaysia	0.5	0.51	26
Marshall Islands		-0.25	
Mexico	0.28	0.56	30
Micronesia		-0.11	
Moldova	-0.31	-0.37	
Mongolia		-0.78	
Morocco	0.59	0.62	46
Nepal	0.14	-0.12	
Netherlands	-0.87	-0.78	80
New Zealand	-0.98	-0.91	79
Nicaragua		0.16	
Nigeria	1.16	1.19	20
Northern Ireland	-0.87	-0.78	
Norway	-0.85	-0.91	69
Pakistan	0.02	-0.12	14
Palestine	0.52	0.53	
Panama	0.09	0.31	11
Paraguay		0.17	
Peru	0.23	0.16	16

Continued on next page

Collectivism Measures - continued

Country	**Disease9**	**Disease7**	**IDV**
Philippines	0.5	0.51	32
Poland	-0.87	-0.78	60
Portugal	0.47	0.63	27
Puerto Rico	0.07	0.12	
Romania	-0.18	-0.37	30
Russia	-0.39	-0.64	39
Samoa		-0.41	
Saudi Arabia	0.04	0.24	38
Scotland	-1.31	-1.18	
Senegal	0.72	0.78	
Serbia	-0.23	-0.11	25
Sierra Leone	0.94	0.92	20
Singapore	0.31	0.26	20
Slovak Rep	-1	-0.78	52
Somalia	0.61	0.64	
South Africa white	0.11	0.00	65
Spain	-0.05	0.13	51
Sri Lanka	0.64	0.52	
St. Kitts		-0.15	
St. Lucia		-0.15	
St. Vincent		-0.28	
Sudan	1.00	1.15	
Sweden	-0.98	-0.91	71
Switzerland	-1.08	-1.05	68
Syria	0.30	0.41	
Taiwan	0.3	0.25	17
Tanzania	0.75	0.66	27
Thailand	0.64	0.52	20
Togo	1.16	1.19	
Tonga		-0.67	
Trinidad and Tobago	-0.03	-0.01	16
Turkey	0.16	0.40	37
U.S.A.	-0.89	-0.64	91
Uganda	1.05	1.05	
Ukraine	-0.40	-0.64	
United Arab Emirates	-0.45	-0.39	38
Uruguay	0.39	0.53	36
Uzbekistan	-0.44	-0.37	
Venezuela	0.48	0.80	12
Vietnam	0.61	0.64	20
Yemen	0.41	0.23	
Yugoslavia	-0.36	-0.24	
Zambia	0.64	0.52	27
Zimbabwe	0.64	0.53	