

“Out of Sight and Uninsured: Health Insurance Coverage among US-born minors in Mexico”

BACKGROUND

This study examines health insurance coverage among the 550,000 U.S.-born minors living in Mexico.

METHODS

Representative data from Mexico’s 2018 National Survey of Demographic Dynamics was used to describe health coverage among persons aged 0-17 living in Mexico (N=78,370). Logistic and multinomial regression models were estimated to identify the association between birthplace (Mexico versus the United States) and health insurance coverage in Mexico.

RESULTS

39% of U.S.-born minors living in Mexico in 2018 lacked health insurance compared to just 13% of Mexican-born minors. Logistic regression found that, net of potential confounders, being born in the United States was associated with 87% lower odds of being insured among minors in Mexico. U.S.-born minors disproportionately rely on private insurance programs and are particularly likely to be uninsured in the first year back from the United States.

DISCUSSION

Special attention is needed to ensure access to medical care among U.S.-born minors in Mexico.

BACKGROUND

This study investigates health insurance coverage among the 550,000 U.S.-born minors currently living in Mexico.[1] Many of these children and young adults go to Mexico following the deportation of a parent; other mixed status families relocate preemptively as expanding U.S. immigration enforcement increases the risk of parental removal and family separation.[2,3] The Great Recession compounded these fears because it disproportionately impacted immigrant-heavy industries, thus displacing many already poor Mexican-origin households.[4] Although some better off immigrant parents with more established U.S. social networks choose to leave their offspring with relatives or friends in the United States,[2] Recent evidence shows that between 2010 and 2015 alone, nearly 200,000 U.S.-born minors relocated to Mexico.[1] Many of these children initially return to states along the Mexico-U.S. border. Yet as they have settled, many relocated throughout central and southern Mexico.[1]

Mexican-origin Children born in the United States to unauthorized immigrant parents constitute a vulnerable population.[5–7] Children in immigrant families experience high levels of economic insecurity, and estimates suggest that 25% of U.S.-born minors with undocumented parents lack health insurance coverage. [8–10] As a result, U.S.-born children of Mexican origin often have limited access to routine preventative care while in the United States.[8]

When these U.S.-born children relocate to Mexico, they confront a new set of challenges.[11,12] Mexican-origin children born in the United States often struggle with limited Spanish literacy, and many lack documents necessary to register for school.[13,14] These challenges are exacerbated by inconsistent or nonexistent federal policies to guide the integration of U.S.-born children into Mexican society.[13,15] Research shows that U.S.-born children often struggle to adapt to Spanish-language schooling, and their studies suffer as a result.[16,17]

Beyond their schooling, we know little about the integration of U.S.-born children into other essential institutions, such as healthcare. As such, it is unclear the extent to which U.S.-born children in Mexico experience limited access to basic preventative medical care, as is the case in the United States. The well-being of these transnational youth is a matter of critical concern for Mexico and the United States, as many of these U.S. citizens expect to return to the United States one day.[16,18] Informed by recent studies that document low levels of health coverage among recently returned adult migrants,[19,20] this study examines access to medical care among U.S.-born minors living in Mexico.

More than a decade after the implementation of universal healthcare in 2003, Mexican adults who recently returned from the United States remain underinsured.[19–21] As of 2014, adult return migrants were 20 percentage-points more likely to be uninsured than adult non-migrants in Mexico.[20] Adults are least likely to be insured in the year immediately following return from the United States, suggesting that entry into Mexican institutions is a gradual process that unfolds over time.[20,21] With limited knowledge of Mexican institutions and often lacking necessary documentation with which to demonstrate citizenship, U.S.-born children may also struggle to enroll in Mexican health insurance programs.[13] After investigating U.S.-born children's overall health coverage and their affiliation with specific programs, I examine variations in health coverage by time since return to Mexico.

METHODS

Data Source and Dependent Variable

Data comes from the 2018 wave of Mexico's National Survey of Demographic Dynamics (ENADID). The ENADID uses a multi-stage probability design to yield nationally representative estimates across geographic regions and community-sizes. It has been widely used to study

Mexico-U.S. migration, including a recent examination of health coverage among adult return migrants.[20] This study includes respondents aged 0-17 who were listed as children of the household head and of Mexican origin (the household head was born in Mexico). Minors who were not children of the household head were excluded because their parents' birthplace was unobservable (the results were substantively unchanged in models using all respondents aged 0-17). The 2018 ENADID contained 78,370 minors who were born in either Mexico or the United States. U.S.-born minors were dichotomously identified using birthplace (born in U.S. = 1). The ENADID does not record children living in the United States at the time of the survey.

The sample included 1,454 U.S.-born children (1.5% of the total). Some of the U.S.-born children may have gained citizenship following their parents' strategic decisions to give birth in the United States. However, these dual citizens likely contribute only a modest number to the total sample. Harpaz estimates that about 4,800 Mexican children are strategically born in the United States each year, suggesting that these privileged dual citizens compose only a small fraction of the 550,000 U.S.-born minors now living in Mexico.[1,22]

Health Insurance Coverage and Access to Care

Mexico has a segmented healthcare system, which includes employment-based social security (IMSS), a public option (Seguro Popular), and various private programs. For in-depth discussions of Mexico's healthcare system, see Knaul et al.[23] and Wassink.[20] For a recent critique, see Molina Palazuelos.[24] Because Mexican migrants tend to work informally and Mexican return migrants disproportionately rely on Seguro Popular,[20] health insurance coverage was separated into four categories: none (uninsured), employment-based (IMSS or coverage through government employment), public program (Seguro Popular or other public

source), or private. Table S1 in the online supplement describes each of Mexico's health insurance programs in more detail. Less than 0.15% of the sample (129 minors) reported other insurance as their coverage. These respondents were dropped from the analysis. The ENADID does not measure affiliation with U.S. insurance programs such as Medicaid or CHIP. Thus, this study focused on access to medical care in Mexico. There were only modest differences in health coverage between border and non-border residents, suggesting that relatively few U.S.-born minors strategically live along the U.S.-Mexico border in order to receive medical care in the United States.

Recent U.S. migration Experience

The ENADID collects detailed information about migrations that occurred within the five years before the survey but does not record earlier migrations. Respondents specify their country of residence five-years and one-year before the survey. This information was used to identify minors with U.S.-migration experience and U.S.-born children with less time spent in Mexico. Respondents who lived in the United States both one- and five-years prior were coded as one-year residents to reflect their most recent U.S. trips. Five-year residents include those who were in the United States five years but not one year before the survey. Sixteen minors lived in the United States in the previous five years but were in Mexico one and five years before the survey. Those who returned before 2017 were classified as five-year residents, and those who migrated and returned in the last year were classified as one-year residents. Thus, models controlled for U.S. residence within the five years before the survey.

Other Child Characteristics

Children's educational progress measured the completion of progressions through Mexico's educational system: none (includes children five and younger), primary school incomplete (0-5 years), completed primary (6-8 years), completed lower secondary (9+ years). Because school enrollment is a crucial challenge for U.S.-born children in Mexico,[13,14] respondents' current school enrollment was dichotomously identified. All models adjusted for children's sex, age, and age-squared

Household Socioeconomic Context

The education of the household head, health insurance coverage of the household head, migration experience of the household head, employment-status of the household head, and total household assets were included to capture household socioeconomic status. The same educational categories were used for the household head as for their children, with the addition of upper-secondary complete (12-plus years, equivalent to U.S. high school). The household head's health insurance and migration experience was also measured using the same categories as for children. Parents' insurance status affects children because adults commonly affiliate their dependents with their programs. A parents' migration experience could reduce children's access to coverage because recently returned adult migrants frequently lack health coverage.[20]

Employment of the household head is relevant because children can enroll in IMSS or other employment-based programs through their parents. The ENADID classifies economically active respondents as employees, regular workers, day laborers, self-employed without employees, employers, and workers without pay. Following Wassink,[20] respondents who described themselves as employees or regular workers were coded as regularly employed to

reflect their more stable occupational statuses likely to confer employment-based insurance. Day laborers and self-employed individuals without employees were classified as irregularly employed owing to the marginal nature of these occupational statuses, while employers were separated to reflect business formation as a strategic economic strategy.[25]

Principal component analysis was used to construct a composite indicator of household assets, which included items ranging from home ownership and quality to utilities to possession of appliances and vehicles and is a strong predictor of household income and expenditures.[26]

Household and Contextual Controls

Several control variables were included to capture other aspects of children's context, which may affect their access to healthcare. Models dichotomously adjusted for the household head's marital status (married/cohabitating). Models also included a continuous variable that measured the number of residents in each child's household. All the models were adjusted for community size (less than 2,500 inhabitants, 2,500 to 14,999 inhabitants, 15,000 to 99,999 inhabitants, or 100,000 plus). These cutoffs reflect the information provided by the ENADID and correspond to Mexico's official census classifications. Rural areas tend to have weaker infrastructure and more limited access to services, such as healthcare.[24] To account for differences in state-level infrastructure and migrant-clustering in particular regions,[27] all models included state-fixed effects.

Analytic Strategy

First, bivariate differences in health insurance coverage between Mexican-born and U.S.-born minors living in Mexico were examined. Then, two logistic regression models were

estimated to identify the adjusted association between birthplace and health insurance coverage. Next, multinomial logistic regression was used to regress the odds of enrollment in employment-based coverage, public coverage, or private coverage on birthplace, net of other covariates. Finally, predicted probabilities of health coverage were estimated among Mexican- and U.S.-born minors by length of residence in Mexico to assess the extent to which coverage may increase as children become more settled. Probability weights were used to adjust for the survey's complex design and provide nationally representative estimates.

RESULTS

Descriptive Results

Table 1 presents means and proportions overall and by birthplace. In 2018, 39% of all U.S.-born minors living in Mexico were uninsured compared to just 13% of those born in Mexico. Although U.S.-born minors were disproportionately unaffiliated with employment-based coverage (23% versus 35%), they were also a sizeable 25 percentage points less likely than those born in Mexico to affiliate with the country's universal healthcare program, Seguro Popular, or another public program. Thus, consistent with recent studies of adult return migrants, U.S.-born children were substantially underinsured despite Mexico having a well-established universal healthcare program.

There was mixed evidence of socioeconomic disadvantage among U.S.-born youth living in Mexico. U.S.-born children reported similar educational attainment to those born in Mexico, and, despite evidence that U.S.-born children often struggle to integrate into Mexican schools,[13] U.S.-born minors were more likely than their Mexican-born peers to be enrolled in school. Consistent with previous research on Mexico-U.S. migration,[28] U.S.-born children also

lived in wealthier households than minors born in Mexico. However, it is important to note that migrants' accumulated wealth often reflects years of remittances, but does not necessarily connote successful integration into the Mexican labor market.[29]

Indeed, being the parent of a U.S.-born child was associated with a modestly lower rate of regular employment, and a corresponding reduction in the likelihood of having either employment-based or public health insurance coverage. Moreover, although business formation can enable economic mobility among those with little schooling, Mexican return migrants most commonly operate small businesses in the informal sector of the economy, which would not provide access to employment-based health coverage.[30] Thus, although U.S.-born youth bear some markers of socioeconomic advantage, these advantages might not enhance health insurance coverage within Mexico. Moreover, U.S.-born children were more likely than Mexican born youth to reside in small rural communities, which often have quite limited healthcare infrastructure.[24]

U.S.-born children were much more likely to have recently lived in the United States than their non-migrant peers. However, the majority (90%) had not lived in the United States in the five years before the survey. Thus, most U.S.-born minors appeared to be settled in Mexico, a pattern consistent with the high rate of school enrollment among U.S.-born children.

Multivariable Results

Adjustment for socioeconomic and demographic factors increased the negative associations between U.S. birth and health coverage among minors in Mexico (Table 2). Thus, it appears that migrant households' asset advantage and high rate of business formation do not confer the same advantages that they might among non-migrant households. Being born in the

United States was associated with 89% lower odds of having health insurance coverage (Model 1). Adjustment for children's recent U.S.- residence and school enrollment only marginally attenuated this negative association. However, note that recent U.S. residence was associated with a large decrease in the odds of having health coverage among Mexican children, a result consistent with findings among adult return migrants.[20,21]

Among children with health coverage (Table 3), being born in the United States was associated with 2.5 times higher odds of having private insurance, but was uncorrelated with the odds of having public coverage. Children's program affiliation was strongly linked to that of their household heads. Children in households with businesses and greater asset holdings were also more likely to affiliate with private insurance programs, suggesting that these sources of wealth but not formal employment may encourage households to procure private coverage rather than affiliating with a public program. Table 3 shows that, as is the case among return migrant adults, universally available health insurance does not appear to mitigate U.S.-born children's lack of coverage through employment-based programs.

Figure 1 plots predicted probabilities of program affiliation by children's recent migration experience based on a multinomial logit model that estimated program affiliation with uninsured serving as the reference category—the model adjusted for all control variables included in Table 3. U.S.-born children who lived in the United States in the previous five years had a 60% probability of being uninsured, compared to about 20% among return migrant Mexican-born children. The likelihood of uninsurance falls below 40% among more settled U.S.-born children who have lived in Mexico for at least five years. Thus, recent U.S. residence is associated with substantial uninsurance among U.S.-born minors in Mexico. Yet, U.S.-born children appear to integrate into Mexican institutions over time, as is the case among adult return

migrants.[20] Indeed, note the steady increase in affiliation with public insurance programs, from just 15% among one-year residents to about 25% among 5-year residents, to nearly 40% among those in Mexico for five or more years.

Models (not shown) investigated potential variations in health coverage by school enrollment, parental migration experience, employment, and residence in border states. These models (available upon request) did not reveal significantly distinct enrollment patterns between Mexican-born and U.S.-born minors.

DISCUSSION

This study used a nationally representative sample of Mexican-origin youth to assess health insurance coverage and access to medical care among U.S.-born minors in Mexico. Despite extensive scholarship on the challenges faced by Mexican-origin children living in mixed status households in the United States,[2,5,6] less is known about how Mexican-origin youth born in the United States fare in Mexico. This study documented a high rate of uninsurance (39%) among U.S.-born minors living in Mexico, even higher than the level of uninsurance among U.S. citizens living with undocumented parents in the United States. Sociodemographic characteristics, migration history, school enrollment, community size, and state of residence did not explain this disparity, suggesting a high degree of vulnerability to both chronic and emergency medical conditions among U.S.-born children living in Mexico.

The lack of affiliation with employment-based insurance programs may reflect high levels of labor market informality within migrant households.[31,32] Yet, disaffiliation with Seguro Popular suggests that institutional barriers and a lack of institutional support also limit health insurance coverage among U.S.-born children struggling to integrate into Mexican institutions, often without essential documents or Spanish literacy. Some Mexican families with

U.S.-born children may voluntarily opt out of public health insurance in favor of private healthcare. Indeed, U.S.-born minors were more than five times as likely as those born in Mexico to have private coverage. However, their greater enrollment in private insurance programs only marginally accounted for U.S.-born children's low levels of enrollment in employment-based and public healthcare programs.

It is also possible that some U.S.-born children living in Mexico continue to receive medical care in the United States. This possibility is unlikely to account for a significant proportion of the overall gap in coverage, however, given that only 10% of U.S. born minors had been in the United States in the last five years, only 1.8% in the year before the survey, and only 8% reported household members living in the United States.

Even if U.S.-born youth seek medical care in the United States, the results suggest that most do so without health insurance coverage. Only 11% of U.S.-born children in Mexico reported private health insurance that could include Medicaid, Chip, or other U.S. programs. Moreover, affiliation with private insurance programs was lowest in border states where U.S.-born children could most easily receive medical care in the United States. More research is needed to understand where U.S.-born children living in Mexico receive medical attention and how they pay for their healthcare.

My results suggest that uninsurance results partially from the disruptiveness of international relocation. The probability of being uninsured declined steeply among U.S.-born minors living in Mexico continuously for more than five years. Studies of adult return migrants in Mexico find that U.S.-migration can disrupt access to medical care,[21] but that health coverage increases with time since return and is related to other aspects of reintegration, such as entry into the formal labor market.[20] My results point to a similar process among U.S.-born

children, particularly given the steep increase in the probability of public coverage with more time in Mexico (see Figure 1).

One strategy to expedite enrollment among U.S.-born children living in Mexico would be to integrate school and healthcare enrollment. This analysis documented a high rate of school enrollment among U.S.-born children, demonstrating that most are already affiliated with one major Mexican institution. Zuniga et al. find that U.S.-born children in Mexico are concentrated in migrant-sending municipalities, a pattern consistent with the regional emergence of migration networks.[17] Schools in these migrant-sending municipalities, which can be identified with data from the Mexican Census, could constitute strategic targets for healthcare enrollment. At the same time, the United States should take steps to improve access to U.S.-healthcare for U.S.-born children living in Mexico, especially those along the border. Given the prevalent intention to one day return to the United States, the long-term health of these vulnerable minors has broad implications for the United States.[18]

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Table 1. Weighted summary of Mexican and U.S.-born minors in Mexico in 2018

	Full sample	Mexican born	U.S. born	T-test
<i>Nationality</i>				
U.S. born	1.5%	0.0%	100.0%	--
<i>Health insurance coverage</i>				
Employment-based	34.6%	34.8%	22.5%	*
Public program	49.3%	49.7%	26.6%	*
Private	2.8%	2.7%	11.7%	*
Uninsured	13.2%	12.8%	39.2%	*
<i>Demographics</i>				
Male	51.2%	51.2%	49.3%	
Age	9.4	9.4	10.1	*
<i>Educational attainment</i>				
None	11.2%	11.3%	7.9%	*
Less than primary	18.9%	19.0%	13.1%	*
Primary complete	38.3%	38.2%	43.7%	*
Secondary complete	31.5%	31.5%	35.3%	*
Currently enrolled if 6-years old or older	88.8%	88.7%	92.7%	*
<i>Recent migration experience</i>				
Non-migrant	99.8%	100.0%	89.9%	*
Five-year migrant	0.1%	0.0%	8.2%	*
One-year migrant	0.0%	0.0%	1.8%	*
<i>Household socioeconomic characteristics</i>				
<i>Household head education</i>				
Less than primary	3.2%	3.2%	0.6%	*
Primary complete	24.8%	24.8%	20.7%	*
Lower-secondary complete	34.7%	34.7%	34.2%	
Upper-secondary complete	37.3%	37.2%	44.5%	*
<i>Household head insurance coverage</i>				
Uninsured	14.1%	14.0%	21.2%	*
Employment-based	36.5%	36.6%	32.5%	
Public program	46.5%	46.7%	35.0%	*
Private	2.8%	2.7%	11.4%	*
<i>Household head employment</i>				
Inactive	7.6%	7.6%	7.9%	
Regularly employed	57.0%	57.0%	51.8%	*
Employer	2.0%	1.9%	6.2%	*
Irregularly employed	33.4%	33.4%	34.1%	
Household assets	-0.28	-0.30	0.74	*
<i>Household head migration experience</i>				
Non-migrant	99.3%	99.4%	91.9%	*
Five-year migrant	0.5%	0.4%	6.4%	*
One-year migrant	0.2%	0.2%	1.6%	*
<i>Household and community controls</i>				
Household head married	88.6%	88.6%	86.3%	
Number of household members	4.76	4.76	4.60	
<i>Community size</i>				
<2,500	41.7%	41.6%	48.5%	*
2,500-14,999	15.0%	15.0%	15.0%	
15,000-99,999	15.2%	15.3%	11.1%	*
100,000+	28.1%	28.2%	25.4%	
Observations	89,834	88,380	1,454	

* p<0.05, ** p<0.01, *** p<0.001

Source: Employer calculations from Mexico's 2018 National Survey of Demographic Dynamics

Table 2. Weighted logistic regression estimates of the association bewteen place of birth and health insurance coverage among minors living in Mexico in 2018

	Model 1	Model 2
	0.112 *** (0.015)	0.130 *** (0.015)
<i>Household socioeconomic context</i>		
<i>Household head insurance coverage (ref: none)</i>		
Employment-based	31.189 *** (1.882)	31.260 *** (1.881)
Public program	47.150 *** (2.776)	47.381 *** (2.809)
Private	83.892 *** (21.239)	81.723 *** (20.558)
<i>Household head employment (ref: inactive)</i>		
Regularly employed	1.638 *** (0.123)	1.639 *** (0.124)
Employer	0.951 (0.142)	0.940 (0.141)
Irregularly employed	1.459 *** (0.113)	1.451 *** (0.113)
Household assets	1.002 (0.016)	0.994 (0.016)
<i>Child's migration experience (ref: none)</i>		
Five-year migrant	0.221 ** (0.116)	
One-year migrant	0.308 * (0.152)	
Child currently enrolled in school	1.616 *** (0.097)	
Constant	0.188 *** (0.042)	0.199 *** (0.045)
Pseudo R-squared	0.374	0.377
Observations	89,834	89,834

* p<0.05, ** p<0.01, *** p<0.001

Source: Mexico's 2018 National Survey of Demographic Dynamics

Notes: Robust standard errors were used to adjust for household clustering.

All models were adjusted for children's sex, age, and education, household size and marital status, migration experience, and education of the household head, community size, and state fixed effects.

Table 3. Weighted multinomial logistic regression estimates of the association between place of birth and health insurance program among insured minors living in Mexico in 2018 (Reference category: Employment-based)

	Public	Private
U.S.-born	1.050 (0.230)	3.252 *** (1.050)
<i>Household socioeconomic context</i>		
<i>Household head insurance coverage (ref: none)</i>		
Employment-based	0.093 *** (0.007)	0.223 *** (0.046)
Public program	14.420 *** (1.171)	0.736 (0.179)
Private	0.328 *** (0.073)	75.862 *** (15.568)
<i>Household head employment (ref: inactive)</i>		
Regularly employed	1.069 (0.107)	1.082 (0.313)
Employer	1.154 (0.265)	2.976 ** (1.191)
Irregularly employed	1.353 ** (0.146)	2.390 ** (0.746)
Household assets	0.717 *** (0.015)	1.407 *** (0.128)
<i>Child's migration experience (ref: none)</i>		
Five-year migrant	0.479 (0.496)	0.083 (0.134)
One-year migrant	0.332 (0.307)	0.000 *** (0.000)
Child currently enrolled in school	0.606 *** (0.044)	1.041 (0.166)
Constant	0.634 (0.217)	0.040 *** (0.037)
Pseudo R-squared	0.678	
Observations	79,039	

* p<0.05, ** p<0.01, *** p<0.001

Source: Mexico's 2018 National Survey of Demographic Dynamics

Notes: Robust standard errors were used to adjust for household clustering. All models were adjusted for children's sex, age, and education, household size and marital status, migration experience, and education of the household head, community size, and state fixed effects.

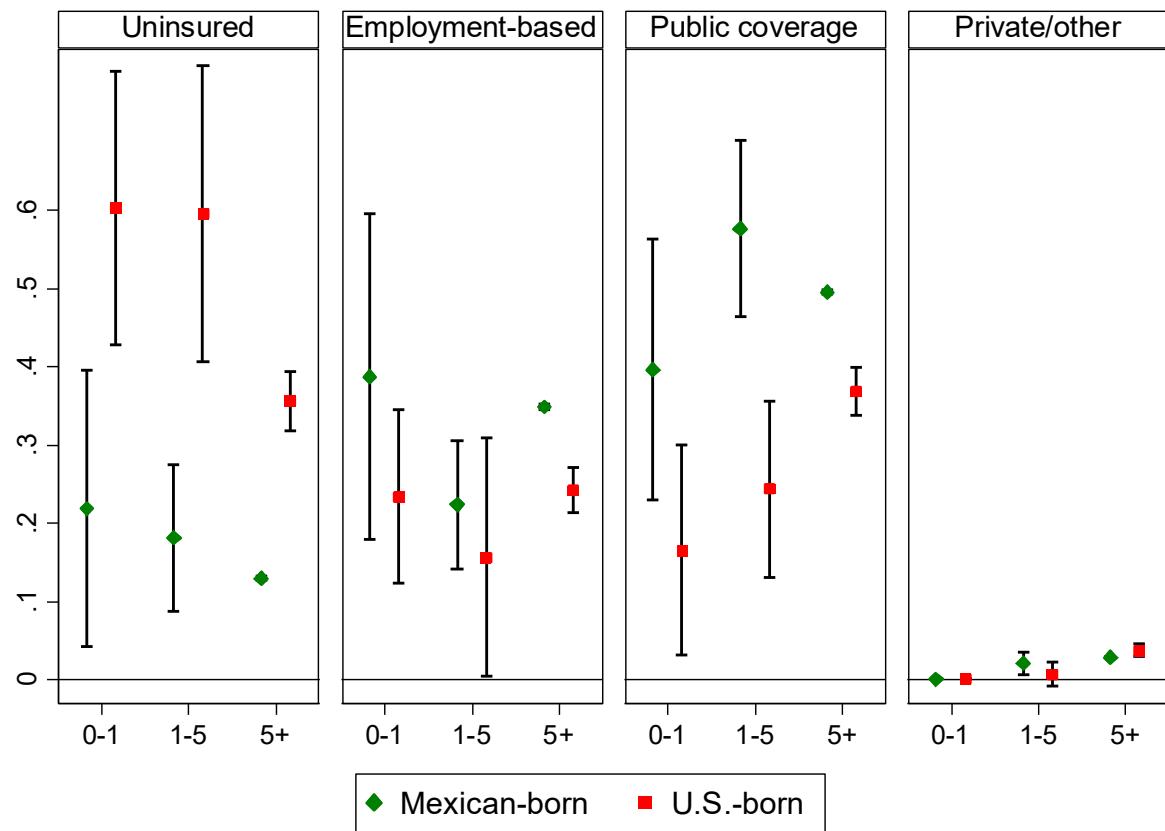


Fig. 1 Predicted probabilities of health insurance coverage program by length of residence in Mexico (0-1 years, 1-5 years, five or more years) based on a multinomial logistic regression model that regressed health insurance coverage with uninsured as the reference category on all of the variables included in Table 3.

Table S1: Major Mexican Health Insurance Programs

Program Name	Program type	Target Population	Program Detail	Payment process
Mexican Institute of Social Security (IMSS)	Employment-based	Mexican employees and independent laborers	Mexican firms are legally obligated to enroll their employees. Household workers and self-employed professionals may voluntarily affiliate.	Individual, employer, and government contributions
Institute for Social Security and Services for State Workers (ISSSTE)	Employment-based	Federal government employees	ISSSTE provides health insurance to Mexicans employed by the federal government. It does not insure employees of individual states.	Individual and government contributions
Petroleos Mexicanos (PEMEX)	Employment-based	Employees of Petroleos Mexicanos	PEMEX provides health insurance to Mexicans employed by the state-owned oil producing corporation Petroleos Mexicanos.	Individual and government contributions
Secretariat of National Defense (SEDENA)	Employment-based	Members of the Mexican army or airforce	SEDENA provides health insurance to Mexicans employed in the army or airforce.	Individual and government contributions
Naval Secretariat (SEMAR)	Employment-based	Membes of the Mexican navy	SEMAR provides health insurance to Mexicans employed in the navy.	Individual and government contributions
Seguro Popular (sometimes referred to as Progressa or Oportunidades)	Public	Mexicans working informally without access to IMSS	Seguro Popular (Popular Insurance) is available to Mexicans who work outside the formal sector. Family firms, agricultural laborers, small business owners, independent artisans or traders, and laborers in unregistered businesses can voluntarily affiliate with Seguro Popular.	Those who participate make financial contributions, which are matched by the state and federal governments. Families in the four poorest income deciles are exempt from financial contributions.
Private	Private	N/A	Private insurance is generally utilized by wealthy Mexicans and foreigners who desire access to high quality health care. It may also be used by Mexicans without access to coverage through their employment.	Individual payments
Other	Private	N/A	Respondents insured by programs not listed in the census questionnaire--less than 2% of the population in 2000 and 2010.	N/A
Uninsured	N/A	N/A	N/A	N/A

Source: Wassink 2016