

“Adult Child Migration and the Health of Elderly Parents Left Behind in Mexico”

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Research on international migration often focuses on the outcomes for emigrants at their destination, thereby overlooking the consequences for the family members of migrants remaining in the home country. In source countries with rapidly aging populations such as Mexico, a critical public policy concern is how the elderly dependents of U.S. migrants fare while their children are away. This paper begins an examination of that topic by investigating the relationship between children's migration status and parental health outcomes.

Conventional wisdom suggests that family members of migrants should benefit from international migration due to the large flows of remittances from the U.S. to Mexico. Nonetheless, little is known about the fraction of these remittances going to elderly parents, particularly when migrants are old enough to have established separate households. In addition, elderly parents may require physical support in the form of hours of care from their children which may be disrupted when one child migrates and for which there may be no close substitutes. Finally, elderly parents may suffer emotionally when their children are absent, particularly when children lack the documents to legally cross the U.S.-Mexico border.

The relationship between children's migration and the health of elderly dependents left behind is thus theoretically uncertain and has been a growing area of research. John Giles and Ren Mu (2004) examine the question of how elderly health affects children's migration choices in China. Randall S. Kuhn, Bethany Everett, and Rachel Silvey (forthcoming) explore the effect of children's migration on elderly parents in Indonesia. Estimating a causal effect between children's migration and elderly health, however, is naturally plagued by problems of endogeneity. Children may respond to parental health shocks by migrating themselves or both migration and parental health may be driven by some unobserved variable. Francisca Antman (2009) uses instrumental variables estimation to address this endogeneity problem for the case of

Mexico-U.S. migration and finds evidence of a causal link between poor elderly health outcomes and children's migration to the U.S.

This paper aims to take a first step at exploring this issue by asking whether elderly parents of children in the U.S. suffer from worse health outcomes than their counterparts with no children in the U.S. Overall, I find evidence that a child's U.S. migration is associated with a greater chance that his elderly parent in Mexico will be in poor physical and mental health.

I. Data and Descriptive Statistics

The data come from the Mexican Health and Aging Study (MHAS), a joint project between Mexico's *Instituto Nacional de Estadística, Geografía e Informática* (INEGI), and researchers at the Universities of Pennsylvania, Maryland, and Wisconsin.¹ While the MHAS is designed to be a nationally representative panel data set of Mexicans born before 1950, there is little variation in the migration of children over the two year time frame, thus I limit the sample used here to the first wave of the panel in 2001. Respondents are asked questions regarding income, assets, and labor supply, as well as detailed health related questions.

In addition, the MHAS also collects data on the migration history of the respondent, whether any of his children are currently in the U.S., and the financial and hourly contributions elderly parents receive from their children. In related work, Francisca Antman (2008) explores the effect of one child's migration on the time and financial contributions parents receive from all of their children. The results suggest that parents receive less time and money from their children when one migrates, begging the question of whether elderly health outcomes decline as well.

The outcome variables of interest in this paper are the parent's physical and mental health. For the physical health outcome, two variables are used in the analysis. One is a self-

reported health quality variable ranging from one, excellent, to five, poor. I convert the health quality variable into a binary outcome, “Poor Health Quality,” equal to one if the respondent claims his health is poor, and zero if the respondent describes his health as fair, good, very good, or excellent.

Table 1: Parental Descriptive Statistics by Migration Status of Children

	<u>No Child in US</u>		<u>Child in US</u>		Difference	
	Mean	SE	Mean	SE		
Poor Health Quality ^a	0.14	0.00	0.21	0.01	-0.07	***
Poor Physical Health ^b	0.05	0.00	0.06	0.01	-0.01	*
Poor Mental Health ^c	0.52	0.01	0.60	0.01	-0.07	***
Female	0.54	0.01	0.58	0.01	-0.03	**
Age	61.27	0.13	62.86	0.23	-1.60	***
Education (years)	5.23	0.06	3.43	0.09	1.81	***
Married	0.62	0.01	0.62	0.01	0.00	
Assets ^d	119.59	6.35	114.58	14.27	5.01	
Monthly Income ^d	8.39	1.63	3.49	1.07	4.91	**
Right to Medical Services	0.69	0.01	0.55	0.01	0.14	***
Children	4.86	0.04	6.96	0.07	-2.09	***
Grandchildren	8.74	0.13	14.44	0.29	-5.70	***
More Urban Area (100,000 ppl +)	0.74	0.01	0.53	0.01	0.22	***
Number of Observations	5247		1483			

* Significant at 10 percent; ** Significant at 5 percent; *** Significant at 1 percent

^aPoor Health Quality is self-reported indicator variable: 1 = poor health; 0 = fair, good, very good, or excellent health

^bPoor Physical Health is an indicator for whether the respondent has had a stroke or heart attack

^cPoor Mental Health is an indicator for whether the respondent reports having felt any of the following conditions the majority of the time in the past week: depression, loneliness, sadness

^dFinancial variables are in thousands of 2002 pesos

The other variable I construct is “Poor Physical Health,” a dummy variable equal to one if the respondent claims that he has ever been told that he has had a stroke or heart attack. While other, less extreme, measures of health problems are also available, they are arguably more subject to resulting biases due to the endogeneity of diagnosis and self-reporting. For instance, respondents may suffer from diabetes or hypertension without ever having received a formal diagnosis. Finally, the “Poor Mental Health” variable is equal to one if the respondent reports having felt depressed, lonely, or sad for the majority of the time in the week prior to the administration of the survey.

Table 1 illustrates the summary statistics for the 6,730 elderly parents in my sample, distinguished by the migration status of their children. A substantial fraction of the sample has at least one child in the U.S. at the time of the survey, amounting to about 22 percent of the sample. Even in the raw data, relatively worse health outcomes already show up for parents with at least one child in the U.S., as they are more likely to report poor health quality (21 versus 14 percent), poor physical health (6 versus 5 percent), and poor mental health (60 versus 52 percent). The parents with migrant children in the U.S. are also more likely to be female, are slightly older, and have fewer years of education, but are just about as likely to be married. In terms of resources, parents of children in the U.S. also receive less monthly income from all sources, but the difference in assets between the two groups is not statistically significant. The remaining variables also demonstrate stark contrasts between the two groups as the parents with children in the U.S. are less likely to report having access to medical services, have more children and grandchildren, and are less likely to live in relatively urban areas.

These descriptive statistics point to significant differences between elderly parents based on the migrant status of their children. I now turn to controlling for the observed characteristics

discussed here and focusing on the question of how the migration of children is related to parental health.

II. Empirical Specification

Since the primary goal is to estimate the relationship between the current migration status of children and parental health, I estimate the following regression equation:

$$(1) \quad Health_i = \beta MigrantChild_i + \mathbf{X}_i\gamma + \varepsilon_i,$$

where the dependent variable, $Health_i$, denotes a health outcome for the parent remaining in Mexico. As described above, the health outcomes include binary variables for “Poor Health Quality,” “Poor Physical Health,” and “Poor Mental Health.” The effect of interest is captured by the coefficient on $MigrantChild_i$, a variable which is an indicator equal to one if the respondent has at least one child currently in the U.S. and zero otherwise. The vector of covariates, \mathbf{X}_i , includes the following characteristics of the elderly parent: age, age squared, education categorical variables (corresponding to educational attainment of 1-6, 7-9, 10-12, and 13 or more years, with no education being the omitted group), a married dummy variable, assets, monthly income from all sources, a dummy indicating whether the respondent reports having a right to access medical services, the number of children, number of grandchildren, and a dummy variable indicating the respondent lives in a more urban area (population of 100,000 or more).

III. Results

Table 2 presents the marginal effects from probit estimation of equation (1). The coefficients of interest from all three regressions show that poor health outcomes are positively and significantly related to having a child in the U.S. In column (1), having a migrant child in

the U.S. is associated with a 3.6 percentage point increased probability of reporting poor health quality, relative to a baseline predicted probability of 13.9 percent. Column (2) reports that there is a 1.1 percentage point increase in the probability that a parent with a migrant child in the U.S. will be in poor physical health, meaning that he will have experienced a heart attack or stroke. While the related coefficient estimate is only statistically significant at the 10% level, the fact that the baseline predicted probability is just 4.9 percent indicates that this makes for a dramatic increase in the probability of experiencing an extremely adverse health shock. Finally, column (3) reports the results with poor mental health as the dependent variable. Having a migrant child in the U.S. is associated with an increased probability of being in poor mental health of 3.2 percentage points, although the baseline predicted probability is already fairly high at 54 percent.

Table 2: Parental Health and Child Migration, Probit Estimation

	(1)	(2)	(3)
	Poor Health Quality ^a	Poor Physical Health ^b	Poor Mental Health ^c
Migrant Child in U.S. coefficient	0.153 [0.046]***	0.105 [0.063]*	0.082 [0.041]**
Marginal Effect	0.036 [0.011]***	0.011 [0.007]	0.032 [0.016]**
Observed Probability	0.157	0.053	0.539
Predicted Prob. (at mean of Xs)	0.139	0.049	0.541
Observations	6730	6730	6730

Notes: See section II for other control variables included in the model

Robust standard errors in brackets

* Significant at 10 percent; ** Significant at 5 percent; *** Significant at 1 percent

^{abc} See notes below Table 1 for description of dependent variables

The question remains whether the child migrated in response to a parent's health shock or whether the parent experienced the shock in response to his child's migration. While the MHAS does not have specific data on the migration history of the children of elderly respondents, it

does report the year when each migrant child first left for the U.S. as well as the year of the parent's heart attack or stroke. Assuming that the children have been gone continuously since their first migration trip, I construct the difference in years between when the parent suffered the health shock and the year when the last child migrated. In results not reported here, the distributions of these variables suggest that the majority of children migrated before the parent experienced the health shock, thus suggesting that the results are not entirely driven by reverse causation.

Other interesting results from the probit estimation worth highlighting, but not included in Table 2, concern the relationship between health outcomes, sex, and educational attainment. Notably, women are more likely to report poor health quality and poor mental health, but are not significantly more likely to be in poor physical health. This is consistent with the view that women are less likely to suffer heart attacks and strokes, after controlling for other demographic variables. More educated people are also less likely to report poor health quality and poor mental health. These results are consistent with a view in which people with greater resources are more able to avoid health crises.

IV. Conclusion

The great waves of migration to the United States from Mexico seen in recent years combined with the aging of the population in that developing country beg the question of how elderly dependents will fare in the current context. The empirical observations made in this paper suggest that there is cause for concern as there is a statistically significant relationship between children's migration and poor parental health outcomes ranging from self-reported health quality and mental health to suffering a heart attack or stroke. The issue of whether this relationship is causal is taken up by Antman (2009) who proposes an instrumental variable

strategy to circumvent the endogeneity problems inherent in such analysis. Preliminary findings suggest there is a causal link pointing to worse health outcomes for elderly parents in Mexico with migrant children in the U.S. From a policy perspective, these results cast further doubt on the assumption that family members left behind in source countries should always benefit from the international migration of their relatives.

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¹ Mexican Health and Aging Study. 2008. <http://www.mhas.pop.upenn.edu/english/home.htm> (accessed November 16, 2008).