



LUND UNIVERSITY

School of Economics and Management

Master's Programme in Economic Demography

Acculturation and health of immigrants in elderly ages in Costa Rica

by

Marcos David Castillo Bastos

ma3304ca-s@student.lu.se

Abstract

Although health disparities among immigrants and natives has been researched quite extensively, the associations with acculturation and health require more attention, especially in Costa Rica where elderly immigrants have been increasing relatively for years and research is scarce. This study explores, with help of a longevity and aging survey (CRELES) and an ordered logit model, how this association holds for elderly immigrants in Costa Rica. It is found that these immigrants are less likely to have better self-rated health than natives, with the more recent immigrants being the closest to native levels, followed by those who have been in the country the longest, with the middle group last. Relationships with education and lifestyles seem to only have a partial effect moderating this association, suggesting income assimilation and access to health care may have a greater effect on immigrant's health.

EKHS01

Master's Thesis (15 credits ECTS)

June 2018

Supervisor: Volha Lazuka

Examiner: Jeffrey Neilson

Word Count: 14130

Acknowledgements

To the Swedish Institute for granting me a Study Scholarship that made it possible for me to take part in this Master's programme in Sweden.

Table of Contents

1	Introduction	1
1.1	Research aim and question	2
1.2	Outline of the Thesis	3
2	Theory	4
2.1	Migration in Costa Rica in the past century	4
2.2	Theoretical Approach	5
2.2.1	Migration theories	5
2.2.2	Acculturation and health	7
2.3	Previous research.....	10
3	Hypothesis	15
4	Data	16
4.1	Source Material	16
4.2	Descriptive statistics.....	18
5	Methodology	21
6	Empirical analysis	23
6.1	Distribution of immigrants by health status	23
6.2	Main results	24
6.3	Limitations	30
7	Contribution	31
7.1	Discussion	31
7.2	Main conclusions.....	33

List of Tables

Table 1. Descriptive statistics of the variables	19
Table 2. Frequency of immigrants in the CRELES sample and the 2011 Census by Years in the country.....	19
Table 3. Frequency of immigrants by country of origin and Years in the country in the CRELES sample.....	20
Table 4. Distribution of observations by Years in the country and Health status.....	23
Table 5. Odds for Health status for different models (1: Poor health – 5: Excellent health)...	28
Table 6. Log-odds of the models with Health status as dependent variable (1:Poor health – 5: Excellent health).....	42

1 Introduction

The amount of elderly immigrants in Costa Rica is increasing every year and it shows no sign of stopping soon (Martínez Pizarro, Cano Christiny & Soffia Contrucci, 2014), as immigrants in the country continue to age. For this reason, it becomes relevant and necessary to study their health conditions, since the country must be ready to deal with its health care demands in an efficient way.

Costa Rica remains the Latin-American country with the highest percentage of immigrants as part of the total population and the highest net migration rate (Martínez Pizarro, Cano Christiny & Soffia Contrucci, 2014). Around 9% of the entire population in Costa Rica was born in another country and the net migration rate is 1.3%, being also one of the few countries in Latin-American with a positive net migration rate (Vásquez-De Kartzow, Castillo-Durán & Lera M., 2015).

This high immigration dynamic began decades ago as Costa Rica's economic and political stability attracted Central Americans, reinforced in the 80s and 90s when also several political conflicts took place in the region, especially Nicaragua (Acuña, 2005). Even though many migrants returned to their country after peace agreements, most of them stayed in the country (Martínez Pizarro, Cano Christiny & Soffia Contrucci, 2014).

Since most of these migrants arrived during their youth and adulthood, it is expected that the amount of elderly foreign-born individuals will continue to rise in the following decades. The proportion of migrants older than 65 was already higher than 10% in 2005 (in respect to those older than 15), one of the highest of the region (Martínez Pizarro, Cano Christiny & Soffia Contrucci, 2014). There exists variety in the distribution of this elderly foreign-born individuals, as different reasons motivated the immigrations and they occurred at different stages of their lives (Morales, 2008). Most have been living in the country for more than two decades while some arrived late in their lives, probably to reunite with family, for high paying jobs or to jubilate (Puga, 2001).

The health status of these elderly immigrants becomes a matter of importance for public health, since they will not only increase the total number of elderly population in the country but may also need different services than native individuals. As in any migration study, *selection* plays an important role, as immigrants may be positively or negatively selected, which affects the average health status in comparison to natives. The Healthy Immigrant Effect suggests individuals with good health may be the ones more likely to emigrate, thus being positively selected (McDonald & Kennedy, 2004), while other waves of thought claim immigrants can be negatively selected when they come from environments with low income or could be neutral in terms of health outcomes in comparison to natives (Akresh & Frank, 2008).

In addition to this, immigrants' health can be affected by the process of immigration itself and the respective adjustment to the new country. On one side, immigrating carries stressful events and conditions that may deteriorate an individual's health, as immigrants not only have to leave their home country and what they know, but also face a process of adjustment and acculturation in the host country (Hao & Johnson, 2000). Research in several countries points out to a worsening of health as immigrants stay in a new country (Antecol & Bedard, 2006; Biddle, Kennedy & McDonald, 2007).

Moreover, the process of acculturation may lead immigrants to acquire unhealthy lifestyles involving changes in diet, exercising, smoking and drinking habits either for acculturation to natives' behaviors or as a coping mechanism for stressful life situations (Joshi et al., 2014; Tavernise, 2013). On the other side, investments in human capital could improve the well-being of immigrants, as they learn to adapt to the new country and gain access to better health care, thus improving their health status the longer they stay in the new country (Antecol & Bedard, 2006). This further highlights the importance of considering how immigrants adjust in the country, as responses may vary across individuals.

In the case of Costa Rica, efforts to study differences in health status between migrants and Costa Rican born individuals have been little, and literature about elderly is very scarce since it has only become a relevant topic recently. This study aims to analyze how the health of immigrants in elderly ages can be associated to the acculturation process, as well as how education and lifestyles can impact or moderate the acculturation effects, to understand better how these immigrant's health is different to that of natives.

1.1 Research aim and question

Given the importance of understanding how much and in which way the increasing number of elderly immigrants may affect Costa Rica's health care system, the lack of research for the country on this matter, the aim of this study will be to answer the question:

Is longer stay in Costa Rica associated to lower health status in immigrants in elderly ages in Costa Rica? And if it is, can education and lifestyles moderate this relationship?

To answer this question, the most appropriate approach would be to use longitudinal data. Nonetheless, for Costa Rica only cross-sectional data is currently available, thus limiting the extent of the analysis. Carrying out the analysis for immigrants in elderly ages brings the benefit of being able to explore differences among individuals with different ages of arrival in the country, so it becomes a good way to tackle the research question.

1.2 Outline of the Thesis

After this first introductory section, it will be given briefly a background on the history of immigration in Costa Rica in the past century, then exploring the theoretical framework of immigration and acculturation, relating it to health outcomes for immigrants, and assessing it with empirical evidence on the topic. A third section states the research hypothesis and a fourth section will explain the data used for the analysis with descriptive statistics for the sample. The fifth section explains the methodology that will be employed, and a sixth section reveals the empirical analysis results, including limitations. The seventh and final section reveals contributions, with a discussion part and main conclusions, including research aims and lines for future research on the topic.

2 Theory

This section will delineate the theoretical framework of how migration and acculturation can be associated to health of immigrants, considering selection of immigrants, human capital and change in behaviors or lifestyles. Previous research will be detailed afterwards as well Costa Rica's literature on the topic.

2.1 Migration in Costa Rica in the past century

Contrary to most countries in Latin America, Costa Rica has attracted migrants for decades, with Nicaraguans taking a huge part of this process. However, different reasons have motivated these immigration flows across time. In the first half of the twentieth century, most of the migrants came from Europe because of the impact of the World War I, Costa Rica's economic rise and the vicinity to Panama's Canal (Acuña, 2005). The percentage of immigrants in Costa Rica was close to 6.2%, and Nicaraguans only represented 2% of the total population.

For the remaining of the first half of the century, most of the migrations came from the Latin-American region, mainly because of Costa Rica's economic growth, by increasing the expected earnings an immigrant would have in the country. The percentage of migrants in the country decreased to 4.2% in 1950, of which more than half of it were Nicaraguans. It must be noted that Costa Rica's demographic transition started around this time with a rapid mortality decline, so although the number of migrants continued to rise, their share in the total population was decreasing (Morales, 2008).

For the next few decades until the early 90s, Costa Rica's political stability also played a role attracting Central Americans, as conflicts in the region increased. Nicaraguans continued to dominate the percentage of immigrants in Costa Rica, which was around 3% during these decades. Specifically, during the 80s, during Nicaragua's Somoza dictatorship and the Sandinista revolution, Costa Rica became a political shelter (Bravo, 2015). Although it was expected that most of the refugees would return to their countries after peace treaties were signed (Acuña, 2005), a large portion decided to stay in the country and even more individuals decided to migrate to Costa Rica (Delgado Montaldo, 2008). Development of networks and changes in Costa Rican's perceptions of immigrants eased the entrance of more immigrants in the country (Delgado Montaldo, 2008; Marín, 2004).

Finally, the big jump in immigrations happened in the late 80s and 90s, when Costa Rica's economic growth was substantially higher than Nicaragua's and that of other countries in the region (Barquero & Vargas, 2004). The number of Nicaraguans in the country were more than five times larger in the year 2000 than in 1984, while the total number of immigrants more

than tripled in those 16 years. The percentage of immigrants rose higher than 5% for the first time in over 5 decades and Nicaraguans represented around 75% of that population (Morales, 2008). By this time, Costa Rica had created a structural demand for immigrants, as several jobs in the agricultural and building sector required more “arms” and immigrants were the ones most likely to take these jobs (Soto, 2001).

After the year 2000, the immigration rate of Nicaraguans stabilized and has been smoothly decreasing ever since (Morales, 2008). This century, Colombians and Venezuelans have started to take a larger share in the immigration rates of Costa Rica.

Two characteristics can be drawn from Costa Rica’s immigration experience in the past century: one is that Latin-American, and mostly Nicaraguan, immigrants have been attracted to the country either because of higher expected earnings or because of its stability. Broadly speaking, immigrants arriving before 1950 seemed to follow economic reasons, while for those migration from 50s to the 90s, political reasons also played a role, while for the last group of immigrants (90s and 00s) once again economic reasons were predominant.

The second characteristic is that most migrants stay forever in the country. This is of importance when analyzing acculturation in the country, since immigrants that stay permanently in a country may change behaviors or improve conditions differently in comparison to temporary immigrants (for example getting more education). At the same time, those who stay forever experience acculturation to the fullest, which may cause negative effects on their lives that will be reflected in their elderly ages.

2.2 Theoretical Approach

2.2.1 Migration theories

The decision to migrate is not random. Several reasons may lead up to that decision and there is no unified theory that can explain perfectly why people migrate, however, multiple theories or hypothesis have been developed to help address this issue (Borjas, 1989).

Economic theory supports that individuals choose to emigrate when the difference between the expected earnings in a host country and their earnings in their home country is higher than the cost of having to emigrate (Massey et al., 1993). Under this perspective, immigrants may be positively or negative selected. Positive selection occurs when the “best” people decide to emigrate, and after arriving in the host country, they do better than natives of that receiving country (Borjas, 1987).

It is in this case that the Healthy Immigrant Effect (HIE) can more powerfully explain why immigrants may present better health status than natives (Antecol & Bedard, 2006). This hypothesis, also known as the “Mexican paradox” first devised in 1986 when studying the health of Hispanics in the United States (Markides & Coreil, 1986) states immigrants present a higher health status than citizens of the host country at their time of arrival (Antecol & Bedard, 2006; Biddle, Kennedy & McDonald, 2007; Choi, 2011).

Several reasons help explain the premise of the HIE: first, among the people willing to migrate, those with better health are the ones more prone to do it and to stay, as they may be more physically or financially able. Second, it is more likely that unhealthy immigrants will return to their home country. Third, migrants that do better economically are the ones more prone to stay in the receiving country, so the sample of long term immigrants will be biased towards those with higher income, access to health care and prevention, and thus to better health. On the other hand, unhealthy immigrants will have a higher chance to die prematurely, which would further bias the sample towards healthy migrants (Antecol & Bedard, 2006; Choi, 2011). Another important factor may be when receiving countries impose health requirements to immigrants before issuing visas or residence permits (Biddle, Kennedy & McDonald, 2007).

On the contrary, negative selection happens when the host country attracts immigrants from the inferior tail of the income distribution in the sending country. This type of selection occurs when the income distribution of the host country is more equal than in the home country of the immigrants (Borjas, 1987). In this instance, health of immigrants could be worse than that of natives, since income restrictions affect health of immigrants (Sorlie PD et al., 1993). Moreover, this negative selection can determine how the immigrants will perform in the host country, as they can be limited to only low-paying or risky occupations (Bollini & Siem, 1995), which impacts negatively health status of these populations.

On the other hand, the new economics of migration propose migration could occur even when wage differentials are not enough to motivate individuals to carry emigration costs. This model explains households face the decision of minimizing risks, by ensuring a stable income. Households may decide to send some members to another country where in case of poor economic conditions in the country, those who emigrated can provide economic support to them (Stark & Bloom, 1985).

These theories offer an explanation to why people decide to migrate in the first place, but do not necessarily explain how migration perpetuates, as it has happened in the case of Nicaraguans in Costa Rica. In this case, Network Theory and Cumulative Causation Theory may provide answers to the issue.

Once immigrants begin to settle in the host country, they create links between non-migrants and their relatives or friends back home, thus developing interpersonal networks that help decline costs and risks for new immigrants. This process of networks makes immigration less selective, as now individuals of different socioeconomic backgrounds may decide to migrate, creating a more representative sample of the sending country (Massey et al., 1993).

Cumulative causation explains how migration may sustain itself once it has started by altering the social context of both the sending country and the host country. Three important aspects may be present in the Costa Rican case. Firstly, the distribution of income, as some families in the sending country may see how others vastly improve their income through immigration. Secondly, in the receiving country, social labeling, since most immigrants are recruited into specific jobs, creating labels like “immigrant jobs” with a stigma that in the long run reinforces the demand for immigrants. Finally, to a lower extent, the culture of migration, as

after several years and flows of migrants, it changes the views and cultural perceptions of the sending population (Massey, 1990).

According to these latter perspectives, selection of immigrants may change, as individuals who would not have emigrated without the networks and structural changes, can more easily get jobs at the host country, especially in low-skilled occupations (Bean & Bell-Rose, 1999). Here is where we find an opposite idea to the HIE: when immigrants arrive to the host country, their health status could be actually lower than that of natives, as their income and access to health care was poorer before arriving (Antecol & Bedard, 2006). Negative experiences or conditions that forced or incentivized them to leave the country may have caused a negative effect on the health of the individuals that decide to migrate (Schwartz et al., 2010).

2.2.2 Acculturation and health

Although theoretical models on the relationship between acculturation and physical health are scarce, there have been proposed a few theories. Nonetheless, there is great evidence showing how acculturation could affect health behaviors as immigrants try to respond to the stressors that being in a new country brings, from economic, cultural, and social points of view (Abraído-Lanza et al., 2006). The theoretical model exposed for this section is based on Berry's acculturation model and acculturative stress, which creates a link between this process and health outcomes. In the next section, empirical evidence on the model will be examined, with either supportive or contradicting results.

Acculturation

The changes that occur to an immigrant from the moment they start living in a host country are defined as acculturation (Schwartz et al., 2010). Although this whole process involves several aspects and features of the immigrant's life, Berry (1997) proposes a model which links the features that shape acculturation for an individual and explains how this process may change the immigrant's behavior as they adapt, as well as the factors that may moderate this process. Since the focus of this study is to explore how health status on immigrants may change with the acculturation process, special attention will be put on how this process affects an individual's health.

According to Berry (1997), the acculturation process may be affected by several different features that could impact the immigrants' psychological and physical health. These features depend on the society of origin, the host society and the group of immigrants. Each of these three sets of features will be explored next.

Features like economic conditions, political situations and demographic factors in the society of origin may not only incentivize people to leave a country but may also affect their health and whole acculturation process (Berry & Sam, 1997). Two issues must be noted at this point: first, the fact that the "push" factors that motivate emigration can cause negative effects on the individuals, and second, that, as stated before, migration is not a random decision, meaning individuals who decide to migrate may be different than those who decided to stay, even if they face the same economic, political or demographic pressures. In the next section it will be

explored how those who decide to migrate could actually be affected less severely by the “push” factors”.

Regarding the features of the host society, Berry (1997) proposes the immigration history of the country, migration policies, attitudes of the population towards the immigration groups and social support. In this aspect, discrimination plays an important role as it can cause more pressure on immigrants both at work and social levels.

The third set of features is related to “group acculturation”, comprising changes that immigrants experience during the process of acculturation, including physical (moving to a different city), biological (change of nutrition or vulnerability to diseases), economic (loss of status), social (isolation) and cultural changes (including dress, food and language). In this aspect, changes in lifestyle of immigrants play a big role, as well how well they manage to deal with all the sudden changes in their lives.

Moderating factors

Following Berry’s model, these three factors make the acculturation process more difficult and can affect negatively either directly or indirectly the immigrant’s health. However, there are also factors that can moderate this difficulty to adapt. These factors include motivation to migrate, education, health and acculturation strategies, among others. The motivation or will to migrate is an important factor as the acculturation process can be different for an individual that, for example, decides to emigrate because of attractive pull factors than for one pressured for push factors, the same way that it is different for a someone who is migrating late in their life than during young adulthood (Berry & Sam, 1997).

The role of education requires a longer explanation, as theory on human capital and empirical evidence for immigrants can support the positive effect of investments of education for immigrants. As stated before, immigrants usually have a lower income than natives at time of arrival, however, according to economic theory, they are also more likely to invest in human capital, as their “catching up” may bring more earnings than what it could bring to natives. This investment may depend on the perception the immigrants may have on their future in the host country (Borjas, 1989).

According to Becker (1983), human capital refers to a person’s education (training, knowledge, skills), health and values. The relevance of investments in human capital is that when immigrants improve it, they also improve their ability to face the stress of immigration and cultural barriers, while increasing their chances of getting a better job and thus a higher socioeconomic status and access to health care. All these reasons may help the immigrant have better physical and mental health (Lum & Vanderaa, 2010).

The other important factor moderating acculturation is the acculturation strategy the immigrants take. Berry (1997) proposes this process can take four different strategies, depending on the way the immigrants adapts to the new country: assimilation, when the immigrants adopts the way of living in the host country while abandoning their old habits, separation, when the host country’s habits are rejected but the old ones are maintained, integration, when both ways of living are adopted, and marginalization, when both ways of living are rejected by the immigrant.

Although this model has been criticized several times in different fronts, for the “lack of validity” of the marginalized group (Del Pilar & Udasco, 2004) and for the fixed structure of the four categories (Rudmin, 2003), some empirical evidence supporting the categories have been found, and it helps explain how different migrants may have different acculturation processes and outcomes (Schwartz et al., 2010; Schwartz & Zamboanga, 2008).

Under this framework, one important aspect is the access to health care. Immigrants who achieve good assimilation in the home country, with health insurance and information on how to obtain health care, can make good use of health services, improving that way their health status by getting preventative screening, diagnostics and, if necessary, medication and treatment to diseases or other health conditions (Laroche, 2000; McDonald & Kennedy, 2004). Access to health care can then be a positive factor on health of immigrants.

Acculturative stress

Former section explains how features shape the acculturation process, this section deals with the response the immigrants have to acculturation, how it affects them, and the changes generated in their lives by this process.

Berry (2006) proposes three different approaches to how the immigrants may be affected by the acculturation experience: behavioral shifts, acculturative stress and psychopathology. The first approach is usually the less stressful one as individuals adapt smoothly to the changes they may face, the second one involves more stressors that can lead to problematic experiences while the third one is reserved for highly negative effects of acculturation, with problematic and non-controllable experiences.

Even though these three approaches are stated, the concept of acculturative stress is considered to encompass the three. It is important to note that even though acculturation also brings positive effects like new opportunities and higher economic status, the effects of acculturative stress can still take a toll on health (Berry, 2006).

Although there is no consensus for the concept of “stress”, it can be defined as a process in which the environment causes demands that tax or exceed the coping capacity of an individual, causing both psychological as well as biological vulnerabilities for diseases (Cohen, Kessler & Gordon, 1997). There has been extensive research proving that hardships or disadvantages in a person’s life raises stress levels and it is responsible for many of the health disparities found among adults and elderly individuals (Folkman, 2013; Pearlin et al., 2005). Acculturative stress is the link that can help explain these inequalities in health status among immigrants of different lengths of stay in the host country, and natives.

Even though stress can negatively impact a person’s health in different ways, there are two that become relevant for the focus on this study: firstly, harmfully affecting the body by changing psychological processes, as explained before by making the body more vulnerable. Secondly, by altering behaviors or lifestyles in the individuals that have a negative effect on health, like the abuse of alcohol, drugs or unhealthy diets (Farley et al., 2005; Vogel & Romano, 1999).

The way immigrants respond to or try to cope with stress has an central impact on how stress can affect their health (Billings & Moos, 1981; Lazarus, 1993), and that is why it becomes important to explore if by changing behaviors they will harm their health status. Among the adverse habits that immigrants may obtain during the acculturation process, smoking, drinking, less active lifestyle and unhealthy diets are common (Landale et al., 1999). Each of these habits have been associated, up to some degree, to worsening in health status.

Smoking has been consistently associated with negative health status (Mahmoud, 2011), both with long-term effects as with short-term, going from respiratory infections, tuberculosis and digestive problems to coronary heart disease and lung cancer, among other health problems (Office of the Surgeon General (US) & Office on Smoking and Health (US), 2004).

Regarding drinking status, most literature has found a negative link between alcohol consumption and health status, because of its damaging effects in the liver, brain and other important organs (Omariba, 2010). However, there have also been found positive results with moderate drinking because of the reduction of cardiovascular diseases and diabetes (Petrie et al., 2008; Theobald, Johansson & Engfeldt, 2003). It has also been found that elderly people are more vulnerable to the negative effects of alcohol on health (O'Connell et al., 2003).

As for changes of diets, increased sugar and fat and more consumption of fast food are the most common habits, by increasing overweight and obesity in the populations (Holmboe-Ottesen & Wandel, 2012). Empirical evidence has found that individuals with high Body Mass Index (BMI) have on average lower self-rated health status (Grzegorzewska et al., 2016; Sirola et al., 2010). One strong link between these two variables is that high BMI may be an indicator of health problems like diabetes and high blood pressure, as well as functional disabilities (Mahmoud, 2011). In the case of elderly, those with overweight or at obese levels seem to have on average worse health status than those with health weight (Yang & Hall, 2008).

2.3 Previous research

Now that both the conceptual and theoretical framework for migration, acculturation and health have been explained, it is time to take a look at what previous research on the topic have found. Although an important part of the literature has focused on health upon arrival of the immigrants, there has been numerous studies exploring the relationship between the acculturation process and health disparities among immigrants and natives. This section first explores the results previous research have found in regards to the theoretical model explained above, and then includes a section for research done in Costa Rica.

The HIE has found supporting empirical evidence mostly in the United States and Canada for immigrants from the Latinamerican region, however, it has also been backed up by studies in Australia and several European countries for immigrants from different regions in the world (Antecol & Bedard, 2006; Gee, Kobayashi & Prus, 2004; Kennedy et al., 2015). These results show both better health for immigrants upon time of arrival, and some of them also confirm a

reduction in this advantage the longer immigrants stay in the host country (Gee, Kobayashi & Prus, 2004; McDonald & Kennedy, 2004).

Regarding effects of acculturation, results are not consistent and in many cases are limited because of data problems. Many studies find evidence of the HIE and the negative effects of acculturation on later life immigrants for diverse countries (Angel & Angel, 1992; Hamilton, Palermo & Green, 2015; Montes de Oca et al., 2011; Roshania, Narayan & Oza-Frank, 2008), while others find contradicting results depending on the population (sex differences), the dependent variable (Antecol & Bedard, 2006; Choi, 2011), or the country it has been studied (Moullan & Jusot, 2014). Finally some other studies (mostly in Europe) find little or no evidence of either the HIE or acculturation processes on older immigrants' health, pointing out to negative selection and access to health care as responsible for improving health of immigrants (Domnich et al., 2012; Ng, 2011; Solé-Auró & Crimmins, 2008).

Regarding the conditions of the host country, empirical evidence has found a negative relationship between discrimination and physical health of immigrants (Ryan, Gee & Laflamme, 2006; Yoo, Gee & Takeuchi, 2009). This discrimination does not only impact the social environment of immigrants, but can also reduce their job opportunities, creating more hostile situations for immigrants (Agudelo-Suárez et al., 2009). Lack of access to good jobs generates a series of unfavorable conditions, for example, if the individuals are also excluded from the society in terms of marginalized neighborhoods, further affecting an individual's health (Derose, Escarce & Lurie, 2007).

In respect to institutional access to immigrants, the main issue points out to the access to health care and how it could affect individuals, especially when the host country's social institutions present barriers to immigrants. It has been found that poorer access immigrants have to health care, causes under-use of preventive health screening and diagnosis and treatment of health problems (McDonald & Kennedy, 2004).

Following Berry's perspective, time in the country may vanish any "advantage" on health immigrants may have upon arrival in the receiving country. Another of the main reasons explored by research is the negative shifting in diet and lifestyles (to one more sedentary and stressful) (Choi, 2011). Changes in lifestyle may also occur as a response to the stressful situations immigrants face, leading to a less healthy diet, less exercise and being more prone to vices like smoking and drinking (Jonnalagadda & Diwan, 2005). Evidence has found immigrants either adjust smoking behaviors to that of the receiving population or even surpass it (Koya & Egede, 2007; Reiss et al., 2014). However, there have also been studies showing immigrants smoke less than native counterparts (although not showing if immigrants smoke more or less than in their home country) (Bosdriesz et al., 2013; Loury & Kulbok, 2007).

Holmboe-Ottesen & Wanderl (2012) found how immigrants in the United States changed their diet to one with more fat and sugar intake and low intake of fiber, thus increasing the risk for obesity, cardiovascular diseases and diabetes type 2. Other authors have found increases fast food intake as well as smoking and alcohol drinking tendencies the longer immigrants have stayed in a country (Caetano, Ramisetty-Mikler & Rodriguez, 2009; Kaplan et al., 2014).

As for the factors that can moderate the difficulties of acculturation, there has been some highlighting in the importance of human capital as necessary since immigrants may experience the acculturation process in different ways depending on how educated they are (Gordon, 2010). Higher human capital levels allows them to better adapt to the host country's functioning and labor market (income assimilation) (Borjas, 1989; Sorlie PD et al., 1993), as well as access to a higher socioeconomic status, which is strongly related to better health (Ettner, 1996; Shen & Takeuchi, 2001), while lower levels may strengthen negative impacts like stress (Choi, 2011; Lum & Vanderaa, 2010).

The strategies of acculturation also play a big role in understand how well immigrants can overcome the acculturation process. From the four proposed by Berry (assimilation, integration, separation and marginalization) integration has been proven to be the more beneficial one, as individuals have better sociological and health outcomes (Benet-Martínez & Haritatos, 2005; Curran, 2003). Those who achieve better integration seem to be the ones with more access to health care services (Lum & Vanderaa, 2010). However, there seems to be that most immigrants are able to adapt and have stable health, social, and psychological outcomes close to natives, by dealing with or overcoming the stressors from acculturation (Beiser, 2005; Berry, 2006), meaning fully adaptation can be achieved by immigrants after many years in the host country.

Evidence found in the literature seems to support the model of acculturation proposed by Berry, where the whole process generates acculturative stress in immigrants, which may cause a worsening in their health in comparison to natives, but it does not seem to be consistent in the results. Immigrants also create a response to that acculturative stress, changing behaviors and attitudes, and may prevent the negative effects of acculturation by having more education, or they may be selected from the start and will show acculturation trajectories based on that selection.

Previous research in Costa Rica

There has been some research on immigrants and their health status, however it has been mainly descriptive and qualitative because of poor data, and never about elderly immigrants. Costa Rican Social Security Department (CCSS in Spanish) did not carry registries for nationality or migratory condition until the mid-90s (Acuña, 2005), and national surveys or census include vague or null information about health status. Since the main bulk of immigrants in Costa Rica are Nicaraguans, most of the research on migration is concerning this group.

Under the acculturation framework, it becomes important to note that even though Costa Rica and Nicaragua, as well as the rest of the countries in Central America, share large part of their history, language and some traditions, which in a way smooths the acculturation process, there still exist noticeable cultural differences among the populations (García, 2002; González & Horbaty, 2005). Not only are there economic and educational gaps between migrants and natives, but also Nicaraguans tend to be much more conservative than Costa Ricans, which also implies sticking to their own traditions (Acuña & Gamboa, 2003), which complicates the integration process.

Another negative feature in the acculturation process for immigrants in Costa Rica (especially Nicaraguans and recently Colombians) is the discrimination they may suffer. Although at a low level, for decades there have been reports and claims that Nicaraguans have to endure xenophobic behaviors from some sectors of the population, and it has even damaged their job opportunities (Bravo, 2015; Organización Internacional del Trabajo, 2016)

With respect to the health of immigrants, Acuña and Gamboa (2003) found no differences between adult Nicaraguan immigrants and Costa Ricans in mortality rates, with the exception of violent deaths and accidents, in which immigrants have higher rates. They also found most hospitalizations of immigrants are because of emergencies (accidents or traumas) while for Costa Ricans it is usually because of digestive, circulatory or respiratory diseases. Another interesting finding is that many Nicaraguan immigrants had low vaccine records, poor sexual education and overall deprived health care access before arriving to Costa Rica, which would mean lower health status upon arrival.

Acuña (2005) explained how most Nicaraguan immigrants are more prone to work in unhealthy environments because of accidents, infectious diseases and intoxications, since agricultural and construction sectors are the main sources of employment for this population, especially in bordering areas. These conditions may then be in detriment of immigrants' health status, worsened by the fact that many do not get access to proper health services and live in poor housing conditions (overcrowding, insalubrity and precariousness). All these reasons may help explain the overall low health status (higher mortality and morbidity rates than regional rates) found in areas of high immigration.

Several studies found low social insurance rates in immigrants, especially in Nicaraguans, since an important share of them work in the informal sector (Acuña, 2005; Morales, 2008). A lower use of medical attention was reported for immigrants both for social insurance (which requires residence and working permit) and for private consultation in comparison to native Costa Ricans (Acuña & Olivares, 1999; Morales, 2008).

The most in-depth analysis of health outcomes between immigrants and natives was done by Herring & Bonilla (2009) with the use of the Costa Rican National Health Survey in 2006 (ENSA 2006). They explored health differences between Nicaraguan immigrants and natives at all ages, controlling for several factors, and generated descriptive statistics of the two groups. They found no significant differences between the self-reported health status of immigrants and natives, although immigrants seemed to have lower prevalence of diseases like hypertension, cholesterol and respiratory diseases than natives. These results seem to go in line with the Healthy Immigrants Effect.

Considering the low socio-economic status of more Nicaraguan immigrants in Costa Rica, it seems to be paradoxical that in general there are no significant differences in health outcomes between them and natives (Bonilla Carrión, 2017). However, these studies do not take into account the acculturation process and how it may affect health status for immigrants at elderly ages in the long run.

Regarding lifestyles, Herring & Bonilla (Herring & Bonilla, 2009) find immigrants drink less alcohol, smoke more and work out less in comparison to natives, while also having higher

obesity levels. Another study, focused on young Nicaraguan immigrants finds no differences in drinking and alcohol patterns between immigrants and natives (Bonilla Carrión, 2017).

Finally, regarding human capital of immigrants in Costa Rica, it has been found that Nicaraguans have on average low education or qualifications in comparison to Costa Ricans (Herring & Bonilla, 2009; Vargas, 2005), but no information on its effect on health or on how immigrants invest in education has been studied. However, the fact that access to health care remains low among immigrants could mean that no adaptation has been carried out.

3 Hypothesis

With the research question in mind, following the relevant literature and theories of acculturation and migration on health, and provided the cohorts of immigrants in elderly ages in Costa Rica, these four hypotheses will be tested:

Hypothesis 1: Because of the negative effects of acculturative stress, migrants in elderly ages in Costa Rica present worse health status than elderly natives Costa Ricans.

Hypothesis 2: Immigrants who have stayed in Costa Rica for longer time have worse health compared to natives than those who have been less time.

Hypothesis 3: Immigrants with higher education levels have better health status than those with poorer education, with a higher effect on those who have stayed longer in the country.

Hypothesis 4: Immigrants with worse lifestyles, measured by overweight, smoking and drinking behaviors, present worse health compared to natives than those with healthier lifestyles, with a worse effect on those who have stayed longer in the country.

4 Data

The dataset required for this study must contain individual level information of recent and long-term immigrants as well as native Costa Ricans and self-reported health information.

Since national data for Costa Rica on the subject is limited, a survey is the best option to carry out the proposed research. One survey that fulfills the requirement is The Costa Rican Longevity and Health Study (CRELES- acronym in Spanish) (2005) by the Central-American Population Centre, in collaboration with the University of California at Berkeley, which is open to the public for research purposes. This study includes two surveys (one for individuals born before 1945 and another for those born between 1945 and 1955) that took place in 2005 and 2010 that will be pooled into one large data set with close to 6000 observations. After removing missing values and extreme observations, the final sample includes 5123 observations.

CRELES is representative for the entire Costa Rican elderly population, including long term and recent immigrants. The surveys also include deep information about self-reported health status, lifestyles, migration status and other socio-demographic variables of importance. Among the health variables in the study, there were questions about diet, smoking and drinking habits and biomarkers like BMI were measured for surveyed individuals as well. For migration variables, country of birth and age of arrival to the country are included.

More in detail, CRELES includes several different cohorts of immigrants, since they arrived in the country in different time periods. In specific, three groups of immigrants will be categorized: the most recent group with immigrants with less than 15 years in the country, the middle group with between 15 and 30 years since arrival, and the longest staying group, with over 30 years since arrival. This division has important effects for the interpretation of the results, as these cohorts can have differences among each other that are related to the reasons they decided to migrate and country of origin specific effects. These cohorts will be described more in detailed in the Descriptive Statistics section.

4.1 Source Material

Health status is the variable of interest in this study. It can be considered a continuous variable that can be captured by the self-rated health variable. This variable is defined as the way an individual rates his/her own health status (Mahmoud, 2011). Individuals had to reply to the question “How would you say your health is today?” to which they had the options Excellent, Very Good, Good, Fair or Poor. For this study, to simplify the interpretation and analysis of the research hypothesis, the variable was recoded in *Health Status*, and takes the value of 5 for “Excellent”, 4 for “Very Good”, 3 for “Good”, 2 for “Fair” and 1 for “Poor”.

One problem with this variable is the fact that it is highly subjective and could be biased (downward or upward) (Mossey & Shapiro, 1982), however, this indicator is widely used in research worldwide as a proxy for health status and has been proven to be a good predictor of other health outcomes like mortality (Burström & Fredlund, 2001).

Regarding immigrant status, the variable *Immigrant* was recoded from the question “In which canton were you born” which offers the alternatives In this canton, Other canton, Nicaragua and Other country. *Immigrant* takes the value of “1” if the individual replied being born in Nicaragua or in Other country and “0” in any other case. Nonetheless, the main variable of interest for this study is the one that measures acculturation: *Years in the country* was used, which was obtained from the question “How many years have you been living here (in Costa Rica)?”. The variable was grouped into three categories: Less than 15 years, between 15 and 30, and above 30. These thresholds were selected according to the data distribution and the experience of previous research on the matter, as this allows for a fairly even amount of observations in each group with similar age ranges.

For human capital, *High education* was used as proxy. This variable was recoded from the question “What was the last level and grade of formal education that you completed”. *High Education* is a dummy variable which takes the value of “1” if the individual went to High School or University and “0” otherwise.

Since studying lifestyle or stress indicators is part of the research, three variables were included: smoking status, drinking status and Body Mass Index (BMI). Smoking has been consistently associated with negative health status (Mahmoud, 2011). According to the United States’ National Center for Health Statistics, an individual who has smoked at least 100 cigarettes in their lifetime is considered a smoker (current or former depending on if the individual quit smoking) (CDC - NCHS - National Center for Health Statistics, 2018). To measure smoking status the variable *Smoker* is used, taking the value of “1” if the individual has ever smoked at least 100 cigarettes in his life.

Regarding drinking status, most literature has found a negative link between alcohol consumption and health status (Omaraba, 2010). For this study, the variable *Drinking* was used. Since drinking is a much more common habit than smoking, this category was divided in three groups: it takes the value of “0” if the individual has never drunk in a regular basis, “1” if the individual used to drink regularly and “2” if the individual drinks regularly.

As for Body Mass Index, the standard categories given by the World Health Organization go from Underweight (Less than 18.5 kg/m²), Normal (from 18.5 to 24.99 kg/m²), Overweight or pre-obese (from 25 to 29.99 kg/m²) to Obese (30 kg/m² or more) (Eveleth, 1996). *Overweight* is a dummy variable for individuals with BMI of 25 or higher. Empirical evidence has found that individuals with high BMI (Overweight or Obese) have on average lower self-rated health status (Grzegorzewska et al., 2016; Sirola et al., 2010). One strong link between these two variables is that high BMI may be an indicator of health problems like diabetes and high blood pressure, as well as functional disabilities (Mahmoud, 2011).

Several sociodemographic control variables were included in the analysis as continuous, dummy and categorical variable. *Age* is a continuous variable as well as *Age squared* (to

capture non linearities in the relationship between *Age* and *Health status*). From the dummy variables, *Female* indicates women, *Poor* indicates self-perceived poor economic situation and *Not Insured* shows individuals with no kind of social or private health insurance. The categorical variables are *Marital status* with the categories Married or in cohabitation, Divorced or separated, Widow and Never married, and *Work status* with the categories Paid job, Household work and No work in the past week.

4.2 Descriptive statistics

Table 1 presents the descriptive statistics for the sample used. Only individuals with full information of all the variables were included. Individuals older than 99 years old were excluded from the data set since they represent extreme isolated values and mostly are natives.

Health status of individuals seems to be skewed towards Good-Fair health, as these two categories represent over 70% of the observations. Only 6% of the respondents were immigrants (296 observations) with about half of them having over 30 years in the country. According to national level data, this sample may underrepresent immigrants, since for the 2011 census, the percentage of foreign born individuals at these age groups was of 7.9% (Centro Centroamericano de Población, 2011).

Close to a fourth of the respondents had *High Education* and most of the individuals were categorized as Overweight or Obese. Around 40% of the individuals can be considered smokers (former or current) and half of the sample never drinks or only drinks occasionally (and has never drunk regularly).

There is a slight majority of females in the sample and the mean age is 67 years. Around 13% of the individuals considers they live in a poor economic situation and only 7% has no social or private health insurance. Regarding marital status, the majority is currently married or in cohabitation, followed by widows, divorcees and separated individuals and never married individuals. Finally, the share of people working seems to be evenly distributed, with a slight majority of individuals doing household work. .

In the case of the cohorts for *Years in the country*, the variable of interest, there are also differences with the national levels in Costa Rica. Specifically, the most recent group is underrepresented in the sample, while the middle group is overrepresented. The group of longest stay is slightly overrepresented. Table 2 presents the comparison. In regard to the country of origin, the percentage of Nicaraguans remains fairly even across groups, with a share of 62,8% in total. Table 3 shows the comparison.

Table 1. Descriptive statistics of the variables

Variable	Frequency	Mean/ Percentage	Standard Deviation	Minimum	Maximum
Health status	5123	2.66	1.03	1	5
<i>Poor</i>	5123	0.10	0.29	0	1
<i>Fair</i>	5123	0.40	0.49	0	1
<i>Good</i>	5123	0.33	0.47	0	1
<i>Very Good</i>	5123	0.11	0.32	0	1
<i>Excellent</i>	5123	0.07	0.25	0	1
Immigrant	5123	0.06	0.23	0	1
Years in the country	5123	0.13	0.55	0	3
<i>15 or less</i>	5123	0.01	0.10	0	1
<i>Between 16 and 30</i>	5123	0.02	0.15	0	1
<i>More than 30</i>	5123	0.02	0.15	0	1
<i>Natives (Ref)</i>	5123	0.94	0.23	0	1
High Education	5123	0.23	0.42	0	1
Overweight	5123	0.67	0.47	0	1
Smokes	5123	0.40	0.49	0	1
Drinking	5123	0.67	0.77	0	2
<i>Never drinks (Ref)</i>	5123	0.51	0.50	0	1
<i>Regularly in the past</i>	5123	0.30	0.46	0	1
<i>Regularly</i>	5123	0.19	0.39	0	1
Female	5123	0.58	0.49	0	1
Age	5123	67.08	10.28	54	99
Age squared	5123	4605.55	1483.08	2916	9801
Poor economic condition	5123	0.13	0.33	0	1
Not Insured	5123	0.07	0.25	0	1
Marital status	5123	1.77	1.01	1	4
<i>Married or in cohabitation (Ref)</i>	5123	0.58	0.49	0	1
<i>Divorced/Separated</i>	5123	0.15	0.36	0	1
<i>Widow</i>	5123	0.19	0.39	0	1
<i>Never married</i>	5123	0.08	0.27	0	1
Work status	5123	2.00	0.80	1	3
<i>Paid job (Ref)</i>	5123	0.32	0.47	0	1
<i>Household work</i>	5123	0.36	0.48	0	1
<i>Did not work</i>	5123	0.32	0.47	0	1

(Ref) indicates this category will be used as reference in the models.

Table 2. Frequency of immigrants in the CRELES sample and the 2011 Census by Years in the country

Years in the country	CRELES Sample		2011 Census	
	Frequency	Percentage	Frequency	Percentage
Less than 15	57	17.6%	8847	29.3%
Between 15 and 30	123	38.1%	8782	29.0%
Over 30	143	44.3%	12617	41.7%
Total	323	100%	30246	100%

Table 3. Frequency of immigrants by country of origin and Years in the country in the CRELES sample

Years in the country	Nicaraguans		Other countries		Total
	Frequency	Percentage	Frequency	Percentage	
Less than 15	35	61.4%	22	38.6%	57
Between 15 and 30	76	61.8%	47	38.2%	123
Over 30	92	64.3%	51	35.7%	143
Total	203	62.8%	120	37.2%	323

5 Methodology

This study will be quantitative, with the help of regressions to analyze relationships and differences of health status between immigrant groups and natives. As a first step, distribution of the sample on will be displayed to show how the different immigrant categories responded to the *Health status* variable, in comparison to how natives responded. As a second step, an ordered logit model will be used to estimate the relationships between the variables of interest and the dependent variable, *Health status*. Several regressions will be performed, going from basic models to ones with more control variables to ones including interaction terms.

After running the models, the odds ratios of the coefficients will be obtained and analyzed, interpretation not only for statistical significance but also for the meaning the results have for the stated hypothesis. A summary of the results will be given, highlighting the main findings.

Since the dependent variable, *Health status*, has an ordered classification, going from low health ($Y=1$) to high health ($Y=5$), it would be possible to run an Ordinary Least Squares model. However, treating the variable as a continuous variable would assume that the distances between the categories are the same, which is an assumption that cannot be proven, as for example the difference between Poor and Fair health may be larger than the difference between Good and Very Good. In this case, an ordered logit model presents a better option as this assumption is relaxed (Damodar, 2004).

A Logit model offers the opportunity to obtain results on the odds or probabilities that the dependent variable will fall into one of the five categories. Furthermore, by using an ordered model, all information of the variable is be used, optimizing the estimation (Borooah, 2002).

To estimate the Ordered Logit Models, we must consider the dependent variable for the study, *Health status*, which has five ordered categories, ranking from Poor to Excellent health, and can be represented by Y , an observed measured variable for i individuals. At the same time, Y is a function of a continuous latent unobserved variable Y^* . Variable Y^* determines what value of the five categories Y will take. This way, the latent continue variable can be “collapsed” into five categories, depending on if they cross a specific threshold (Menard, 2002). In this case:

$$\begin{aligned} Y_i &= 1 \text{ if } Y_i^* \leq \theta_1 \\ Y_i &= 2 \text{ if } \theta_1 \leq Y_i^* \leq \theta_2 \\ Y_i &= 3 \text{ if } \theta_2 \leq Y_i^* \leq \theta_3 \\ Y_i &= 4 \text{ if } \theta_3 \leq Y_i^* \leq \theta_4 \\ Y_i &= 5 \text{ if } Y_i^* \geq \theta_4 \end{aligned}$$

Where θ_j represents the cut-offs for the five categories. The number of cut-offs is always the number of categories minus one, so in this case there are four cut-offs. The model helps us estimate Y^* (Menard, 2002).

For the entire population, the equation representing the relationship between the dependent variable and the other variables could be expressed as:

$$Y_i^* = \sum_{k=1}^k \beta_k X_{ki} + \varepsilon_i = Z_i + \varepsilon_i$$

Where β represents the coefficients of the k variables and ε is the error or disturbance term, assumed to have a standard logic distribution (Peng, Lee & Ingersoll, 2002). The Ordered Logit Model can estimate part of the equation:

$$Z_i = \sum_{k=1}^k \beta_k X_{ki} = E(Y_i^*)$$

The logit model estimates the proportional odds that Y will take a particular value. The formulas to obtain the odds can be expressed as:

$$\text{Log}(\text{Odds}(Y_i > j)) = X_i \beta - \theta_j, \quad j = 1, 2, 3, 4$$

Which then implies for the specific categories:

$$\text{Log}(\text{Odds}(Y_i = 1)) = 1 - X_i \beta - \theta_1$$

$$\text{Log}(\text{Odds}(Y_i = j)) = X_i \beta - \theta_{j-1} - X_i \beta - \theta_j, \quad j = 2, 3, 4$$

$$\text{Log}(\text{Odds}(Y_i = 5)) = X_i \beta - \theta_4$$

This way, with the estimated value of Z_i and with the assumption of the logistic distribution of ε_i , it is possible to obtain the odds that the variable Y^* will fall in each of the categories (Menard, 2002).

For the interpretation of the model, it must be noted that the coefficients obtained from the estimation are the natural log of the odds, so they must be transformed into odds first (by exponentiating the coefficient). Probabilities may also be calculated but for the purpose of this study, only odds will be interpreted.

6 Empirical analysis

6.1 Distribution of immigrants by health status

Looking at the distribution of responses to Health status according to Years in the country, one can observe the skewness to Fair and Good is more prominent for migrants in comparison to natives. In all cases, “Fair” health is the one with the largest share of observations, but it’s unevenly distributed across the groups, having the highest share in immigrants with between 15 and 30 years in the country. In the case of Good and Very Good health, the share of natives with these categories is higher than that of migrants (with the exception of Very good for immigrants with more than 30 years which is slightly higher).

For Excellent health, the share is highest for migrants with Less than 15 years in the country, and it goes down the longer migrants stay in the country to a low of 2,38%, however, for natives the percentage is up to 7.10%.

Finally, for Poor health, the highest percentage comes from migrants who have been in Costa Rica Less than 15 years, followed by those who have over 30 years in the country and then for those who arrived between 15 and 30 years ago. The lowest share in this category comes from the Natives at 9,09%.

Considering the mean of the groups, Natives present the highest one, followed by the most recent group of immigrants. The two lowest are the group of immigrants with more time in Costa Rica, but once again those with over 30 years since migrating present a higher mean than those in the middle group.

Table 4. Distribution of observations by Years in the country and Health status

Years in the country	Poor	Fair	Good	Very Good	Excellent	Mean	Total
Less than 15 years	11	21	13	4	7	2.55	56
	19.64	37.50	23.21	7.14	12.50		100
Between 15 and 30 years	16	54	31	9	3	2.37	121
	14.16	47.79	27.43	7.96	2.65		100
More than 30 years	22	49	36	16	3	2.44	138
	17.46	38.89	28.57	12.70	2.38		100
Natives	439	1,912	1,588	546	343	2.67	4,828
	9.09	39.6	32.89	11.31	7.1		100

All in all, this distribution seems to point out that migrants have worse health than Natives, as Natives have larger share in the positive categories (Good, Very Good and Excellent), while for Fair it is similar among groups and in Poor, natives have considerably lower percentages than migrants. Regarding *Years in the country*, it suggests those who have stayed in the country between 15 and 30 years tend to concentrate in Fair and Good health, while for the extreme groups the distribution is more uneven. It becomes difficult to determine a pattern from this distribution as it is only a preliminary view of the analysis, which is why the logistic regression will be helpful to analyze the data.

6.2 Main results

To test the different hypothesis, seven models were performed, with *Health status* as the dependent variable, which has 5 as the maximum category for Excellent health and 1 as lowest category for Poor health. All models include *Years in the country* as variable of interest, with the exception of Model 1, which has the dummy Immigrant as variable of interest. Model 1 and 2 are basic models with only sociodemographic variables (*Female*, *Age*, *High Education* and *Marital status*) as controls, Model 3, which is the preferred specification, includes more social variables (*Not insurance*, *Poor economic situation* and *Work status*) as controls, while the rest of the models uses interactions of *Years in the country* and other variables. Model 4 interacts it with *High Education*, Model 5 with *Overweight*, Model 6 with *Smoker* and Model 7 with *Drinking*.

Table 5 presents the odds for the variables of interest in the different models, while the Table 6 in the Appendix shows the full outcome of the regressions. Model 1 is the basic model, as reference for the other results. In this model, *Immigrant* is a statistically significant variable with an odds ratio of 0.569, meaning the odds of having better health are 0.569 lower for immigrants than for natives, or, seeing it the other way around, the odds of having worse health are 0.569 lower for immigrants than for natives. This first preliminary result suggests immigrants on average have lower health status than natives.

Model 2 uses *Years in the country* instead of *Immigrant* as variable interest, maintaining the same basic control variables as Model 1. *Years in the country* has Natives as reference category. In this case, it is found that the variable is statistically significant in all the categories, at the 1% for Between 15 and 30 years and More than 30 years, and at the 10% for Less than 15 years. In the three cases, the odds ratio are lower than 1, meaning the odds of having better health are lower for each group than for natives. In specific, these odds are 0.648 lower for those in the most recent group than for natives, while for those in the middle group the odds are 0.506 lower, and for the ones that have stayed the longest the odds are 0.590 lower. It is interesting to note that the odds are lower for those in the middle category than for those with more years in the country or those who arrived recently. It also seems to be that immigrants that arrived in the past 15 years have the shortest difference with the natives, in comparison to the other groups.

Model 3 shows similar results to the ones obtained in Model 2. In this case the statistical significance holds at the same level as in Model 2 for *Years in the country*, even with the introduction of more control variables. Furthermore, the difference in the odds for the variables follow the same pattern as in Model 2, meaning the lowest odds are for immigrants with Between 15 and 30 years in the country, followed by the ones with more than 30 years, while those who most recently arrived have the shortest difference with the natives. However, the odds are slightly lower in all cases in comparison to Model 2, meaning there are larger differences with the natives' odds. For example, the odds of having better health are 0.474 lower for the middle group (Between 15 and 30 years).

Model 4 presents the first interaction, between *Years in the country* and *High Education*. It must be noted that by adding an interaction, the interpretation of the variable of interest changes as the effect of *Years in the country* is only for the reference in the interaction. In this case, the odds for *Years in the country* represent the odds on *Health status* when *High Education*=0, meaning for immigrants with no high education.

The variable odds for *Years in the country* are statistically significant at the 1% for every group, meaning there are important differences on health status among those with no high education and natives. In this case, the lowest odds are for those who arrived in the country 15 years ago or less, with odds of 0.422 meaning the odds of having better health are 0.422 lower for them in comparison to natives with no high education. These odds increase for immigrants with between 15 to 30 years in Costa Rica to 0.564 and then increase again for those with more than 30 years in the country to 0.587. For this model then, the shortest difference in odds is found between the immigrants with no high education that have been in the country the longest and natives. These results would suggest that for those with no high education, there is no worsening in health status as they stay in the country, since those who have stayed the longest, have the highest odds of better health.

Regarding the interaction between *Years in the country* and *High Education*, only one of the interactions is significant, the one with immigrants with Less than 15 years in the country. For that group of individuals, the odds of having better health are 3.487 greater for those with high education than for the ones with no high education. The other two interactions are not statistically significant, meaning for the other two groups, there are no differences on health status between those who have high education and those who do not.

For Model 5, the interaction is between *Years in the country* and *Overweight*, meaning for *Years in the country*, the odds represent differences for individuals with healthy weight. In this case, the odds for migrants with Less than 15 years in the country are not statistically significant in comparison to natives with healthy weight, but the odds are significant at the 5% level for the other two groups. As in the previous models, the odds are higher for those who have been the longest in the country, but the difference between the two is shorter. The odds of having better health are 0.514 lower for those with between 15 and 30 years in Costa Rica with healthy weight than natives with healthy weight, while these odds are of 0.528 for immigrants with over 30 years in the country.

Regarding the interaction, no terms were statistically significant, meaning for individuals of every group of arrival in the country, there are no differences in the odds on *Health status*

between overweight immigrants and those with healthy weight. In the case of natives, the coefficient is significant and higher than 1, meaning elderly natives with overweight have 1.11 higher odds of having better health than those with healthy weight.

In Model 6 the interaction is performed between *Years in the country* and *Smoker*, so in this case, the odds for *Years in the country* are among individuals that have never been smokers. For this model, similar as in Model 5, only the middle group the one with immigrants with over 30 years in the country are statistically significant. However, contrary to the previous model, the difference in the odds is more prominent in this one. The odds of having better health are 0.387 lower for immigrants in the middle group that have never been smokers than for natives that have never been smokers, while for those immigrants with the longest time in the country the odds are of 0.572.

Once again as with *Overweight*, the interaction terms for Model 6 are not significant at any level, meaning that the odds on *Health status* between immigrants that smoke or have smoked in their life and those that have never smoked are not statistically different, regardless of the years in the country. Even more, the variable *Smoker* is also not significant, meaning being a smoker (current or former) does not seem to have an effect on health for natives either.

Finally, Model 7 treats the interactions between *Years in the country* and *Drinking* alcohol. Since the reference category for *Drinking* is Never drinks (or only occasionally), the odds for *Years in the country* are only for nondrinkers. In this model, the results change in comparison to previous models, as the groups Less than 15 years and Between 15 and 30 nondrinkers are significant to the 1% level but it's not significant for nondrinking immigrants with over 30 years in the country. The odds of having better health is 0.03 lower for non-drinking immigrants who more recently arrived in the country than for non-drinking natives, while for those in the middle group the odds are 0.400.

Regarding the interactions, only one term is significant: for immigrants who arrived in the country 15 years ago or less, those who have drunk alcohol in the past have 4.002 greater odds of having better health than those who have never been drinking, which is rather surprising and could be explained by selection in this group. Interestingly, for natives, the coefficients are significant, but the odds go in different directions for each *Drinking* category: those who drank in the past have 0.755 lower odds of having better health than those who have never drank regularly, while natives who drink regularly have 1.236 higher odds of having better health than that same reference group.

Summing up the results, in general *Years in the country* has significant results, showing immigrants overall have lower odds of having better health than natives. Regarding differences across the groups, the results do not seem to follow a trend, and change depending on the compared groups. For example, when no interactions are included, the group with the lowest odds is the middle group, followed by the group of migrants with over 30 years in the country and last is the group with Less than 15 years. When only people with no high education are compared, the odds get higher the longer people stay in a country, suggesting there is no worsening of health as immigrants stay in Costa Rica for those observations, on the contrary, the odds get closer to the natives. This last finding goes against the HIE,

meaning immigrants may get better health the longer they stay in a country via income assimilation or access to health care.

As for interactions, only two of them brings significant results, both for the group of immigrants that arrived more recently: one for high education and one for past drinkers. The explanation for the first one is straightforward, as immigrants that arrived Less than 15 years ago with high education present higher odds for having better health. Elderly individuals who arrived less than 15 years ago with high education probably got their education in their home country, meaning their human capital stock was already higher than for those with no high education. With higher human capital, those immigrants can opt for better paying or less stressful jobs so their decision for migrating may be different than for those with more limited work options. This difference may then affect their health status, showing the significant difference that Model 4 shows.

For the drinking interaction, the explanation is not so direct. Model 7 shows that for the more recent immigrants, those who have drunk in the past have considerably higher odds of having better health than those who have never drunk on a regular basis. One explanation may be the question itself, as there is no specific measure for how much is “on a regular basis” (contrary to smoking which sets the minimum in 100 cigarettes), the frequency can become subjective and biased, so recent immigrants may use as comparison their home country’s levels, with heavy drinkers in the past considering they did not drink much in the past, thus biasing the result. Another explanation could be that in this group, it is probable that individuals quit drinking alcohol for many years (before migrating), and individuals who have drunk alcohol in the past but have stopped may have done it for health reasons and thus consider their health substantially improved (Stockwell et al., 2012). Some studies have found that individuals with drinking problems usually stay in their same place of residence (Buu et al., 2007).

Table 5. Odds for Health status for different models (1: Poor health – 5: Excellent health)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant	0.569*** (0.065)						
Years in the country (ref: Natives)							
Less than 15 years		0.648* (0.170)	0.631* (0.169)	0.422*** (0.137)	0.863 (0.462)	0.578 (0.221)	0.033*** (0.129)
Between 15 and 30		0.506*** (0.089)	0.474*** (0.085)	0.564*** (0.125)	0.514** (0.153)	0.387*** (0.090)	0.400*** (0.102)
More than 30		0.590*** (0.101)	0.585*** (0.101)	0.587*** (0.120)	0.528** (0.155)	0.572** (0.138)	0.658 (0.176)
High education	3.176*** (0.202)	3.180*** (0.202)	2.923*** (0.187)	2.927*** (0.194)	2.920*** (0.187)	2.922*** (0.187)	2.823*** (0.182)
High education & Less than 15 years				3.487** (1.964)			
High education & Between 15 and 30				0.613 (0.228)			
High education & More than 30				0.987 (0.379)			
Overweight					1.111* (0.066)		
Overweight & Less than 15 years					0.656 (0.405)		
Overweight & Between 15 and 30					0.891 (0.331)		
Overweight & More than 30					1.164 (0.422)		
Smokes						0.932	

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						(0.057)	
Smokes & Less than 15 years						1.200	
						(0.641)	
Smokes & Between 15 and 30						1.645	
						(0.593)	
Smokes & More than 30						1.052	
						(0.363)	
Drinking (ref: never drinks)							
Drank in the past							0.755***
							(0.053)
Drinks regularly							1.236***
							(0.099)
Drank in the past & Less than 15 years							4.002**
							(2.365)
Drank in the past & Between 15 and 30							1.503
							(0.583)
Drank in the past & More than 30							1.043
							(0.379)
Drinks regularly & Less than 15 years							2.747
							(2.015)
Drinks regularly & Between 15 and 30							1.554
							(0.837)
Drinks regularly & More than 30							0.470
							(0.308)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomic controls	No	No	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

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

6.3 Limitations

Before going to the contribution section and contrast results to the hypothesis, it is necessary to assess the study limitations.

These are firstly, data limitations. Although CRELES is a representative sample of the Costa Rican elderly population, the sample of immigrants may not be representative to conduct analysis within the group. The relative low number of observations in the *Years in the country* may create biases, especially when interacting this variable with other, reducing further the amount of observations in each variable.

Secondly, the dependent variable. As explained before, self-reported health is used widely in research as a health outcome. However, the variable is subjective and vulnerable to biases, as individuals may not reveal how they really feel or may not know their health is worse (or better) than they consider.

In the same line, one issue that has already been mentioned when discussing migration models is selection. As explained before, migration is not a random decision, which makes immigrants different to the rest of the sending population in one or many ways, so this group of observations may have qualities that should not be compared to full groups of natives.

Another important limitation, especially for the interpretation part are the cohort-effects. Every cohort has specific effects that are different to the others, especially in a historical context of migration where both Costa Rica and Nicaragua (or other countries) have had important economical, political and social changes across the decades. For this reason, it is very relevant to highlight that the differences found in the *Years in the country* groups can be because of specific cohort characteristics, and not only for the acculturation process.

Finally, lack of relevant variables. The analysis would have been much richer if a number of other variables not included in CRELES could have been used. The main one being reasons that motivated the migration, since this can create big differences in the outcomes. Other interesting variables include how lifestyle and education changed after the arrival of the immigrant (for example if they decided to get more education while being in the country) and country specific effects, even when most of the immigrants come from Nicaragua.

7 Contribution

7.1 Discussion

Seven models were performed in order to test the research hypothesis, in this section each of the hypothesis will be analyzed in light of the results and compared to what theory and empirical evidence have shown. It must be stressed, though, that these results are for elderly immigrants in comparison to elderly natives, so there is no real point of comparison to empirical evidence in Costa Rica, as all the research done in the country has been at a national or youth level.

The first hypothesis stated that elderly migrants in Costa Rica present worse health status than elderly native Costa Ricans. Models 1, 2 and 3 showed that immigrants have lower odds of having better health, meaning they are more likely to have worse health than natives. These results hold for the entire sample of immigrants even when more control variables are included.

Following the theoretical framework explained before, acculturative stress may be the reason behind this result, as immigrants must endure more stressors than natives. Although this outcome goes in line with several other studies around the world for elderly populations, it is not consistent to what has been found in the evidence for Costa Rica, as a healthy immigrant effect has seemed to be more present or no differences have been found between the groups.

Second hypothesis starts dealing with acculturation, as it states that immigrants who have stayed in Costa Rica for longer time have worse health compared to natives than those who have been less time, as they have endured acculturative stress longer. Models 2 and 3 deal specifically with this hypothesis. In this case it seems like the pattern is not monotonous as immigrants with the longest time in the country seem to be better than those in the middle group. On the contrary, immigrants in the middle group do worse than those in the most recent group. Acculturation theory fails then to explain these results.

At this point it becomes necessary to bring back the background of immigrants in Costa Rica in the past century. As described in the limitations section, this cross-sectional study explores differences among cohorts, so the differences found in *Health Status* can be related to each cohort characteristics. In specific, the middle group, which consistently ranks as the one with lower odds of having better health, immigrated in the 80s or early 90s, a tumultuous time in Central America, so the political reasons incentivized or forced immigration to Costa Rica, thus reducing positive selection of migrants, and potentially bringing to the country populations with high vulnerability and low skilled. These immigrants may be limited to only low paying jobs, not achieving income assimilation.

On the contrary, those who immigrated in the country before the 80s and after the late 90s mainly did it for economic reasons, thus raising the possibility of positive selection, which would explain why these groups do better than the middle one.

Another explanation can be given by the fact that individuals who have fully adapted (integrated) seem to reach health outcomes similar to the natives, as they have overcome the stressors, while individuals in the middle groups are still dealing with acculturative stress accumulation. Research in Canada, the United States and Australia have found supportive evidence for this result (Beiser, 2005; Biddle, Kennedy & McDonald, 2007; Lum & Vanderaa, 2010). In addition, those who have stayed the longest time can be benefited by networks, income assimilation and better access to health care, all reasons supported by theory and evidence that can help improve their health status.

One final possible explanation for this is that immigrants with worse health could have died or returned to their home country, thus biasing the results as only healthier immigrants remained in the country, an issue referred in the literature as salmon bias (Abraído-Lanza et al., 1999).

Hypothesis 3 and 4 are related to the moderating factors of acculturation. The third hypothesis specifies immigrants with higher education levels have better health status than those with poorer education, since they get access to better jobs and lifestyles, thus moderating the acculturation difficulties. Results of Model 4 help test this one, and two main conclusions may be drawn. Firstly, among groups, only statistical differences were found in the recent immigrants, showing that those with higher education have much better health than those without it. This result only goes partially in hand to what the acculturation theory suggests, as significant disparities were only present for one groups of immigrants. As explained before, this could be because the group of more recent immigrants could have different motivations to migrate, another moderating factor that Berry suggests can ease acculturation. In this case, recent immigrants may have decided to migrate because of economic reasons. Empirical evidence for this effect is reduced, but some findings support the positive effect of education on immigrant's health (Lum & Vanderaa, 2010; Takeuchi et al., 2007).

Secondly, among the immigrants with no high education, the acculturation process does not seem to worsen health, as immigrants have better health the longer they stay in the country. Instead, once again the effect of networks, income assimilation and access to health care may have a larger impact on the health of these immigrants, thus improving their health status the longer they stay in the country.

Finally, Hypothesis 4 states that immigrants with worse lifestyles, measured by overweight, smoking and drinking behaviors, present worse health compared to natives than those with healthier lifestyles, as these responses indicate difficulties to overcome acculturation or behavioral shifts. Models 5, 6 and 7 deal with this hypothesis. Regarding overweight, there seems to be no significant differences found among the groups of immigrants between those with overweight and those with healthy weight. Among those with healthy weight, acculturation's relationship with health follows the same dynamic than in Model 2 and 3 (those who have stayed the longest are more likely to have better health than the ones in the middle group). One reason why overweight does not seem to be significant or may have

positive effects on health (like in the case of natives only) is that for elderly populations, the standard BMI categories may not apply, as individuals with overweight could be having better health than those in the “normal” categories (Flicker et al., 2010).

In the case of smoking the results have the same pattern as with overweight, but with different magnitudes. Once more, networking, income assimilation and access to health care can help explain why immigrants with healthy weight or without smoking habits have better health the longer they stay in Costa Rica. The finding that smoking has no association with health are surprising but not rare, as other studies have found no significant differences between smokers and non-smokers on health (Newbold & Danforth, 2003).

With drinking habits, results are not as expected either, since in the most recent groups of immigrants, those who drank regularly in the past have higher odds of having better health than those who have never drunk regularly, arguably because those who stopped drinking did it several years ago (before immigrating) thus having better self-perceived health. For this group, the reference for how much is regularly drinking may be different than for the rest, as perceptions for this variable are subjective (Rodríguez, 2013)

Another interesting result is that recent immigrants that have never drunk regularly have the lowest odds of having better health in comparison to natives, which could lead to think that this group of individuals had limitations in the past or came from conservative environments, meaning they have a hard time dealing with the acculturation process.

Theory on acculturation suggests those with worse lifestyles will have it more difficult to overcome the acculturation process or acquire habits as a response to the acculturative stress. The results found in the models present weak opposing evidence to the theory, as it only happens with the most recent group of immigrants. Once again, this group of individuals may have different motivations to migrate since they decided to do it late in their lives, pointing to selection reasons for why these results hold. Evidence of lifestyle effects on health of immigrants shows some supportive evidence to the theory, but also non-significant results in many cases, as is the case for this study (Caetano, Ramisetty-Mikler & Rodriguez, 2009; Reijneveld, 1998; Reiss et al., 2014).

7.2 Main conclusions

It is now possible to look back to what the aim of the study was and how the results can be evaluated. This final section includes an assessment of the research aims, including the research question and the hypothesis, a brief section about policy implications of the results and suggestions for future research on this field.

The aim of this study was to answer the question: if longer stay in Costa Rica associated to lower health status in elderly immigrants in Costa Rica? And if it is, how can factors like education and lifestyles moderate this relationship? After the findings of the econometric models, it is possible to reply that there is an association between length of stay in Costa Rica and health status for immigrants in comparison to natives. However, this association is not

monotonous as it seems that individuals that have been the longest in the country exhibit better health than those in the middle group, which means acculturation is not responsible for the changes in health status. Income assimilation, selection and access to health care may be better explanations for them.

For the second question, it was only weakly found how education and lifestyles can change this association, as only significant differences were found for the most recent immigrants, and only with education and drinking habits. For the hypothesis, it was possible to evaluate them, but the results were not always the expected, or only partially. Differences in the cohorts play an important role in these results, as well as selection in these groups of immigrants.

Overall the study presents revealing findings for the first time for elderly immigrants in Costa Rica, as no other empirical analysis had been done dealing with acculturation models or only for elderly immigrants. Considering the scarce research done in this field in latinamerican countries, discovering and understanding health disparities of immigrants can be of great use and reference for future research.

It is, however, important to note that because of the design of the model and data, these results cannot be generalized for all immigrants in elderly ages in Costa Rica. Nonetheless, they can be used as input for future research, especially now that the percentage of elderly immigrants is getting larger every year. In light of the results for this sample, in relation to public policies, to improve the health of these immigrants, the key may be in better access to health care and to good jobs, since these factors seem to have a great impact on health for most groups of immigrants.

Several lines of reseach can be drawn after this study. The biggest limitation remains being data, as for this type of studies longitudinal data would be the most appropriate. One interesting study could be a more in-depth analysis of how lifestyle can help improve or worsen health status for immigrants. Another suggested line is using other dependent variables, like the likelihood of having a disease or suffering from a physical limitation, as these variables are not subjective like *Health status*. Finally, exploring cohort or country effects could bring appealing results, even when most of the immigrants in Costa Rica come from Nicaragua.

References

- Abraído-Lanza, A. F., Armbrister, A. N., Flórez, K. R. & Aguirre, A. N. (2006). Toward a Theory-Driven Model of Acculturation in Public Health Research, *American Journal of Public Health*, vol. 96, no. 8, pp.1342–1346.
- Abraído-Lanza, A. F., Dohrenwend, B. P., Ng-Mak, D. S. & Turner, J. B. (1999). The Latino Mortality Paradox: A Test of the ‘Salmon Bias’ and Healthy Migrant Hypotheses., *American Journal of Public Health*, vol. 89, no. 10, pp.1543–1548.
- Acuña, G. (2005). La Inmigración En Costa Rica: Dinámicas, Desarrollo y Desafíos, Available Online:
https://www.ministeriodesalud.go.cr/gestores_en_salud/derechos%20humanos/migracion/inmigracr.pdf [Accessed 24 December 2017].
- Acuña, G. & Gamboa, A. (2003). Migración y Salud En Costa Rica: Elementos Para Su Análisis, *Desarrollo y salud en Costa Rica: Elementos para su análisis. San José, Costa Rica: Ministerio de Salud Facultad Latinoamericana de Ciencias Sociales Organización (FLASCO), Panamericana de la Salud (PAHO), Oficina Regional de la Organización Mundial de la Salud (WHO)*.
- Acuña, G. & Olivares, E. (1999). La Población Migrante Nicaragüense En Costa Rica. Realidades y Respuestas: Diagnóstico Global, *San José, CR: Fundación Arias para la Paz y el Progreso Humano*.
- Agudelo-Suárez, A., Gil-González, D., Ronda-Pérez, E., Porthé, V., Paramio-Pérez, G., García, A. M. & Garí, A. (2009). Discrimination, Work and Health in Immigrant Populations in Spain, *Social Science & Medicine*, vol. 68, no. 10, pp.1866–1874.
- Akresh, I. R. & Frank, R. (2008). Health Selection Among New Immigrants, *American Journal of Public Health*, vol. 98, no. 11, pp.2058–2064.
- Angel, J. L. & Angel, R. J. (1992). Age at Migration, Social Connections, and Well-Being among Elderly Hispanics, *Journal of Aging and Health*, vol. 4, no. 4, pp.480–499.
- Antecol, H. & Bedard, K. (2006). Unhealthy Assimilation: Why Do Immigrants Converge to American Health Status Levels?, *Demography*, vol. 43, no. 2, pp.337–360.
- Barquero, J. A. & Vargas, J. C. (2004). 3. LA MIGRACIÓN INTERNACIONAL EN COSTA RICA: ESTADO ACTUAL Y CONSECUENCIAS, p.32.
- Bean, F. D. & Bell-Rose, S. (1999). Immigration and Opportunity: Race, Ethnicity, and Employment in the United States, Russell Sage Foundation.
- Becker, G. S. (1983). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, 2. ed; repr., Chicago: The Univ. of Chicago Pr.
- Beiser, M. (2005). The Health of Immigrants and Refugees in Canada, *Canadian Journal of Public Health / Revue Canadienne de Sante’e Publique*, vol. 96, pp.S30–S44.
- Benet-Martínez, V. & Haritatos, J. (2005). Bicultural Identity Integration (BII): Components and Psychosocial Antecedents, *Journal of Personality*, vol. 73, no. 4, pp.1015–1049.
- Berry, J. W. (2006). Acculturative Stress, in *Handbook of Multicultural Perspectives on Stress and Coping*, Springer, pp.287–298.
- Berry, J. W. & Sam, D. L. (1997). Acculturation and Adaptation, *Handbook of cross-cultural psychology*, vol. 3, no. 2, pp.291–326.

- Biddle, N., Kennedy, S. & McDonald, J. T. (2007). Health Assimilation Patterns amongst Australian Immigrants, *Economic Record*, vol. 83, no. 260, pp.16–30.
- Billings, A. G. & Moos, R. H. (1981). The Role of Coping Responses and Social Resources in Attenuating the Stress of Life Events, *Journal of behavioral medicine*, vol. 4, no. 2, pp.139–157.
- Bollini, P. & Siem, H. (1995). No Real Progress towards Equity: Health of Migrants and Ethnic Minorities on the Eve of the Year 2000, *Social Science & Medicine*, vol. 41, no. 6, pp.819–828.
- Bonilla Carrión, R. (2017). Estado de Salud En Jóvenes Inmigrantes Nicaragüenses En Costa Rica: ¿Hay Diferencias Con La Población Local?, *01/2017*, vol. 1, pp.8–21.
- Borjas, G. (1987). Self-Selection and the Earnings of Immigrants, w2248, Cambridge, MA: National Bureau of Economic Research, Available Online: <http://www.nber.org/papers/w2248.pdf> [Accessed 25 May 2018].
- Borjas, G. J. (1989). Economic Theory and International Migration, *The International Migration Review*, vol. 23, no. 3, pp.457–485.
- Borooah, V. K. (2002). Logit and Probit: Ordered and Multinomial Models, Sage.
- Bosdriesz, J. R., Lichthart, N., Witvliet, M. I., Busschers, W. B., Stronks, K. & Kunst, A. E. (2013). Smoking Prevalence among Migrants in the US Compared to the US-Born and the Population in Countries of Origin, *PLOS ONE*, vol. 8, no. 3, p.e58654.
- Bravo, J. (2015a). Discriminación en Costa Rica sigue vigente, *La Prensa*, Available Online: <https://www.laprensa.com.ni/2015/07/20/boletin/1869382-discriminacion-en-costa-rica-sigue-vigente> [Accessed 20 May 2018].
- Bravo, J. (2015b). Migración nica a Costa Rica salta en la discusión sobre crisis con cubanos, *La Prensa*, Available Online: <https://www.laprensa.com.ni/2015/11/25/nacionales/1942708-migracion-nica-a-costa-rica-salta-en-la-discusion-sobre-crisis-con-cubanos> [Accessed 29 May 2018].
- Burström, B. & Fredlund, P. (2001). Self Rated Health: Is It as Good a Predictor of Subsequent Mortality among Adults in Lower as Well as in Higher Social Classes?, *Journal of Epidemiology & Community Health*, vol. 55, no. 11, pp.836–840.
- Buu, A., Mansour, M., Wang, J., Refior, S. K., Fitzgerald, H. E. & Zucker, R. A. (2007). Alcoholism Effects on Social Migration and Neighborhood Effects on Alcoholism over the Course of 12 Years, *Alcoholism, clinical and experimental research*, vol. 31, no. 9, pp.1545–1551.
- Caetano, R., Ramisetty-Mikler, S. & Rodriguez, L. A. (2009). The Hispanic Americans Baseline Alcohol Survey (HABLAS): The Association between Birthplace, Acculturation and Alcohol Abuse and Dependence across Hispanic National Groups, *Drug and alcohol dependence*, vol. 99, no. 1–3, pp.215–221.
- CDC - NCHS - National Center for Health Statistics. (2018). , Available Online: <https://www.cdc.gov/nchs/index.htm> [Accessed 14 May 2018].
- Centro Centroamericano de Población. (2011). Base de Datos Censos de Población y Vivienda 2011, Available Online: <http://consultas.ccp.ucr.ac.cr> [Accessed 20 May 2018].
- Choi, S. H. (2011). Testing Healthy Immigrant Effects Among Late Life Immigrants in the United States: Using Multiple Indicators, *Journal of Aging and Health*, vol. 24, no. 3, pp.475–506.
- Cohen, S., Kessler, R. C. & Gordon, L. U. (1997). Measuring Stress: A Guide for Health and Social Scientists, Oxford University Press.

- Curran, M. J. (2003). *Across the Water: The Acculturation and Health of Irish People in London*, Allen Library Dublin.
- Damodar, N. (2004). *Basic Econometrics*, The Mc-Graw Hill.
- Del Pilar, J. A. & Udasco, J. O. (2004). Deculturation: Its Lack of Validity, *Cultural Diversity & Ethnic Minority Psychology*, vol. 10, no. 2, pp.169–176.
- Delgado Montaldo, D. (2008). Percepciones de La Inmigración e Integración En Costa Rica, *Papeles de población*, vol. 14, no. 57, pp.65–91.
- Derose, K. P., Escarce, J. J. & Lurie, N. (2007). Immigrants And Health Care: Sources Of Vulnerability, *Health Affairs*, vol. 26, no. 5, pp.1258–1268.
- Domnich, A., Panatto, D., Gasparini, R. & Amicizia, D. (2012). The “Healthy Immigrant” Effect: Does It Exist in Europe Today?, *Italian Journal of Public Health*, [e-journal] vol. 9, no. 3, Available Online: <https://ijphjournal.it/article/view/7532> [Accessed 30 May 2018].
- Ettner, S. L. (1996). New Evidence on the Relationship between Income and Health, *Journal of Health Economics*, vol. 15, no. 1, pp.67–85.
- Eveleth, P. B. (1996). Physical Status: The Use and Interpretation of Anthropometry. Report of a WHO Expert Committee, *American Journal of Human Biology: The Official Journal of the Human Biology Association*, vol. 8, no. 6, pp.786–787.
- Farley, T., Galves, A., Dickinson, L. M. & Perez, M. de J. D. (2005). Stress, Coping, and Health: A Comparison of Mexican Immigrants, Mexican-Americans, and Non-Hispanic Whites, *Journal of Immigrant Health*, vol. 7, no. 3, pp.213–220.
- Flicker, L., McCaul, K. A., Hankey, G. J., Jamrozik, K., Brown, W. J., Byles, J. E. & Almeida, O. P. (2010). Body Mass Index and Survival in Men and Women Aged 70 to 75, *Journal of the American Geriatrics Society*, vol. 58, no. 2, pp.234–241.
- Folkman, S. (2013). Stress: Appraisal and Coping, in *Encyclopedia of Behavioral Medicine*, [e-book] Springer, New York, NY, pp.1913–1915, Available Online: https://link.springer.com/referenceworkentry/10.1007/978-1-4419-1005-9_215 [Accessed 20 May 2018].
- García, C. S. (2002). Otros amenazantes: los nicaragüenses y la formación de identidades nacionales en Costa Rica, Editorial Universidad de Costa Rica.
- Gee, E. M. T., Kobayashi, K. M. & Prus, S. G. (2004). Examining the Healthy Immigrant Effect in Mid- To Later Life: Findings from the Canadian Community Health Survey, *Canadian Journal on Aging / La Revue canadienne du vieillissement*, vol. 23, no. 5, pp.S55–S63.
- González, H. & Horbaty, G. (2005). Nicaragua y Costa Rica: Migrantes Enfrentan Percepciones y Políticas Migratorias, *ponencia presentada en el Seminario-Taller “Migración intrafronteriza en América Central”*, Centro Centroamericano de Población, San José, vol. 2.
- Gordon, M. M. (2010). *Assimilation in American Life: The Role of Race, Religion and National Origins*, Oxford University Press.
- Grzegorzewska, A., Wolejko, K., Kowalkowska, A., Kowalczyk, G. & Jaroch, A. (2016). Proper BMI Ranges for the Elderly in the Context of Morbidity, Mortality and Functional Status, *Gerontologia Polska*, vol. 24, pp.114–118.

- Hamilton, T. G., Palermo, T. & Green, T. L. (2015). Health Assimilation among Hispanic Immigrants in the United States: The Impact of Ignoring Arrival-Cohort Effects, *Journal of Health and Social Behavior*, [e-journal], Available Online: <http://journals.sagepub.com/doi/pdf/10.1177/0022146515611179> [Accessed 30 May 2018].
- Hao, L. & Johnson, R. W. (2000). Economic, Cultural, and Social Origins of Emotional Well-Being: Comparisons of Immigrants and Natives at Midlife, *Research on Aging*, vol. 22, no. 6, pp.599–629.
- Herring, A. & Bonilla, R. (2009). Inmigrantes Nicaragüenses En Costa Rica: Estado y Utilización de Servicios de Salud., *Población y Salud en Mesoamérica; Volumen 7, Número 1: julio-diciembre 2009*, [e-journal], Available Online: <https://revistas.ucr.ac.cr/index.php/psm/article/view/1094/1155>.
- Holmboe-Ottesen, G. & Wandel, M. (2012). Changes in Dietary Habits after Migration and Consequences for Health: A Focus on South Asians in Europe, *Food & Nutrition Research*, [e-journal] vol. 56, Available Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3492807/> [Accessed 18 May 2018].
- Joshi, S., Jatrana, S., Paradies, Y. & Priest, N. (2014). Differences in Health Behaviours between Immigrant and Non-Immigrant Groups: A Protocol for a Systematic Review, *Systematic Reviews*, vol. 3, p.61.
- Kaplan, R. C., Bangdiwala, S. I., Barnhart, J. M., Castañeda, S. F., Gellman, M. D., Lee, D. J., Pérez-Stable, E. J., Talavera, G. A., Youngblood, M. E. & Giachello, A. L. (2014). Smoking among U.S. Hispanic/Latino Adults: The Hispanic Community Health Study/Study of Latinos, *American Journal of Preventive Medicine*, vol. 46, no. 5, pp.496–506.
- Kennedy, S., Kidd, M. P., McDonald, J. T. & Biddle, N. (2015). The Healthy Immigrant Effect: Patterns and Evidence from Four Countries, *Journal of International Migration and Integration*, vol. 16, no. 2, pp.317–332.
- Koya, D. L. & Egede, L. E. (2007). Association Between Length of Residence and Cardiovascular Disease Risk Factors Among an Ethnically Diverse Group of United States Immigrants, *Journal of General Internal Medicine*, vol. 22, no. 6, pp.841–846.
- Landale, N. S., Oropesa, R. S., Llanes, D. & Gorman, B. K. (1999). Does Americanization Have Adverse Effects on Health?: Stress, Health Habits, and Infant Health Outcomes among Puerto Ricans, *Social Forces*, vol. 78, no. 2, pp.613–641.
- Laroche, M. (2000). Health Status and Health Services Utilization of Canada's Immigrant and Non-Immigrant Populations, *Canadian Public Policy/Analyse de Politiques*, pp.51–75.
- Lazarus, R. S. (1993). Coping Theory and Research: Past, Present, and Future, *Fifty years of the research and theory of RS Lazarus: An analysis of historical and perennial issues*, pp.366–388.
- Loury, S. & Kulbok, P. (2007). Correlates of Alcohol and Tobacco Use among Mexican Immigrants in Rural North Carolina, *Family & Community Health*, vol. 30, no. 3, pp.247–256.
- Lum, T. Y. & Vanderaa, J. P. (2010). Health Disparities Among Immigrant and Non-Immigrant Elders: The Association of Acculturation and Education, *Journal of Immigrant and Minority Health*, vol. 12, no. 5, pp.743–753.
- Mahmoud, N. (2011). Self-Rated Health Status and Smoking, *San Diego State University*.
- Marín, D. B. (2004). MIGRACIONES DE NICARAGUENSES HACIA COSTA RICA: ANALISIS DE DOS REDES SOCIALES, Available Online: <http://ccp.ucr.ac.cr/documentos/portal/conversatorios/2005/dborge.pdf> [Accessed 6 April 2018].

- Markides, K. S. & Coreil, J. (1986). The Health of Hispanics in the Southwestern United States: An Epidemiologic Paradox, *Public Health Reports (1974-)*, vol. 101, no. 3, pp.253–265.
- Martínez Pizarro, J., Cano Christiny, M. V. & Soffia Contrucci, M. (2014). Tendencias y Patrones de La Migración Latinoamericana y Caribeña Hacia 2010 y Desafíos Para Una Agenda Regional.
- Massey, D. S. (1990). Social Structure, Household Strategies, and the Cumulative Causation of Migration, *Population Index*, vol. 56, no. 1, pp.3–26.
- Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A. & Taylor, J. E. (1993). Theories of International Migration: A Review and Appraisal, *Population and development review*, pp.431–466.
- McDonald, J. T. & Kennedy, S. (2004). Insights into the ‘Healthy Immigrant Effect’: Health Status and Health Service Use of Immigrants to Canada, *Social Science & Medicine*, vol. 59, no. 8, pp.1613–1627.
- Menard, S. (2002). *Applied Logistic Regression Analysis*, Vol. 106, Sage.
- Montes de Oca, V., García, T. R., Sáenz, R. & Guillén, J. (2011). The Linkage of Life Course, Migration, Health, and Aging: Health in Adults and Elderly Mexican Migrants, *Journal of Aging and Health*, vol. 23, no. 7, pp.1116–1140.
- Morales, G. (2008). *Inmigración En Costa Rica: Características Sociales y Laborales, Integración y Políticas Públicas*, CEPAL.
- Mossey, J. M. & Shapiro, E. (1982). Self-Rated Health: A Predictor of Mortality among the Elderly., *American Journal of Public Health*, vol. 72, no. 8, pp.800–808.
- Moullan, Y. & Jusot, F. (2014). Why Is the ‘Healthy Immigrant Effect’ Different between European Countries?, *European Journal of Public Health*, vol. 24, no. suppl_1, pp.80–86.
- Newbold, K. B. & Danforth, J. (2003). Health Status and Canada’s Immigrant Population, *Social science & medicine*, vol. 57, no. 10, pp.1981–1995.
- Ng, E. (2011). The Healthy Immigrant Effect and Mortality Rates, *Health Reports*, vol. 22, no. 4, p.C1.
- O’Connell, H., Chin, A.-V., Cunningham, C. & Lawlor, B. (2003). Alcohol Use Disorders in Elderly People—redefining an Age Old Problem in Old Age, *BMJ: British Medical Journal*, vol. 327, no. 7416, pp.664–667.
- Office of the Surgeon General (US) & Office on Smoking and Health (US). (2004). *The Health Consequences of Smoking: A Report of the Surgeon General*, [e-book] Atlanta (GA): Centers for Disease Control and Prevention (US), Available Online: <http://www.ncbi.nlm.nih.gov/books/NBK44695/> [Accessed 28 May 2018].
- Omariba, W. (2010). Neighbourhood Characteristics, Individual Attributes and Self-Rated Health among Older Canadians, *Health & Place*, vol. 16, no. 5, pp.986–995.
- Organización Internacional del Trabajo. (2016). *La migración laboral en América Latina y el Caribe: diagnóstico, estrategia y líneas de trabajo de la OIT en la región.*, Lima, Perú: OIT, Oficina Regional para América Latina y el Caribe.
- Pearlin, L. I., Schieman, S., Fazio, E. M. & Meersman, S. C. (2005). Stress, Health, and the Life Course: Some Conceptual Perspectives, *Journal of health and Social Behavior*, vol. 46, no. 2, pp.205–219.

- Peng, C.-Y. J., Lee, K. L. & Ingersoll, G. M. (2002). An Introduction to Logistic Regression Analysis and Reporting, *The Journal of Educational Research*, vol. 96, no. 1, pp.3–14.
- Petrie, D., Doran, C., Shakeshaft, A. & Sanson-Fisher, R. (2008). The Relationship between Alcohol Consumption and Self-Reported Health Status Using the EQ5D: Evidence from Rural Australia, *Social Science & Medicine*, vol. 67, no. 11, pp.1717–1726.
- Puga, D. (2001). 13. Un Lugar En El Sol: Inmigración de Jubilados Hacia Costa Rica, *Población del Istmo 2000*, p.253.
- Reijneveld, S. A. (1998). Reported Health, Lifestyles, and Use of Health Care of First Generation Immigrants in The Netherlands: Do Socioeconomic Factors Explain Their Adverse Position?, *Journal of Epidemiology & Community Health*, vol. 52, no. 5, pp.298–304.
- Reiss, K., Sauzet, O., Breckenkamp, J., Spallek, J. & Razum, O. (2014). How Immigrants Adapt Their Smoking Behaviour: Comparative Analysis among Turkish Immigrants in Germany and the Netherlands, *BMC Public Health*, [e-journal] vol. 14, Available Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4150979/> [Accessed 20 May 2018].
- Rodríguez, I. (2013). Casi mitad de los ticos admite tomar bebidas alcohólicas, *La Nación, Grupo Nación*, Available Online: <https://www.nacion.com/ciencia/salud/casi-mitad-de-los-ticos-admite-tomar-bebidas-alcoholicas/YM7CZDMQURFQ5M5QY4FFEZQAKE/story/> [Accessed 29 May 2018].
- Rosero-Bixby, L., Fernández, X. & Dow, W. H. (2005). Costa Rica: Estudio de Longevidad y Envejecimiento Saludable (CRELES), *San José: proyecto conjunto del Centro Centroamericano de Población (CCP) y el Instituto de Investigaciones en Salud (INISA) ambos de la Universidad de Costa Rica, con subvención de la Fundación Wellcome Trust*.
- Roshania, R., Narayan, K. M. V. & Oza-Frank, R. (2008). Age at Arrival and Risk of Obesity Among US Immigrants, *Obesity*, vol. 16, no. 12, pp.2669–2675.
- Rudmin, F. W. (2003). Critical History of the Acculturation Psychology of Assimilation, Separation, Integration, and Marginalization., *Review of general psychology*, vol. 7, no. 1, p.3.
- Ryan, A., Gee, G. & Laflamme, D. (2006). The Association between Self-Reported Discrimination, Physical Health and Blood Pressure: Findings from African Americans, Black Immigrants, and Latino Immigrants in New Hampshire, *Journal of health care for the poor and underserved*, vol. 17, pp.116–32.
- Schwartz, S. J., Unger, J. B., Zamboanga, B. L. & Szapocznik, J. (2010). Rethinking the Concept of Acculturation, *The American psychologist*, vol. 65, no. 4, pp.237–251.
- Schwartz, S. J. & Zamboanga, B. L. (2008). Testing Berry's Model of Acculturation: A Confirmatory Latent Class Approach., *Cultural Diversity and Ethnic Minority Psychology*, vol. 14, no. 4, pp.275–285.
- Shen, B.-J. & Takeuchi, D. T. (2001). A Structural Model of Acculturation and Mental Health Status among Chinese Americans, *American Journal of Community Psychology*, vol. 29, no. 3, pp.387–418.
- Sirola, J., Tuppurainen, M., Rikkonen, T., Honkanen, R., Koivumaa-Honkanen, H. & Kröger, H. (2010). Correlates and Predictors of Self-Rated Health and Ambulatory Status among Elderly Women – Cross-Sectional and 10 Years Population-Based Cohort Study, *Maturitas*, vol. 65, no. 3, pp.244–252.
- Solé-Auró, A. & Crimmins, E. M. (2008). Health of Immigrants in European Countries, *International Migration Review*, vol. 42, no. 4, pp.861–876.

- Sorlie PD, Backlund E, Johnson NJ & Rogot E. (1993). Mortality by Hispanic Status in the United States, *JAMA*, vol. 270, no. 20, pp.2464–2468.
- Soto, R. (2001). El discurso sobre la inmigración a principios del siglo XX: una estrategia nacionalista de selección autovalorativa, *Revista de Historia*, [e-journal] vol. 0, no. 40, Available Online: <http://www.revistas.una.ac.cr/index.php/historia/article/view/1981> [Accessed 8 April 2018].
- Stark, O. & Bloom, D. E. (1985). The New Economics of Labor Migration, *The American Economic Review*, vol. 75, no. 2, pp.173–178.
- Stockwell, T., Greer, A., Fillmore, K., Chikritzhs, T. & Zeisser, C. (2012). How Good Is the Science?, *BMJ*, vol. 344, no. mar27 2, pp.e2276–e2276.
- Takeuchi, D. T., Zane, N., Hong, S., Chae, D. H., Gong, F., Gee, G. C., Walton, E., Sue, S. & Alegría, M. (2007). Immigration-Related Factors and Mental Disorders among Asian Americans, *American Journal of Public Health*, vol. 97, no. 1, pp.84–90.
- Tavernise, S. (2013). The Health Toll of Immigration, *The New York Times*, 18 May, Available Online: <https://www.nytimes.com/2013/05/19/health/the-health-toll-of-immigration.html> [Accessed 18 May 2018].
- Theobald, H., Johansson, S.-E. & Engfeldt, P. (2003). Influence of Different Types of Alcoholic Beverages on Self-Reported Health Status, *Alcohol and Alcoholism*, vol. 38, no. 6, pp.583–588.
- Vargas, J. C. (2005). Nicaragienses en Costa Rica y Estados Unidos: datos de etnoencuestas, *Población y Salud en Mesoamérica*, [e-journal] vol. 2, no. 2, Available Online: <https://revistas.ucr.ac.cr/index.php/psm/article/view/13959> [Accessed 9 April 2018].
- Vásquez-De Kartzow, R., Castillo-Durán, C. & Lera M., L. (2015). Migraciones En Países de América Latina. Características de La Población Pediátrica, *Revista Chilena de Pediatría*, vol. 86, no. 5, pp.325–330.
- Vogel, M. E. & Romano, S. E. (1999). Behavioral Medicine, *Primary Care: Clinics in Office Practice*, vol. 26, no. 2, pp.385–400.
- Yang, Z. & Hall, A. G. (2008). The Financial Burden of Overweight and Obesity among Elderly Americans: The Dynamics of Weight, Longevity, and Health Care Cost, *Health Services Research*, vol. 43, no. 3, pp.849–868.
- Yoo, H. C., Gee, G. C. & Takeuchi, D. (2009). Discrimination and Health among Asian American Immigrants: Disentangling Racial from Language Discrimination, *Social Science & Medicine*, vol. 68, no. 4, pp.726–732.

Appendix A

Table 6. Log-odds of the models with Health status as dependent variable (1: Poor health – 5: Excellent health)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant	-0.564*** (0.114)						
Years in the country (ref: Natives)							
10 years or less		-0.433* (0.263)	-0.460* (0.267)	-0.863*** (0.324)	-0.148 (0.536)	-0.548 (0.382)	-1.107*** (0.392)
Between 11 and 30		-0.682*** (0.178)	-0.746*** (0.178)	-0.572*** (0.221)	-0.666** (0.298)	-0.949*** (0.233)	-0.917*** (0.256)
More than 30		-0.527*** (0.171)	-0.536*** (0.173)	-0.532*** (0.204)	-0.639** (0.294)	-0.558** (0.242)	-0.418 (0.268)
High education	1.156*** (0.0634)	1.157*** (0.0635)	1.073*** (0.0642)	1.074*** (0.0662)	1.072*** (0.0642)	1.073*** (0.0643)	1.038*** (0.0646)
High education#10 years or less				1.249** (0.563)			
High education# Between 11 and 30				-0.490 (0.373)			
High education# More than 30				-0.0132 (0.384)			
Overweight					0.106* (0.0595)		
Overweight#10 years or less					-0.422 (0.617)		
Overweight# Between 11 and 30					-0.115 (0.371)		
Overweight #More than 30					0.152 (0.363)		
Smokes						-0.0707 (0.0614)	
Smokes#10 years or less						0.183 (0.534)	
Smokes# Between 11 and 30						0.498 (0.360)	
Smokes# More than 30						0.0515 (0.345)	
Drinking (ref: never drinks)							
Drank in the past							-0.281*** (0.0708)
Drinks regularly							0.212*** (0.0805)
Drank in the past#10 years or less							1.387** (0.591)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Drank in the past# Between 11 and 30							0.407 (0.388)
Drank in the past# More than 30							0.0424 (0.363)
Drinks regularly#10 years or less							1.011 (0.733)
Drinks regularly# Between 11 and 30							0.441 (0.539)
Drinks regularly# More than 30							-0.755 (0.655)
Female	-0.201*** (0.0548)	-0.200*** (0.0548)	-0.157** (0.0633)	-0.152** (0.0634)	-0.168*** (0.0636)	-0.186*** (0.0689)	-0.201*** (0.0729)
Age	0.00223 (0.00285)	0.00221 (0.00285)	-0.0344 (0.0350)	-0.0330 (0.0350)	-0.0384 (0.0350)	-0.0344 (0.0350)	-0.0344 (0.0350)
Age squared			0.000323 (0.000243)	0.000314 (0.000243)	0.000360 (0.000243)	0.000324 (0.000243)	0.000332 (0.000243)
Marital status (ref: married)							
Divorced or separated	0.0433 (0.0762)	0.0415 (0.0762)	0.0831 (0.0772)	0.0859 (0.0773)	0.0869 (0.0773)	0.0878 (0.0773)	0.0915 (0.0775)
Widow	0.196** (0.0760)	0.196** (0.0760)	0.185** (0.0769)	0.186** (0.0769)	0.186** (0.0769)	0.187** (0.0769)	0.182** (0.0770)
Never married	0.00218 (0.0982)	0.000832 (0.0983)	0.0631 (0.0992)	0.0630 (0.0992)	0.0734 (0.0996)	0.0643 (0.0993)	0.0744 (0.0992)
Poor economic situation			-1.154*** (0.0847)	-1.150*** (0.0847)	-1.154*** (0.0847)	-1.153*** (0.0848)	-1.138*** (0.0849)
Work status (ref: Paid job)							
Household work			-0.319*** (0.0732)	-0.323*** (0.0734)	-0.320*** (0.0733)	-0.319*** (0.0733)	-0.294*** (0.0735)
No work			-0.534*** (0.0737)	-0.538*** (0.0737)	-0.534*** (0.0737)	-0.538*** (0.0737)	-0.526*** (0.0739)
Not Insured			0.177* (0.106)	0.177* (0.106)	0.186* (0.106)	0.178* (0.106)	0.154 (0.107)
Constant cut1	-2.029*** (0.201)	-2.030*** (0.201)	-3.489*** (1.239)	-3.439*** (1.240)	-3.520*** (1.240)	-3.533*** (1.239)	-3.528*** (1.242)
Constant cut2	0.274 (0.198)	0.273 (0.198)	-1.085 (1.238)	-1.034 (1.239)	-1.115 (1.239)	-1.128 (1.238)	-1.111 (1.241)
Constant cut3	1.904*** (0.200)	1.904*** (0.200)	0.588 (1.238)	0.640 (1.239)	0.559 (1.239)	0.545 (1.238)	0.572 (1.241)
Constant cut4	3.031*** (0.204)	3.031*** (0.204)	1.727 (1.238)	1.781 (1.240)	1.698 (1.240)	1.684 (1.239)	1.717 (1.241)
Observations	5,123	5,123	5,123	5,123	5,123	5,123	5,123

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

