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Explaining the Mexican-American Health Paradox Using Selectivity Effects

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Abstract: While typically socioeconomically disadvantaged, Mexican migrants in the United States tend to have better health outcomes than non-Hispanic Whites. This phenomenon is known as the Hispanic Health Paradox. Using data from Mexico and the United States, we examine several health outcomes for non-Hispanic Whites and Mexicans in the United States and in Mexico and employ Blinder-Oaxaca decompositions to help explain the paradox. We find evidence that selectivity is playing a significant role in the relatively healthy status of Mexican migrants in the United States. More importantly, there is evidence that health selectivity is a complex process and its effects typically do not work the same way for different health conditions and across genders. We also find evidence that some of migrants' health advantages are lost as they spend more time in the United States.
Keywords: International Migration; Mexico; Selectivity; Health Paradox
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Resumen: A pesar de típicamente contar con desventajas socioeconómicas, los inmigrantes mexicanos en los Estados Unidos suelen tener mejores resultados en salud que los blancos no hispanos. A éste fenómeno se le conoce como la Paradoja de Salud Hispana. Usando datos para México y Estados Unidos, nosotros analizamos varios resultados de salud para los blancos no hispanos y para los mexicanos viviendo en los Estados Unidos y en México empleando descomposiciones Blinder-Oaxaca para ayudar a explicar la paradoja. Encontramos evidencia de que la selectividad juega un papel significativo en el estatus relativo de salud de los migrantes mexicanos en los Estados Unidos. Más importante, existe evidencia de que la selectividad en salud es un proceso complejo y de que sus efectos no operan de la misma forma para las diferentes condiciones de salud y de género. Adicionalmente, encontramos evidencia de que algunas de las ventajas de salud de los migrantes se pierden conforme ellos viven más tiempo en los Estados Unidos.
Palabras Clave: Migración Internacional; México; Selectividad; Paradoja de Salud

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1. Introduction

According to the 2010 U.S. Census, Mexican migrants in the U.S. constitute the largest and more rapidly growing foreign-born population in the country. Mexican-Americans represent more than 10% of the total U.S. population and about two thirds of the Hispanic population in the U.S. However, Mexican migrants tend to be economically disadvantaged not only with respect to the native-born population but also with respect to most migrant groups (Trejo, 1997; Passel and Cohn, 2009).

The health literature generally concurs that socioeconomically disadvantaged individuals have low levels of health. However, researchers have found that Mexican migrants and other Hispanic groups in the U.S. tend to have better health, measured by age-adjusted mortality rates and several morbidity measures, than non-Hispanic Whites. This condition holds even though migrants possess lower levels of human capital and tend to work and live in less-advantaged socioeconomic environments. However, this phenomenon is not exclusive to the U.S. or to Hispanics as it applies to other countries and to other foreign-origin population groups (Urquia et al., 2012; Akresh and Frank, 2008). This phenomenon is typically referred to as the Hispanic Health Paradox (HHP), and it has motivated researchers from different disciplines to investigate about its existence and potential explanations.

Trying to explain the lower mortality for Hispanic migrants, Palloni and Arias (2004) proposed three "standard" explanations to the paradox in the U.S.: data artifacts, cultural effects, and migrant selectivity. The first theory states that the paradox is generated by three data artifacts (ethnic identification, age misreporting, and mismatches of records) affecting the accurate estimation of mortality rates. The cultural effects theory states that culture is reflected in family structure, social networks, and behaviors that affect mortality and health conditions of its members. This hypothesis suggests that Hispanic migrants benefit from belonging to a culture with closer relationships with their kind, even when residing in another country. This implies that, as migrants become more immersed in the acculturation process of their host country, the positive cultural health effects might diminish and eventually disappear.

The migrant selectivity theory is based on two separate hypotheses: the "salmon bias effects" and the "healthy migrant effects". According to the salmon bias hypothesis, migrants are more likely to return to their countries of origin when they become ill or have poor health. However, Abraido-Lanza et al. (1999) find that the phenomenon still applies to Puerto Ricans, whose mortality data is still captured once in Puerto Rico, and to Cubans, who typically do not return to their country of origin.

The healthy migrant hypothesis suggests that migrants in the U.S. were not randomly drawn from the health distribution in their countries of origin. In this context, positive (negative) health selectivity implies that Mexican migrants in the U.S. would perform better (worse) than non-migrants in Mexico when compared to other population groups in the U.S. Interestingly, the concept of migrant selectivity is not exclusive of the health research. Selectivity of Mexican migrants in terms of skills and education has also been researched in the migration literature, but its nature seems to depend primarily on the source of the data, Martinez (2013). Some studies relying on U.S. data claim to have found evidence of positive skills/education selectivity (Chiquiar and Hanson, 2005; Orrenius and Zavodny, 2005), while some studies relying on Mexican data claim to have found evidence of negative selectivity (Ibarraran and Lubotsky, 2007; Moraga, 2011). These conflicting results highlight the problems in relying only on one source of data when considering the potential selectivity of Mexican migrants in the U.S. Accordingly, the analysis of the potential health selectivity of migrants requires a comparison between migrants and non-migrants in the sending countries at time of migration (Jasso et al., 2004).

Taking a more appropriate approach, several studies have considered the relative health status of Mexican migrants while considering also the non-migrant population in Mexico (Riosmena et al., 2013; Bostean, 2013; Rubalcava et al., 2008). For the most part, these studies have found some evidence of positive health selectivity of Mexican migrants to the U.S[1].

This study considers data from the National Health Interview Survey (NHIS) and the Mexican Family Life Survey (MxFLS) to analyze the relative performance of Mexican migrants in the U.S. and the non-Hispanic White population, the Hispanic Health Paradox

(HHP). The main contribution of the paper is the use of Oaxaca-Blinder decompositions to explain the HHP via the effects of health selectivity of Mexican migrants in the U.S. while explicitly considering the population where they are drawn from, the non-migrant population in Mexico. The separate analysis for several health conditions and across genders helps to assess the level of complexity of health selectivity effects on the relative health status of Mexican migrants in the U.S. This paper analyzes also the effects of acculturation by combining U.S. data on year of arrival with information on Mexicans living in Mexico but who eventually migrated to the U.S.

Contrary to other studies, our study finds that selectivity is playing a significant role in the relative health performance of Mexican migrants in the U.S. for males and females and for most health outcomes. Furthermore, we found evidence that health selectivity effects typically do not work the same way for different health conditions and across genders. We found evidence of positive health selection for some health conditions and negative selection for others. Finally, we found evidence that, although Mexican migrants in the U.S. possess some health advantages over non-Hispanic Whites due to selectivity, these health advantages eventually disappear and even reverse as they spend more time in the U.S.

2. Hispanics Health Conditions

The empirical evidence that Hispanics in the U.S. tend to have better health conditions compared to non-Hispanic Whites and other groups with similar socioeconomic status is abundant, Singh and Miller (2004); Markides and Eschbach (2005). Controlling for socioeconomic and demographic characteristics, Sorlie et al. (1993), Hummer et al. (2000), and Singh and Siahpush (2001) found that Hispanics have lower mortality rates than non-Hispanic Whites. Singh and Siahpush (2002) found that foreign-born Hispanics have lower mortality rates than Hispanics born in the U.S., and this in turn have lower mortality rates than non-Hispanic Whites. In addition, Abraido-Lanza et al. (1999) and Hummer et al. (2000) found lower mortality rates for Mexican-Americans and other Hispanic groups compared to Cubans and Puerto Ricans, and LeClere et al. (1997) found that Mexican-Americans have lower mortality rates than African-Americans. Dividing by age cohorts,

Hummer et al. (1999) and Palloni and Arias (2004) found that middle-age and elderly Mexican-Americans have lower mortality rates than non-Hispanic Whites.

In addition to mortality, some studies have analyzed some morbidity outcomes in particular. Health advantages for Mexican-born individuals compared to non-Hispanic Whites are reported for prostate, breast, lung and bronchus, and colon cancer, the four most prevalent cancer types (National Alliance for Hispanic Health, 2001; Glanz et al., 2003), all types of heart diseases, emphysema, asthma and other respiratory diseases (National Center for Health Statistics, 2004), hypertension (Bell et al., 2002), ulcers, arthritis and chronic joint symptoms (National Alliance for Hispanic Health, 2001), depression (Ostir et al., 2003), substance abuse and anxiety disorders (Grant et al., 2004), and birth-weight outcomes (Collins et al., 1998; Pearl et al., 2002). Other literature documents a health advantage using morbidity outcomes for Mexican-Americans: Acevedo-García et al. (2007) for birth-weight outcomes, Hummer et al. (2007) for infant mortality, and Alegria et al. (2004) for psychiatric disorders.

However, researchers have found that Hispanics in general and Mexican-Americans in particular do not present a health advantage in all health outcomes. For example, chronic liver disease is a leading cause of death among Hispanics, but not for non-Hispanic Whites. Ford et al. (2002) found that between 1988 and 1994 Mexican-Americans have higher levels of metabolic syndrome compared to non-Hispanic Whites. Cowie et al. (2006) estimated that Mexican-Americans were 100% more likely to be diagnosed with diabetes than non-Hispanic Whites for the period 1999-2002. Hertz and Unger (2006) found that Mexican-Americans were significantly more likely than non-Hispanic Whites to be treated for diabetes. Ogden et al. (2006) and Flegal et al. (2002) found higher rates of obesity and overweight for Mexican-Americans compared to non-Hispanic Whites. In addition, mellitus, HIV infection among 1-4 year olds and 15-24 year olds, neural tube defects, depression, tuberculosis, and homicide rates are higher among Mexican-Americans and other Hispanics than among non-Hispanic Whites (National Alliance for Hispanic Health, 2001).

Some of the conflicting evidence of the relative health status of Hispanics and Mexican migrants in particular can be better understood by considering the effects of the acculturation process in the U.S. The literature on the relative health status of Hispanics tends to cite positive cultural effects and negative effects of acculturation in the U.S. Acculturation is presented in the literature as a gradual process by which immigrants adopt the values, behaviors, and traits of their host country and replace those of their country of origin (Hunt et al., 2004). Acculturation has been cited as a key factor explaining the reduction of the health advantage of Hispanics as they spend more time in the U.S. (Zambrana and Carter-Pokras, 2010). Kaushal and Kaestner (2010) found that self-reported health declines over time for Mexican-Americans. Antecol and Bedard (2006), using Body Mass Index document a loss of the health advantage for Mexican-American women compared with non-Hispanic Whites and a reduction of the health advantage for Mexican migrant men. Similarly, Abraido-Lanza et al. (2005) found that greater acculturation is positively correlated with unhealthy behavior and increasing risk factors. Ceballos (2011) suggests that acculturation explains in part the reduction in the advantage on infant and maternal health of Mexican migrants compared to non-Hispanic Whites.

3. Data

This study uses data from the U.S. National Health Interview Survey (NHIS), conducted by the National Center for Health Statistics, and data from the Mexican Family Life Survey (MxFLS), conducted in Mexico. The NHIS is an annual household survey representative at the national level and contains socioeconomic information and information on several health measures[2]. The 2002 data contains information on roughly 31,000 adults. The MxFLS is a longitudinal survey that collects information in Mexico on socioeconomic status, migration, health conditions, and others. This survey is statistically representative at the national, urban, rural, and regional level in Mexico and was conducted in 2002 and 2005. The 2002 wave contains information on approximately 35,000 individuals. The second wave of the MxFLS in 2005 allows us to identify those residents of Mexico in 2002 that migrated to the U.S. within the next 3 years.

Table 1 presents summary statistics for the 2002 NHIS and MxFLS data on adults (18-64 years of age), for males and females separately. The econometric analysis is also conducted separately by gender based on the evidence from the migration literature that suggests significant differences in the motivation to migrate between males and females (Martinez, 2013; United Nations, 2006). Also, there are important differences between males and females in terms of medical care access and utilization rates for Mexican migrants to the U.S. (Gorman et al., 2010; Rubalcava et al., 2008).

Health conditions in the two datasets refer to diagnosed conditions.[3] The first column represents non-Hispanic Whites surveyed in the NHIS, the second column Mexican-born migrants surveyed also in the NHIS, and the third column Mexican residents from the MxFLS. The MxFLS data excludes future migrants from the sample[4]. The analytical sample is obtained via list-wise deletion so that the analysis for all conditions employs the same sample.

('Insert Table 1 Here')

The first section of Table 1 presents statistics on the six diagnosed outcomes considered for all three groups and the second section presents statistics on some of the potential determinants of these health conditions. Statistics show that, relative to non-Hispanic Whites, Mexican male migrants in the U.S. have lower prevalence of cancer, heart condition, hypertension, and ulcers, but not significantly different rates for obesity and diabetes. Compared to non-migrants in Mexico, Mexican male migrants in the U.S. tend to have significantly higher levels of hypertension but lower rates for ulcers. Comparing non-migrant males in Mexico and non-Hispanic Whites, the statistics suggest that non-migrants males in Mexico have significant lower levels of cancer, heart condition, hypertension, and obesity, but not significantly different rates for diabetes and ulcers.

The comparison between non-Hispanic White females and Mexican female migrants follows for the most part the same pattern as for men, except for diabetes and obesity. Female migrants have significantly higher rates of diabetes and obesity than non-Hispanic White females. Mexican female migrants also have significantly lower rates of diabetes, obesity, and ulcers than non-migrants in Mexico. For the most part, the statistics in Table

(1) seem to suggest that Mexican migrants in the U.S. tend to have better health outcomes than non-Hispanic Whites. However, lower healthcare access and utilization among Mexican-origin migrants has been found to lead to underreporting of many major chronic health conditions. Indeed, Gorman et al. (2010) suggest that their health advantage might be due to their lack of knowledge about their own poor health, especially for males.

In terms of observed characteristics, both male and female Mexican migrants in the U.S. tend to be younger and more likely to be married than non-Hispanic Whites. Mexican migrants in the U.S. also tend to have less health coverage and tend to have larger families than non-Hispanic Whites, but have smaller families than non-migrants in Mexico. In terms of education, the statistics show, while significantly less educated than non-Hispanic Whites, Mexican migrants are considerably more educated than non-migrants in Mexico. This can also be observed using the highest years of education in family variable, which is measured in categories. Family income is measured in deciles, and it shows that Mexicans in the U.S. tend to have significantly lower levels than non-Hispanic Whites and non-migrants in Mexico. Mexicans migrants in the U.S. tend to exercise regularly less than non-Hispanic Whites, but significantly more frequently than non-migrants in Mexico. The variable for whether or not they have ever smoked in their lifetime show that Mexicans in the U.S. tend to have lower prevalence than non-Hispanic Whites but higher prevalence than non-migrants in Mexico.

The last variable is included as an attempt to control for the level of acculturation process of Mexican migrants in the U.S. As mentioned before, acculturation has the potential to affect migrants' health outcomes and makes it difficult to know whether or not their observed characteristics have been affected by the acculturation process. Dummies for whether or not the migrant speaks English at home and the level of English proficiency have been used in the literature as proxies for acculturation (O'Malley et al., 1999; Zambrana and Carte-Pokras, 2010). Unfortunately, the NHIS only provides information on the language used during the interview. The vast majority of interviews for non-Hispanic Whites were conducted in English, while only around 40% of Mexican-born interviews were in English. We assume that the more "acculturated" migrants were more likely to conduct the interview in English than other migrants[5].

As an additional step toward controlling for acculturation, we exclude from our sample all migrants who arrived to the U.S. as children (younger than 13 years of age). According to Rumbaut (2004), those who arrived to the U.S. in early childhood might have experiences and adaptive outcomes that are closer to U.S. born second generation. Myers et al. (2009) finds that the effects of early arrival in the U.S. are greater for English proficiency, education, and other socioeconomic indicators.

Overall, Mexican migrants in the U.S. tend to be younger and have better health outcomes than non-Hispanic Whites, except for diabetes and obesity. At the same time, they tend to have lower socioeconomic status, measured by education, earnings, and homeownership. The question is then, are Mexican migrants in the U.S. selected in terms of health outcomes or is their relative health performance a result of general conditions prevalent for all Mexicans? Finally, we consider whether or not any of these positive selectivity effects, if present, are negatively correlated with time spent in the U.S.

4. Methodology

To analyze the relative health status of Mexican migrants and non-Hispanic Whites, this study uses a modification of the Blinder (1973) – Oaxaca (1973) decomposition technique. This technique is typically used to analyze mean earnings differences between two groups, but it can be used also to compare health outcome differences between two population groups. The Blinder-Oaxaca decomposition technique could be used to decompose health outcomes differences (for cancer, heart condition, hypertension, diabetes, obesity, and ulcers) between two population groups into two components: the explained portion, which captures the part of the difference in disease rates explained by differences in observed determinants of health status (smoking, exercise, income, educational attainment, gender, etc.), and the unexplained portion, which captures the part explained by differences in the effects of those observed determinants on health status (the coefficients).

The groups we analyze are U.S. non-Hispanic Whites (A), Mexican migrants living in the U.S. (B), and Mexicans living in Mexico (C). We define Y_{ig} as the health outcome of individual i belonging to group g and X_{ig} as a vector of her observed health determinant

characteristics. Comparing health outcomes of non-Hispanic Whites and Mexican migrants, the traditional Blinder-Oaxaca decomposition for the linear regression model is:

$$\bar{Y}_A - \bar{Y}_B = (\bar{X}_A - \bar{X}_B)\hat{\beta}_A + \bar{X}_B(\hat{\beta}_A - \hat{\beta}_B) \quad (1)$$

where the bars above variables indicate mean values and the hats represent OLS coefficient estimates. Following the Blinder-Oaxaca technique, the first component on the right-hand side of Equation (1) represents the portion of the health outcome rates difference attributed to differences in observed characteristics between groups. The second component represents the portion that cannot be explained by differences in observed characteristics. This component originates from differences in the coefficients of those observed characteristics between groups. The differences in the returns to observed characteristics are assumed to be due mainly to differences in unobserved characteristics, like genetic endowments, cultural effects, environmental conditions, etc. Some of these characteristics might help determine individuals' health status but might be unobserved due to complete unavailability or simple omission.

The sign of each decomposition component depends on the differences in observed characteristics and on the signs of the covariates' coefficients related to health outcomes. Some observed characteristics are positively correlated with some diseases (e.g., smoking and cancer) and some others are negatively correlated (e.g., exercising and heart condition).

However, the traditional Blinder-Oaxaca decomposition technique is to be used in linear regressions. To apply the decomposition technique to models using binary health outcome indicators as dependent variables, a nonlinear extension of the technique could be used (Fairlie, 2006; and Bauer and Sinning, 2008). Instead, we use the predicted health outcomes ($\hat{Y}_{ig}$) as the dependent variables replacing the actual binary health outcome indicators (Y_{ig}) and apply the traditional linear decomposition technique. We decided to use the linear version because it facilitates the identification of the source and type of the selectivity among Mexican migrants in the U.S. Nevertheless, the linear technique with predicted health outcomes and the nonlinear technique with the binary health outcomes provide similar results[6].

The predicted health outcome represents an individual's predicted probability of presenting a disease given her observed individual characteristics and her group's estimated coefficients. Accordingly, individual´s predicted health outcomes are computed by running probits for each group separately using age, height, weight, marital status, health coverage, number of kids, number of elders, years of education, highest educational attainment among family members, head-of-household status, house ownership status, regular activity indicator, smoker indicator, family income (in deciles), and a dummy for whether or not the survey was conducted in English as the determinants of binary health conditions. The predicted health outcome of an individual then is computed using her observed individual characteristics and her group's estimated coefficients.

Although informative, analyzing the HHP and the corresponding contribution of observed and unobserved characteristics on the disease rate differences between Mexican migrants and non-Hispanic Whites does not represent in any way evidence for the health selectivity of Mexican migrants in the U.S. That can only be achieved by comparing the migrant population to the residents on their country of origin, in this case Mexico.

To do so, we use information of Mexicans residing in Mexico (which by nature might be less subjected to selection)[7] to impute health outcomes for Mexicans living in the U.S. (which might be selected). The idea is to construct artificial groups of individuals that have the observed characteristics (or the returns to such observed characteristics) of Mexican migrants but have the returns to such observed characteristics (or the observed characteristics) of Mexicans living in Mexico[8].

To be specific, the first step is to compare predicted health outcomes for non-Hispanic Whites (A) and Mexican migrants (B) using Equation (1). We then construct a group of people (BC) that have the observed characteristics of Mexicans living in the U.S. (B) but the coefficients of Mexicans living in Mexico (C). Their predicted health outcomes are: $\hat{Y}_{BC} = X_B \hat{\beta}_C$. Similarly, we construct a group of people (CB) with the observed characteristics of Mexicans living in Mexico (C) but with the coefficients of Mexicans living in the U.S. (B). Their predicted health outcomes are: $\hat{Y}_{CB} = X_C \hat{\beta}_B$. Groups (BC), and (CB) will be then compared to non-Hispanic Whites (A) using Blinder-Oaxaca

decompositions to obtain evidence of migrant´s health selectivity in terms of unobserved and observed characteristics, respectively.

To obtain evidence of health selectivity in terms of unobserved characteristics, the non-Hispanic Whites group (A) is compared to the constructed group (BC) as follows:

$$\hat{\bar{Y}}_A - \hat{\bar{Y}}_{BC} = (\bar{X}_A - \bar{X}_B)\hat{\beta}_A + \bar{X}_B(\hat{\beta}_A - \hat{\beta}_C) \quad (2)$$

The right-hand side of Equations (1) and (2) are almost identical, with the exception of the last component. The last component of Equation (1), $\bar{X}_B(\hat{\beta}_A - \hat{\beta}_B)$, compares the coefficients of non-Hispanic Whites and Mexican migrants. The last component of Equation (2), $\bar{X}_B(\hat{\beta}_A - \hat{\beta}_C)$, compares the coefficients of non-Hispanic Whites and Mexicans in Mexico. Both are evaluated at Mexican migrants' observed characteristics (X_B).

We claim that if Mexican migrants were randomly drawn from the Mexican population in terms of unobserved characteristics both components would be statistically identical. That is, any significant difference between these components is interpreted as evidence of health selectivity of Mexican migrants in terms of not observed characteristics. More specifically, if the component from equation (1) is significantly larger (more positive) than the component from equation (2), we then say that Mexican migrants in the U.S. are positively selected in terms of unobserved characteristics when compared to non-migrants living in Mexico.

It is very important to note here that if some important health determinant is not controlled for it might have a real effect on the regression coefficients estimates. Consequently, the decomposition results might misinterpret the effects of this unobserved characteristic and the lack of proper model specification with health selectivity effects. For example, the level of acculturation for Mexican migrants in the U.S. might affect their propensity to smoke and their disposition to exercise, and consequently their relative health status. This implies that not controlling for acculturation might affect other determinants

and their effects on health status and lead to misinterpreting the decomposition results as health selectivity effects in terms of unobserved characteristics.

To obtain evidence of health selectivity in terms of observed characteristics, the non-Hispanic Whites group (A) can be compared to the constructed group (CB) as follows:

$$\hat{Y}_A - \hat{Y}_{CB} = (X_A - X_C)\hat{\beta}_A + X_C(\hat{\beta}_A - \hat{\beta}_B) \quad (3)$$

The first component on the right-hand side of Equations (1) and (3) are similar. The first component of Equation (1), $(X_A - X_B)\hat{\beta}_A$, compares the observed health determinants of non-Hispanic Whites and Mexican migrants, while the first component of Equation (3), $(X_A - X_C)\hat{\beta}_A$, compares the observed health determinants of non-Hispanic Whites and Mexicans in Mexico. Both are evaluated at non-Hispanic Whites' coefficients ($\hat{\beta}_A$).

Here we claim that if Mexican migrants were randomly drawn from the Mexican population in terms of observed health determinants both components would be statistically identical. So, any difference between these components is interpreted as evidence of health selectivity in terms of observed characteristics.

To reiterate, decomposition results from equation (1) allow us to observe the HHP, but obtaining estimates from equations (2) and (3) and comparing them to those from equation (1) allows us to assess whether or not migrant selectivity in terms of observed or not observed characteristics exists, therefore explaining the HHP. That is, we can assess whether the relative health performance of Mexican migrants in the U.S. would be the same as for the non-migrant Mexican population or if Mexican migrants' relative health performance is driven in part by selectivity. Finally, applying the decomposition technique to separate specifications would assist us in determining whether or not selectivity effects, if present, work the same way for different health conditions and across genders.

Results

This section presents the decomposition results by gender using predicted disease prevalence for several health conditions and for non-Hispanic Whites (A), Mexican migrants in the U.S. (B), and the two constructed groups (BC) and (CB)[9].

Table 2 presents the decomposition results from Equations (1) - (3) using the 2002 NHIS and the MxFLS survey data[10]. Regressions include age, height, weight, marital status, health coverage, number of kids, number of elders, years of education, highest educational attainment among family members, head-of-household status, house ownership status, regular activity indicator, smoker indicator, family income (in deciles), and a dummy for whether or not the survey was conducted in English as health determinants.

The decomposition results present separately the first component (Charac.), the portion of the difference in predicted health outcomes that is due to differences in observed health determinants, the second component (Coeff.), the portion that is due to differences in the effects of observed health determinants, and the total difference in predicted prevalence rates between groups (Raw). Decomposition estimates for females for all conditions and groups are statistically significant. For males, the estimates for all groups for cancer, obesity, and ulcers are statistically significant.

('Insert Table 2 Here')

The first and fourth panels of Table 2 present the decomposition results from Equation (1), comparing non-Hispanic Whites (A) and Mexican migrants in the U.S. (B). For males, most of the differences in predicted disease prevalence for cancer and obesity are driven mainly by differences in observed determinants. For cancer, the first component is driven mainly by differences in age, the number of kids in the family, and income, while obesity is driven mainly by differences in education, the language of the interview, and height. For heart condition, hypertension, and ulcers, most of the differences are driven by differences in unobserved characteristics.

Consistent with the literature, the results for women are significantly different than for men for most conditions (Rubalcava et al., 2008). Differences in cancer and heart condition

are explained in roughly the same proportion by each component, while differences in diabetes and obesity are explained mainly by differences in observed determinants. For diabetes, the first component is driven mainly by differences in age, education, the language of interview, and height, while obesity is driven mainly by differences in education, age, physical activity, and height.

The estimates from the first panel in Table 2 can also be used to answer questions like, what would be the difference in cancer rates if Mexican migrant males and non-Hispanic Whites had the same observed characteristics on average? The answer would be around 1% higher for non-Hispanic Whites, instead of the current almost 4%. The fourth panel in Table 2 shows that if Mexican migrant females had the same observed characteristics than non-Hispanic Whites, their diabetes rate would be around 3% lower for Mexican migrants, instead of the current 2% higher.

Overall, the decomposition estimates using the NHIS data show that the HHP is not driven only by differences in observed determinants between non-Hispanic Whites and Mexican migrants in the U.S. This implies that unobserved characteristics, like genetic endowments, environmental conditions, or cultural effects might be playing a significant role in driving disease prevalence differences between these groups.

To consider the possibility that health selectivity of Mexican migrants in the U.S. might be playing a role in their relative health performance, the second and fifth panels of Table 2 present the decompositions results from Equation (2), the differences in predicted disease prevalence between non-Hispanic Whites (A) and the constructed group (CB) for males and females respectively. As mentioned before, the component that is due to differences in observed health determinants (Charac.) will be compared to the one obtained previously in panel one and four to inquire into the existence of migrants´ selectivity in terms of observed characteristics.

Panel two in Table 2 show that, for cancer, the first component represents 3.7%, compared to 2.6% from the first panel. These estimates suggest that if Mexican migrant males in the U.S. would have been randomly selected in terms of health determinants, like age, education, etc., the disease prevalence difference when compared to non-Hispanic

White males would have been 1.1% higher (4.8% versus 3.7%). This represents evidence that Mexican migrant males are negatively selected in terms of observed characteristics for cancer.

Following a similar procedure, the third and sixth panels of Table 2 present the decompositions results from Equation (3), the differences in predicted disease prevalence between non-Hispanic Whites (A) and the constructed group (BC) for males and females respectively. In this case, the second component (Coeff.) will be compared to the one obtained previously in panel one and four to consider whether or not Mexican migrants in the U.S. are selected in terms of unobserved characteristics.

The sixth panel in Table 2 show that, for hypertension, the second component represents 7.5% and we compare this to 9.3% from the fourth panel. These estimates suggest that if Mexican migrant females in the U.S. would have been randomly selected in terms of not observed characteristics the disease prevalence difference when compared to non-Hispanic White females would have been 1.8% lower (0.0% versus 1.6%). This represents evidence that Mexican migrant females are positively selected in terms of unobserved characteristics for hypertension.

Following this procedure for all health conditions and genders, Table 3 summarizes the selectivity results. Column (1) presents the original decomposition estimates from Equation (1), for men and women separately. Column (2) presents the decompositions' first components (Charac.) from Equation (2), the second component (Coeff.) from Equation (3), and the sum of the two. The estimates in Column (2) are considered as the decomposition results in case Mexican migrants in the U.S. were randomly drawn in terms of observed and not observed characteristics. Column (3) presents the difference between columns. Positive values are considered evidence of positive selection while negative values are considered evidence of negative selection.

('Insert Table 3 Here')

For both males and females, we found evidence that Mexican migrants in the U.S. are negatively selected in terms of both observed and not observed characteristics for cancer

and obesity. That implies that if Mexican migrants were randomly drawn from the Mexican population, their health performance relative to non-Hispanic Whites would have been even better. On the other hand, we found evidence of positive selection for both males and females for diabetes and ulcers, but also for hypertension for females only. That implies that if Mexican migrants were randomly drawn from the Mexican population, their health performance relative to non-Hispanic Whites would not have been as good as it is. In terms of heart conditions and hypertension for males and heart conditions for females, the evidence of selectivity in terms of observed and not observed characteristics go in opposite direction.

Overall, our approach provides evidence of health selectivity for Mexican migrants in the U.S. This contradicts to some extent some evidence found regarding positive health selectivity only for some conditions or only weak evidence of positive health selectivity (Riosmena et al., 2013; Rubalcava et al., 2008). Furthermore, the results show that health selectivity is a complex process that seems to work significantly different for different health conditions and across genders. To illustrate further the complexity of health selectivity effects in the relative health status of Mexican migrants in the U.S., Table 4 present the results for the type of health selectivity for all conditions and across genders. It shows that, contrary to its typical representation in the literature, health selectivity of Mexican migrants in the U.S. is not a simple process and its type generally depends on the health condition and gender being considered.

('Insert Table 4 Here')

An important question at this point is, what happens to disease prevalence for Mexican migrants in the U.S. as they spend more time in the U.S.? Particular attention is paid to those health conditions that evidence suggests Mexican migrants in the U.S. are positively selected. The empirical evidence suggests that the health conditions of Hispanic migrants in the U.S. tend to deteriorate as they spend more time in the U.S. and their time in the U.S. is positively correlated with unhealthy behavior.

In Table 5, we use data from Mexico and the U.S. to compare the health conditions of future Mexican migrants and current migrants in the U.S. Future migrants still living in

Mexico have in effect zero years in the U.S., while current migrants have spent time and currently live in the U.S. Comparing future migrants (1), migrants with less than 5 years in the U.S. (2), and those with 15 or more years in the U.S. (3), although rough, is an approximation of the potential effects of spending time in the U.S. on disease prevalence. Due to sample size issues, the analysis is conducted for males and females together.

('Insert Table 5 Here')

Comparing columns (1) and (2) shows that future migrants and migrants with less than 5 years in the U.S. have for the most part similar health conditions, with the exception of obesity and ulcers. The statistics suggest that some of the migrants' health advantages might be even accentuated in the first years living in the U.S., we speculate that it might be a result of more frequent physical activity and having better access to a balanced diet once in the U.S. However, the statistics from columns (2) and (3) suggest that the positive effects for both obesity and ulcers disappear and even become negative as Mexican migrants spend more time in the U.S. The prevalence of hypertension and diabetes are also significantly higher for migrants with 15 or more years in the U.S.

The results from Table (3) provided evidence of positive selectivity for males and females in diabetes and ulcers, and also for hypertension for females only. Together with the statistics from Table (5), the results suggest that Mexican migrants to the U.S., once positive selected, might lose their health advantage through the acculturation process. Furthermore, their health conditions become worse than for non-migrants in Mexico. In terms of cancer and obesity, conditions for which evidence of negative selectivity was found, the statistics suggest that the conditions are not worsening for cancer, but they do worsen for obesity. Altogether, this study presents evidence that complex health selectivity effects are playing a significant role in the relative health status of Mexican migrants when compared to non-Hispanic Whites. However, there is evidence that suggests that the acculturation process, a more sedentary lifestyle, higher levels of stress, and the acquisition of unhealthier diets might be driving higher the prevalence of most health conditions for individuals with previous health advantages.

5. Conclusions and Implications

Data from the NHIS in the U.S. and Mexico's MxFLS were used in this study to analyze the relative health status of Mexican migrants in the U.S. and non-Hispanic Whites. Mexican migrants in the U.S. have better health conditions than non-Hispanic Whites for cancer, heart conditions, hypertension, and ulcers, but this represents no evidence of positive health selectivity. Using Oaxaca-Blinder decompositions based on predicted disease probabilities for non-Hispanic Whites, Mexican migrants in the U.S., and two constructed groups, we obtain evidence of the selectivity of Mexican migrants relative to non-migrants living in Mexico in terms of observed and not observed characteristics. This novel approach allows us to explain the relatively good health performance of Hispanics in the U.S. when compared to non-Hispanic Whites, the HHP, and to determine whether or not it is driven by health selectivity of Mexican migrants.

Decomposition estimates are statistically significant for most health conditions and across genders. This suggests that health selectivity is playing an important role in the relative health performance of Mexican migrants in the U.S., so our results differ from some of the literature that finds only weak evidence of health selectivity and only for a few health measures. More importantly, our decomposition results show that health selectivity is a complex process that does not work the same way for different health conditions and across genders. For example, the decomposition results show that both male and female Mexican migrants' relative health performance in diabetes and ulcers is explained by positive selection in terms of both observed and unobserved characteristics, but we also find evidence of negative health selectivity effects for cancer and obesity. At the same time, there is evidence that only females are also positively selected for hypertension. For other conditions, the evidence of selectivity in terms of observed and unobserved characteristics goes in opposite direction. We also compared Mexican migrants in the U.S. to future migrants still living in Mexico. Statistics suggests that migrants´ health advantages eventually disappear as they spend more time in the U.S., giving support to the literature on the negative acculturation effects. Mexican migrants in the U.S., once positively selected

for some health conditions, end up having higher disease rates than non-migrants in Mexico.

Overall, our approach helps us to explain the HHP and show evidence that the health selectivity of Mexican migrants in the U.S. is not a simple process and its type generally depends on the health condition and gender being considered. However, there are several important limitations of this study and its methodology. One of them relates to the problem of underreporting of health conditions by Mexican migrants in the U.S. Lower health care access and utilization rates among Mexican migrants have been found to lead to significant underreporting of major chronic health conditions. This implies that our decomposition results might be reflecting differences in individuals' attitudes towards accurately reporting their health status and not necessarily due to differences in characteristics or due to health selectivity effects as we claim. Another serious limitation of our study is the potential sensitivity of our health selectivity results as it relates to the proper selection of health determinants and model specification. As mentioned before, the decomposition results and consequently the evidence of health selectivity depend heavily on the proper specification of the models. This becomes particularly challenging and critical in the study of vastly different and complex processes like the prevalence of hypertension and ulcers. The potential lack of appropriate detail and depth in discussing individual health outcomes with significantly different underlying mechanisms limits significantly our results, and consequently its inferences on health selectivity in general. This limitation is particularly evident in the application of the exact same methodology to male and females and to health conditions with significantly different etiologies as cancer and obesity.

Decomposition in terms of observable and unobservable characteristics is commonly used in researches that analyze wage differentials between two groups. However, this is the first time that is used, at least to our knowledge, to explain the migrant selectivity process when comparing health outcomes.

Nonetheless, the contribution of this paper to the study of the relative health status of Mexican migrants in the U.S. and the explanation of the HHP is clear. We believe that the approach taken in this paper can be used as a guide or as a reference in the study of health

selectivity of international migrants in general. Based on our decomposition results and the evidence of the complexity of health selectivity effects, we believe that following the approach taken in this paper together with a rigorous and in-depth analysis of the underlying processes determining a specific health condition can significantly further the understanding of the relative health status of Mexican migrants in the U.S. and international migrants in general. Furthermore, we believe that our approach can be used also to analyze other relevant questions related to international migrants like the analysis of differences in school attainment, earnings, mortality rates, and even crime rates between natives and international migrant groups and between first and second generation migrants.

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Appendix

A.1 Nonlinear decomposition technique results using dichotomous health indicator

Nonlinear Model Decompositions

MALES		NHIS Non-Hispanic Whites (A) Compared to NHIS Mexicans (B)					
(1)		Cancer	Heart Condition	Hypertension	Diabetes	Obesity	Ulcers
NHIS Mexicans=625	Charac.	0.023	0.004	-0.008	0.003	0.077	-0.046
NH Whites=6,358	Coeff.	0.013	0.027	0.114	-0.002	-0.064	0.074
	Raw	0.037	0.031	0.106	0.002	0.013	0.028
FEMALES		Cancer	Heart Condition	Hypertension	Diabetes	Obesity	Ulcers
(4)	Charac.	0.027	0.021	-0.068	-0.043	-0.066	-0.012
NHIS Mexicans=647	Coeff.	0.028	0.020	0.084	0.024	0.016	0.042
NH Whites=7,070	Raw	0.055	0.041	0.016	-0.019	-0.050	0.030

A.2 Constructed Groups (CB) and (BC)

Once predicted health outcomes are computed for male and female and for each health condition for non-Hispanic Whites (A) and Mexican migrants (B), groups (CB) and (BC) are constructed. To construct group (CB), Mexican non-migrants (C) and Mexican migrants (B) are merged into a dataset. Probits are then run only for Mexican migrants (B) for males and females and for each health condition separately. After each regression, the predicted health outcomes are computed for both groups, including Mexican non-migrants (C): $\hat{Y}_{iC} = X_{iC}\hat{\beta}_B$. Finally, Mexican migrants (B) are dropped from the dataset and the people remaining would effectively have the characteristics of Mexican non-migrants (C) and the coefficients of Mexican migrants in the U.S. (B), group (CB). Their predicted health outcomes would be compared later to non-Hispanic Whites.

To construct group (CB), Mexican non-migrants (C) and Mexican migrants (B) are merged again into a dataset. This time, probits are run only for Mexican non-migrants (C) for males and females and for each health condition separately. After each regression, the predicted health outcomes are computed for both groups, including Mexican migrants (B):

$\hat{Y}_{iB} = X_{iB}\hat{\beta}_C$. Finally, Mexican non-migrants (C) are dropped from the dataset and the people remaining would effectively have the characteristics of Mexican migrants (B) and the coefficients of Mexican non-migrants (C), group (BC). Their predicted health outcomes would also be compared later to non-Hispanic Whites.

Table 1. Summary Statistics
2002 NHIS and MxFLS data: Males

		NH-Whites		**NHIS Mexicans**		**MxFLS non-migrants**	
		(A)	(A)-(B)	(B)	(B)-(C)	(C)	(A)-(C)
Condition	Cancer	0.043	***	0.006		0.003	***
		(0.202)		(0.080)		(0.056)	
	Heart Condition	0.051	***	0.019		0.018	***
		(0.220)		(0.137)		(0.134)	
	Hypertension	0.202	***	0.094	***	0.062	***
		(0.401)		(0.291)		(0.240)	
	Diabetes	0.045		0.042		0.048	
		(0.206)		(0.200)		(0.213)	
	Obesity	0.224		0.211		0.206	***
		(0.417)		(0.408)		(0.404)	
	Ulcers	0.067	***	0.039	***	0.066	
		(0.250)		(0.193)		(0.248)	
Variable							
Age		41.285	***	35.737	***	37.253	***
		(12.453)		(10.706)		(12.916)	
Married		0.585	***	0.713		0.722	***
		(0.492)		(0.452)		(0.448)	
Health Coverage		0.845	***	0.451		0.450	***
		(0.361)		(0.498)		(0.497)	
Years of Education		13.812	***	9.342	***	5.831	***
		(2.259)		(3.810)		(4.060)	
Family Kids		0.617	***	1.418	***	1.833	***
		(1.020)		(1.400)		(1.588)	
Family Elders		0.034		0.024	***	0.143	***
		(0.203)		(0.191)		(0.419)	
Family Highest Education		4.218	***	2.632	***	1.940	***
		(1.121)		(1.297)		(0.909)	
Family Income		5.511	***	3.571	***	5.370	
		(2.911)		(2.363)		(2.858)	
Own House		0.701	***	0.424	***	0.705	
		(0.457)		(0.494)		(0.456)	
Physical Activity		0.714	***	0.466	***	0.235	***
		(0.451)		(0.499)		(0.424)	
Household Head		0.911	***	0.837	***	0.704	***
		(0.284)		(0.369)		(0.456)	
Smoker		0.533	***	0.421	***	0.314	***
		(0.498)		(0.494)		(0.463)	
English		0.996	***	0.423			
		(0.061)		(0.494)			
Height		70.513	***	67.344	***	65.310	***
		(2.584)		(2.526)		(2.969)	
Weight		191.788	***	176.653	***	162.019	***
		(31.945)		(27.225)		(30.188)	
Observations		6,327		620		4,925	

Notes: ***p<0.01, **p<0.05, *p<0.1.

Table 1. Summary Statistics (Continued)
2002 NHIS and MxFLS data: Females

		NH-Whites		**NHIS Mexicans**		**MxFLS non-migrants**	
		(A)	(A)-(B)	(B)	(B)-(C)	(C)	(A)-(C)
Condition	Cancer	0.068	***	0.014		0.010	***
		(0.252)		(0.117)		(0.101)	
	Heart Condition	0.062	***	0.022		0.027	***
		(0.240)		(0.146)		(0.160)	
	Hypertension	0.170	***	0.149		0.142	***
		(0.375)		(0.356)		(0.349)	
	Diabetes	0.034	***	0.051	*	0.064	***
		(0.180)		(0.220)		(0.244)	
	Obesity	0.194	***	0.253	***	0.310	***
		(0.395)		(0.435)		(0.462)	
	Ulcers	0.079	***	0.048	***	0.086	
		(0.269)		(0.214)		(0.280)	
Variable							
Age		41.012	***	36.456		36.570	***
		(12.616)		(11.412)		(12.427)	
Married		0.599	***	0.664		0.699	***
		(0.490)		(0.472)		(0.458)	
Health Coverage		0.884	***	0.504	*	0.435	***
		(0.319)		(0.500)		(0.495)	
Years of Education		13.773	***	9.365	***	5.724	***
		(2.175)		(4.097)		(3.926)	
Family Kids		0.786	***	1.720	***	1.977	***
		(1.092)		(1.420)		(1.610)	
Family Elders		0.054		0.040	***	0.168	***
		(0.242)		(0.204)		(0.445)	
Family Highest Education		4.206	***	2.705	***	1.925	***
		(1.127)		(1.304)		(0.918)	
Family Income		5.304	***	3.546	***	5.081	
		(2.940)		(2.440)		(2.903)	
Own House		0.702	***	0.448	***	0.712	
		(0.457)		(0.497)		(0.453)	
Physical Activity		0.701	***	0.415	***	0.146	***
		(0.457)		(0.493)		(0.352)	
Household Head		0.922	***	0.877	***	0.728	***
		(0.268)		(0.328)		(0.445)	
Smoker		0.468	***	0.156	***	0.095	***
		(0.498)		(0.362)		(0.292)	
English		0.994	***	0.415			
		(0.075)		(0.493)			
Height		64.673	**	63.089	***	60.321	***
		(2.463)		(2.311)		(2.802)	
Weight		152.205	*	154.135	***	144.421	***
		(31.893)		(28.959)		(30.322)	
Observations		7,045		643		6,888	

Notes: ***p<0.01, **p<0.05, *p<0.1.

Table 2. Predicted Disease Incidence Decompositions

		Cancer		Heart Condition		Hypertension		Diabetes		Obesity		Ulcers	
MALES													
(1)		NHIS Non-Hispanic Whites (A) Compared to NHIS Mexicans (B)											
NHIS Mexicans=620	Charac.	0.026	***	0.005	***	-0.009		-0.006	***	0.070	***	-0.043	***
NH Whites=6,327	Coeff.	0.011	***	0.023	***	0.115	***	0.008	***	-0.056	***	0.071	***
	Raw	0.037		0.028		0.106		0.002		0.014		0.028	
(2)		NHIS Non-Hispanic Whites (A) Compared to Constructed Group (CB)											
MxFLS Mexicans=4,925	Charac.	0.037	***	0.000		-0.030	***	-0.008	***	0.138	***	-0.058	***
NH Whites=6,327	Coeff.	0.004	***	-0.008	***	0.185	***	0.008	***	-0.080	***	0.088	***
	Raw	0.041		-0.008		0.156		0.000		0.058		0.030	
(3)		NHIS Non-Hispanic Whites (A) Compared to Constructed Group (BC)											
NHIS Mexicans=620	Charac.	0.026	***	0.003	***	-0.009		-0.006	**	0.070	***	-0.043	***
NH Whites=6,327	Coeff.	0.015	***	0.035	***	0.142	***	-0.001		-0.049	***	0.044	***
	Raw	0.041		0.038		0.134		-0.007		0.021		0.001	
FEMALES													
(4)		NHIS Non-Hispanic Whites (A) Compared to NHIS Mexicans (B)											
NHIS Mexicans=643	Charac.	0.028	***	0.022	***	-0.077	***	-0.052	***	-0.067	***	-0.018	***
NH Whites=7,045	Coeff.	0.027	***	0.019	***	0.093	***	0.032	***	0.016	***	0.048	***
	Raw	0.054		0.041		0.016		-0.019		-0.051		0.030	
(5)		NHIS Non-Hispanic Whites (A) Compared to Constructed Group (CB)											
MxFLS Mexicans=6,888	Charac.	0.040	***	0.037	***	-0.119	***	-0.078	***	-0.054	***	-0.023	***
NH Whites=7,045	Coeff.	0.022	***	0.002	*	0.136	***	-0.024	***	-0.045	***	0.020	***
	Raw	0.062		0.039		0.017		-0.102		-0.100		-0.003	
(6)		NHIS Non-Hispanic Whites (A) Compared to Constructed Group (BC)											
NHIS Mexicans=643	Charac.	0.027	***	0.022	***	-0.077	***	-0.052	***	-0.067	***	-0.018	***
NH Whites=7,045	Coeff.	0.027	***	0.009	***	0.075	***	0.022	***	0.018	***	-0.008	***
	Raw	0.054		0.031		-0.002		-0.030		-0.049		-0.026	

Source: Own estimations with 2002 NHIS and MxFLS data.

Notes: Standard errors obtained via bootstrap method. ***p<0.01, **p<0.05, *p<0.1.

Table 3. Original and Selectivity-Adjusted Decompositions

		MALES			FEMALES		
		Original Decomposition	Selectivity Adjusted	Difference (1)-(2)	Original Decomposition	Selectivity Adjusted	Difference (1)-(2)
		(1)	(2)	(3)	(1)	(2)	(3)
Cancer	Charac.	0.026	0.037	-0.011	0.028	0.040	-0.013
	Coeff.	0.011	0.015	-0.004	0.027	0.027	-0.001
	Raw	0.037	0.052	-0.015	0.054	0.068	-0.013
Heart Condition	Charac.	0.005	0.000	0.005	0.022	0.037	-0.015
	Coeff.	0.023	0.035	-0.012	0.019	0.009	0.010
	Raw	0.028	0.035	-0.008	0.041	0.046	-0.005
Hypertension	Charac.	-0.009	-0.030	0.021	-0.077	-0.119	0.042
	Coeff.	0.115	0.142	-0.028	0.093	0.075	0.018
	Raw	0.106	0.113	-0.007	0.016	-0.044	0.060
Diabetes	Charac.	-0.006	-0.008	0.002	-0.052	-0.078	0.026
	Coeff.	0.008	-0.001	0.009	0.032	0.022	0.010
	Raw	0.002	-0.009	0.011	-0.019	-0.056	0.037
Obesity	Charac.	0.070	0.138	-0.068	-0.067	-0.054	-0.013
	Coeff.	-0.056	-0.049	-0.007	0.016	0.018	-0.002
	Raw	0.014	0.089	-0.076	-0.051	-0.036	-0.014
Ulcers	Charac.	-0.043	-0.058	0.014	-0.018	-0.023	0.005
	Coeff.	0.071	0.044	0.027	0.048	-0.008	0.056
	Raw	0.028	-0.014	0.041	0.030	-0.031	0.061

Table 4. Selectivity Type Based on Decomposition Results

	Males		Females	
	Observed	Not Observed	Observed	Not Observed
Cancer	-	-	-	-
Heart Condition	+	-	-	+
Hypertension	+	-	+	+
Diabetes	+	+	+	+
Obesity	-	-	-	-
Ulcer	+	+	+	+

Table 5. Disease Incidence by Time Spent in the U.S.

NHIS 2002 Mexicans and MxFLS Future Migrants

2002 NHIS Mexican Migrants

Years in the U.S.	Percentage
Less than 1	2.27
1 - < 5 Years	16.21
5 - < 10 Years	18.41
10 - <15 Years	21.98
15 and More Years	41.14

	Future Migrants		Current Migrants- Years in the U.S.			
Disease Incidence			Less than 5		15 or More	
	(1)	†	(2)	††	(3)	†††
Cancer	0.009		0.007		0.015	
	(.005)		(0.005)		(0.004)	
Heart Condition	0.029		0.015		0.028	
	(.009)		(0.007)		(0.006)	
Hypertension	0.077		0.048	***	0.176	***
	(.014)		(0.013)		(0.015)	
Diabetes	0.024		0.015	***	0.084	***
	(.008)		(0.007)		(0.011)	
Obesity	0.165	*	0.109	***	0.286	***
	(.019)		(0.023)		(0.019)	
Ulcers	0.068	***	0.007	***	0.065	
	(.013)		(0.005)		(0.010)	
Observations	298		666		558	

Notes: †: Statistical significance with respect to migrants with less than 5 years in the U.S.

††: Statistical significance with respect to migrants with 15 or more years in the U.S.

†††: Statistical significance between future migrants and migrants with 15 or more years in the U.S.

[1] Riosmena et al. (2013) find evidence of positive Mexican migrant selection for height, hypertension, and self-rated health. Rubalcava et al. (2008) find only weak evidence of Mexican migrant positive health selectivity in terms of overall health.

[2] This study independently analyzes different population groups from the NHIS, but the NHIS sample data might not be representative of those population groups.

[3] The MxFLS asks, "Have you ever been diagnosed with…", while the NHIS asks, "Have you ever been told by a doctor or health professional that you have…"

[4] Mexican future migrants are identified in the 2002 MxFLS as those who migrated to the U.S. within the following 3 years.

[5] Another proxy for acculturation might be the percentage of foreign-born in the state of residence. Unfortunately, the NHIS does not provide information on the state of residence and the MxFLS does not provide information on the state of destination in the U.S.

[6] Appendix A.1 presents the decomposition results using the nonlinear technique and the dichotomous health indicator. These results do not differ significantly from the main results presented in Table 2.

[7] According to Mincer (1978), the decision to migrate takes place at the family level. The family's efficient migration decision maximizes the total net benefits to all family members, including all costs. This implies that the family would choose to send the migrant the represents the greatest benefits to the family. According to the healthy migrant hypothesis, the healthiest member might also represent the greatest benefits from migration. Therefore, family members that do not migrate are not as selected as the ones that migrate.

[8] Appendix A.2 describes in detail the construction of the two artificial groups.

[9] The main decomposition compares non-Hispanic Whites and Mexican migrants. Decomposition analysis using the Mexican-American U.S.-born group instead of non-Hispanic Whites was conducted and the results are significantly different, especially for some conditions like obesity and heart conditions. However, the results in terms of selectivity are similar.

[10] Decomposition results using Equation (1) could be obtained using NHIS data for 2002-2010, and the results do not change significantly. Unfortunately, only 2002 data is available for the MxFLS, so for comparability we consider only the 2002 round for both surveys.