HEALTH AND HEALTH INSURANCE TRAJECTORIES OF MEXICANS IN THE US

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ABSTRACT

We study how the health and health insurance coverage of Mexican immigrants change with time in the US. Cross-sectional analyses suggest that approximately three decades of residency in the US is associated with a 9 to 11 percentage point (12% to 15%) decline in the probability of being uninsured for Mexican men and women. However, analysis using longitudinal data and fixed effects methods show that time in the US is unrelated to health insurance coverage. Both cross sectional and longitudinal analyses provide evidence of unhealthy assimilation—self-reported health declines slightly with time in the US.

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Introduction

In the US, a third of all foreign-born people and two-thirds of all foreign-born Hispanic people are from Mexico. Mexicans are the largest and fastest growing immigrant group in the country and likely to remain so for the foreseeable future. Mexicans are also the most disadvantaged immigrants in terms of education, earnings, and legal residence status in the US (Duncan et al., 2006, Kaushal, 2009, Passel and Cohn, 2009, Ramirez, 2004, and Rumbaut et al., 2006). In 2007, 58 percent of non-elderly Mexican adults in the US did not have a high-school degree, and Passel and Cohn (2009) have estimated that 60 percent of all Mexican immigrants, and 80-85 percent of recent Mexican immigrants, are undocumented. In addition, Mexican immigrants have lower wages vis-à-vis other immigrants and US-born workers (Borjas and Katz, 2007).

Despite their relatively disadvantaged socioeconomic status, and the poorer average health (e.g., life expectancy) of persons in Mexico relative to those in the US, previous research suggests that newly arrived Mexican immigrants have similar or somewhat better health than US-born persons (Barcenas et al., 2007, Cho et al., 2004, Singh and Miller, 2004).[1] These studies suggest that Mexican immigrants are positively selected on health (Rubalcava et al., 2008, Soldo et al., 2002). An important question is whether this initial health advantage erodes with time in the US, and if so, what are the possible causes. A few studies have reported that time in the US (i.e., assimilation) is associated with declining health for Mexican immigrants (Cho et al., 2004, Escobar et al., 2000, Singh and Miller, 2004). However, there is relatively little study of how Mexican immigrant health changes with time in the US and even less study of potential causes of any change in Mexican immigrant health with time in US.

The sparseness of information about Mexican immigrants' health trajectory and its proximate determinants is an important deficit in public health knowledge. Assume, for example, that the health of Mexican immigrants declines with time in the US, as some studies suggest. The worsening health of Mexican immigrants, who are a numerically important segment of the US population, will then cause

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[1] Mexican immigrants who remain in the US have been found to have better health than Mexican immigrants who return to Mexico (Soldo, Wong, & Palloni, 2002).

private and public health insurance costs to rise and impose an external cost on other members of society because of the risk-pooling in private and social health insurance plans. This negative externality may be particularly severe in geographic areas where Mexican immigrants are a substantial part of the population. Similarly, declining health of Mexican immigrants may impose a large burden on state and local governments who bear a significant responsibility for the costs of health care of poor citizens.[2] Further, since the undocumented are barred from participating in Medicaid, which is partly federally financed, the local fiscal problem will be exacerbated if immigrant health deteriorates with time in the US.

Besides the fiscal implications, understanding changes in Mexican immigrants' health with time spent in the US, and the determinants of these changes, has important implications for human capital formation, economic growth and intergenerational mobility. Again, assume that the health of Mexican immigrants declines with time since arrival in the US. If so, it is likely that poorer health will adversely affect the earnings capacity of Mexican immigrants and this will worsen their already significant socioeconomic disadvantage vis-à-vis native born persons. Growing socioeconomic disparities may increase social tensions that can have consequences across a wide variety of outcomes such as residential segregation, crime, support for public school funding, and political contests. In addition, the (assumed) decline in health and socioeconomic position of Mexican immigrants will then be transmitted to their children, thus putting the next generation at risk of poor adult socioeconomic and health outcomes. Therefore, understanding how the health of Mexican immigrants changes with time since arrival in the US, and the potential causes of these changes, is an important part of the social and economic development of the nation.

In this paper, we examine how the health and health insurance coverage of Mexican immigrants change with time since arrival in the US. Our study makes two contributions. First, it adds to the small literature that has studied the relationship between time in the US and Mexican immigrant health.

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[2] States are responsible for approximately 50% of the cost of Medicaid and state and local governments shoulder much of the costs for the care of uninsured persons many of whom are Mexican immigrants.

Notably, we use data from a more recent, and longer, time period than previous studies.[3] In addition, our study addresses some empirical limitations of previous research such as failure to control for confounding influences of period of arrival, age at arrival and year of observation. We also use longitudinal data to account for the potential bias caused by return migration, which some have argued accounts for the apparent mortality advantage of Mexican immigrants (Palloni and Arias, 2004).

Second, we provide the first systematic study of changes in health insurance coverage of Mexican immigrants with time since immigration. Health insurance is another aspect of assimilation similar to labor market outcomes such as wages, and indeed, labor market assimilation may be related to assimilation with respect to health insurance. In addition, health insurance significantly increases financial access to health care. Thus, changes in health insurance (health) with time in the US may be an important factor affecting the health (health insurance) of Mexican immigrants. Our analysis of the changes in health insurance coverage with time in the US represents one of the few studies that have attempted to identify the proximate cause of any change in Mexican immigrant health. By obtaining estimates of the association between time since arrival in the US, and both health and health insurance, we can provide descriptive information that will establish a basis for future research concerned with identifying the causes of any associations between time in the US and health and health insurance including the effect of one on the other.

To accomplish our objectives, we use data from the March Current Population Survey for 1996-2008 to study the health and health insurance trajectories of Mexican immigrants. We obtain estimate of the associations of interest using both cross-sectional and longitudinal data and methods. Estimates from cross sectional models indicate that time since arrival in the US is negatively correlated with the probability of being uninsured for both male and female Mexican immigrants. After 15 years in the US, the probability of being without health insurance has decreased by approximately 15 to 20 percent, and after 30 years, the probability of being uninsured has declined by approximately 30 percent. However,

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[3] These studies are based on two to seven years of data that makes it difficult to control for confounding effects of period of arrival, age at arrival and years since arrival.

much of the apparent relationship between time in the US and health insurance coverage of Mexican immigrants is due to failure to control for age at arrival and period of arrival. After adjusting for these factors, the associations between time in the US and the probability of being uninsured are reduced by 50 percent or more. Estimates from longitudinal (person fixed-effects) analyses, although imprecise, suggest that there is virtually no systematic relationship between time in the US and health insurance of Mexican immigrants.

For self-reported health, estimates from cross-sectional models suggest a slight worsening of health with time in the US for Mexican women, but not for men. After 30 years in the US, self-reported health of Mexican women has declined by 23 percent of a standard deviation (relative to new arrivals). For this outcome too, we find that controls for age at arrival and period of arrival are important confounders of the relationship between time in US and self-reported health status. Estimates from longitudinal analyses are consistent with the cross-sectional estimates and suggest unhealthy assimilation for both Mexican men and women. However, these estimates imply a slightly steeper gradient between time in the US and poor health than cross sectional estimates, although we note here, and discuss in more detail below, that empirical issues warrant caution with respect to the reliability of these estimates.

Finally, we find little evidence that the health and health insurance trajectories of Mexican immigrants with time in the US are associated with each other. The addition of controls for health in analyses of the association between time in US and health insurance, and the addition of controls for health insurance in analyses of the association between time in US and health has little effect on estimates.

Previous Literature

There is a large literature on the trajectories of health of foreign-born persons since time of arrival in the US, and some research specific to Hispanic immigrants. However, there are plausible reasons to expect that these studies may not be particularly applicable to Mexican immigrants. Mexican immigrants differ from other Hispanics in terms of their modes of acculturation, civil and socioeconomic incorporation, pattern of geographic dispersion, and propensity for return migration (see, for example,

6

Akresh and Frank, 2008, Borjas and Katz, 2007, Duncan et al., 2006, Kaushal, 2008, Passel and Cohn, 2009, and Rumbaut, 2006). These differences will likely cause Mexican health trajectories to differ from those of other immigrants because of differences in knowledge of the healthcare system, education, earnings, probability of being legal residents in the US, and country of origin characteristics (quality of medical care, norms of health behaviors, prices of health inputs).

There are only a few studies that have examined the health trajectories of Mexican immigrants since time of arrival in the US.[4] Results from these studies suggest that assimilation is unhealthy for Mexican immigrants. For example, Cho et al. (2004) used data form the National Health Interview Survey (NHIS) from 1989 to 1994 to examine how health of Mexican immigrants relates to that of native born persons and how time since arrival in the US is associated with Mexican immigrant health. These authors reported that time since arrival in the US is negatively associated with health, as measured by activity limitations, bed days, and self-reported health. Singh and Miller (2004) reported very similar results using the NHIS from 1992 to 1995.

Prior studies of whether assimilation is unhealthy for Mexican immigrants have two empirical limitations. First, they do not control for confounding influences such as period of arrival, age at arrival and year of observation (Cho et al., 2004, Singh and Miller, 2004). Theory and empirical evidence suggests that these factors are important determinants of immigrants' assimilation, for example, as shown with respect to changes in earnings and obesity with time in US (Borjas, 1994, Duleep and Dowhan, 2002, Jasso et al., 2004, Kaushal, 2009). In fact, results we present below, demonstrate how important these factors are and how different estimates of the association between time in the US and health are when the influence of these factors is taken into account. Second, these studies are based on cross-sectional data and ignore the potential bias caused by return migration. Return migration is a particularly important issue for studies of Mexican immigrant experiences because of their high rates of return

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[4]See Escobar et al. (2000), Cho et al. (2004), Sing and Miller (2006), and Palloni and Aria (2004).

migration relative to other immigrant groups.[5] Palloni and Arias (2004) attribute most of the mortality advantage reported on Mexican immigrants in the US to return migration, although this conclusion is based on indirect evidence.

The extant literature on the potential causes of any change in health with time since immigration for Mexican immigrants is extremely limited. Virtually all previous studies specific to Mexican immigrants have focused on the role of acculturation (Burnam et al., 1987, Kaplan and Marks, 1990, Ortega et al., 2000, Finch et al., 2001, Finch and Vega, 2003, Vega et al., 2004, Lopez-Gonzalez et al., 2005). These studies are relevant because acculturation is sometimes measured by time in the US, and in general, acculturation is correlated with time in the US, although not necessarily strongly correlated. Several studies have examined differences in the prevalence of psychiatric disorders among Mexican Americans by the degree to which they have acculturated. Findings from this literature are mixed.[6] Similar studies of the effects of acculturation have been done using measures of physical health. Finch and Vega (2003), using the data on Mexican Americans in Fresno, California, reported that some aspects of acculturation, in this case legal status stress, were associated with lower levels of self-reported general health. A similar finding using the same data (and sample) is reported in Finch et al. (2001), although in this case job market stress, and not legal status stress, is the only measure of acculturation significantly related to health.

Surprisingly, there are no studies on how Mexican immigrants' health insurance changes with time since immigration. Two studies have examined how the health insurance of broader groups of

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[5] Mexico's National Survey of Employment and Occupation has estimated that 430,000 to 480,000 Mexican immigrants returned to Mexico per year during 2006-2009 (Passel and Cohn, 2009).

[6] Burnam et al. (1987) reported that a high degree of acculturation was associated with a higher prevalence of psychiatric disorders (e.g., depression) among Mexican Americans, although most of the effect of acculturation was accounted for by nativity. Kaplan and Marks (1990) using a sample of Mexican Americans from the Hispanic Health and Nutrition Examination Survey found that greater acculturation (eight item scale of language and ethnic identity) was associated with higher rates of depression. Lopez-Gonzalez et al. (2005) reported that acculturation, as measured by nativity and time in the US, was associated with greater substance use, although this study was not limited to Mexican Americans. Vega et al. (2004) studied Mexican Americans in California and found that time in the US was associated with increased prevalence of psychiatric disorders, particularly among those who entered the US when young. Finally, Ortega et al. (2000) found that among a sample of Mexican Americans drawn from the National Comorbidity Survey, the more acculturated reported greater incidence of psychiatric disorders.

immigrants changed with time since arrival in the US and found a positive association between health insurance coverage and years since immigration. LeClere et al. (1994) used data from the National Health Interview Survey for 1990 and Thamer et al. (1997) used data from the NHIS for 1989-1990. Neither of these studies examined Mexican immigrants separately. In addition, similar to studies of Mexican immigrant health trajectories, these studies have used cross-sectional data, and did not control for confounding factors such as age at arrival, year of arrival or return migration. Return migration may be important because those who plan to return to Mexico may prefer relatively high wage jobs with no health insurance over relatively low wage jobs with insurance; conversely, those who do not have health insurance, an indicator of slow assimilation, may decide to return to Mexico.

In summary, relatively little is known about the health and health insurance trajectories of Mexican immigrants, the largest, fastest growing immigrant group in the US. Here, we begin to fill these shortfalls in the literature.

Empirical Approach

Our objective is to obtain estimates of the associations between years since immigration to the US, and health and health insurance status of Mexican immigrants. We pay particular attention to several empirical issues including controlling for age of arrival, year of arrival, and accounting for return migration. Estimates we obtain will identify whether Mexican immigrant health declines with time in the US, how health insurance changes since time of arrival in the US, and whether the trajectories of these two outcomes—health and health insurance—are possibly linked; for example, is the trajectory of health insurance consistent with unhealthy assimilation?

Health and health insurance are obviously related. Economic theory suggests that health determines health insurance and health insurance may affect health because of the increased financial access to health care. Ideally, we would like to identify these two causal pathways, but we do not have adequate data to support a credible research design (e.g., instrumental variables) to accomplish this goal. Nevertheless, the descriptive information we present is useful because it provides a set of facts to begin an assessment of the causal relationships between the health and health insurance trajectories of Mexican

immigrants by time since arrival in the US. We provide evidence of the mediating effects of health

(health insurance) on health insurance (health) and of other variables known to change with time in the

US such as citizenship status and labor market outcomes (e.g., hours worked, earnings, occupation and

industry of work) that are likely related to health and health insurance.

To obtain estimates of the associations of interest, we use multivariate regression methods and a

sample of Mexican immigrants drawn from the Current Population Survey (CPS). Our primary interest is

in the trajectories since time of arrival of health and health insurance of Mexican immigrants, and not the

comparison between Mexican immigrants and other groups such as US-born Mexicans or US-born non-

Hispanic whites. Therefore, we do not include US-born persons in the analysis.[7] To obtain estimates of

interest, we used the following baseline model:

$$Health(Insurance)_{ijt} = X_{it}\beta + Z_{sjt}\gamma + \sum_{m=1}^{M}\alpha_m YSI_{itm} + \delta_j + \eta_t + u_{ijt}$$

(1)
$$\begin{aligned}
&i = 1,..., N && \text{(persons)} \\
&j = 18,...,60 && \text{(year of age)} \\
&t = 1996,....,2008 && \text{(year of survey)} \\
&s = 1,...,51 && \text{(state of residence)}
\end{aligned}$$

In equation (1), the health (or health insurance) of Mexican immigrant (i) of age (j) in year (t) is a

function of individual characteristics (X) such as of education, marital status, number of children under

18 in the household, and state of residence in the US; state characteristics (Z) such as the unemployment

rate, per-capita income and rate of health insurance coverage among US-born non-Hispanic whites of

same age, sex and education; and a set of dummy variables indicating each year of age (δ_j), years since

immigration (YSI_{it}), and each year of observation (η_t). Due to data availability, which we describe in

more detail below, years since immigration is measured in intervals: 0-3, 3-7,7-11,11-15,15-30, and 27-

38 years. The parameters of interest are given by α_m, which provide estimates of the association between

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[7] One reason to include US-born is to reduce the collinearity between variables, for example, year of observation
and years since immigration (years since immigration is equal to year of observation minus year of arrival) after
conditioning on year of arrival. To assess the potential improvement in standard errors, we re-estimated some
regression models including US-born persons of Mexican origin. Inclusion of the US-born group did not reduce the
standard errors significantly.

health, or health insurance, and time since immigration to the US. All models are estimated separately

for men and women because determinants of health and health insurance are likely to differ by gender.

One limitation of equation (1) is that it does not include year of arrival or age at arrival. Both

variables are likely to be correlated with years since immigration and the outcomes of interest. For

example, year of arrival may proxy for economic conditions in Mexico and the US, and US immigration

policy that influence immigration decisions (i.e., types of immigrants) and thus health and health

insurance status. Similarly, age at arrival may influence outcomes as those who arrive at a younger age

may be more likely to adopt US culture (acculturate), or they may have access to public health insurance

due to state policies. To address these issues, we estimate the following model:

$$Health(Insurance)_{ijkt} = X_{it}\beta + Z_{sjt}\gamma + \sum_{m=1}^{M} \alpha_m YSI_{itm} + \delta_j + \eta_t + \lambda_k + \sigma_{j-(t-k)} + u_{ijkt}$$

(2)
$$i = 1,..., N \qquad \text{(persons)}$$
$$j = 18,...,60 \qquad \text{(year of age)}$$
$$k = 1970 \text{ - } 1979, 1980 \text{ - } 1989, 1990 \text{ - } 1999, 2000 \text{ - } 2008 \qquad \text{(period of arrival)}$$
$$t = 1996,....,2008 \qquad \text{(year of survey)}$$
$$s = 1,...,51 \qquad \text{(state of residence)}$$

Equation (2) includes a set of dummy variables indicating period of arrival (λ_k) and age at arrival

($\sigma_{j-(t-k)}$). As noted by the subscripts in equation (2), period of arrival is defined in 9 to 10 year intervals.

Age at arrival is grouped into the following intervals: <15, 15-22, 23-30, 31-40 and >40 years. We

address the well known collinearity between year of observation, year of arrival, and years since

immigration (years since immigration = year of observation – year of arrival) by grouping observations

by years since immigration and year of arrival, although some of the grouping is driven by data

availability (e.g. year of arrival and years since immigration). Similarly, there is perfect collinearity

between age, age at arrival, and years since immigration [age at arrival = age – (year of observation -year

of arrival)]. So here too, we group one of the variables into categories, in this case, age at arrival as

described above (Mason et al., 1973, Yang, 2008).

11

While our primary interest is in obtaining estimates of the association between time since immigration to the US and health and health insurance coverage, we also assess whether these associations are mediated by other factors known to change with time since immigration, specifically, labor market outcomes and citizenship. There is a large literature on the assimilation of Mexican immigrants in the labor market (e.g., Blau and Khan, 2007, Borjas and Katz, 2007), and the close link between health insurance coverage and employment in the US suggests that changes in labor market outcomes with time since immigration will likely affect the association between time in the US and health insurance coverage. Similarly, changes in labor market outcomes with time in the US may affect health, not only through health insurance, but also through other avenues such as income and stress (Kaestner et al., 2010). Civic incorporation which changes with time since immigration may also influence health and health insurance trajectories. As the length of U.S. residency increases, so does immigrant propensity to acquire legal status and citizenship. Previous research shows that both legalization and citizenship are associated with higher earnings, which as described earlier will affect health and health insurance (Kaushal, 2006, Jasso, Rosenzweig, and Smith, 2001). In addition, legalization and citizenship change eligibility for public health insurance.

The model specification that incorporates these mediating factors is:

$$(3) \ Health(Insurance)_{ijkt} = X1_{it}\beta1 + X2_{it}\beta2 + Z_{sjt}\gamma + \sum_{m=1}^{M} \alpha_m YSI_{itm} + \delta_j + \eta_t + \lambda_k + \sigma_{j-(t-k)} + u_{ijkt}$$

Equation (3) is identical to equation (2) except that we have included two vectors of personal characteristics: *X1* and *X2*. The vector X1 denotes personal characteristics that were included in equation (2), and the vector X2 includes the new variables: dummy variables for usual hours of work per week in past year, weeks worked in past year, interactions between these two sets of dummy variables, earnings past year, occupation of longest job last year, industry of longest job held last year, non-earned income last year, and a dummy variable indicating person is a US citizen. We describe the construction and specification of these variables more fully in the data section.

Equations (1) to (3) are estimated using cross-sectional data. These estimates may be biased if return migration of Mexican immigrants is selective. We address this issue by using longitudinal data from the CPS that follow the same person over time. Therefore, we eliminate return migrants and obtain estimates using a constant sample of persons. Equation (4) describes the longitudinal analysis:

$$(4) \quad Health(Insurance)_{ijkt} = \pi_i + X_{it}\widetilde{\beta} + Z_{sjt}\widetilde{\gamma} + \sum_{m=1}^{M}\widetilde{\alpha}_m YSI_{itm} + \widetilde{\delta}_j + \widetilde{\eta}_t + u_{ijkt}$$

Equation (4) is similar to previous specifications except for the inclusion of the person-specific fixed effect (π_i), and the omission of time-invariant variables: age at arrival, year of arrival, and state of residence in the US. We have differentiated the parameters of this model from those of other models using the symbol~.

In practice, we estimate equation (4) in a slightly different way to take advantage of more of the variation in the data. Considering that years since arrival in the US is (necessarily) measured in categories, which are sometimes quite large, if we estimate equation (4) as currently written, the only variation would come from switching YSI categories, but only a small proportion of persons switch categories. Thus, we estimate the model with a slightly different specification to exploit more of the variation in time since arrival in the US. Specifically, we estimate the following:

$$(4`) \quad Health(Insurance)_{ijkt} = \pi_i + X_{it}\widetilde{\beta} + Z_{sjt}\widetilde{\gamma} + \sum_{m=1}^{M}\widetilde{\alpha}2_m (YSI_{i(t-1)m} * YEAR\_T) + \widetilde{\delta}_j + \widetilde{\eta}_t + u_{ijkt}$$

There are two things to note about equation (4`). First, we fix the value of years since arrival in the US at year t-1. Each person is in the sample for two periods: t-1 and t. Second, we allow the effect of years since immigration to differ by whether the observation is from year t-1 or year t. In equation (4`) this choice is reflected by the interaction term $(YSI_{ij(t-1)m} * YEAR\_T)$. The parameters of interest are $\widetilde{\alpha}2$, which measure differences in the health-related outcome in year t versus year t-1 at various points of time since arrival in the US. Note that the main effect of years since arrival in the US drops out of the model because years since arrival is time invariant.

The inclusion of person fixed effects is quite important because unmeasured, person-specific factors may be correlated with time in the US and health-related outcomes. For example, those more likely to be healthy may also be more likely to be in the US for a long time (Palloni and Arias, 2004). If so, then the association between time in the US and health would be positive, all else equal, even though health was not improving with time in the US for any specific immigrant.   By including the person-fixed effect, we eliminate this type of bias (from return migration). However, we still obtain estimates of how health and health insurance change with an additional year spent in the US, and we do so throughout the distribution of time since arrival in the US. Given that we condition on person-specific effects, estimates we obtain are not applicable to a random sample of immigrants. Consider estimates of the change in health insurance status with an additional year in the US for two groups: those in the US for 3 to 7 years and those in the US for 11 to 15 years. The types of immigrants in these two groups are likely to differ, for example, because of selective return migration with respect to health or earnings, and this is why we include the person-specific fixed effect—to control for these differences. Conditional on these fixed effects, we measure how health insurance changes with an additional year spent in the US. This approach yields estimates that describe how health insurance, or health, of Mexican immigrants changes with time in the US for the sample of immigrants who are present (i.e., have not exited sample) throughout the distribution of years since immigration.

Estimates of the association between years since immigration and the health outcomes using the longitudinal data may differ from cross-sectional estimates due to: (i) inclusion of person fixed effects (method); or (ii) differences in samples (matched longitudinal sample versus the entire cross-sectional sample). We are interested in the former. Therefore, to assess how much of the difference in estimates is to due to sample versus method, we also estimate equations (1) through (3)—cross sectional estimates— using the matched, longitudinal sample. If cross-sectional estimates are approximately the same between the two samples then differences in estimates between equations (3) and (4`) will identify how compositional changes of the sample that are embedded in the cross sectional analysis, for example because of return migration, bias estimates of the association between time since arrival in the US and

14

health insurance. To further investigate the potential bias due to return migration, we estimate the cross-sectional and fixed-effects (i.e., longitudinal) models using a sample of non-Mexican immigrants from outside of the Americas. Because return migration is known to be much less among this immigrant population, estimates from longitudinal and cross-sectional analyses should be relatively similar for this population, and will help identify the significance of return migration bias in the Mexican sample.

Data

We use the March series of the Current Population Survey for 1996-2008 and focus on adults aged 18-60 years. We restrict the analysis to persons who arrived in the US in 1970 or later because sample sizes are small for the pre-1970 arrivals. The CPS interviews persons living within the same housing unit for four consecutive months, drops them from the survey for the next eight months, and re-enters them into the survey for the following four months. The CPS public use data provides identifiers that can be used to match individuals in two consecutive years. However, because the CPS sampling frame is residences and not people, we use a number of individual characteristics such as age, sex, race/ethnicity, nativity, state of residence, whether the individual changed residence in the last one year, and period of arrival in the US to match individuals in years t-1 and t (Madrian and Lefgren, 1999, Van Hook et al., 2006).[8] We are able to match approximately 27 percent of the Mexican sample. The relatively low match rate is expected because the Mexican foreign-born population has much higher rates of mobility including return migration as compared to other samples of foreign-born and native-born persons. The matching rate was somewhat higher for women than men.[9]

The March CPS has a large sample, which is important for our analysis because we are interested narrowly defined demographic groups. The 1996 to 2008 data includes 64,250 men and women aged 18

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[8] Previous research has not used period of arrival in the US to match individuals. We find that 4.2 percent of our Mexican sample, and 3.2 percent of the foreign-born sample that are fully matched on other characteristics could not be matched on period of arrival.

[9] In comparison, we can match 38 percent of non-Mexican foreign-born persons and 55 percent of the native population. Previous studies have reported being able to match approximately 65 percent (native-born and foreign-born combined) persons using 1980-1998 data (Madrian and Lefgren, 1999). We can replicate this figure. For 1996-1998, we were able to match 67 percent of the sample. Thus, we are confident that our matching algorithm is as good as that used previously.

to 60 who were born in Mexico and who arrived in the US in 1970 or later. Our longitudinal sample includes 15,752 observations of Mexico-born men and women.

The March CPS provides information on the insurance status last year of all persons including whether the person was covered by Medicaid, private insurance, employer-sponsored insurance in their own name, or some other type of public insurance.[10] The CPS also includes information on individual characteristics such as age, gender, educational attainment, country of birth, and labor market outcomes including employment status, usual hours worked per week last year, and weeks worked last year, industry and occupation of employment last year, earnings last year, and other family income last year (excluding own earnings). These data are used as control variables and to assess whether labor market performance in the US mediates the health and health insurance trajectories of Mexican immigrants. Data on usual hours worked last year per week and weeks worked last year are used to compute a categorical variable indicating the following values: 0 hours and 0 weeks, 1-34 hours/week and 1-24 weeks, more than 34 hours/week and 25-47 weeks, and more than 34 hours/week and 48 or more weeks. The CPS also provides data on self-reported health on a scale of 1 to 5 (1=excellent, 2=very good, 3=good, 4=fair, and 5=poor).

The CPS provides data on period of arrival at two to three years intervals for those who arrived in the US in 1980 or later. For those who arrived during the 1970s, the period of arrival is provided in 2 categories: 1970-1974 arrivals and 1975-1979 arrivals. As a result, it is not possible to get the exact year of arrival for most immigrants. Using the information on period of arrival, we assign the minimum and maximum number of years that a person has lived in the US. Then we assign immigrants to the following years since arrival categories: 0-3 years, 3-7 years, 7-11 years, 11-15 years, 15-30 years and 27-38 years.[11] Note that the last two categories overlap by three years because the data on individuals who

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[10] There is some question as to whether respondents are referring to last year or the current week/month when providing information about health insurance coverage. We assume that it refers to the last year as specified in the question.

[11] We also conducted analyses using data for 1980 and later arrivals. This allowed us to construct categories of years since arrival that had less overlap: 0-3 years, 3-7 years, 7-11years, 11-15 years, 15-19 years, 19-23 years, and 23-29. Estimates from models using these categories were very similar to those obtained using the larger categories.

arrived during the 1970s is provided in 5-year intervals. We assign those who have lived a minimum of 26 and a maximum of 30 years in the 15-30 category and those who have lived for a minimum of 27 and a maximum of 31 years in the 27-38 categories. The average number of years lived in the US in these categories are 1, 5, 9, 13, 21, and 32, respectively. So while there is some overlap, the categories differ substantially on average.

The state unemployment rate from the Bureau of Labor Statistics and per capita income from the Bureau of Economic Analysis are merged with the CPS data by state and year. The proportion of non-Hispanic US-born whites lacking health insurance is calculated by age (18-32 years, 33-48, 49-64 categories), education (high-school or less and some college or higher), gender, state and year and this variable is merged with the sample of Mexican immigrants by the demographic categories noted.

The CPS has a few limitations that may affect our analyses. The data on year of arrival are based on the question "In which year did the respondent move to the US permanently." The question is likely to be subject to different interpretations by repeat migrants; some may provide the year of first entry to the US and others may provide the year of last entry (Jasso, Rosensweig and Smith, 2000). We assume that it refers to the year of permanent entry as specified in the question. This may induce some measurement error that will bias estimates. There is also a concern that the CPS undercounts the Mexican population in the US. Researchers have documented that the CPS misses approximately 10 percent of the undocumented (Passel, 2005). This limitation afflicts all publicly available datasets and is perhaps less severe in the case of the CPS that tries to cover the entire civilian non-institutional US population.

Results

Descriptive Statistics

Table 1, and Figures 1 and 2 present the sample averages of self-reported health status and sample proportions of uninsured for Mexican men and women by years since arrival to the US. As estimates in Table 1 and Figure 1 indicate, proportion uninsured is negatively associated with years-since-immigration. For Mexican men, there is a 20 percentage point (26%) decline in the proportion uninsured by 11-15 years after immigration and a 41 percentage point (53%) decline by 27-38 years after

immigration. For Mexican women, the decline is 17 percentage points (24%) by 11-15 years after immigration and 38 percentage points (54%) by 27-38 years after immigration.

Estimates in Table 1 and Figure 2 also point toward unhealthy 'assimilation' of Mexican men and women. There is a modest 0.1 (approximately 10 percent of a standard deviation) decline in self-reported health status of Mexican men by the first 11-15 years after immigration, followed by a somewhat steeper decline in the next two decades, so that, by 27 to 38 years after immigration self-reported health has declined by 0.36 points, or approximately 40 percent of a standard deviation. A similar deterioration in self-reported health is found among Mexican women.[12] It is noteworthy that the trajectory in health insurance and the trajectory in self-reported health move in opposite directions. While it is difficult to disentangle any cause and effect between these two variables, these co-movements are more consistent with the hypothesis that declining health is causing Mexican immigrants to obtain health insurance than it is with lack of insurance causing declining health, although we fully acknowledge that such descriptive information is of limited use for identifying causal relationships.

Estimates in Table 1 and Figures 1 and 2 are unadjusted for other confounding influences, and there are several determinants of health and health insurance (e.g. age, age at arrival and period of arrival) that are likely correlated with years since immigration. To investigate this issue, we conducted a regression analysis that adjusts for potential confounders.

Regression Estimates: Time in the US and Health Insurance

In Table 2, we present estimates from regression analyses that adjust for several covariates related to health insurance and years since immigration. We obtain four sets of estimates. Model 1 controls for age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state unemployment rate, state per capita income, and the proportion

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[12] The worsening of self-reported health shown in Table 1 is also found in dichotomous indicators of good (excellent/very good versus other) or poor (poor/fair versus other) health. The proportion of sample (men or women) that report excellent/very good health declines by approximately 25 percent between new arrivals and those in US for 27 to 38 years, and the proportion reporting poor health increases by a factor of three between new arrivals and those in US for 27 to 38 years.

of US-born non-Hispanics white persons who are uninsured by age, education, sex, and state of residence, and year of observation fixed effects. Model 2 includes additional controls for period of immigration (dummy variables indicating arrived during 1970-1979, 1980-1989, 1990-1999, and 2000-2008) and age at immigration (dummy variables indicating age at immigration intervals: <15, 15-22, 23-30,31-40 and >40 years). Model 3 adds a number of factors that influence an individual's civic and economic assimilation such as whether respondent is a US citizen, hours worked and weeks worked last year and their interactions, industry and occupation of work last year, personal earnings, and family income (other than personal earnings) last year. Finally, to assess whether health insurance trajectories are associated with self-reported health, Model 4 adds health status (dummy variables indicating excellent/very good health, and poor/fair health with good health as comparison category).[13]

For both Mexican men and women, estimates from Model 1 suggest trajectories of the proportion uninsured with time in the US that are very similar to the unadjusted trajectories in Table 1 with one difference: the decline in the rate of uninsured with time in the US is somewhat slower for men. The uninsured rate of Mexican men who are in the US for 27-38 years is 31 percentage points lower than those of the newly arrived (in the US for 0-3 years); in Table 1 the corresponding figure is 41 percentage points. Inclusion of period of immigration and age at immigration variables in the regression (Model 2), however, substantially reduces the coefficients on the years since immigration categories. These estimates suggest that approximately three decades of residency in the US (27-38 years since immigration category) results in only a 12-13 percentage points (16% to 18%) decline in uninsured rate for Mexican men and women. Notably, Model 2 shows that Mexican men do not experience a gain in health insurance within the first seven years after immigration.

The strong mediating effect of age at arrival and period of arrival indicates that recent cohorts of Mexicans are more likely to be uninsured than earlier cohorts, and those who arrived at young ages are

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[13] We also repeated the analyses with two different specifications of the health variable. We first did all analyses with a set of dummy variables indicating each health type (excellent, very good, good, fair, and poor). We then did all analysis with the health status index as a linear variable. Estimated coefficients remained unaffected by the specification used.

more likely to have health insurance than those who arrived at older ages. Indeed, estimated coefficients (not presented) in both men's and women's analyses show that compared to the 1970s arrival cohort, the 1980s, 1990s and 2000-2008 arrival cohorts had lower insurance rate. Mexican men and women who arrived at young age (<15 years) were also more likely to be insured than those who arrived at older ages. The sensitivity of associations between time in US and proportion uninsured to the inclusion of controls for period and age of arrival is notable, and suggests that previous analyses of associations between time in US and other health outcomes that did not include these variables may have obtained substantially biased estimates. Indeed, we find this to be the case below when we examine self-reported health.

Estimates from Model 3 suggest that civic and economic assimilation have a modest effect on the health insurance trajectories of Mexicans. The mediating effect of these variables is mostly found after immigrants have been in the US for at least 15 years and more so for men than women. Overall, between 15 to 25 percent of the gain in health insurance by 27-38 years since immigration could be attributed to economic and civic assimilation. Finally, the addition of self-reported health (Model 4) to the model has virtually no effect on the association between time in the US and health insurance of Mexicans.

Overall, estimates in Table 2 suggest a decline in the uninsured rate of Mexican men and women of approximately 10 percentage points, or approximately 15 percent, over 30 years or so with the largest decline coming 7 to 11 years after arrival. For men, there is no decline in uninsured in the first seven years, and no decline after 30 years. Labor market assimilation and civic assimilation have modest effects on the association between health insurance coverage and time in the US, and health status has no mediating effect on this association.

As mentioned, estimates in Table 2 would be biased if return migration of Mexican immigrants is selective with respect to health insurance (or omitted factors that affect health insurance such as health). To address the bias due to return migration, we use longitudinal data and a sample of Mexican immigrants observed in two consecutive years, or what we refer to as the matched sample. Using this sample, we first assess whether estimates from cross-sectional models (i.e., models underlying Table 2) are similar for the

matched and larger samples. Table 3 presents the results of this analysis. For brevity, we only present

results from Models 2 and 4, and for comparison we present estimates for the entire sample from Table 2.

There are two points to note from Table 3. First, as indicated by the mean in the last row of the

table, among the recent arrivals (in the US for 0-3 years) the proportion uninsured in the matched samples

is lower than the proportion of uninsured in the entire sample, suggesting that the exit from the survey

(from year t-1 to t) for this population is not random. It is correlated with health insurance coverage;

recent arrivals who left the survey were more likely to be without health insurance than those who stayed

in the survey. This is significant because previous research shows that most of the return migration

happens within the first five years of arrival. Second, estimates of Models 2 and 4 for the matched

sample are relatively similar to those for the larger, cross-sectional sample, although for males, there

appears to be more evidence of a continuous, declining gradient in the proportion uninsured with respect

to time in US, and for women, early years in US are not associated with a decline in the proportion

uninsured. The relative similarity of estimates between the matched and cross-sectional sample is

important because it establishes that any difference between cross-sectional and fixed-effects estimates

will be primarily due to person-specific fixed effect and not because of a different cross-sectional

relationship between time in the US and health insurance between the two samples.

We now turn to the longitudinal analysis. Before discussing regression results, it is instructive to

review descriptive evidence on year-to-year changes in insurance status. Figure 3 shows changes in

health insurance coverage between year t-1 and year t by years in the US for the matched sample of

Mexican men and women. An inspection of Figure 3 reveals relatively little evidence that time in the US

is associated with health insurance coverage in a linear fashion. It shows that among Mexican immigrant

men, between 8 and 16 percent of the sample gains or loses health insurance coverage each year.

Moreover, there is little evidence of a net gain in health insurance coverage with increasing time in the

US. Instead, the pattern seems to be one of alternating (net) gains and losses. This descriptive evidence

about longitudinal changes in health insurance coverage for the matched sample is at odds with the cross

sectional evidence. For women, Figure 3 shows that, similar to men, approximately 10 to 18 percent of

the female sample either gains or loses health insurance coverage each year. Here too, the longitudinal evidence is inconsistent with the cross sectional evidence. In this case, year-to-year changes in health insurance coverage show a decrease in insurance during the first 7 years in the US, with a particularly large decrease in the first three years, followed by small increases or no net change in health insurance coverage over the next 30 years.

Table 4 reports fixed effects regression estimates. The reported coefficients pertain to the interactions between years since immigration and whether the observation is taken from year t. None of the estimates are statistically significant, although magnitudes are relatively large. Estimates in Table 4 are largely consistent with the evidence in Figure 3 and indicate no clear pattern of change in health insurance with time in the US. The one issue of concern is statistical power. Estimates in Table 4 are often quite large. For example, estimates for men indicate that the annual change in proportion uninsured declines by five percentage points per year for those who have been in the US between 11 and 15 years. This is a large change that if taken at face value suggests that the proportion of Mexican immigrants who are uninsured declines by 20 percentage points for those whose tenure in the US increases from 11 to 15 years. Despite the magnitude of the estimate, it is not statistically significant. While the statistical power of the fixed effects analysis may be less than ideal, the pattern of estimates does not suggest a systematic association between time in the US and health insurance coverage of Mexican immigrants. It may be true that health insurance changes with time in the US are positive during some periods and negative during others, but there is little theoretical reason to expect such a pattern.

Overall, our reading of the evidence is that time in the US is basically unrelated to health insurance coverage, and that the cross-sectional evidence that suggests differently, is biased by return migration and other person-specific effects. Even in the cross-section analysis, there was a marked change in the association between time in the US and health insurance coverage when age at arrival and year of arrival were included as controls. This result is also consistent with our conclusion that much of the apparent relationship between time in the US and health insurance coverage of Mexican immigrants is due to failure to control for confounding influences.

Regression Estimates: Time in the US and Self-reported Health

To obtain estimates of the association between time in the US and self-reported health, we use the same sequential regression approach as was used for health insurance. The dependent variable is self-reported health, as measured by the 5-point scale from 1=excellent to 5=poor. Models 1-3 are the same as in the analyses for health insurance. In Model 4, we control for the health insurance coverage of the respondents to investigate if health insurance mediates the effect of years since immigration on the health of Mexican immigrants.[14] Estimates are reported in Table 5.

Estimates from model 1 show a very modest worsening of self-reported health with time in the US. For men, self-reported health declines for the first 11 to 15 years in the US, and after this period self-reported health remains basically unchanged. After 11 to 15 years, self reported health is approximately 0.04 units lower, which represents approximately 4 percent of a standard deviation. A similar pattern is observed for women, although the peak of poor health occurs somewhat later at between 27 to 38 years and the decline in health is somewhat larger, 0.07 or about 7 percent of a standard deviation.

These results are qualitatively the same as those reported in previous research, but are considerably smaller in magnitude. To link results to earlier studies, we estimated the same model that was used by Cho et al. (2004). In this model, we used a dichotomous variable indicating poor or fair self-reported health as the dependent variable. We used the same years-since-immigration categories and included US-born as the comparison group. We found (not presented) very similar results. Compared to the US born, Mexican immigrants in the US for 0-4 years had 0.55 % lower probability of reporting poor/fair health, Mexican immigrants in the US for 4-10 years had 48% less probability of reporting poor/fair health and Mexican in the country for 10 or more years had 33% less probability of reporting poor/fair health. The corresponding estimates in Cho et al. were: 51%, 35% and 21%, respectively. The

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[14]In Appendix Tables 1-3, we also present estimates with a dichotomous variable indicating excellent/very good health as the dependent variable. We also estimated models with poor/fair health as the dependent variable. These estimates yielded similar results to the models presented here, and can be obtained from authors upon request. We chose the linear measure of self-reported health to improve the statistical power of the analysis.

fact that we can replicate previous results is important because any differences in what we find and what was reported in previous results is due to research design and not sample differences.

For men, adding controls for age at arrival and period of arrival have little effect on estimates of the association between time in the US and self-reported health. However, for women, the addition of these controls has a marked effect. After adjusting for age and period of arrival, estimates suggest a stronger, monotonic decline in self-reported health with time in the US. After 30 years in the US, the self-reported health of Mexican women is 0.2 units or 20 percent of a standard deviation lower than the self-reported health of new arrivals. The relatively strong mediating effects of age and period of arrival indicates that recent cohorts of Mexican women have relatively poorer self-reported health than earlier cohorts and that not controlling for cohort of arrival results in an upward bias in the health trajectories. Indeed, estimated coefficients (not presented) show that compared to the 1970s arrival cohort, the 1990s and 2000-2008 arrival cohorts had poorer self-reported health. The estimated coefficient on the 1980s cohort dummy variable was close to zero and statistically insignificant. This perhaps reflects that the undocumented, who are more likely to be among recent cohorts, may have poorer self-reported health. The estimated coefficients on the age at arrival variables were all statistically insignificant.

In column 3 of Table 5, we report estimates of the association between time in the US and self-reported health from a model that controls for labor market and civic assimilation. For both men and women, the addition of these variables steepens the negative gradient between time in the US and self-reported health, although the mediating effect is quite modest. This result suggests that acquisition of citizenship and economic improvement have a positive effect on the self-reported health of Mexicans. The coefficient on whether the Mexican immigrant is a US citizen is negative and statistically significant for both men and women, indicating that civic incorporation improves self-reported health. The coefficients on the dummy variables indicating fulltime work all year and fulltime work part of the year (with non-workers as comparison category) are also negative and statistically significant, indicating that economic assimilation improves health. Finally, adding health insurance to the model, as in Model 4

(column 4), has virtually no effect on estimates of the association between time in the US and self-reported health.

Estimates in Table 5 are based on cross-sectional samples. To address the potential bias from return migration and other person-specific factors, we estimated models including person-specific fixed effects. However, before discussing these estimates, we present estimates from the cross-sectional models using the matched sample to assess whether sample composition may be affecting estimates that use the longitudinal sample. The comparison of cross sectional and longitudinal estimates is in Table 6.

The first point to note is that among recent arrivals, (in the US for 0-3 years), the self-reported health of Mexican men in the matched sample is slightly higher (worse health) than in the entire sample suggesting that men who return to Mexico (or exit the sample) are somewhat more likely to have better health. For women, the health status of new arrivals is more or less the same in the matched and cross-sectional samples. Regression estimates in Table 6 suggest that the matched and cross sectional samples are somewhat different. For men, estimates obtained using the matched sample suggest virtually no change in self-reported health with time in US. All estimates for the matched sample are statistically insignificant, almost all the coefficients are negative (indicating a slight improvement in health), and most are relatively small (less than 5 percent of a standard deviation). Nevertheless, estimates between the matched and cross-sectional samples of men are relatively similar—all are quite small (i.e., close to zero) and most are not statistically significant. Estimates from the matched sample for Mexican women, however, suggests a sharper deterioration in health with time in the US than the analyses based on the entire sample suggesting that the deterioration in health with time in US observed in the entire sample is unlikely to have been due to selective return migration of unhealthy Mexican women.

Table 7 presents the estimates using the matched sample from models that include individual fixed effects. The reported coefficients are from the interactions of years since immigration and whether the observation is taken from year t. For men, estimates suggest a 21 percent of a standard deviation increase in the health index (deterioration in health) between t-1 and t for those in the US for 0-3 years; changes in health index of those in the 3-7 and 7-11 years since immigration categories are relatively

small and not statistically significant. Mexican men who have been in the US for 11-15 and 15-30 years, report an increase of 13 to 19 percent of a standard deviation in health index (worsening of health) after one additional year in the US. These results are inconsistent with the cross sectional estimates in Table 6, which suggest a flatter gradient. The difference between the cross-section and longitudinal estimates suggests that those in good health are return migrants, which differs from the inference of Arias and Palloni (2004).

In column 2, we report estimates of the association between time in the US and self-reported health from a model that controls for economic and civic assimilation. The addition of these variables has very little effect. Finally, inclusion of insurance status has no additional impact on the health trajectories of Mexican men. For women, the fixed effects model suggests no statistically significant changes in health with an additional year of stay the US. Point estimates associated with categories indicating 30 or fewer years in the US suggest approximately 10 percent of a standard deviation worsening of health with each additional year in the US. While not statistically significant, these estimates imply declining health with time in US and a cumulative effect that is non trivial.

In summary, we believe there is some evidence of unhealthy assimilation, although we acknowledge that this is an interpretation of somewhat imprecise estimates. The cross sectional results suggested a slight worsening of health with time in the US for Mexican men and a somewhat more pronounced decline in health for Mexican women. The fixed effect results suggest the same qualitative finding, but steeper decline in health is for men rather than women.

Analysis of Immigrants from Outside of Americas

One of the key issues we have investigated is the bias due to return migration in estimates of associations between time in the US, and health and health insurance. It is well-known that Mexican immigrants, particularly relatively recent arrivals, have high rates of return migration and such migration may be selective with respect to health. Indeed, for both health insurance and health, we found evidence that return migration (or exit from the sample) was a source of bias.

To further assess the issue of return migration, we repeat some of the analyses using a sample of immigrants from outside of the Americas. These immigrants have much lower rates of return migration and thus, there should be smaller differences between cross-sectional and longitudinal (fixed effects) estimates for this sample than for the sample of Mexican immigrants. Specifically, for both health insurance and health, we re-estimated Model 2 using cross-sectional and fixed-effects methods using the full and matched samples of immigrants born outside the Americas.[15] Results from the cross-sectional analyses are presented in Table 8 and the fixed effects analyses in Table 9.

For immigrants born outside the Americas, the cross-sectional estimates based on the full sample and the matched sample are almost identical for both outcomes: self-reported health and health insurance. These results show that compared to the recent arrivals, the proportion uninsured of those in the US for 3-7 years is 5-7 percentage points (approximately 20%) less. For men, the health insurance gradient is virtually flat after the initial gain in insurance, for women, there is a modest but steady decline in proportion uninsured in the following three decades. Health trajectories of both men and women point towards unhealthy assimilation in the first 15 years of arrival. There is a slight improvement in the health of those in the US for 15-30 years followed by some deterioration for those in the US for 27-38 years.

Descriptive evidence on year-to-year changes in insurance status is presented in Figure 4. For recent arrivals (in the US for 0-3 years), Figure 4 shows a six to seven percentage point (9 to 11%) increase in health insurance coverage between year t-1 and year t for both men and women. However, for those in the US for more than 3 years, almost the same proportion of the sample gained health insurance coverage each year as the proportion that lost, resulting in modest annual changes (mostly gains) in health insurance. This descriptive evidence of longitudinal changes in health insurance for immigrants born outside of the Americas is similar to what we found in the cross-sectional analyses presented in Table 8, and is also similar to the fixed effects results presented in Table 9. As estimates in Table 9 indicate, after

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[15] Immigrants from outside the Americas have lower probability of being uninsured and somewhat higher self-reported health than Mexican immigrants. However, like Mexican immigrants, health insurance coverage increases with time in the US and health worsens (tables available on request).

an initial decline in the proportion uninsured during the first three years, there is relatively little change in health insurance coverage as time in the US increases.

Fixed effects estimates on self-reported health suggest an increase of 0.08 to 0.22 points or 9 to 24 percent of a standard deviation in health status (deterioration in health) from t-1 to t for men in most categories. Most of the estimates are statistically significant. Thus, here too, as was the case for Mexican immigrants, we find a divergence between the cross section and fixed effects estimates, which suggests a role for selective return migration. However, comparing the differences between the cross-section and fixed effects estimates for both Mexican immigrants and immigrants from outside the Americas, reveals that differences between the longitudinal and cross-sectional estimates are greater for Mexican men than for men born outside the Americas. This is consistent with the greater rates of return migration among Mexican men. For women born outside the Americas, fixed effect estimates of the change in health with an additional year in the US are small and statistically insignificant. However, point estimates in Table 9 yield a somewhat similar health trajectory as estimates reported in Table 8.

To sum up, our cross-sectional and longitudinal analyses yield the same health insurance trajectories for men and women born outside of the Americas. This finding is in line with the expectation that persons born outside of the Americas have low return migration and therefore, their health insurance trajectory computed from cross-sectional data is less likely to deviate from the trajectory based on longitudinal data. For women born outside the Americas, the cross-sectional and longitudinal analyses yield somewhat similar health trajectories. However, for men born outside the Americas, the longitudinal analysis yields a steeper deterioration in self-reported health than does the cross-sectional analysis. The difference between cross-sectional and longitudinal health trajectories is greater for Mexican men than for men born outside the Americas, suggesting that the bias is greater for Mexican men.

Conclusion

In this paper, we examined how the health and health insurance coverage of Mexican immigrants change with time in the US using cross-sectional and longitudinal data. Ours is the first study on how

years in the US affects the health insurance coverage of Mexican immigrants. In addition, our analyses are the first to control for two potentially strong confounding factors: age at arrival and period of arrival.

Cross-sectional analyses suggests that approximately three decades of residency in the US results in a 9 to 10 percentage point (12% to15%) decline in the probability of being uninsured for Mexican men and women. Longitudinal analyses that adjust for person-specific fixed effects show that time in the US is unrelated to health insurance and that the increase in insurance coverage in the cross-sectional analyses is due mainly to exit from the sample of persons without insurance. Overall, our reading of the evidence is that time in the US and health insurance coverage of Mexican immigrants are basically unrelated.

Our analyses of the trajectories of health of Mexican immigrants with time-since arrival in the US, based on cross-sectional models, provide evidence of unhealthy assimilation. Moreover, we can link our estimates to previous studies using different data that reported the same result. However, we also showed that age at arrival and period of arrival have confounding effects for this outcome too. Estimates that control for these two factors indicate a modest level of unhealthy assimilation among Mexican immigrants, but the gradient between years since immigration and health is steeper for Mexican women than men. Models that included person specific fixed effects using longitudinal data also point towards unhealthy assimilation for Mexican-born persons, but these estimates suggest steeper, still relatively small, decline in health for Mexican men than women among recent arrivals (in the US for 0-3 years).

We also study the factors that may be mediating the effect of years-since-immigration on health insurance coverage and health of Mexican immigrants. Specifically, we examined variables that measure labor market assimilation and civic incorporation. We find that labor market assimilation and civic incorporation have a slight positive effect on the health insurance coverage of Mexicans, but no statistically significant effect on their self-report health. The addition of controls for health in analyses of the association between time in the US and health insurance, and the addition of controls for health insurance in analyses of the association between time in the US and health has little effect on estimates. Finally, we find little evidence that the health and health insurance trajectories of Mexican immigrants are associated with each other.

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Figure 1: Association between Years since Immigration and Proportion Uninsured of Mexican Immigrants
March CPS, 1996-2008
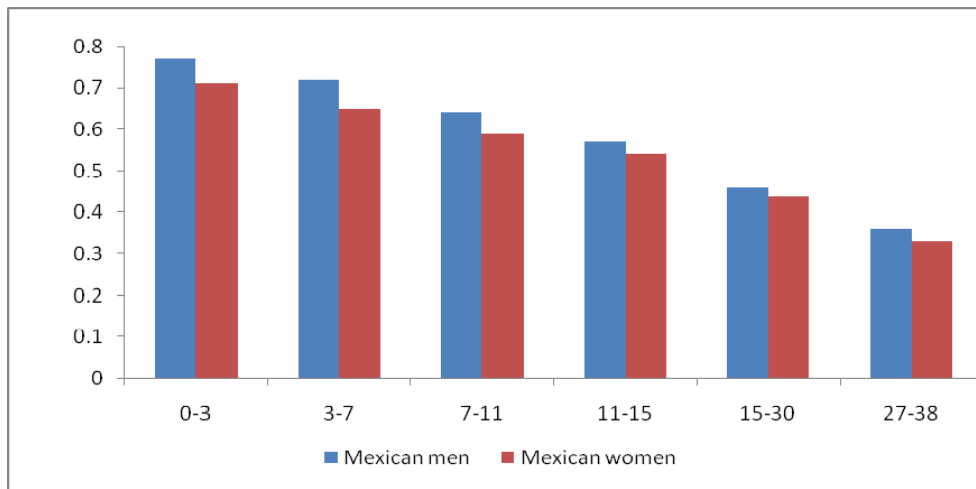
Figure 2: Association between Years since Immigration and Health Status of Mexican Immigrants
(Health status index goes from 1 to 5, Excellent=1; Poor==5)
March CPS, 1996-2008
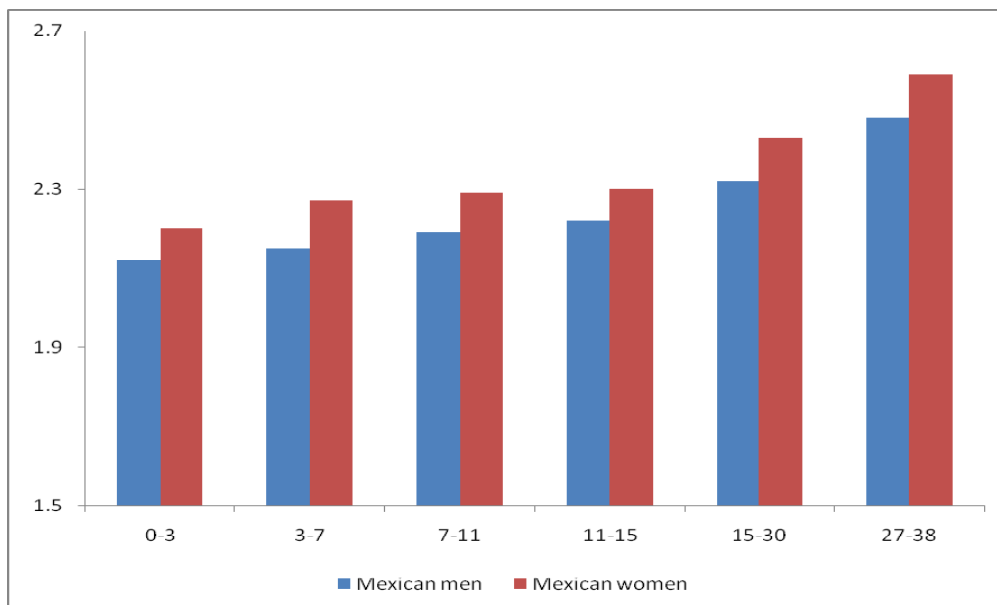
Figure 3: Proportion Insured in Year t-1 and Year t, by Years since Immigration,
Mexican Men and Women in the US (Based on matched CPS data)
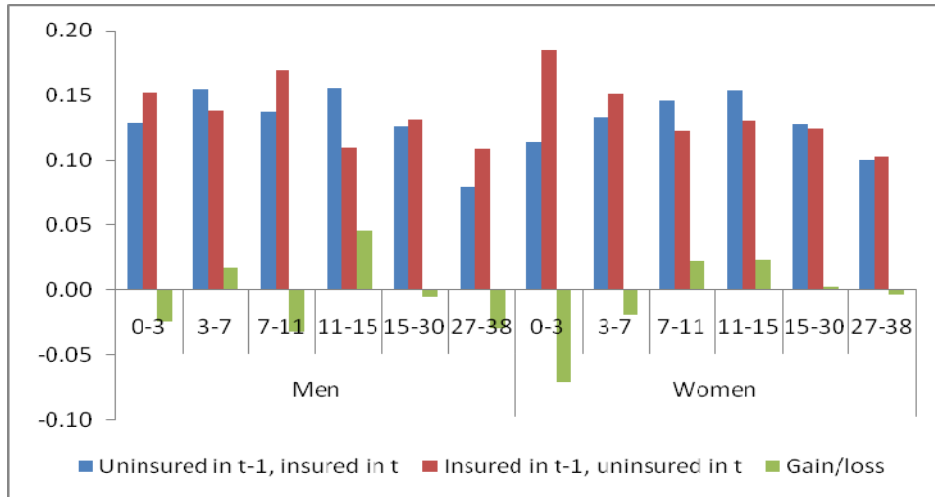
Figure 4: Proportion Insured in Year t-1and Year t, by Years since Immigration,
Men and Women born outside the Americas (Based on matched CPS data)
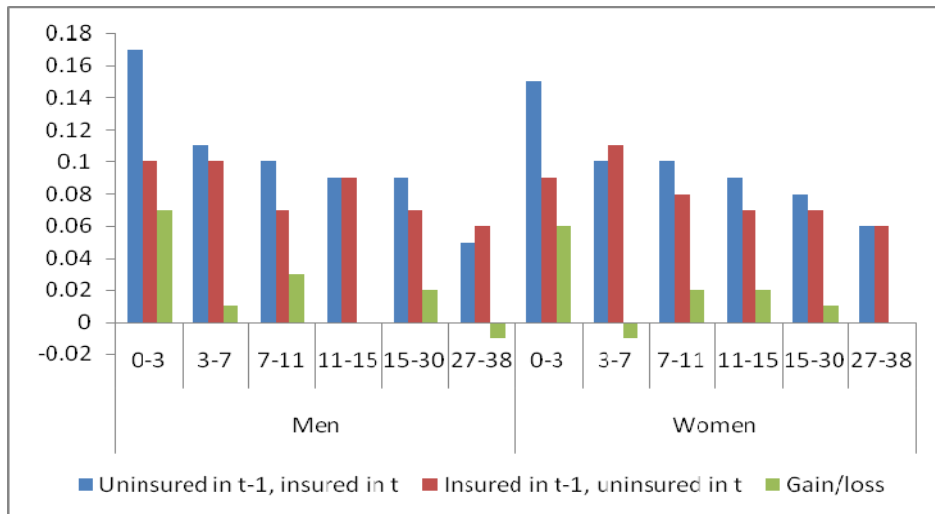
Table 1
Health Insurance Coverage and Health Status by Years since Immigration to the US
Mexican Immigrants in the US, March CPS, 1996-2008

	Men		Women	
	Uninsured	Health Status	Uninsured	Health Status
Years Since Arrival, 0-3	0.77	2.12	0.71	2.20
Years Since Arrival, 3-7	0.72	2.15	0.65	2.27
Years Since Arrival, 7-11	0.64	2.19	0.59	2.29
Years Since Arrival, 11-15	0.57	2.22	0.54	2.30
Years Since Arrival, 15-30	0.46	2.32	0.44	2.43
Years Since Arrival, 27-38	0.36	2.48	0.33	2.59
Number of Observations	34688	34688	29562	29562

Note: Health Status is self-reported and measured on a scale of 1 to 5: 1=excellent, 2=very good, 3=good, 4=fair, and 5=poor

Table 2
Estimates of the Association between Health Insurance Coverage and Years since Arrival in the US
Cross Sectional Sample of Mexican Immigrants, 1996-2008

	Men				Women			
Model/	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years Since Arrival, 3-7	-0.03***	-0.02	-0.01	-0.01	-0.05***	-0.03**	-0.03**	-0.03**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years Since Arrival, 7-11	-0.08***	-0.05***	-0.04***	-0.04***	-0.10***	-0.05***	-0.05***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years Since Arrival, 11-15	-0.14***	-0.08***	-0.07***	-0.07***	-0.14***	-0.06***	-0.06***	-0.07***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 15-30	-0.23***	-0.12***	-0.10***	-0.10***	-0.23***	-0.10***	-0.08***	-0.09***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 27-38	-0.31***	-0.12***	-0.09***	-0.09***	-0.34***	-0.13***	-0.11***	-0.11***
	(0.01)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Age of Arrival, Period of Arrival	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Status	No	No	No	Yes	No	No	No	Yes
Number of Observations	34688	34688	34688	34688	29562	29562	29562	29562
Mean Uninsured (Dependent Variable) for Reference Group (0-3 Years in US)	0.77	0.77	0.77	0.77	0.71	0.71	0.71	0.71

Notes: Figures in each column are based on a separate regression with whether uninsured as the dependent variable. Model 1 controls for years since arrival, age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 includes additional controls for period of arrival (dummy variables indicating arrived during 1970-1979, 1980-1989, 1990-1999, and 2000-2008) and age at arrival (dummy variables indicating age at arrival intervals: <15, 15-22, 23-30,31-40 and >40 years). Model 3 is same as model 2 plus additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 4 (column 4) adds controls for health status (dummy variables indicating excellent/very good health and poor/fair health with good health as comparison group). Heteroscedasticity adjusted standard errors are in parenthesis.
*$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Table 3
Estimates of the Association between Health Insurance Coverage and Years since Arrival in the US
Comparison of Estimates from Cross Sectional and Matched Samples
Mexican Immigrants, 1996-2008

	Men				Women			
	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample
Years Since Arrival, 3-7	-0.02	-0.01	-0.01	-0.03	-0.03**	0.03	-0.03**	0.03
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Years Since Arrival, 7-11	-0.05***	-0.03	-0.04***	-0.04	-0.05***	0.02	-0.05***	0.01
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Years Since Arrival, 11-15	-0.08***	-0.05	-0.07***	-0.05	-0.06***	-0.02	-0.07***	-0.03
	(0.02)	(0.04)	(0.01)	(0.03)	(0.02)	(0.04)	(0.02)	(0.04)
Years Since Arrival, 15-30	-0.12***	-0.09**	-0.10***	-0.09**	-0.10***	-0.04	-0.09***	-0.04
	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.05)	(0.02)	(0.04)
Years Since Arrival, 27-38	-0.12***	-0.13**	-0.09***	-0.11*	-0.13***	-0.08	-0.11***	-0.06
	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)
Age of Arrival, Period of Arrival	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Status	No	No	Yes	Yes	No	No	Yes	Yes
Number of Observations	34688	8044	34688	8044	29562	7708	29562	7708
Mean Uninsured (Dependent Variable) for Reference Group (0-3 Years in US)	0.77	0.71	0.77	0.71	0.71	0.64	0.71	0.64

Notes: See notes to Table 2 for model specification. Heteroscedasticity adjusted standard errors are in parenthesis.
*$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Table 4
Estimates of the Association between Health Insurance Coverage and Years since Arrival in the US
Matched Sample of Mexican Immigrants, 1996-2008
Fixed Effects Models

	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Years Since Arrival, 0-3	0.01	0.01	0.00	0.05	0.06	0.05
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 3-7	-0.04	-0.04	-0.04	0.00	0.01	-0.00
	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
Years Since Arrival, 7-11	0.02	0.01	0.01	-0.04	-0.03	-0.04
	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
Years Since Arrival, 11-15	-0.05	-0.05	-0.06	-0.04	-0.03	-0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 15-30	-0.02	-0.02	-0.02	-0.03	-0.03	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Years Since Arrival, 27-38	0.01	0.01	0.01	-0.01	0.00	-0.00
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Labor Market Factors and Citizenship	No	Yes	Yes	No	Yes	Yes
Health Status	No	No	Yes	No	No	Yes
Number of Observations	8044	8044	8044	7708	7708	7708
Mean Uninsured for those in the US for 0-3 Years	0.71	0.71	0.71	0.64	0.64	0.64

Note: Figures in each column are based on a regression with whether uninsured as the dependent variable. The reported coefficients are interactions of years since arrival and whether the observation is taken from year t. All models include person-specific fixed effects. The variable years-since-arrival is measured in year t-1. Model 1 controls for age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 includes additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 3 adds controls for health status (dummy variables indicating excellent/very good health and poor/fair health with good health as comparison group). Heteroscedasticity adjusted standard errors are in parenthesis.
 *$0.05 < p \le 0.1$, **$0.01 < p \le 0.05$, ***$p \le 0.01$.

Table 5
Estimates of the Association between Health Status Index (1-5) and Years since Arrival in the US
Cross Sectional Sample of Mexican Immigrants, 1996-2008

	Men				Women			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years Since Arrival, 3-7	0.02	0.02	0.05**	0.05**	0.05**	0.06***	0.07***	0.07***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 7-11	0.03	0.04	0.07**	0.07**	0.05**	0.09***	0.09***	0.09***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Years Since Arrival, 11-15	0.04*	0.05	0.08**	0.08**	0.03	0.10***	0.10***	0.10***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Years Since Arrival, 15-30	0.05***	0.06	0.08**	0.09**	0.06***	0.16***	0.17***	0.17***
	(0.02)	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 27-38	0.04	0.03	0.05	0.06	0.07**	0.19***	0.21***	0.21***
	(0.03)	(0.06)	(0.06)	(0.06)	(0.03)	(0.06)	(0.06)	(0.06)
Age of Arrival, Period of Arrival	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Insurance Status	No	No	No	Yes	No	No	No	Yes
Number of Observations	34688	34688	34688	34688	29562	29562	29562	29562
Mean Health Status (Dependent Variable)	2.11	2.11	2.11	2.11	2.20	2.20	2.20	2.20
for Reference Group (0-3 Years in US)	(0.91)	(0.91)	(0.91)	(0.91)	(0.92)	(0.92)	(0.92)	(0.92)

Notes: Health Status is self-reported and measured on a scale of 1 to 5: 1=excellent, 2=very good, 3=good, 4=fair, and 5=poor. Figures in each column are based on a separate regression. Model 1 controls for years since arrival, age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 includes additional controls for period of arrival (dummy variables indicating arrived during 1970-1979, 1980-1989, 1990-1999, and 2000-2008) and age at arrival (dummy variables indicating age at arrival intervals: <15, 15-22, 23-30,31-40 and >40 years). Model 3 is same as model 2 plus additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 4 (column 4) adds controls for health insurance status. Heteroscedasticity adjusted standard errors are in parenthesis.
*$0.05 < p \le 0.1$, **$0.01 < p \le 0.05$, ***$p \le 0.01$.

Table 6
Estimates of the Association between Health Status Index (1-5) and Years since Arrival in the US
Comparison of Estimates from Cross Sectional and Matched Samples
Mexican Immigrants, 1996-2008

	Men				Women			
	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample
Years Since Arrival, 3-7	0.02	-0.05	0.05**	-0.02	0.06***	0.08	0.07***	0.09
	(0.02)	(0.06)	(0.02)	(0.06)	(0.02)	(0.05)	(0.02)	(0.05)
Years Since Arrival, 7-11	0.04	-0.01	0.07***	0.02	0.09***	0.17**	0.09***	0.16**
	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)
Years Since Arrival, 11-15	0.05	0.00	0.08***	0.05	0.10***	0.20***	0.10***	0.21***
	(0.03)	(0.07)	(0.03)	(0.07)	(0.03)	(0.07)	(0.03)	(0.07)
Years Since Arrival, 15-30	0.06	-0.05	0.09**	-0.01	0.16***	0.30***	0.17***	0.30***
	(0.04)	(0.09)	(0.04)	(0.09)	(0.04)	(0.09)	(0.04)	(0.09)
Years Since Arrival, 27-38	0.03	-0.02	0.06	0.01	0.19***	0.39***	0.21***	0.39***
	(0.06)	(0.12)	(0.06)	(0.12)	(0.06)	(0.12)	(0.06)	(0.12)
Age of Arrival, Period of Arrival	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Insurance Status	No	No	Yes	Yes	No	No	Yes	Yes
Number of Observations	34688	8044	34688	8044	29562	7708	29562	7708
Mean Health Status (Dependent Variable) for	2.11	2.27	2.11	2.27	2.20	2.21	2.20	2.21
Reference Group (0-3 Years in US)	(0.91)	(0.94)	(0.91)	(0.94)	(0.92)	(0.92)	(0.92)	(0.92)

Notes: See notes to Table 5 for model specification. Heteroscedasticity adjusted standard errors are in parenthesis.
*$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Table 7
Estimates of the Association between Health Status Index (1-5) and Years since Arrival in the US
Matched Sample of Mexican Immigrants, 1996-2008
Fixed Effects Models

	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Years Since Arrival, 0-3	0.20**	0.24**	0.24**	0.14	0.14	0.14
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Years Since Arrival, 3-7	0.02	0.02	0.02	0.08	0.08	0.08
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Years Since Arrival, 7-11	0.04	0.03	0.03	0.06	0.06	0.06
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Years Since Arrival, 11-15	0.18**	0.19**	0.19**	0.13	0.13	0.13
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Years Since Arrival, 15-30	0.12*	0.12*	0.12*	0.08	0.08	0.08
	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)
Years Since Arrival, 27-38	0.06	0.07	0.06	0.00	0.01	0.01
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Labor Market Factors and Citizenship	No	Yes	Yes	No	Yes	Yes
Health Insurance Status	No	No	Yes	No	No	Yes
Number of Observations	8044	8044	8044	7708	7708	7708
Mean Health Status of those in the US for 0-3 Years	2.27	2.27	2.27	2.21	2.21	2.21
	(0.94)	(0.94)	(0.94)	(0.92)	(0.92)	(0.92)

Note: Health Status is self-reported and measured on a scale of 1 to 5: 1=excellent, 2=very good, 3=good, 4=fair, and 5=poor. The reported coefficients are interactions of years since arrival and whether the observation is taken from year t. All models include person-specific fixed effects. The variable years-since-arrival is measured in year t-1. Model 1 controls for age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 includes additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 3 adds controls for health insurance status. Heteroscedasticity adjusted standard errors are in parenthesis. *$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Table 8
Estimates of the Association between Years since Arrival in the US and Health Insurance Coverage and Health Status
Cross Sectional Sample of Immigrants born outside the Americas, 1996-2008

	Men				Women			
	Proportion Uninsured		Health Index		Proportion Uninsured		Health Index	
	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample
Years Since Arrival, 3-7	-0.07***	-0.05***	0.05**	0.03	-0.07***	-0.06***	0.06***	0.05
	(0.01)	(0.02)	(0.02)	(0.04)	(0.01)	(0.02)	(0.02)	(0.04)
Years Since Arrival, 7-11	-0.07***	-0.08***	0.05**	0.06	-0.10***	-0.12***	0.11***	0.12***
	(0.01)	(0.02)	(0.03)	(0.05)	(0.01)	(0.02)	(0.03)	(0.04)
Years Since Arrival, 11-15	-0.09***	-0.08***	0.10***	0.12**	-0.13***	-0.13***	0.12***	0.16***
	(0.01)	(0.02)	(0.03)	(0.05)	(0.01)	(0.02)	(0.03)	(0.05)
Years Since Arrival, 15-30	-0.10***	-0.10***	0.08**	0.05	-0.16***	-0.16***	0.11***	0.11*
	(0.02)	(0.03)	(0.04)	(0.07)	(0.02)	(0.03)	(0.04)	(0.06)
Years Since Arrival, 27-38	-0.07***	-0.07*	0.13**	0.11	-0.17***	-0.19***	0.14**	0.17*
	(0.02)	(0.04)	(0.06)	(0.09)	(0.02)	(0.03)	(0.05)	(0.09)
Age of Arrival, Period of Arrival	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	32793	12040	32793	12040	35853	13626	35853	13626
Mean of Dependent Variable for	0.34	0.30	1.90	1.97	0.32	0.27	1.97	2.05
Reference Group (0-3 Years in US)			(0.89)	(0.92)			(0.92)	(0.94)

Notes: Figures in each column are based on a separate regression with the dependent variable listed as column heading. Models control for years since arrival, age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, country of birth fixed effects, year of observation fixed effects, state unemployment rate, per capita income, the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Models also control for period of arrival (dummy variables indicating arrived during 1970-1979, 1980-1989, 1990-1999, and 2000-2008) and age at arrival (dummy variables indicating age at arrival intervals: <15, 15-22, 23-30,31-40 and >40 years). Heteroscedasticity adjusted standard errors are in parenthesis. *$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.
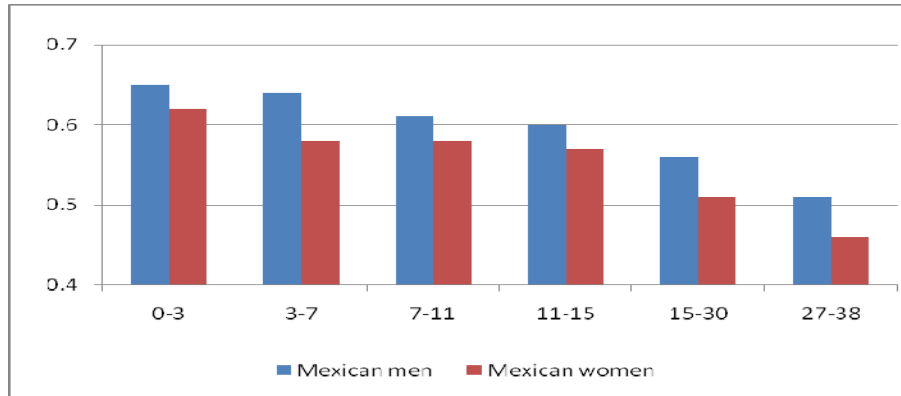
Table 9
Estimates of the Association between Years since Arrival in the US and Health Insurance Coverage and Health Status
Matched Sample of Immigrants born outside the Americas, 1996-2008
Fixed Effects Models

	Males		Females	
	Uninsured	Health Index	Uninsured	Health Index
Years Since Arrival, 0-3	-0.06**	0.11*	-0.04*	0.01
	(0.03)	(0.06)	(0.02)	(0.06)
Years Since Arrival, 3-7	-0.00	0.10**	0.03	0.03
	(0.02)	(0.05)	(0.02)	(0.05)
Years Since Arrival, 7-11	-0.01	0.20***	0.01	0.04
	(0.02)	(0.05)	(0.02)	(0.05)
Years Since Arrival, 11-15	0.02	0.09*	0.01	-0.01
	(0.02)	(0.05)	(0.02)	(0.05)
Years Since Arrival, 15-30	0.00	0.08*	0.02	0.03
	(0.02)	(0.04)	(0.02)	(0.04)
Years Since Arrival, 27-38	0.03	0.09	0.04	0.07
	(0.02)	(0.07)	(0.02)	(0.06)
Number of Observations	12040	12040	13626	13626
Mean of Dependent Variable for those in the US for0-3 Years	0.30	1.97	0.27	2.05
		(0.92)		(0.94)

Note: Figures in each column are based on a separate regression with the dependent variable listed as column heading. The reported coefficients are interactions of years since arrival and whether the observation is taken from year t. All models include person-specific fixed effects. The variable years-since-arrival is measured in year t-1. Models control for age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non-Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Heteroscedasticity adjusted standard errors are in parenthesis. $*0.05 < p \leq 0.1$, $**0.01 < p \leq 0.05$, $***p \leq 0.01$.
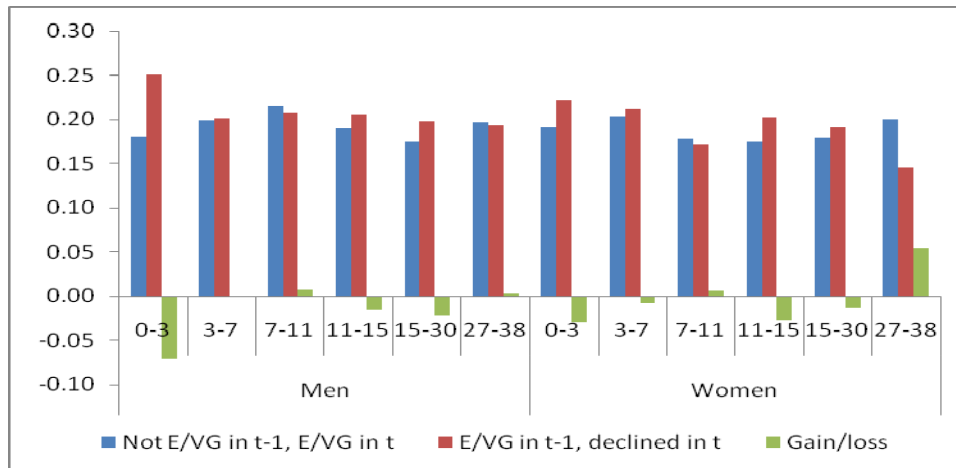
Appendix Figure 1
Association between Years since Immigration and the Proportion with Self-reported Excellent/Very Good Health
Mexican Men and Women in the US, March CPS, 1996-2008

Appendix Figure 2
Proportion with Self-reported Excellent/Very Good Health in t-1 and t, by Years since Immigration,
Mexican Men and Women in the US, Based on matched CPS data

Appendix Table 1
Estimates of the Association between Health Status (Excellent/very good) and Years since Arrival in the US
Cross Sectional Sample of Mexican Immigrants 1996-2008

	Men				Women			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years Since Arrival, 3-7	-0.00	-0.00	-0.01	-0.01	-0.03**	-0.03***	-0.04***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years Since Arrival, 7-11	-0.02	-0.02	-0.03*	-0.03**	-0.02*	-0.04***	-0.04***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 11-15	-0.02*	-0.02	-0.03*	-0.03**	-0.02	-0.05***	-0.05***	-0.06***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 15-30	-0.02*	-0.03	-0.04*	-0.04**	-0.03***	-0.09***	-0.10***	-0.10***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Years Since Arrival, 27-38	-0.00	-0.02	-0.02	-0.03	-0.01	-0.09***	-0.10***	-0.10***
	(0.01)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Age of Arrival, Period of Arrival	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Insurance Status	No	No	No	Yes	No	No	No	Yes
Number of Observations	34688	34688	34688	34688	29562	29562	29562	29562
Proportion with excellent/very good health for Reference Group (0-3 years in US)	0.65	0.65	0.65	0.65	0.62	0.62	0.62	0.62

Notes: Figures in each column are based on a separate regression with whether the respondent reported excellent/very good health as the dependent variable. Model 1 controls for years since arrival, age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 (column 2) includes additional controls for period of arrival (dummy variables indicating arrived during 1970-1979, 1980-1989, 1990-1999, and 2000-2008), and age at arrival (dummy variables indicating age at arrival intervals: <15, 15-22, 23-30,31-40 and >40 years). Model 3 (column 3) is same as model 2 plus additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 4 (column 4) adds controls for whether the respondent had health insurance last year. Heteroscedasticity adjusted standard errors are in parenthesis. *$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Appendix Table 2
Estimates of the Association between Health Status (Excellent/very good) and Years since Arrival in the US
Comparison of Estimates from Cross Sectional and Matched Samples
Mexican Immigrants, 1996-2008

	Men				Women			
	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample	Full Sample	Matched Sample
Years Since Arrival, 3-7	-0.00	0.03	-0.01	0.01	-0.03***	-0.02	-0.04***	-0.02
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Years Since Arrival, 7-11	-0.02	-0.00	-0.03**	-0.02	-0.04***	-0.06*	-0.05***	-0.05
	(0.01)	(0.03)	(0.01)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Years Since Arrival, 11-15	-0.02	-0.01	-0.03**	-0.02	-0.05***	-0.07*	-0.06***	-0.07*
	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Years Since Arrival, 15-30	-0.03	0.00	-0.04**	-0.02	-0.09***	-0.12***	-0.10***	-0.13***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)
Years Since Arrival, 27-38	-0.02	-0.01	-0.03	-0.03	-0.09***	-0.15**	-0.10***	-0.15**
	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)
Age of Arrival, Period of Arrival	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labor Market Factors and Citizenship	No	No	Yes	Yes	No	No	Yes	Yes
Health Insurance Status	No	No	Yes	Yes	No	No	Yes	Yes
Number of Observations	34688	8044	34688	8044	29562	7708	29562	7708
Proportion with excellent/very good health for Reference Group (0-3 years in US)	0.65	0.60	0.65	0.60	0.62	0.60	0.62	0.60

Notes: See notes to Appendix Table 1 for model specification. Heteroscedasticity adjusted standard errors are in parenthesis.
 *$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.

Appendix Table 3
Estimates of the Association between Health Status (Excellent/very good health) and Years since Arrival in the US
Matched Sample of Mexican Immigrants 1996-2008
Fixed Effects Model

	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Years Since Arrival, 0-3	-0.12**	-0.14**	-0.14**	-0.13**	-0.13**	-0.12**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Years Since Arrival, 3-7	-0.05	-0.05	-0.05	-0.10**	-0.09**	-0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 7-11	-0.04	-0.03	-0.03	-0.08*	-0.07*	-0.07*
	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 11-15	-0.06	-0.06	-0.07	-0.12***	-0.11***	-0.11***
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 15-30	-0.06	-0.06	-0.06	-0.09**	-0.09**	-0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Years Since Arrival, 27-38	-0.04	-0.04	-0.04	-0.03	-0.02	-0.02
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Labor Market Factors and Citizenship	No	Yes	Yes	No	Yes	Yes
Health Insurance Status	No	No	Yes	No	No	Yes
Number of Observations	8044	8044	8044	7708	7708	7708
Proportion with excellent/very good health for those in the US for 0-3 Years	0.60	0.60	0.60	0.60	0.60	0.60

Note: Figures in each column are based on a regression with whether the respondent reports excellent/very good health as the dependent variable. The reported coefficients are interactions of years since arrival and whether the observation is taken from year t. All models include person-specific fixed effects. The variable years-since-arrival is measured in year t-1. Model 1 controls for age (a dummy variable for each year of age), educational attainment (4 dummy variables indicating less than high-school, high-school, some college, and BA or higher education), whether married, number of children under 18 in the household, state of residence fixed effects, year of observation fixed effects, state unemployment rate, per capita income, and the proportion of US-born non Hispanic white persons who are uninsured by age, education, sex, state of residence, and year of observation. Model 2 includes additional controls for whether the respondent is a US citizen, hours worked and weeks worked last year, industry and occupation of work last year, personal earnings and family income (other than personal earnings) last year. Model 3 adds controls for whether the respondent has health insurance. Heteroscedasticity adjusted standard errors are in parenthesis. *$0.05 < p \leq 0.1$, **$0.01 < p \leq 0.05$, ***$p \leq 0.01$.