

The Effect of Mexico-U.S. Immigration on Elderly Cancer Diagnostics and Subjective Well-being

Background

Native born and immigrant Mexican Americans comprise a significant portion of elderly Americans. Despite the fact that many studies have approached Mexican-U.S. immigration as a short-term strategy for improving economic status, relatively little attention has been given to how the immigration experience affects the long-term health of the elderly. Cross-national comparisons of Mexican-origin elders' objective disease diagnostics and subjective mental health assessments are even less adequate. As a result, researchers and policymakers have an incomplete understanding of the opportunities and challenges facing immigrants.

To assess the effects of disease diagnostics on health outcomes, this study considers cancer sufferers. Among common chronic diseases, cancer treatment relies most heavily on objective medical diagnostics. Effective diagnostics help patients receive timely treatment and lengthen life expectancy. But countries at different levels of socio-economic development may have differing levels of diagnostic technology and populations may vary in their acceptance of medical or preventative-care services. This study compares the cancer diagnostics of U.S.-born Mexican Americans, immigrant Mexican Americans, and elders residing in Mexico, in order to investigate the effect of Mexican-U.S. immigration on the health of immigrants and returning immigrants. In addition, a subjective assessment of mental health is used to capture another dimension of the long-run health consequences of immigration. For both aspects, I conducted population-level analyses using the Sullivan Method, and individual-level analyses using multivariate statistics. I argue that while immigrant elders in the United States are better able to take advantage of American cancer diagnostics, they are still less healthy than the others once population mortality and other factors are considered. Immigrant women are also more likely than their counterparts in Mexico to suffer from psychological stress. Thus, the diagnostic advantages of the host country are counter-balanced by the negative effect that immigration has on objective and subjective health outcomes. These findings have important demographic and policy implications for both countries.

Research Methods

Hypotheses

I expect that because cancer diagnostics in Mexico are not as advanced as in the United States, elders in Mexico will have the lowest cancer prevalence among the groups being investigated. In spite of the opportunities that better diagnostics may provide immigrants, I hypothesize that U.S.-born Mexicans have a longer healthy life expectancy without cancer than their immigrant counterparts because their mortality structure is likely to be similar to other native-born American groups. Although immigrants may realize some benefit in the area of diagnostics, I hypothesize that immigration and acculturation will have a negative influence on immigrant Mexican elders' mental health.

Data

Several datasets are used to examine Mexican-origin elders' cancer diagnostics and mental health. For the population-level analysis, the U.S. and Mexican Census data as well as the death count data are used to construct life tables. Two survey datasets, The Hispanic Established Populations for the Epidemiologic Studies of the Elderly (Hispanic EPESE), and the Mexican Health and Aging Study (MHAS), are used to estimate cancer and depression prevalence rates. For the individual-level analysis, the Hispanic EPESE and the MHAS are used to examine how immigration, acculturation, socioeconomic status, social support, and demographic factors affect the health outcomes of Mexican immigrant (residing in the U.S.) and returning immigrants (residing in Mexico).

The Hispanic Established Populations for the Epidemiologic Studies of the Elderly (Hispanic EPESE)

For the Mexican American analysis, the Hispanic Established Populations for the Epidemiologic Studies of the Elderly (Hispanic EPESE) data is employed. The baseline data of the Hispanic EPESE was collected between September 1993 and June 1994. The data comprises a representative sample of 3050 non-institutionalized Hispanic American elderly, aged 65 years and older, residing in the five southwestern states of Arizona, California, Colorado, New Mexico, and Texas. With proper weighting, the analytical results can be generalized to the population.

This dataset is suitable for my research purpose because it provides a unique chance for investigators to appraise immigrant and non-immigrant Hispanic elders' physical health and mental health. Acculturation variables including migration duration, English proficiency, social interaction, are also available through this dataset. About 93% in the baseline wave of the respondents are Mexican elders. I use the third wave data, which is based on the follow-up interviews conducted between 1998 and 99, to execute my statistical analysis. After excluding non-Mexican elders, the final sample has 1,666 Mexican seniors age 70 and above, including 929 U.S.-born and 737 Mexico-born elders.

Mexican Health and Aging Study (MHAS)

The MHAS data is employed to perform the analysis in Mexico. The MHAS is a national representative panel data investigating various aspects in aging process of older Mexican population. The baseline survey was conducted in 2001. The sampled respondents were age 50 and above and their spouses, regardless of their ages, were also interviewed. A total sample size of the 2001 MHAS is 15,186. The second wave of the study, which was conducted in 2003, provides follow up information for the baseline respondents.

The dataset contains rich information allowing the construction of a parallel analysis using the Hispanic EPESE. Furthermore, because MHAS interviewed elders' Mexico-U.S. immigration experience, it is possible to examine return immigrants' health status. This will demonstrate the cancer diagnostics and mental health differentials between return immigrants and non-immigrant elders in Mexico. Moreover, a comparison of the MHAS with the Hispanic EPESE, will provide a more complete picture of the health profile of Mexican-origin elders. To maximize compatibility with the Hispanic EPESE analysis, I use the 2001 data for the proposed project. Excluding individuals younger than age 70, the final sample size is 3022. 358 cases are returned immigrants.

Variables

Population-level analysis

The prevalence rates of ever diagnosed with cancer derives from the survey question “Has a doctor ever told you that you have cancer or a malignant tumor?” To assess mental health, I use 7 Epidemiologic Studies Depression Scale (CESD) questions to calculate prevalence rates of having any depression symptom. These symptoms include whether the elder felt depressed, sad, unhappy, lonely, not enjoyed life, everything was an effort, and sleep was restless. These prevalence rates are separately calculated by taking elders’ age, sex, Mexico-U.S. immigration status, and country of residence into account.

Personal-level analysis

The dependent variables of the personal-level analysis are two dichotomized variables: whether the elder is diagnosed with cancer, and whether the elder has any of the 7 depression symptoms. The major independent variables are summarized as followings:

1. Mexican-U.S. immigration status (for the analysis in U.S.) / whether the elder is a return immigrant (for the analysis in Mexico).
2. Socioeconomic status: Including years of education and family income.
3. Acculturation: Including years residing in U.S., age migrated to U.S., English proficiency, and social interaction with other Mexican-origin population. These variables only apply for elders who are immigrants in the U.S, and return immigrants back in Mexico.
4. Control variables: Including elder’s gender, age, marital status, size of the household, and whether has health insurance coverage.

Analytical strategy

Population-level analysis

This analysis is divided into two parts. In the first phase of the study, the Sullivan Method is used to calculate years of healthy life expectancy without cancer and depression symptom for Mexican-origin elders age 70 and above. The healthy life expectancy estimated by the Sullivan Method reflects the current health status of a population adjusted for age-specific mortality (Jagger, 1999). With the life tables (conditioned on the factors of interests) and the disease prevalence rates of the population, it provides succinct estimations of healthy years remained at starting age X. In this study, the estimations are performed for different elderly groups by their gender, age, immigration status, and country of residence.

Personal-level analysis

A major drawback of the Sullivan Method is that only a limited number of factors can be incorporated into the analysis. To further demonstrate how Mexican-U.S. immigration, acculturation, socio-economic status and demographic background influence individual elder’s cancer diagnostics and mental health, I use multivariate logistic regression models to examine the relationships between the independent and the dependent variables. I also simulate the probabilities

of being diagnosed with cancer and having any of the depression symptoms by elders' gender, age, immigration status (or return immigrant status), country of residence, acculturation, and socioeconomic status in the personal-level analysis.

Please see Table 1 for a summary of data sources and analytical strategies.

[Insert Table 1 here]

Preliminary findings

Population-level analysis: Comparison for men

Elderly men residing in Mexico have the lowest rate of cancer diagnosis among the three sub-groups. U.S.-born Mexicans may be more likely than immigrant Mexicans to use medical and preventative-care services, and therefore have higher cancer prevalence rates.

Figure 1 presents years of healthy life expectancy without cancer for men. Taking population mortality into consideration, immigration to the United States has a negative effect on the healthy life expectancy without cancer. Moreover, immigrant men become more disadvantaged as they grow older. U.S.-born Mexican males have the longest healthy life expectancy without cancer, followed by elders living in Mexico.

[Insert Figure 1 here]

The examination of subjective health based on the CESD indicators shows that elderly residents of Mexico have the highest rates of depression symptom, and the shortest healthy years without depression. Immigrant men in United States are more vulnerable than U.S.-born Mexicans to depression. The gap between U.S.-born and immigrant men is largest in the oldest age group. Figure 2 is a summary of this result.

[Insert Figure 2 here]

In brief, the population-level analysis supports the hypothesis that residing in the United States increases the chances of cancer diagnostics. Furthermore, an investigation of healthy life expectancy without cancer provides evidence that immigrant elders are more disadvantaged at older ages compared to the U.S.-born Mexicans, and Mexicans residing in Mexico. It seems that U.S.-born elders are the best-off among all three groups in terms of objective and subjective health. Thus, both immigration status and country of residence affect the health of older Mexican men.

Population-level analysis: Comparison for women

Female elders in Mexico have lower cancer prevalence rates than U.S.-born and immigrant Mexican women in U.S. This is again an indication that country of residence plays an essential role in the objective disease diagnostics of the Mexican-origin population.

Figure 3 presents the years of healthy life expectancy without cancer for women. Similar to the results found in the male samples, immigrant women have the shortest years of healthy life expectancy without cancer among the three comparison groups, and the differentials becomes more obvious as they entering into later stages of life. Moreover, the healthy-year disparities between the U.S.-born and the immigrant women are greater than in the analysis for men. The health disparity between women in Mexico and immigrant women in U.S. increases among the 75-79, and the 80 years or older populations.

[Insert Figure 3 here]

Women's depression shows an interesting pattern. The depression prevalence rates for women live in Mexico decline with older ages but increase over time for the U.S.-born and immigrant women in the United States. Immigrant women eventually have the highest rate of depression. For the 80 and plus age group, about 69% of the immigrant Mexican women report having at least one depression symptom.

Figure 4 displays differentials in years of healthy life expectancy without depression symptom. U.S.-born Mexican women have the longest years without suffering from depression. Immigrant women are the worst-off and Mexican residents occupy the middle position. Hence, immigration to the United States may be a source of psychological stress for older women.

[Insert Figure 4 here]

Compared with the results found in the male samples, one may further suggest that immigration has a stronger negative effect on women's health than on men. For example, the finding from the cancer analysis indicates that over time immigrant women's healthy years without cancer declines to a greater extent than men's. Also, while immigrant men have longer years without any depression symptoms compared to men live in Mexico, immigrant women have the lowest subjective mental health assessments of the three groups.

Building upon my population-level analysis, this study continues to investigate the specific ways in which the immigration experience influences Mexican-origin elders' cancer diagnostics and depression assessments at the personal-level. The complete paper will present the full set of results and draw conclusions.

Table 1: Data sources and analytical strategies for analysis

Country	Level of analysis	Type of analysis	Data
United States	Population-level (Sullivan Method)	Constructing life tables by age, sex, and migration status for elders age 70 and older, who currently reside in U.S.	1. Integrated Public Use Micro Data Series, weighted 1% US Census 2000 (1% IPUMS, 2000). 2. Multiple Cause of Death, 1999.
		Calculating the cancer and depression prevalence rates by age, sex, Mexican nationality, and migration status.	3. The third phase of Hispanic Established Populations for Epidemiologic Studies of the Elderly, 1998-99 (H-EPESE 1998-99).
	Personal-level (Multivariate logistic regression and estimations of probability)	Examine how Mexican-U.S. immigration, acculturation, socio-economic status and demographic background affect individual elder's cancer diagnostics and mental health.	
Mexico	Population-level (Sullivan Method)	Constructing life tables by age and sex for elders age 70 and older, who currently reside in Mexico.	4. The Mexican Vital Statistics 2000, (Instituto Nacional de Estadística Geografía e Informática, 2000). 5. The Mexican Death Counts 2000, (Instituto Nacional de Estadística Geografía e Informática, 2000).
		Calculating the disease, disability, and functional limitation prevalence rates by age, sex, and ever U.S. migration experiences.	6. The first wave of the Mexican Health and Aging Study, 2001 (MHAS 2001).
	Personal-level (Multivariate logistic regression and estimations of probability)	Examine how return immigrants and non-immigrants' socio-economic status and demographic background affect cancer diagnostics and mental health.	

Figure 1: Healthy Life Expectancy without Cancer for Mexican-Origin Men, Age 70 and Above

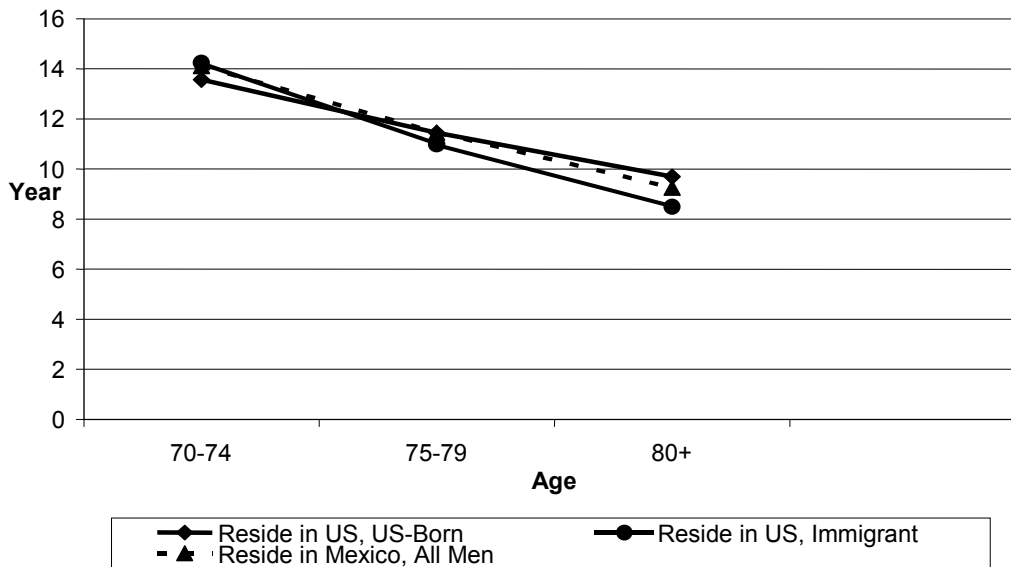


Figure 2: Healthy Life Expectancy without Any Depression Symptom for Mexican-Origin Men, Age 70 and Above

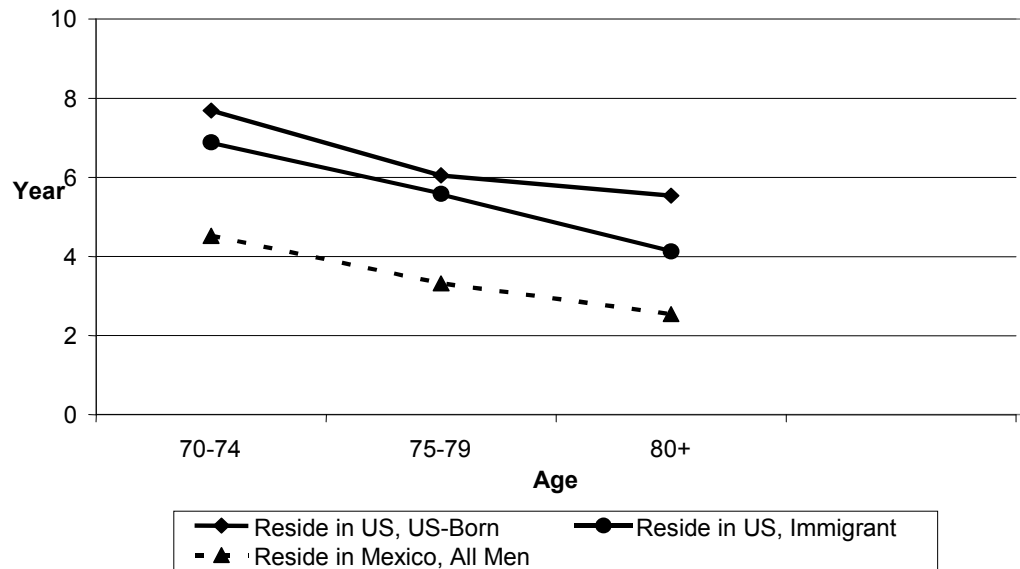


Figure 3: Healthy Life Expectancy without Cancer for Mexican-Origin Women, Age 70 and Above

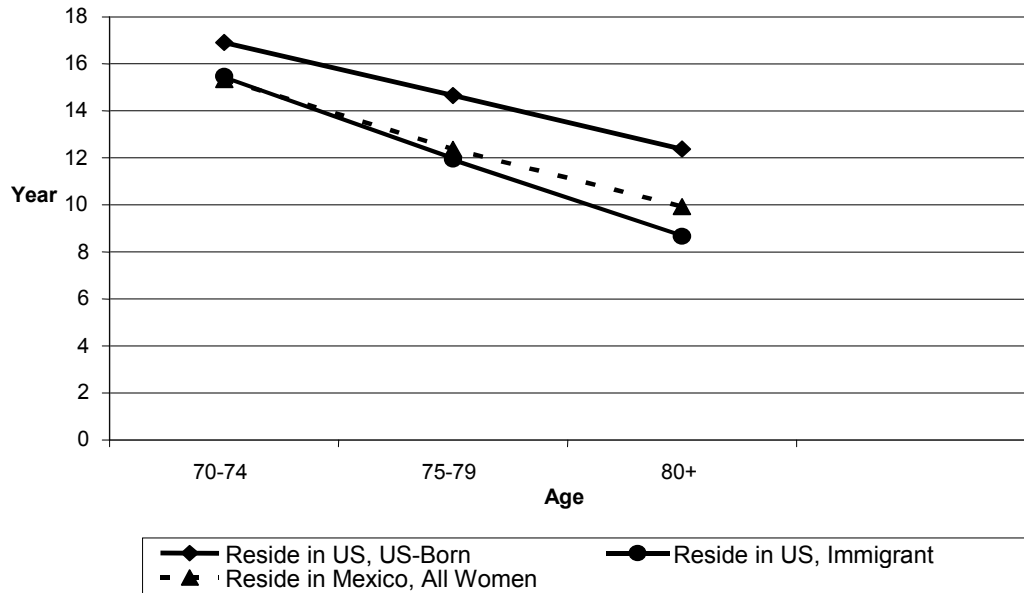


Figure 4: Healthy Life Expectancy without Any Depression Symptom for Mexican-Origin Women, Age 70 and Above

