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## Individualism vs. Collectivism - How inherited cultural values affect the labor market outcomes of second generation immigrants in the US

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# Individualism vs. Collectivism

How inherited cultural values affect  
labor market outcomes of second generation immigrants in the US

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Preliminary draft - please do not cite - all comments welcome

## Abstract

The cultural diversity induced by migration has been proven beneficial to host countries economies and the labor market performance of second generation immigrants is a crucial determinant of integration. Labor market returns to different cultural traits, however, have been rarely studied within the economic literature. Therefore, this study provides insights 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 census data, we analyze the impact of inherited cultural differences on the economic outcome of more than 21,000 male homogenous second generation immigrants. We use the disease environment of the country of ancestry as a measurement for collectivism and find that higher scores of collectivism are associated with higher income earned in the US. We demonstrate that labor force participation is one of the main determinants of the positive impact of collectivism on earnings. Further, we are the first to investigate occupational choice as a channel through which inherited cultural values affect individuals' behavior in the labor market. We show that second generation immigrants with an individualistic ancestry are more likely to self-select into jobs which require individualistic abilities such as independence. Second generation collectivists prefer jobs which demand collectivistic traits such as sensibility towards others. We argue that second generation immigrants with a collectivistic ancestry take different jobs than individualists due to inherent comparative advantages in performing particular productive tasks. Overall they perform better than their individualistic counterparts. Our findings are robust to the use of other measures of collectivism and different data compositions.

*JEL-Classification:* A13, F22, J24.

*Keywords:* migration, cultural values, occupational choice, labor market, culture specific skills.

# 1 Introduction

Cultural diversity induced by migration has been proven beneficial to economically advanced host countries such as the U.S. (Ottaviano and Peri 2006). For the long run evaluation of migration, however, the success of immigrant’s children, who are born in the host country, is a ”key yardstick” according to Card (2005). second generation immigrants are not only a growing fraction of host countries’ populations but most second generation immigrants will spend their whole lives in the host country, pay taxes and earn wages. For their successful (labor market) integration, policy makers have emphasized the importance of considering different cultural ancestries, especially in countries like the U.S., where the immigrant pattern has changed dramatically. While in 1970, still 70.4% of the immigrant population were from North America or Europe, by 2012 81,6% of the foreign born population came from Asia or Latin America (US Census Bureau 2016). This implies a dramatic shift in the ethnic composition of immigrants. 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. This is particularly interesting since traditional source countries tend to be individualistic and new source countries such as China are often collectivistically shaped. Further, individualism appears implicitly in influential economic theories such as Adam Smith’s “invisible hand” of the market or the concept of *Homo oeconomicus*.<sup>1</sup>

The economic growth literature has already proven that collectivism is a relevant determinant of economic outcomes (see, for example, Davis 2012; Gorodnichenko and Roland 2010, 2011; Licht, Goldschmidt, and Schwartz 2007).

At the micro level, the literature is prevailed by the epidemiological approach which uses cross-country variation in country characteristics to explain the economic behavior of immigrants. Scholars like Antecol (2000) and Fernández and Fogli (2009) proxy the cross-country variation in culture by the variation in female labor

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<sup>1</sup>The *Homo oeconomicus* rationally maximizes *his individualistic goals* and Adam Smith’s “invisible hand” of the market suggests that it is the unrestrained pursuit of *self-interest* which facilitates voluntary exchange and fosters economic performance.

force participation rates (FLFPR). However, their cultural proxy FLFPR captures *different* unobservable variations, even those outside the cultural dimension like the economic and institutional conditions of the country of ancestry. Thus, their effects could also be driven by systematic economic differences across countries of ancestry rather than cultural differences. 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. As a qualitative variable it is superior to using FLFPR of the countries of ancestry. The collectivism score further has the advantage of being more explicit about why it matters being of different ancestry and why the differences in collectivism emerged. Hansen (2013) employs the epidemiological approach to test for the influence of individualism on the annual income of male second generation immigrants. He measures the level of individualism at either the father's or the mother's country of origin. This has the disadvantage that only the origin of one parent is known. It is unclear if the other parent is a US native or a immigrant from another country. Thus, his findings are likely to be biased by the assorting mating behavior of the parents. We extend Hansen's work by considering only parents, which are from the same country of origin. This allows us to capture a clear effect of cultural differences. Further we connect the epidemiological approach to the literature on skill complementarities.

This strand of literature assumes that the skills of foreigners can complement native production factors and shows that foreign-born workers specialize in different production tasks compared to natives (see, for example, Green 1999; Peri and Sparber 2009). Ottaviano and Peri (2005) suggests that this might be due to different culture specific skills which induces different occupational preferences. However, the authors do not investigate potential disparities among immigrants with different cultural ancestry. Card (2005) shows that U.S. born children of immigrants have higher wages and education than the children of natives. Thus, we investigate if second generation collectivists take different jobs than individualists due to inherent comparative advantages in performing particular productive tasks. Maybe second generation immigrants with a collectivistic ancestry complement native (individualistic) factors in production particularly well which could result in a successful labor market integration and positive welfare effects.

This paper contributes to the literature threefold. Firstly, we provide evidence

on the transmission channels of cultural values. While Hansen (2013) has already investigated the reduced form impact of collectivism on income earned, we are the first to study occupational choice as well as labor force participation decisions to show how cultural values influence income. We therefore take into consideration what abilities are relevant for occupations chosen by second generation immigrants with collectivistic ancestry as well as their individualistic counterparts.

Secondly, we employ a novel collectivism measure. In the existing literature the level of individualism/collectivism is usually measured by Hofstede's individualism index which uses survey data on work attitudes of 88,000 IBM employees in 66 countries. Survey data on values as an indicator for cultural traits has the potential problem of an omitted variable bias if the survey answers are driven by an omitted factor which is correlated with collectivism. Further, it is controversial if a survey conducted in one particular company can be generalized to the entire cultural system of a country. Our collectivism measure, the historical prevalence of infectious diseases in the country of ancestry, is drawn from biology and gives us greater confidence in unbiased estimates. 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 which historically had a greater prevalence of pathogens since it comprises two particular features which provide defense against the dangers posed by mortality-causing pathogens: 1) a sharp distinction between in-groups and out-groups and 2) a strong emphasis on tradition and conformity.

Thirdly, 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 unbiased. This restriction prevents ambiguous findings if parents have different cultural backgrounds. In this case, taking only one parental cultural background in consideration is imprecise since there is no evidence on which parent is dominant in passing on his or her cultural heritage.

Using the epidemiological approach on 1994-2014 US survey data, we find a significant and positive effect of collectivism on income earned, especially for low-income earners. We further show that this effect is partly explained by the labor force participation rates. We also obtain evidence that occupational choice is an important channel through which inherited cultural values affect individuals' behavior

in the labor market. We show that low scores of collectivism are associated with occupations which require individualistic abilities such as independence. Our findings are robust to the use of other measures and different specifications.

The remainder of the paper is organized as follows. Section 2 gives a short overview of the economic body on culture and outlines the relevant literature. Section 3 introduces the empirical strategy used and section 4 presents the findings of this study. Concluding remarks and suggestions for future research are presented in section 5.

## 2 Theoretical Background and Literature Review

### 2.1 Theoretical Background

The concepts of collectivism and individualism can be linked to the prominent school of new institutional economics.<sup>2</sup> As cultural values, they classify as *informal institutions* which constrain private behavior and are often unconsciously designed and obeyed. These values are transmitted fairly unchanged from generation to generation by social groups and can be regarded as the intergenerational updating of values in consideration of past experience (Guiso, Sapienza, and Zingales 2006). They persist in societies, once established, if the disobedience of the norms results in a sufficient loss of reputation or feelings of guilt, anxiety and embarrassment.<sup>3</sup> This implies that cultural values can easily sustain in immigrant communities if the compliance with the values is societally monitored within the community.<sup>4</sup> The definition implies further that cultural values are inherited and can be largely treated as constant throughout an individual's lifetime (e.g. an individual can neither control his inherited cultural values nor alter his ethnicity, family or religious legacy). It narrows the potential impact channels of culture to values and beliefs. Thus, the influence of cultural values can be analyzed through the direct impact on preferences and expectations and through the indirect effects through these preferences on

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<sup>2</sup>North (1990) defines institutions as the "rules of the game" which constrain human behavior and determine incentives. He divides them into formal and informal institutions.

<sup>3</sup>For more on cultural values in general, see, e.g. Akerlof (1980), Elster (1989), Greif (1994), and Nunn and Wantchekon (2011).

<sup>4</sup>It is essential to acknowledge that, in the proposed definition, culture does not reject the importance of rational choice. See, for example, Akerlof and Kranton (2000) who argue that culture affects a person's sense of self and influences the economic outcome by shaping his utility function.

economic outcomes.<sup>5</sup> We limit our investigation to the impact of the individualism-collectivism (IND-COL) dimension which is according to Heine (2008, p.189), “the most important dimension for capturing cultural variation”. 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, Hofstede, and Minkov 2010, p.92).*

In collectivist societies, the relationship between in-group<sup>6</sup> 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. Often members are socialized in a way which allows them to enjoy their duty by subordinating their individual goals to the mission of the collective (Triandis 1995). In individualistic societies, it is socially accepted to place personal goals over in-group goals. There are a lot of different in-groups which all provide a small portion of the emotional and material security of its members. People tend to make “friends” easily and if in-group obligations get inconvenient, they drop the group and look for another one instead. In general, people in collectivist societies distinguish sharply between in- and out-groups while people in individualistic societies treat everyone as a potential in-group member and thus apply universal values to everyone.

Table 1 displays economically relevant differences between individualists and collectivists. In individualistic societies people find meaning in their own uniqueness and try to express their own internal attributes. They are encouraged to explore their individual features and incentivized to innovate. Success is considered a result of an exceptional personality trait and rewarded with social status. In collectivistic

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<sup>5</sup>The impact of cultural values is often still treated as a “black box” (Acemoglu and Johnson 2005, p. 988) within modern economics. This is mainly due to the methodological challenges of measuring culture and distinguishing causality channels. Moreover, the lack of elaborated theories induces a shortage of rigorous research on the topic.

<sup>6</sup>In-groups usually have a sense of common fate and are characterized by some sort of resemblance. Usually the nuclear family is one, but also caste, athletic, economic (like the Mafia) or language (for example, Quebec) collectives function as in-groups (Triandis 1995).

Table 1: Behavioral differences

	Individualism	Collectivism
<i>General Differences</i>		
Groups Distinction	Universal Values for everyone	Sharp Distinction between in- and out-groups
Societal Emphasize	Openness - Independence	Tradition - Interdependence
<i>Economically relevant Differences</i>		
Behavioral Emphasize on	Ability	Effort
Drive of success	Innovation	Cooperation

societies, however, the drive towards individual achievement is less distinct. Instead, the degree of assimilation is higher and people are concerned with being approved by others. Therefore, collectivist societies reward the effort people invest in serving the group’s goal as well as the ability to conform.<sup>7</sup> These different societal emphasizes could have very different labor market implications. They have not been studied yet but their is, for example, no reason to expect the distribution of immigrants with different cultural ancestries to be the same across occupations. Within the same labor market, 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.

## 2.2 Literature Review

The economic growth literature has already proven that collectivism is a relevant determinant of economic outcomes.<sup>8</sup> Licht, Goldschmidt, and Schwartz (2007), for example, investigate the effect of individualism on formal institutions using grammar rules as an instrument for individualism.<sup>9</sup> Other economic growth studies include

<sup>7</sup>Markus and Kitayama (1991) ask different populations (e.g. students) in the US and Japan to rank their own abilities compared to the rest of the population (e.g. other students) with respect to certain socially desirable traits. They find that American men on average believe that only 36% of the relevant population scores higher than them. In Japan, the answers averaged 49% for men and 58% for women. Since a fair judgment would average 50%, Markus and Kitayama (1991) interpret their result as a clear self-enhancement bias of individualistic men in the US and a modesty bias of collectivist women in Japan.

<sup>8</sup>The growth literature on the importance of institutions is even more extensive (see, for example, Alesina and La Ferrara 2002; Greif 1994; Levine 2005; Tabellini 2010).

<sup>9</sup>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.



Gorodnichenko and Roland (2010, 2011) who formally develop an endogenous growth model which accounts for the IND-COL dimension and Davis (2012) who assesses the impact of individualism on economic outcomes in the context of developing countries.

The microeconomic strand of literature on the cultural determinants of immigrant's economic outcome is prevailed by the epidemiological approach which was developed by Fernández. It uses cross-country variation in country characteristics to explain the economic behavior of immigrants. Antecol (2000) proxies the cross-country variation in culture by the variation in female labor force participation rates (FLFPR) across countries of ancestry and finds that the FLFPR of country of ancestry explains half of the overall variation in the gender gap in LFPR of first generation immigrants. The effect is smaller for second-and-higher generation immigrants which Antecol (2000) interprets as evidence for assimilation. Fernández and Fogli (2009) study fertility and work behavior of second generation female immigrants in the US and proxy culture by past values of FLFPR and total fertility rates of the father's country of origin. Using 1970 census data, they find a significant effect of culture on the work outcomes of US-born women.<sup>10</sup> The studies by Antecol (2000) and Fernández and Fogli (2009) exclusively consider cultural components with respect to gender roles, e.g. a woman's appropriate role in society. Further, FLFPR captures *different* unobservable variation, even those outside the cultural dimension like the economic and institutional conditions of the country of ancestry. So, their effects could also be driven by systematic economic differences across countries of ancestry rather than cultural differences, which would provide very different endowments to integrate in the US labor market (e.g. education, language, social networks). 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. As a qualitative variable it is superior to using FLFPR of the countries of ancestry. The collectivism score further has the advantage of being more explicit about why it matters being of different ancestry and why the differences in collectivism emerged. Hansen (2013) employs the epidemiological approach to test for the influence of individualism on the annual income of male second generation immigrants. He measures the level of individualism at either the father's or the mother's country of origin and finds

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<sup>10</sup>For more work on the topic, see, for example, Bredtmann and Otten (2014), who study the impact of both source and host-country characteristics for female immigrant labor supply in Europe.

a significant positive effect of individualism on the annual income of male US respondents. Hansen (2013) has the disadvantage that only the origin of one parent is known. It is unclear if the other parent is a US native or a immigrant from another country. Thus, his findings are likely to be biased by the assorting mating behavior of the parents. We extend Hansen's work by considering only parents, which are both from the same country of origin. This allows us to capture a clear effect of cultural differences.

Another shortcoming of the literature on the impact of cultural values on the performance of (second generation) immigrants is that it exclusively considers labor force participation and income earned as measures of performance. However, earnings do not reveal the occupational choice of (second generation) immigrants, even though it is likely to be a driver of income earned. Thus, we connect the literature with the strand on occupational substitutability of immigrants to study the underlying causes of income differences. In his seminal work, Borjas (1985) shows how the skill endowment of immigrants in the U.S. depends both on cohort characteristics and the country of origin. Green (1999) studies the occupational attainment of immigrants relative to native born Canadians and finds that immigrants choose different occupations compared to natives conditioning on education and age. Further, they are more mobile within the labor force than 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 compared to natives. Foreign-born workers with similar observable characteristics to natives seem imperfect substitutes in production because they possess unique skills that makes them specialize in different occupations. Ottaviano and Peri (2005) suggests that this might be due to different culture specific skills which induces different occupational preferences. The authors assume positive general equilibrium effects since the skills of foreigners can complement native production factors but they do not differentiate among immigrants with different cultural ancestry. We contribute to the literature by investigating the effect of collectivism on the economic performance of second generation immigrants. Card (2005) shows that the U.S. born children of immigrants who arrived after the 1965 Immigration Reform Act are having higher wages and education than the children of natives. We investigate if second generation collectivists take different jobs than individualists due to inherent comparative advantages in performing particular

productive tasks. Maybe second generation immigrants with a collectivistic ancestry complement native (individualistic) factors in production particularly well which could result in a successful labor market integration and positive welfare effects.

## 3 Empirical Methodology and Data

### 3.1 Empirical Methodology

The epidemiological approach uses the portability characteristic of culture relative to a fixed institutional and economic environment.<sup>11</sup> Therefore, we apply the epidemiological approach to neatly separate the impact of collectivism from formal institutions and ensure that no reverse causality occurs.<sup>12</sup> Note that the definition of culture provides the important feature that only those dimensions of culture are considered which are inherited rather than voluntarily accumulated. This implies that they are passed on from generation to generation and are not bound to a particular place but can be transported through migration. The epidemiological approach employs this feature by investigating the performance of descendants of immigrants in the same host country. When people emigrate, they leave their formal institutional environment behind but take cultural values with them and pass them on to the next generation. For their children, the institutional and economic conditions of the parent's country of origin should no longer be relevant since the children grew up with the markets and formal institutions of the host country which are homogeneous to the descendants of all immigrants. Intergenerationally transmitted cultural values, however, can still affect their preferences and beliefs. We consider second generation immigrants rather than first generation immigrants because immigration is often connected to shocks that can cause a 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.

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<sup>11</sup>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.

<sup>12</sup>In the present study, we disregard the impact of collectivism on formal institution.

As a measure for collectivism at the country of ancestry, we employ historical data. Historical data from the country of ancestry reflects the immigrant’s ancestral circumstances and his collectivism level but does not suffer from endogeneity. 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 another country, then it is because of the explanatory power of intergenerational transmission of cultural values, since the economic outcomes of second generation immigrants do not influence the historical pattern of their country of ancestry.

We only consider second generation immigrants who were born to homogamous families (i.e. families, in which both parents were born in the same country). We therewith follow Bisin and Verdier (2000) who model how parents attempt to socialize their children to their own preference trait. In their model of endogenous cultural transmission, they demonstrate how parents are motivated to shape their children’s cultural values by a “paternalistic altruism” (Bisin and Verdier 2000, p.962) where parents intensify their efforts when family and societal values are substitutes. Further, they show that parents are most efficient in passing their cultural heritage on 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 the parents have different cultural background, it is crucial to only study homogamous families. The consideration of one parent’s cultural background could bias the result. Immigrants from individualistic countries might be more likely to marry an American counterpart who then provides their children with an advantage in the US labor market in addition of his or her cultural traits.

## 3.2 Specification

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

$$\ln(y_{ijt}) = \alpha + \beta \text{Collectivism}_j + \lambda X_i + \delta' C_j + \rho_s + \gamma_t + \varepsilon_{ijt} \quad (1)$$

where  $\ln(y_{ijt})$  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 year  $t$ . The explanatory variable *Collectivism* corresponds to the historical

prevalence of nine infectious diseases,  $X$  is a vector of controls at the individual level and  $C$  contains control variables for the country of ancestry  $j$ . All the regressions include state dummies  $\rho_s$  and year of survey fixed effect  $\gamma_t$ .  $\varepsilon$  is the error term. The standard errors we report are clustered at the country of ancestry level.

### 3.3 Data and Variable Description

We use data from 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). Since 1994, the ASEC includes questions about the birthplace of the respondent's parents, so we use the 1994 - 2014 samples. We restrict the initial sample of 3,824,125 US-citizens to second generation male immigrants, meaning those who were born in the US to foreign-born parents. Following Bisin and Verdier (2000), we further only consider respondents whose parents were born in the same country. This first step of data cleaning leaves us with 103,700 observations. Since the main dependent variable is personal income, we restrict the sample to the working age population from 15 to 64<sup>13</sup> and drop those respondents who are still in school and who are employed by the military. Birthplaces which cannot be matched to a specific country (e.g. Europe or North America) or which cannot be attached to the explanatory variable are also excluded. In order to make meaningful comparisons, we also exclude countries with less than 30 observations. Ultimately, the ASEC 1994 - 2014 sample includes 21,443 male respondents, aged 15 - 64, who are born in the US to foreign born parents and can be matched to the *Collectivism* variable. In general, our sample comprises 66 countries of ancestry for which we have information on the collectivism score.<sup>14</sup>

The main explanatory variable of our empirical approach is the historical prevalence of infectious diseases in the country of ancestry as a measure for *Collectivism*. In the existing literature the level of individualism is usually measured by the individualism index developed by the Dutch sociologist Geert Hofstede. He uses cross-country

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<sup>13</sup>The sample is restricted to respondents under age 64 to avoid complications because of retirement decisions.

<sup>14</sup>76 countries for the seven-disease index and 55 for Hofstede's Individualism measurement.

matched survey data on work attitudes of 88,000 employees in 66 countries and constructs an index from 0 to 100 which attaches higher scores to higher levels of individualism.<sup>15</sup> However, Hofstede's approach is controversially discussed within the literature. It is questionable if a survey (e.g. questions measure self-representation) is an appropriate measure for precisely measuring and determining culturally subjective and sensitive values. It is also unclear how Hofstede matched the original data with his extension to 76 countries. Further, critics claim that a study conducted in one particular company can not be generalized to the entire cultural system of a country.

Our collectivism measure is drawn from biology and relies on the assumption that psychological phenomena 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.<sup>16</sup> 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. 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. The nine infectious diseases are leishmanias, schistosomes, trypanosomes, leprosy,

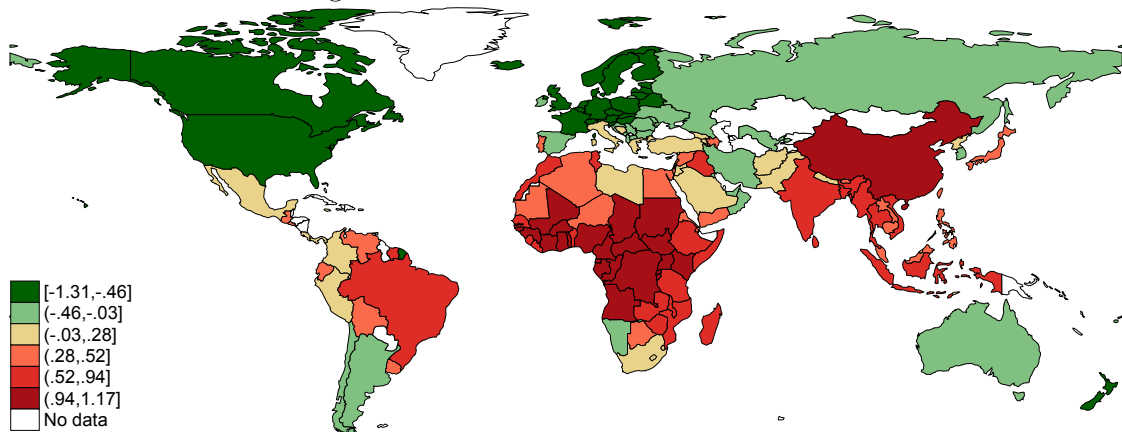
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<sup>15</sup>Hofstede collected his initial data in the 1970s, when he conducted an audit of company morale among IBM Corporation employees worldwide. Therefore, the survey has the advantage that the respondents resemble in education, profession and company but differ with respect to their national culture.

<sup>16</sup>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.

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*.<sup>17</sup> Each disease rating is converted into z-scores (i.e. standardized) and the disease prevalence score employed in this paper is 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. Countries colored in green correspond to individualistic societies, countries colored in red to collectivism. The other color indicates countries with an average disease prevalence. In the economic literature, the disease prevalence was first used by Gorodnichenko and Roland (2012) as a measure of collectivism. It is highly correlated with other measures such as Hofstede’s individualism index. 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. However, it includes Caribbean islands and South American countries that are relevant countries of ancestry for US immigrants. Therefore, we will consider the seven-item score in our robustness analysis in section 4.3.

Figure 1: Historical Disease Prevalence



Our main dependent variable is *Log Income*, which denotes the natural logarithm of the total annual (pre-tax) income of the respondent. To ensure that our results are

<sup>17</sup>The prevalence of tuberculosis is based on another source and coded according to a 3-point scheme.

not driven by indirect effects, we control for variables at the individual level which are also likely to be influenced by culture such as education and family size. Other controls at the individual level are the respondent's *Age*, *Age squared*, *educational attainment*<sup>18</sup>, *family size*<sup>19</sup> and marital status.<sup>20</sup> We further include race dummies<sup>21</sup> as well as year and state dummies.<sup>22</sup> The inclusion of state dummies is a particularly powerful test to identify the cultural effect. It implies both that (i) the state level differences (e.g. economic cycles, governance, endowments) are not driving the collectivism coefficient and (ii) that different migration patterns for distinct origins are not a source of bias.

We also include a set of control variables at the country of ancestry level to ensure that our collectivism variable does not capture the economic development of the country of ancestry. We control for the *Life expectancy* at birth in years, for the average *GDP per capita* between 1994 and 2014 converted into current US\$. Further, we control for the net *primary school enrollment* in % as well as the *LFPR* of the total population ages 15+ in 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. The covariates are the population *weighted distance* (in km) between the countries as well as a dummy variable *English as primary language* if both countries have English as a common primary or official language. Those variables are obtained from the CEPII database (CEPII 2015).

To be able to study the occupational choice in a meaningful way we code the occupations of the respondents into the IPUMS 1990 Occupational Codes and group them into 8 occupational categories, namely (1) Managerial Occupations, (2) Professional Specialty Occupations, (3) Technicians and Related Support Occupations, (4) Sales Occupations and Administrative Support Occupations, (5) Service Occupations and Farming, Forestry, and Fishing Occupations, (6) Precision Production, Craft,

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<sup>18</sup>*Educational attainment* provides the expected years of schooling to obtain a certain degree.

<sup>19</sup>*Family size* contains the number of own family members living in one's household.

<sup>20</sup>*Married* takes value one if the respondent is married and zero for separated, divorced, widowed or never married respondents.

<sup>21</sup>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.

<sup>22</sup>*Year dummies* 1994 - 2014 refer to the year the survey was conducted. *State dummies* are created for 51 states in which respondents are located at the time of the survey.



and Repair Occupations and (7) Operators, Fabricators, and Laborers.<sup>23</sup> We further harmonize our data with the Occupational Information Network (O\*Net) database. O\*Net was developed by the US Department of Labor's and contains information that specify the key attributes and characteristics of workers and 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 both 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). The categories employed by the O\*Net have the advantage of being limited in range while accounting for variation in very detailed occupational classifications.

### 3.4 Descriptive Statistics

Table 2 presents selected statistics of the ASEC sample. Out of the total 21,443 second generation immigrants, 51% are married and the average age is around 37 years. The mean household size consists of 3 family members (with a sample maximum of 16). The average subject of the sample has almost 13 years of education which corresponds to 1 year of higher education. 78% of second generation male immigrants in our sample participate in the labor force and the mean annual personal income (pre-tax) is 40,267 US\$. The standard deviation of 52,222 US\$, higher than the average itself, illustrates the wide range of income variation in our 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).

Table 3 illustrates how the countries of ancestry differ with respect to economic relevant characteristics. The indicators chosen represent the economic development, the human capital abundance as well as the health expenditure of the country of ancestry. 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 high mean of primary

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<sup>23</sup>The categories are not completely consistent with the IPUMS classification. We, for example, do not consider military occupations.

Table 2: CPS Summary Statistics

	Mean	Std. Dev.	Min	Max
Collectivism	0.09	0.51	-1.31	1.16
Total personal income	40266.63	52221.48	0.00	1100249.00
Labor Force Participation	0.78	0.42	0	1
Educational attainment	12.97	3.13	0.00	22.00
Age	36.91	13.50	15	64
Family size	3.38	1.83	1	16
Married	0.51	0.50	0	1
Observations	21443			

school enrollment rates is mainly driven by the mass educational efforts in developing countries. The health expenditure per capita is the highest in Switzerland and LFPR is especially high in south east Asian countries (e.g. Lao, Vietnam, China and Thailand). 17 countries in our sample have English as an official language and the country furthest away from the US is Indonesia.

Table 3: Country Level Summary Statistics (1994-2014)

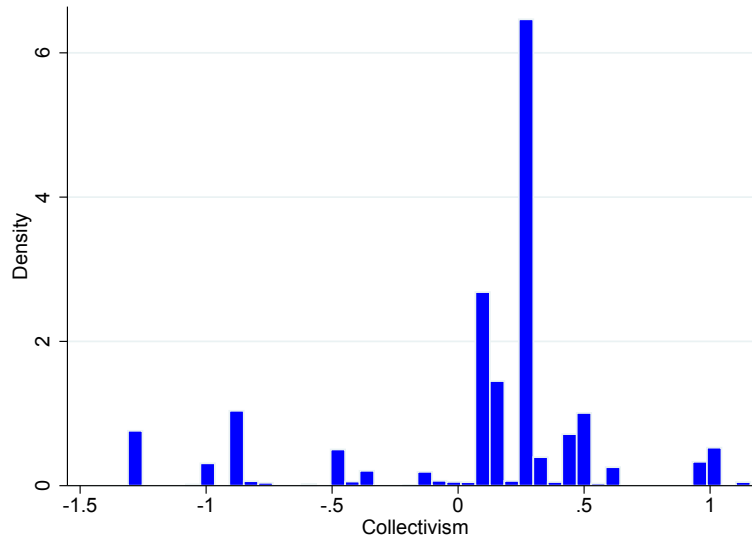
	N	Mean	Std. Dev.	Min	Max
Collectivism	66	-0.06	0.61	-1.31	1.16
Life expectancy	66	73.72	5.61	48.51418	81.6451
GDP per capita	66	14125.46	15370.31	538.0546	63316.1
Primary school enrollment	62	92.85	6.57	65.28555	99.97505
LFPR	66	59.23	8.88	38.8	81.83
English as primary language	66	0.20	0.40	0	1
Weighted Distance	66	8511.53	3059.78	2079.297	15535.87
Secondary school enrollment	56	76.53	18.45	24.42816	99.01532
Health expenditure pc	63	1275.85	1154.81	93.78507	4137.537

The different countries of ancestry are not equally represented in our sample. Figure 2 illustrates that the distribution of the collectivism score within the US sample is skewed towards the right with a sample mean of 0.09. This implies that our sample consists mainly of second generation immigrants with a collectivistic ancestry. The median score is 0.28, since most second generation immigrants were born to Mexican (7,667) parents. Children to Puerto Rican (2,953), Italian (1,543), Philippine (1,186) and Canadian (937) parents also occur frequently in our sample.

Table 4 exhibits the difference in the characteristics of second generation immigrants with collectivistic ancestry compared to their individualistic counterparts.<sup>24</sup>

<sup>24</sup>For simplicity we divide the sample into two segments, a collectivistic one with a disease

Figure 2: Sample Distribution of Collectivism



Respondents with an individualistic background are on average more likely to participate in the labor force, their educational attainment exceeds that of collectivistic respondents by almost two years and they earn over 20,000 US\$ more than collectivist. This could partly be explained by the individualistic respondents being on average more than 10 years older which might also be the underlying cause of the difference in marital status. While 67% of individualistic second generation immigrants are married, the same holds true for only 47% of collectivists. However, collectivistic respondents live in larger households compared to individualists which might seem surprising given their younger age. Given the close family ties within collectivistic networks, it is plausible that collectivist second generation immigrants are more comfortable living among their in-group for longer and start a family earlier (Triandis 1995).

## 4 Results

### 4.1 Baseline Specification

Table 5 reports the results of the baseline OLS regression. Column (1) displays the positive effect of our variable of interest *Collectivism* on the income earned of male second generation immigrants in the US. It is significant at the 10% level and prevalence larger than the average and an individualistic one with a disease prevalence smaller than the average.

Table 4: Collectivism vs. Individualism

	Collectivistic		Individualistic		T-Test
	Mean	Std. Dev.	Mean	Std. Dev.	
Total personal income	35867.68	47823.36	58829.36	64486.55	***
Labor Force Participation	0.76	0.42	0.84	0.37	***
Educational attainment	12.62	3.01	14.44	3.19	***
Age	34.94	13.02	45.23	12.26	***
Family size	3.49	1.87	2.88	1.53	***
Married	0.47	0.50	0.67	0.47	***
Observations	17335		4108		

indicates that controlling for individual characteristics, second generation immigrants in the US, whose parents migrated from a collectivistic country earn more compared to second generation immigrants with an individualistic ancestry. A one standard deviation in collectivism, which, for example, corresponds to the difference between China and Greece, indicates a 10.5% higher income for the second generation migrant with the collectivistic, here, Chinese, ancestry. The individual covariates are all significant and the signs of the coefficients are as expected. The effect is positive for education, being married and for age. Factors negatively associated with income are the number of household members and age squared. We further control for state-fixed effects to ensure that state level differences and different migrant patterns across states do not bias our results. Survey year fixed effects are also included in all regressions. 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. Only primary school enrollment at the country of ancestry has a positive and significant impact on the income earned of second generation immigrants. However, 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. Thus, immigrants from those countries are financially and generally better endowed to perform in the US. Once we control for the economic development of the country of ancestry, however, the opposing effects are disentangled. Column (3) adds proxies for the cultural distance between the US and the country of ancestry to ensure that our effect is not driven by the proximity of cultures and thus the endowment to

assimilate. Column (4) incorporates ethnic origin dummies to ensure that our results are not biased by discrimination. Being black has a significant negative impact on the income of second generation immigrants. Our preferred specification is column (4) in which we control for individual characteristics, ethnic origin and country controls.<sup>25</sup> It illustrates that the income of second generation immigrants with a homogamous family background is positively correlated with a collectivistic ancestry. To investigate the drivers of this effect we explore potential transmission channels.

## 4.2 Transmisson Channels

Table 6 displays various work characteristics. In column (1), we include a dummy variable for labor force participation. Obviously, the adjusted R-squared increases substantially and the specification is now able to explain 64% of the variation in income. The coefficient of *Collectivism* reduces notably in size, an indication that LFP is one of the main channels of the positive effect of *Collectivism*. Consequently, we reduce our sample to the labor force participants in column (2). The positive effect of collectivism persists. In column (3) we control for hours worked<sup>26</sup> and in column (4) we include occupational dummies. In column (4), the magnitude and significance of our *Collectivism* variable reduces further, implying that the occupational choice of second generation immigrants could be another transmission channel of the positive effect.<sup>27</sup> Due to the endogeneity of the included controls in Table 6, our preferred specification remains Table 5 column (4).

The positive effect of *Collectivism* on income earned reduces remarkable once we control for the labor force participation. This might be due to the indirect effect which collectivism has on income earned though the decision to participate in the labor market. Since (the natural logarithm of) the income distribution in our sample is segmented between a left “peak” of zero incomes and a second segment with positively (normally) distributed incomes, it is worth investigating the decision

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<sup>25</sup>To ensure that our baseline results are not driven by outliers we run quantile regressions which are robust in handling extreme value points. Table A3 reports the estimates and confirms the OLS results. The median percentile scores similar results than the OLS regression while magnitude and significance of the positive coefficient decreases in the 10th as well as the 90th quantile (column (1) & column(5)).

<sup>26</sup>Table A1 displays the results on the regression of *Collectivism* on weekly hours worked. The effect of *Collectivism* is positive though insignificant once controlled for labor force participation.

<sup>27</sup>Table A2 displays the effect of collectivism on different income groups. It reveals that the positive effect of Collectivism is driven by the low income group.

Table 5: Baseline Specification

	Log of Income			
	(1)	(2)	(3)	(4)
Collectivism	0.105*	0.189***	0.228***	0.294***
	(0.057)	(0.063)	(0.068)	(0.073)
<i>Individual Characteristics</i>				
Educational attainment	0.228***	0.225***	0.228***	0.227***
	(0.014)	(0.012)	(0.011)	(0.011)
Age	0.669***	0.674***	0.674***	0.674***
	(0.060)	(0.059)	(0.059)	(0.058)
Age squared	-0.007***	-0.008***	-0.008***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
Family size	-0.233***	-0.234***	-0.234***	-0.235***
	(0.015)	(0.015)	(0.015)	(0.015)
Married	1.119***	1.108***	1.107***	1.104***
	(0.094)	(0.092)	(0.092)	(0.093)
<i>Country Characteristics</i>				
GDP per capita		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)
LFPR		0.004	0.004	0.007
		(0.005)	(0.005)	(0.005)
Life expectancy		-0.001	-0.007	-0.005
		(0.010)	(0.012)	(0.014)
Primary school enrollment		0.017**	0.021**	0.017*
		(0.007)	(0.009)	(0.010)
<i>Cultural Proximity</i>				
Weighted Distance			-0.000	-0.000
			(0.000)	(0.000)
English as primary language			0.042	0.090
			(0.104)	(0.115)
<i>Ethnic Origin</i>				
Black				-0.356**
				(0.143)
Asian/ Pacific Islander				-0.181
				(0.177)
Mixed race				0.086
				(0.131)
Hispanic				-0.120
				(0.081)
Constant	-6.916***	-8.730***	-8.670***	-8.541***
	(0.871)	(1.363)	(1.186)	(1.162)
State	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	21443	21443	21443	21443
Adjusted $R^2$	0.544	0.544	0.544	0.544

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: Work Specification

	Log of Income			
	(1)	(2)	(3)	(4)
Collectivism	0.177*** (0.058)	0.102*** (0.035)	0.083*** (0.031)	0.066** (0.026)
<i>Individual Characteristics</i>				
Educational attainment	0.141*** (0.006)	0.120*** (0.005)	0.102*** (0.004)	0.070*** (0.004)
Age	0.377*** (0.018)	0.204*** (0.019)	0.169*** (0.019)	0.121*** (0.018)
Age squared	-0.004*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)
Family size	-0.191*** (0.015)	-0.106*** (0.008)	-0.092*** (0.009)	-0.079*** (0.009)
Married	0.739*** (0.047)	0.670*** (0.034)	0.567*** (0.027)	0.487*** (0.035)
<i>Work Characteristics</i>				
Labor Force Participation	3.631*** (0.299)			
Hours worked			0.026*** (0.002)	0.022*** (0.002)
Constant	-4.718*** (0.928)	2.078** (0.872)	1.866** (0.759)	-2.778*** (0.719)
Occupation	No	No	No	Yes
Observations	21443	16672	16672	16672
Adjusted $R^2$	0.647	0.174	0.228	0.279

Same controls as in Table 5 column(4). \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

to participate in the labor force or not. For the extensive margin, we therefore estimate a probit model<sup>28</sup> where the dependent variable is a binary indicator for labor force participation. Table 7 reports the average marginal effect of *Collectivism* and indicates that *Collectivism* has a significant and positive effect on the probability to participate in the labor force. A one unit (e.g. standard deviation) higher score of collectivism increases the probability to participate in the labor force by 2.1% for second generation immigrants in the US. Table 7 thus reinforces our finding that labor force participation is an important transmission channel of *Collectivism*.

Table 7: Labor Force Participation

	LFP
Collectivism	0.021*** (0.008)
Observations	21443

Notes: Average marginal effects.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

We further test if a collectivist ancestry affects the occupational choice of second generation immigrants. Therefore, figure 3 displays the density of second generation immigrants in eight occupation categories according to their cultural ancestry.<sup>29</sup> The figure illustrates that second generation immigrants with individualistic ancestry are higher represented in managerial occupations, engineering, professional specialty occupations and technician jobs. Collectivistic second generation immigrants on the other hand are more likely to work in sales and administration jobs, service occupations, in precision production or as laborers. It is evident that the probabilities for being employed in a particular occupational category varies across the individualism - collectivism dimension.<sup>30</sup> However, Figure 3 only provides descriptive trends and the difference in occupations could also be explained by individual characteristics such as the differences in education, which Table 4 displays.

We therefore estimate a probit model<sup>31</sup> where the dependent variable is a binary indicator for being employed in a particular occupational category. Table 8 and 9

<sup>28</sup>Comparable estimates with a logit model.

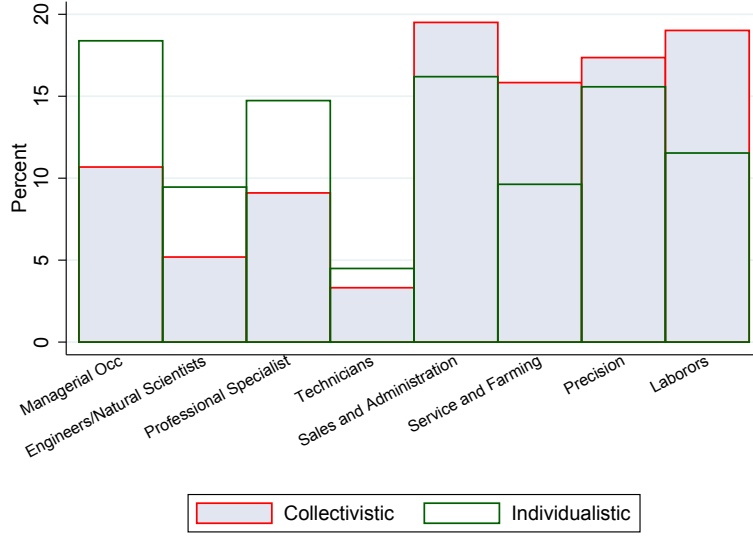
<sup>29</sup>For simplicity we divide the sample into two segments, a collectivistic one with a disease prevalence larger than the average and an individualistic one with a disease prevalence smaller than the average.

<sup>30</sup>Figure A1 shows the distribution of all occupations taken by second generation immigrants with collectivist or individualistic ancestry.

<sup>31</sup>Comparable estimates with a logit model.



Figure 3: Occupational Pattern



provide the estimates for the average marginal effect of *Collectivism*. Table 8 displays the effects for the categories, in which a higher proportion of individualists is to be found. Table 9 features the occupations in which second generation immigrants with a collectivistic ancestry are abundant. Column (2) and (4) of Table 8 report 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 is positively correlated with collectivism. Table 9 illustrates that a one standard deviation higher level of collectivism increases the probability of working in a service occupation by 3%. For the other categories, the impact of collectivism is insignificant, implying that the difference of frequency in categorical employment can not be explained by collectivism but rather by other individual characteristics. The literature has already shown that immigrants with different background self select into different occupations. Our results provide evidence for a self selection along the cultural dimension which persists for the second generation of immigrants.

Table 8: Occupational Choice - Part I

	(1) Manager	(2) Engineer	(3) Specialist	(4) Technician
Collectivism	0.015* (0.009)	-0.015*** (0.006)	0.007 (0.009)	-0.015*** (0.004)
Observations	16713	16713	16713	16713

Notes: Average marginal effects. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 9: Occupational Choice - Part II

	(1)	(2)	(3)	(4)
	Salesman	Service	Precision Worker	Laborer
Collectivism	0.001 (0.007)	0.030** (0.013)	-0.002 (0.015)	-0.002 (0.012)
Observations	16713	16713	16713	16713

Notes: Average marginal effects. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The O\*Net data allows us to investigate the cultural implications further. In Table 10 we test if second generation immigrants with a collectivistic/ individualistic ancestry are more likely to pursue a profession in which collectivistic/ individualistic values are useful. In Column (1) and (2), we report the impact of *Collectivism* on the probability of having an occupation which requires individualistic traits such as the ability of *innovation*<sup>32</sup> and *independence*.<sup>33</sup> Column (3) and (4) display the impact of collectivism on the likelihood of having a job which requests the collectivistic values *concern for others*<sup>34</sup> and *cooperation*.<sup>35</sup> 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 - a characteristic which is typically fostered in collectivistic environments. They are less likely to take jobs in which innovative thinking is expected. This findings do not only give us confidence that the selection of second generation immigrants into different occupations is not merely network or source country driven, they also allow us to address selection 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

<sup>32</sup>Jobs which require creativity to answers to work-related problems and to develop new ideas.

<sup>33</sup>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.

<sup>34</sup>Jobs which require being sensitive to others' feelings and needs and being helpful and understanding on the job.

<sup>35</sup>Jobs which require being friendly with others on the job and displaying a cooperative, good-natured attitude.

that collectivism is positively correlated with jobs requiring individualistic values. A negative correlation of collectivism and individualistic jobs, however, points to an impact of collectivistic values on the occupational choice of respondents with a collectivistic background. Since Table 10 reveals such a negative 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 preference seems a vital determinant in explaining the occupational choice and income earned of second generation immigrants in the US.

Table 10: Work Style Specification

	Individualistic		Collectivistic	
	(1) Innovation	(2) Independence	(3) Concern for Others	(4) Cooperation
Collectivism	-0.877*** (0.267)	-0.167 (0.238)	1.009*** (0.364)	0.116 (0.240)
<i>Individual Characteristics</i>				
Educational attainment	1.260*** (0.052)	0.998*** (0.086)	0.989*** (0.094)	0.801*** (0.093)
Age	0.414*** (0.056)	0.070 (0.045)	-0.131** (0.060)	-0.110*** (0.039)
Age squared	-0.005*** (0.001)	-0.000 (0.001)	0.002** (0.001)	0.001** (0.001)
Family size	-0.376*** (0.047)	-0.141*** (0.052)	-0.024 (0.099)	-0.058 (0.043)
Married	1.791*** (0.181)	1.077*** (0.214)	0.449* (0.226)	0.222 (0.141)
Constant	39.833*** (4.934)	61.379*** (5.506)	55.703*** (5.514)	60.539*** (4.097)
Observations	16662	16662	16662	16662
Adjusted $R^2$	0.134	0.111	0.067	0.104

Same controls as in Table 5 column(4). \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

### 4.3 Robustness Checks

We test the robustness of our results by using alternative measurements as an explanatory variable. In Column (1) of Table 11, we replace our collectivism measurement by the collectivism index which includes seven rather than nine infectious diseases. Although Murray and Schaller (2010) claim that this measurement is less precise than the index with nine diseases, it has the advantage that it is available

for 74 instead of 64 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 1,496 observations. However, Column (1) of Table 11 reports very similar results to those of our baseline specification.

Column (2) exhibits the estimates of our baseline regression using Hofstede's individualism index. The findings are in line with our previous results since the level of individualism of the country of ancestry has a negative impact on the income earned by second generation immigrants in the US. However, the explanatory variable is small in size and only significant at the 5% level. It indicates that a 10 point higher individualism score (on the 100 point scale) leads to a decrease in income by 6%.

The (unreported) strong and significant effects of the country characteristics *LFPR* and *English as a primary language* indicate that source country effects are relevant, however Hofstede's individualism index fails to extract the effect of individualism. This implies that Hofstede might be an imprecise measurement of individualism, which would be in line with the critic claiming that Hofstede's survey captures general country conditions rather than actual values on individualism.

We assess how sensitive the results are to the exclusion of potential outliers. Column (1) of Table 12 reproduces the baseline specification without second generation immigrants from Mexico. Since 36% of our observations are of Mexican origin, the restriction drastically reduces our sample size. Nevertheless, the estimate of *Collectivism* stays robust. In column (2) observations from Puerto Rico are disregarded. Since Puerto Ricans are national born US-citizens, they do not necessarily qualify as immigrants. However, Puerto Rico has a different disease environment compared to the US, therefore we include it in our baseline regressions. Column (3) of Table 12 displays the results without Chinese observations. China is only the 6th most represented country in our sample. Due to the high level of collectivism, however, it qualifies for driving the positive effect of collectivism. In Column (4) we exclude all Asian observations and the results clarify that our baseline findings are robust to all four outlier specifications.

Our results are restricted to homogamous families since they are most likely to

Table 11: Alternative Measurements Specification

	Log of Income	
	(1)	(2)
Prevalence of 7 Infectious Diseases	0.278*** (0.069)	
Hofstedes Individualism Index		-0.006** (0.003)
<i>Individual Characteristics</i>		
Educational attainment	0.227*** (0.011)	0.218*** (0.011)
Age	0.680*** (0.053)	0.699*** (0.050)
Age squared	-0.008*** (0.001)	-0.008*** (0.001)
Family size	-0.239*** (0.015)	-0.229*** (0.012)
Married	1.089*** (0.091)	1.019*** (0.091)
<i>Ethnic Origin</i>		
Black	-0.296** (0.127)	-0.356* (0.184)
Asian/ Pacific Islander	-0.194 (0.164)	-0.083 (0.153)
Mixed race	0.015 (0.142)	0.205 (0.160)
Hispanic	-0.116 (0.075)	0.151 (0.104)
Constant	-8.186*** (0.785)	-8.166*** (1.043)
Observations	22940	18036
Adjusted $R^2$	0.546	0.575

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 12: Outlier Specification

	Log of Income			
	(1)	(2)	(3)	(4)
Collectivism	0.271*** (0.073)	0.260*** (0.073)	0.349*** (0.074)	0.417*** (0.075)
<i>Individual Characteristics</i>				
Educational attainment	0.231*** (0.017)	0.219*** (0.010)	0.229*** (0.012)	0.221*** (0.014)
Age	0.580*** (0.037)	0.698*** (0.049)	0.675*** (0.059)	0.671*** (0.066)
Age squared	-0.006*** (0.000)	-0.008*** (0.001)	-0.008*** (0.001)	-0.008*** (0.001)
Family size	-0.237*** (0.021)	-0.225*** (0.012)	-0.237*** (0.016)	-0.250*** (0.018)
Married	1.044*** (0.142)	1.020*** (0.090)	1.125*** (0.090)	1.173*** (0.077)
<i>Ethnic Origin</i>				
Black	-0.394** (0.162)	-0.411** (0.178)	-0.377** (0.155)	-0.348** (0.147)
Asian/ Pacific Islander	-0.347** (0.150)	-0.183 (0.176)	-0.130 (0.174)	0.000 (.)
Mixed race	0.013 (0.206)	0.174 (0.151)	0.096 (0.137)	0.081 (0.129)
Hispanic	-0.162 (0.103)	0.070 (0.098)	-0.193** (0.088)	-0.162** (0.074)
Constant	-7.618*** (1.165)	-7.777*** (1.059)	-8.846*** (1.200)	-9.827*** (1.709)
Observations	13766	18490	20794	18313
Adjusted $R^2$	0.467	0.574	0.545	0.548

Same controls as in Table 5 column(4). \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

coherently transmit the cultural background of the country of ancestry. For completeness, we re-run our baseline regression based on two other family constellations. First, we consider 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. Firstly, the cultural values of both parents do not reinforce each other. Secondly, the native parent has a larger network to implement his cultural background and therewith an advantage in influencing the child. Column (1) of Table 13 displays the baseline specification for parents with a foreign born father and a US native mother, Column (2) refers to the opposite constellation. In both 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 who has a whole American environment to shape the child's values according to his or her individualistic heritage. The magnitude of the *Collectivism* coefficient is higher for father's than mother's, implying that fathers tend to be more successful in passing their cultural ancestry on to their sons.

Table 14 illustrates the baseline specification when focusing on the collectivistic background of only one parent. Here, we do not have any information on the cultural background of the other parent, e.g it is unclear if there is a systematic bias in mating behavior and therewith different reinforcements of cultural backgrounds. Table 14 displays the specifications with the collectivistic heritage of only the father (Column (1)) or the mother (Column (2)) and we find similar results compared to those in our baseline regression. The effect of collectivism is positive but remarkably smaller and less significant.

Please note in general that the results of both tables are based on a different data sample than in the previous sections. In our baseline regression we exclusively consider homogamous families, here, we investigate heterogamous families in Table 13 and a mix of heterogamous and homogamous families in Table 14.<sup>36</sup> The positive effect of *Collectivism* persists and the results highlight the importance of acknowledging the implications of different family constellation.

This section illustrates that our results are robust to various specifications. Besides

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<sup>36</sup>Table A4 and A5 display the baseline regressions for a sample which includes US natives. Even with US natives included, we find a positive, yet smaller in size and significance, effect of collectivism.

Table 13: One foreign parent Specification

	Log of Income	
	(1) Father	(2) Mother
Collectivism	0.040 (0.033)	0.028 (0.034)
<i>Individual Characteristics</i>		
Educational attainment	0.226*** (0.014)	0.212*** (0.011)
Age	0.500*** (0.032)	0.490*** (0.021)
Age squared	-0.005*** (0.000)	-0.005*** (0.000)
Family size	-0.241*** (0.015)	-0.286*** (0.013)
Married	0.187*** (0.040)	0.279*** (0.038)
<i>Ethnic Origin</i>		
Black	-0.163* (0.094)	-0.045 (0.133)
Asian/ Pacific Islander	0.059 (0.130)	-0.057 (0.115)
Mixed race	-0.118 (0.127)	-0.293*** (0.102)
Hispanic	-0.007 (0.070)	-0.040 (0.064)
Constant	-4.589*** (0.903)	-4.446*** (0.725)
Observations	31787	29964
Adjusted $R^2$	0.318	0.308

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 14: Mixed parent Specification

	Log of Income	
	(1) Father	(2) Mother
Collectivism	0.161** (0.071)	0.129* (0.074)
<i>Individual Characteristics</i>		
Educational attainment	0.271*** (0.014)	0.271*** (0.014)
Age	0.621*** (0.043)	0.621*** (0.043)
Age squared	-0.007*** (0.001)	-0.007*** (0.001)
Family size	-0.262*** (0.016)	-0.263*** (0.015)
Married	0.164** (0.075)	0.162** (0.067)
<i>Ethnic Origin</i>		
Black	-0.218** (0.105)	-0.178* (0.096)
Asian/ Pacific Islander	-0.030 (0.089)	-0.024 (0.099)
Mixed race	0.248*** (0.094)	0.191 (0.117)
Hispanic	0.065 (0.071)	0.096 (0.078)
Constant	-7.819*** (1.066)	-8.511*** (1.033)
Observations	51867	52065
Adjusted $R^2$	0.417	0.417

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

the robustness checks shown here, we also find our estimations to be robust to the inclusion of more indicators of economic development in the country of ancestry (e.g. secondary enrollment, GDP growth). We include, for example, more controls with respect to the health service of the country of ancestry. 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*.<sup>37</sup> We also control for languages which are spoken by at least 9% of both populations and use 1970 country controls to reflect the condition of the country of ancestry when the average cultural trait of the parents was formed. Our regression analysis reveals that the inclusion of these variables does not alter our results substantially. The results also don't change if we exclude controls for ethnic origins to manage the correlation between ethnic origin and collectivism. 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. The results are similar to those of the OLS regression. We also run regression with interactions between collectivism and different decades as well as with interactions between state and year. Overall, we find econometric support that the *Collectivism* effect on income is positive and significant and that our findings are robust to various specifications.<sup>38</sup>

## 5 Conclusion

This paper is motivated by the importance of immigrants and decedents of immigrants in the population of the economically advanced nations as well as by the growing interest of economists in the influence of cultural values on economic behavior and outcomes. Using survey data from the US, we investigate the impact of collectivism on the economic outcome of homogamous second generation male immigrants to ensure that only the intergenerationally transmitted cultural values on collectivism determine their economic decisions rather than the institutional environment of the country of ancestry which still influences the economic performance of first generation immigrants in the US. We use the historical disease prevalence of the

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<sup>37</sup>See the discussion of Davis (2012).

<sup>38</sup>All regression results are available from the author upon request.

country of ancestry as a measurement for collectivism. Collectivistic values (e.g. sharp distinction between in- and out-groups or consciousness of tradition) have proven to be particularly advantageous in countries with a greater prevalence of disease-causing pathogens. With our disease measurement, we provide a key variable which is by construction *exogenous* to all the dependent variables employed.

Our study contributes to the literature by adding valuable evidence of the effect of collectivism on the economic performance of second generation immigrants in the US. We are the first to study the effect of cultural ancestry on the occupational choice of (second generation) immigrants. Further, the analysis of homogamous families allows us to extract a clear cultural effect. Our contribution helps establishing a role for cultural values on second generation immigrant behavior. Further, it provides support that second- generation immigrants can be a reasonable group to study possible effects of cultural values on behavior in the face of the concern that immigrants are a selected group.

We find a significant and positive effect of collectivism on income earned, especially for low-income earners. We further show that the positive effect is partly explained by the higher labor force participation rate of second generation immigrants with a collectivist ancestry. Further we obtain evidence that occupational choice is an important channel through which inherited cultural values affect individuals' behavior in the labor market. We show that second generation immigrants with an individualistic ancestry are more likely to self-select into jobs which require individualistic abilities such as independence. Second generation collectivists prefer jobs which demand collectivistic traits such as sensibility towards others. We argue that second generation immigrants with a collectivistic ancestry take different jobs than individualists due to inherent comparative advantages in performing particular productive tasks. Overall they perform better than their individualistic counterparts. Our findings are robust to the use of other measures of collectivism and different data compositions. Thus, it seems as if second generation immigrants with a collectivistic ancestry complement native (individualistic) factors in production particularly well which results in a successful labor market integration and could lead to positive welfare effects.

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# Appendix

Table A1: Hours worked Specification

	Hours worked	
	(1)	(2)
<i>Individual Characteristics</i>		
Collectivism	1.374*** (0.377)	0.283 (0.439)
Educational attainment	1.297*** (0.088)	0.499*** (0.047)
Age	3.196*** (0.142)	0.440*** (0.056)
Age squared	-0.040*** (0.002)	-0.006*** (0.001)
Family size	-0.671*** (0.083)	-0.262*** (0.064)
Married	7.008*** (0.754)	3.611*** (0.277)
<i>Work Characteristics</i>		
Labor Force Participation		33.758*** (0.873)
Constant	-41.770*** (6.294)	-6.277 (6.798)
Observations	21451	21451
Adjusted $R^2$	0.305	0.558

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A2: Income Group Specification

	Log of Income		
	(1) Low	(2) Medium	(3) High
Collectivism	0.218* (0.131)	0.004 (0.008)	-0.012 (0.017)
<i>Individual Characteristics</i>			
Educational attainment	0.052*** (0.014)	0.012*** (0.001)	0.033*** (0.002)
Age	0.195*** (0.019)	0.009*** (0.002)	0.027*** (0.005)
Age squared	-0.002*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Family size	-0.103*** (0.019)	-0.003** (0.002)	0.010** (0.005)
Married	0.580*** (0.076)	0.046*** (0.006)	0.043*** (0.017)
Constant	-0.231 (1.841)	10.079*** (0.154)	9.637*** (0.336)
Observations	5528	5678	5466

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Figure A1: Occupational Choice

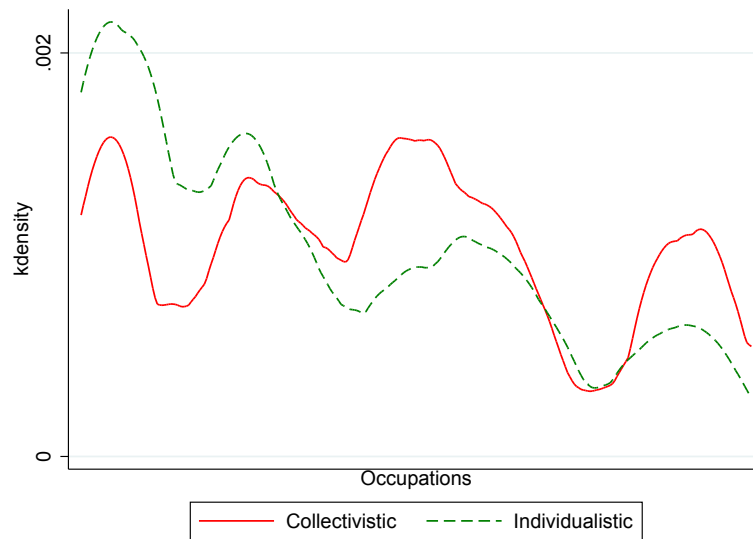




Table A3: Quantile Specification

	Log of Income				
	(1) 0.10	(2) 0.25	(3) 0.50	(4) 0.75	(5) 0.90
Collectivism	0.159 (0.255)	0.177*** (0.036)	0.255** (0.123)	0.085*** (0.028)	0.026 (0.026)
<i>Individual Characteristics</i>					
Educational attainment	0.164*** (0.029)	0.156*** (0.004)	0.166*** (0.014)	0.125*** (0.003)	0.119*** (0.003)
Age	0.668*** (0.036)	0.911*** (0.005)	0.564*** (0.017)	0.246*** (0.004)	0.193*** (0.004)
Age squared	-0.007*** (0.000)	-0.010*** (0.000)	-0.006*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)
Family size	-0.202*** (0.047)	-0.129*** (0.007)	-0.195*** (0.023)	-0.075*** (0.005)	-0.049*** (0.005)
Married	2.655*** (0.188)	0.849*** (0.027)	0.744*** (0.091)	0.382*** (0.020)	0.316*** (0.019)
Constant	-10.819** (4.304)	-13.710*** (0.614)	-4.091** (2.072)	3.730*** (0.464)	5.019*** (0.432)
Observations	21443	21443	21443	21443	21443

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A4: Baseline Specification with US Natives

	Log of Income			
	(1)	(2)	(3)	(4)
Collectivism	-0.053 (0.041)	0.123 (0.076)	0.105* (0.058)	0.153** (0.060)
<i>Individual Characteristics</i>				
Educational attainment	0.199*** (0.001)	0.199*** (0.001)	0.198*** (0.001)	0.192*** (0.001)
Age	0.475*** (0.012)	0.475*** (0.012)	0.475*** (0.012)	0.478*** (0.012)
Age squared	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)
Family size	-0.225*** (0.004)	-0.225*** (0.004)	-0.224*** (0.004)	-0.221*** (0.005)
Married	1.161*** (0.006)	1.161*** (0.006)	1.161*** (0.006)	1.104*** (0.008)
<i>Country Characteristics</i>				
GDP per capita		0.000 (0.000)	0.000* (0.000)	0.000* (0.000)
LFPR		-0.001 (0.005)	0.002 (0.005)	0.004 (0.005)
Life expectancy		0.004 (0.016)	0.010 (0.014)	0.007 (0.015)
Primary school enrollment		0.018*** (0.006)	0.022*** (0.008)	0.019** (0.007)
<i>Cultural Proximity</i>				
Weighted Distance			0.000 (0.000)	-0.000 (0.000)
English as primary language			0.150* (0.079)	0.191*** (0.067)
<i>Ethnic Origin</i>				
Black				-0.619*** (0.006)
Asian/ Pacific Islander				-0.100*** (0.029)
Mixed race				-0.224*** (0.013)
Hispanic				-0.121*** (0.005)
Constant	-3.237*** (0.241)	-5.185*** (1.051)	-6.354*** (0.972)	-5.709*** (1.039)
State	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	711112	711112	711112	711112
Adjusted $R^2$	0.366	0.366	0.366	0.371

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A5: Work Specification with US Natives

	Log of Income			
	(1)	(2)	(3)	(4)
Collectivism	0.092*	0.065*	0.056	0.059**
	(0.049)	(0.037)	(0.034)	(0.027)
<i>Individual Characteristics</i>				
Educational attainment	0.134***	0.121***	0.107***	0.077***
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.299***	0.161***	0.137***	0.102***
	(0.007)	(0.002)	(0.002)	(0.001)
Age squared	-0.003***	-0.002***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Family size	-0.177***	-0.074***	-0.069***	-0.057***
	(0.004)	(0.002)	(0.002)	(0.002)
Married	0.783***	0.592***	0.505***	0.410***
	(0.004)	(0.005)	(0.005)	(0.005)
<i>Work Characteristics</i>				
Labor Force Participation	2.740***			
	(0.040)			
Hours worked			0.019***	0.016***
			(0.000)	(0.000)
Constant	-3.333***	3.440***	3.396***	-1.865***
	(0.778)	(0.451)	(0.405)	(0.348)
Occupation	No	No	No	Yes
Observations	711112	595314	595314	595269
Adjusted $R^2$	0.479	0.169	0.215	0.266

Same controls as in Table 5 column(4).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A6: List of Variables

<b>Name</b>	<b>Description</b>
Age	Years of Age
Age_inter	Age / IDV Interaction Term
Age2	Years of Age (squared)
Asian	Asian Dummy
Black	Black Dummy
Chinese	Chinese Dummy
Educ	Years of Education
Educ_spouse	Years of Education of Spouse
Famsize	Number of own family members in household
Female	Female Dummy
Gdp_pc	GDP per capita (constant 2005 US\$)
Gdp_pc_ppp	GDP per capita. PPP (constant 2005 international \$)
Hispanic	Hispanic Origin Dummy
Hrswork	Usual hours worked per week
IDV	Hofstede's Value of Individualism
IDV_spouse	Hofstede's Value of Individualism of Spouse
Inc_all	Positive Income Dummy
Inctot	Total personal income
Inctot_spouse	Total Personal Income of Spouse
LFP	Labor Force Participation Dummy
LFPR	Labor force participation rate, total (% of total population ages 15-24)
Life_expect	Life expectancy at birth, total (years)
Ln_inctot	Total Personal Income (in natural log)
Ln_inctot_spouse	Total Personal Income of Spouse (in natural log)
Married	Married Dummy
Others	Other Race Dummy
Publ_health	Health expenditure, public (% of GDP)
Sec_enrol	School enrollment, secondary (% gross)
Spouse	Spouse Dummy

Table A7: Collectivism Measurements

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	
Bosnia 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	

*Continued on next page*

Collectivism Measurements - continued

Country	Disease9	Disease7	IDV
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
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

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Collectivism Measurements - continued

Country	Disease9	Disease7	IDV
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	

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Collectivism Measurements - continued

Country	Disease9	Disease7	IDV
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
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	

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Collectivism Measurements - continued

Country	Disease9	Disease7	IDV
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

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Collectivism Measurements - continued

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<b>Country</b>	<b>Disease9</b>	<b>Disease7</b>	<b>IDV</b>
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	

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