

Comments

Gerardo Esquivel: Hildebrandt and McKenzie study the impact of migration on child health indicators in rural Mexico. They use a 1997 nationally representative survey that contains information on both household members' past migration decisions and children's health outcomes. To address the likely endogeneity of migration, they use historic migration patterns as instruments for current migration. The paper finds that children in households with migrants have lower infant mortality rates and a lower probability of being underweight than do children in nonmigrant households. It also finds that one of the channels through which migration seems to influence children's health is an increase in their mothers' health knowledge, as proxied by her knowledge of ten different contraceptive methods. Somewhat paradoxically, the paper also finds that children in households with migrants have a lower probability of being breast-fed, of having received all relevant vaccinations, and of having visited a doctor at least once during their first year of life.

The issues addressed in this paper are important not just for Mexico, but for any country with substantial emigration. Understanding the effects of migration on sending countries is at least as important as studying its effects on receiving ones. The former line of analysis has received little attention, however, and this paper helps to fill the gap. The authors also develop an estimation strategy to address the endogeneity problem that pervades this type of study. In fact, they suggest that the difference between their results and those in a couple of sociological papers arises precisely from the correction for endogeneity and self-selection into migration. The authors are also careful in demonstrating the robustness of their conclusions.

In general, I like the paper very much and find its approach quite appealing. At the same time, I am not entirely comfortable with the authors' position on what appears to be conflicting evidence on the effect of migration on child health. For example, how do they explain the fact that that migration increases mothers' health knowledge but that children in migrant households

are less likely to have a complete set of vaccinations and less likely to visit a doctor in their first year of life? These results seem odd. I hope the subject will be addressed in future research, so that the literature can eventually reach more conclusive results on the net impact of migration on child health.

I am also somewhat skeptical about the magnitude of some of the estimates presented, particularly the estimates of the effect of migration on infant mortality rates. The authors conclude that children in a household with migrants are between 3.0 and 4.5 percent less likely to die in their first year of life, depending on the estimation method, than children born in a household without a migrant member. These estimated effects seem high given that a child's unconditional probability of dying in his or her first year of life is only about 2.7 percent and that the marginal effects on a probit estimation are in absolute and not in relative terms. This problem ultimately reflects the fact that the effects are calculated assuming a discrete change in the instrumented variable (in this case, the migrant household variable; see the note in table 5). However, when this variable (or any unbalanced binary variable—that is, one with many more zeros than ones) is instrumented, the range in which the estimated variable moves is shortened significantly owing to the nature of the first-step estimation when we have an endogenous binary variable. This problem is not easily solved, and it has been overlooked in the empirical and theoretical literature on instrumental variables with an unbalanced endogenous binary variable. One should therefore be careful in interpreting this type of result.

All in all, I think Hildebrandt and McKenzie make a very important contribution to the growing literature on the impact of migration on the sending economy. I praise them for being among the first authors to engage in such an important line of research and for their methodological contributions, which should definitely be taken into account in future studies.

Ernesto Schargrodsky: This paper analyzes the effects of migration on child health in the sending country, in particular, the effect of migration to the United States on infant mortality and birth weight of migrant households in rural Mexico. The identification of the health effects of migration is complicated because migrants are not randomly drawn from the general population. The authors address endogeneity problems using historic state-level migration rates as instruments for current migration, since the development of migration networks in the early 1900s lowered the cost of further migration from the same areas.

The first-stage results presented by the authors show the strength of this instrument. A potential concern with this strategy is that historic migration rates depended on the pattern of arrival of railroads into Mexico, and original

railroad development could be correlated with current health infrastructure. The results, however, are robust to the inclusion of health infrastructure and other state-level controls.

Using this identification strategy, Hildebrandt and McKenzie show that children in migrant households have lower infant mortality rates and higher birth weights than children in nonmigrant households. They also find that children in migrant households enjoy lower child mortality rates (deaths of children aged one to four), and are more likely to be delivered by a doctor. Children in migrant households receive less preventive health care, however, perhaps because of the higher opportunity cost of time or the absence of migrant parents. Children in migrant households are less likely to be breastfed, fully vaccinated, or taken to a doctor in the first year of life. The identification of these different effects of migration on child health in the sending country constitutes an important contribution of this article.

The paper then explores the mechanisms through which migration affects child health, perhaps overstressing the importance of a nonmonetary knowledge channel. The evidence supporting the relevance of this mechanism can be questioned. First, mothers' health knowledge is measured by the principal component of a set of questions on contraceptive methods, which may relate weakly to knowledge of child care. Second, the effect of migration through health knowledge is likely to depend on which member of the family migrated and his or her relationship to the children. As the authors discuss, households endogenously decide who migrates, and the database does not provide a suitable instrument to address this selection issue. Third, the coexistence of higher health knowledge and less preventive child care in migrant households seems puzzling. Fourth, the migrant families in the sample include households whose family members migrated to the United States and had not returned by the time of the survey. It is difficult to understand how the health knowledge mechanism operates in those cases. Fifth, the wealth infrastructure index, which proxies for wealth—the alternative explanation—may underestimate wealth for migrant relative to nonmigrant households. For example, if migrant households are considering a permanent migration to the United States, they may invest less in housing infrastructure. Finally, the attempt to compare the relative contribution of the health knowledge and the wealth infrastructure indexes only explains approximately one-sixth of the estimated overall migration impact on child health outcomes.

In summary, the paper convincingly shows beneficial effects of migration for child health in the sending country, and it contributes the first steps toward understanding the channels through which the reported effects are generated.

References

- Angrist, Joshua D. 1991. "Instrumental Variables Estimation of Average Treatment Effects in Econometrics and Epidemiology." Working paper 115. Cambridge, Mass.: National Bureau of Economic Research.
- Behrman, Jere R., and Mark R. Rosenzweig. 2003. "Returns to Birth Weight." University of Pennsylvania. Mimeographed.
- Bongaarts, John. 1987. "Does Family Planning Reduce Infant Mortality Rates?" *Population and Development Review* 13(2): 323–34.
- Borjas, George J. 1987. "Self-Selection and the Earnings of Immigrants." *American Economic Review* 77(4): 531–53.
- . 1999. *Heaven's Door: Immigration Policy and the American Economy*. Princeton University Press.
- Durand, Jorge, Emilio A. Parrado, and Douglas S. Massey. 1996. "Migradollars and Development: A Reconsideration of the Mexican Case." *International Migration Review* 30(2): 423–44.
- Escobar Latapí, Agustín, and others. 1998. "Factors That Influence Migration." In *Migration between Mexico and the United States: Binational Study*, vol. 1, 163–250. Washington: U.S. Commission on Immigration Reform and Mexican Ministry of Foreign Affairs.
- Espinosa, Kristin, and Douglas Massey. 1997. "Undocumented Migration and the Quantity and Quality of Social Capital." *Soziale Welt* 12: 141–62.
- Everitt, Brian S., and Graham Dunn. 2001. *Applied Multivariate Data Analysis*, 2nd ed. Oxford University Press.
- Filmer, Deon, and Lant Pritchett. 2001. "Estimating Wealth Effects without Expenditure Data or Tears: An Application to Educational Enrollments in States of India." *Demography* 38(1): 115–32.
- Foerster, Robert F. 1925. *The Racial Problems Involved in Immigration from Latin America and the West Indies to the United States*. Washington: U.S. Department of Labor.
- Frank, Reanne, and Robert A. Hummer. 2002. "The Other Side of the Paradox: The Risk of Low Birth Weight among Infants of Migrant and Nonmigrant Households within Mexico." *International Migration Review* 36(3): 746–65.
- Glewwe, Paul. 1999. "Why Does Mother's Schooling Raise Child Health in Developing Countries? Evidence from Morocco." *Journal of Human Resources* 34(1): 124–59.
- González-Cossío, Teresa, and others. 2003. "Breast-Feeding Practices in Mexico: Results from the Second National Nutrition Survey 1999." *Salud Pública de México* 45(4): 477–89.
- Grossman, Michael. 1972. "On the Concept of Health Capital and the Demand for Health." *Journal of Political Economy* 80(2): 223–55.
- Hanson, Gordon H., and Christopher Woodruff. 2003. "Emigration and Educational Attainment in Mexico." University of California at San Diego. Mimeographed.

- Heckman, James J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47(1): 153–61.
- Institute of Medicine. 1998. *From Generation to Generation: The Health And Well-Being of Children in Immigrant Families*. Washington: National Research Council.
- INEGI (National Institute of Statistics, Geography, and Information). 1999. *Encuesta nacional de la dinámica demográfica (ENADID), 1997*. Aguascalientes, Mexico.
- . 2001. *Estadísticas históricas de México, 2000*. CD-ROM. Aguascalientes, Mexico.
- Kanaiaupuni, Shawn, and Katharine M. Donato. 1999. "Migradollars and Mortality: The Effects of Migration on Infant Survival in Mexico." *Demography* 36(3): 339–53.
- Massey, Douglas S., Jorge Durand, and Nolan J. Malone. 2002. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration*. New York: Russell Sage Foundation.
- Massey, Douglas S., Luis Goldring, and Jorge Durand. 1994. "Continuities in Transnational Migration: An Analysis of Nineteen Mexican Communities." *American Journal of Sociology* 99(6): 1492–533.
- McKenzie, David, and Hillel Rapoport. 2004. "Network Effects and the Dynamics of Migration and Inequality: Theory and Evidence from Mexico." Working paper 063. Cambridge, Mass.: Bureau for Research in Economic Analysis of Development.
- Menjívar, Cecilia. 2002. "The Ties That Heal: Guatemalan Immigrant Women's Networks and Medical Treatment." *International Migration Review* 36(2): 437–66.
- Munshi, Kaivan. 2003. "Networks in the Modern Economy: Mexican Migrants in the U.S. Labor Market." *Quarterly Journal of Economics* 118(2): 549–99.
- Newey, Whitney K. 1987. "Efficient Estimation of Limited Dependent Variable Models with Endogenous Explanatory Variables." *Journal of Econometrics* 36(3): 231–50.
- PAHO (Pan-American Health Organization). 1998. *Health in the Americas: 1998 Edition*. Washington: World Health Organization.
- Pritchett, Lant, and Lawrence H. Summers. 1996. "Wealthier Is Healthier." *Journal of Human Resources* 31(4): 841–68.
- Secretariat of Health. 1997. "Información básica sobre recursos y servicios del Sistema Nacional de Salud." *Salud Pública de México* 39(6): 580–90.
- Strauss, John, and Duncan Thomas. 1998. "Health, Nutrition, and Economic Development." *Journal of Economic Literature* 36(2): 766–817.
- UNICEF (United Nations Children's Fund). 1997. *The Progress of Nations, 1997*. New York. Available online at www.unicef.org/pon97.
- Winters, Paul, Alain de Janvry, and Elisabeth Sadoulet. 2001. "Family and Community Networks in Mexico-U.S. Migration." *Journal of Human Resources* 36(1): 159–84.
- Wolpin, Kenneth I. 1997. "Determinants and Consequences of the Mortality and Health of Infants and Children." In *Handbook of Population and Family Economics*, vol. 1A, edited by M. R. Rosenzweig and O. Stark, 483–557. New York: Elsevier.
- Woodruff, Christopher, and Rene Zenteno. 2001. "Remittances and Microenterprises in Mexico." University of California at San Diego.