The Macro Sources of Recent Mexican Migration

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The bulk of cutting-edge socio-demographic research on international migration in the past two decades has emphasized the role of mid-level causal factors: household economies and social networks. This emphasis is due at least in part to rich, ethno-survey, community-based, longitudinal data that facilitate the in-depth exploration of migration out of households and communities over time. This research sees migration as a social, dynamic, and bounded system, and it has illustrated how the macro processes of development, industrialization, and demographic growth are articulated at the community, household, and individual levels, leading to migration in a logical and predictable way over time (e.g. Massey, Goldring, and Durand, 1994).

Although less determinant of individual migration decisions, macro social, economic and demographic forces determine the size and duration of aggregate migration flows. Historical data from Europe show that migration rates increase initially with development, industrialization, and demographic growth, but over time they level off and eventually subside (Hatton & Williamson, 1994). Some scholars speculate that the same process is occurring in contemporary developing countries. Indeed, Massey (1988) argues that migration flows between Mexico and the United States over the course of the 20th century responded to the closely linked cycles of the two economies. In the late 1980's, following the oil-induced economic crisis in Mexico, he predicted that migration out of Mexico would level off and decline if the Mexican economy began to grow again and if Mexican cities "regain(ed) their attractiveness as centers of employment and opportunity" (1988: 408).

Two decades following Massey's prediction, gross migration flows out of Mexico remain high and stable. Between 324,000 and 440,000 Mexicans migrated to the United States each year between 1990 and 2000 (Hill & Wong, 2005). The Mexican National Population Council estimates that same level was maintained through 2003, the most recent year for which data are available from the Survey on Migration in the Northern Border of Mexico (see http://www.conapo.gob.mx/mig_int/series/0401.htm). Thus, at least as recently as 2003, the fundamental processes producing migration out of Mexico had not yet reached their natural completion (cf. Massey, 1988: 408).

In this paper, we study the fundamental processes producing recent migration out of Mexico. Specifically, we explore whether and how international migration out of Mexican municipalities between 1995 and 2000 is related to municipal economic development, foreign capital investment, government spending on social programs, and domestic migration. This work tests a number of theories and conjectures about aggregate migration flows out of contemporary developing countries, using Mexico as a case study.

Expected Relationships between Migration and Macro Processes

First, we explore how emigration rates relate to economic development. Although economics predicts that migration will occur between places with differential capital-labor ratios (and thus a wage gap) (Lewis, 1954), economic development will generate migration in the short term because rising wages provide funds to cover the cost of migration. Development is accompanied by demographic growth (falling mortality rates preceding falling fertility rates), which produces a bottom-heavy population age structure

and leads to greater migration simply because of a larger proportion of the population falling in migration-prone ages. Over time, however, continued rising wages work to retain migrants, and migration rates stabilize and eventually fall. Thus, the stylized relationship between development and migration takes the shape of a hump (Hatton & Williamson, 1994).

In the current study, we do not look at the relationship between development and migration rates over time but across space at one point in time. However, we expect to observe a convex relationship between migration and development across municipalities: the lowest rates of migration will be found in municipalities with very low and very high levels of development, and the highest rates of migration will be found in municipalities with levels of development in the middle of the distribution.

Second, we test whether foreign direct investment has a direct relationship with migration flows out of municipalities in Mexico. Sassen (1988) argued that the expansion of foreign-owned capital into less developed economies displaces workers and generates ideological and material links between less and more developed countries that encourage those displaced workers to migrate. Massey and Espinosa (1997) tested whether the annual fluctuation in foreign direct investment at the national level affected an individual's risk of migration in a given year and did not find support for Sassen's theory using Mexican Migration Project data. It is possible that we will be able to better detect an effect of foreign direct investment, as it affects local labor markets and our data are able to capture geographic variation in foreign direct investment across Mexico. According to Sassen, the proposed direction of the effect would be positive: as foreign direct investment in a certain area increases, so too does emigration.

Third, we explore whether government spending on social programs works to discourage migration. Steclov and colleagues (2005) found that cash transfers to poor families through the Mexican government's poverty alleviation program, PROGRESA, in the late 1990's reduced the likelihood of individual international migration, perhaps through the requirement that cash transfer-receiving-parents be present for annual health care appointments or through changing household economic conditions to no longer necessitate international migration. We introduce a measure of municipal spending on social programs and public works with the expectation that increased spending, controlling for initial poverty rates, would reduce migration.

Fourth, and finally, we pay particular attention to the relationship between domestic and international migration flows. As Massey (1988) suggested, international migration from Mexico may be an alternative to domestic migration. If that were true, then we might observe a negative relationship between domestic migration rates and international migration rates. However, because domestic migration rates are likely a function of the same macro economic and demographic processes that produce international migration, a model that predicts international migration with rates of domestic migration would be endogenous. Thus, in this part of the analysis, we limit our sample to rural municipalities and introduce a global, gravity-based measure of the current economic attractiveness of domestic, urban destinations to instrument for domestic migration rates.

Data and Methods

In this paper we analyze the relationship between municipal emigration between 1995 and 2000 and a number of municipal economic, social, and demographic

characteristics measured prior to 1995 using multivariate regression models. Our unit of analysis is the Mexican municipality, which is roughly equivalent to, but somewhat smaller than, the U.S. county. In 2000, there were 2442 Mexican municipalities nationwide with an average population of 39,903. In order to treat municipalities within cities as a single unit, we aggregated municipalities into the 55 metropolitan zones identified by the Mexican government institutes SEDESOL, CONAPO, and INEGI (2004). Additionally, we identified 84 municipalities as urban if they contained a city with a population of at least 50,000 people, and if that city made up at least 50% of the total municipal population in 2000.

Oaxacan municipalities are far smaller than the average Mexican municipality. For comparability, we aggregated Oaxacan municipalities into 29 districts and one metropolitan zone (Oaxaca City). Our final analytic sample includes 1670 municipalities.

The data for this study come from a variety of Mexican national data sources, including the 1994 Economic Survey, the 1995 Mid-Census Population Count, vital statistics, government expenditure data, the 1990 Census, and the 2000 Census. Our key dependent measure is the municipal emigration rate, which is taken from the 2000 Census international migration supplement. The municipal emigration rate is the proportion of the 1995 municipal district population that migrated to the United States between 1995 and 2000.

Our basic measure of development is CONAPO's 1990 municipal index of marginalization, which uses eight indicators of poverty, including the proportion of households with dirt floors, that do not have indoor plumbing or a private toilet, that do not have electricity, that do not have access to piped water, that have more than two people per room; and the proportion of adults that are illiterate, that have not completed primary education, and that do not earn more than two minimum daily wages (CONAPO, 2000). In order to account for the independent effects of demographic growth, we include a measure of the proportion of the population that is in prime migration ages (20-39) from the 1995 Mid-Census Population Count and the current birth rate from 1994 vital statistics. The proportion of workforce employed in manufacturing, drawn from the 1990 Census, measures industrialization, a different aspect of development.

Foreign direct investment (FDI) comes from the 1994 Economic Census and is measured as the proportion of manufacturing, service, and commercial industries that are majority foreign-owned. Alternatively, foreign direct investment can be measured as the proportion of workers employed in manufacturing, service, and commercial industries that are majority foreign owned. We will explore both measures of FDI. Government expenditure data is published online through the National Institute of Statistics, Geography and Information's Municipal Information Database; we use the published total expenditures on social services and public works.

Our measure of rural-urban domestic migration comes from the 2000 Census question on municipal location of residence in 1995. The domestic rural-urban migration rate is thus the number of individuals who reported living in a rural municipality x in 1995 and in any given urban municipality in 2000 divided by the rural municipality x's 1995 population.

Our regression models estimate the extent to which domestic migration to Mexican urban areas serves as an alternative to international migration for rural residents. Domestic out-migration from rural municipalities is therefore used as a predictor for

international migration. However, because domestic out-migration may be a function of the same modeled and unmodeled municipal characteristics as international migration, domestic out-migration is treated as an endogenous variable. Two-stage least squares estimation is used to obtain unbiased estimates of the association between domestic and international migration. A gravity- (i.e. distance-) based measure of the attractiveness of urban destinations is used as an instrument for domestic out-migration. This measure is computed as the sum of the economic conditions in each urban destination divided by the distance between the rural municipality x and the urban destination.

References

Consejo Nacional de Población (CONAPO). 2000. "Indices de Marginación." Mexico City, MX: CONAPO.

Hatton, T.J. and J.G. Williamson. 1994. "What Drove the Mass Migrations from Europe in the Late Nineteenth Century?" *Population and Development Review* 20(3): 533-559.

Hill, K. & R. Wong. (2005). Mexico-US Migration: Views from Both Sides of the Border. *Population and Development Review* 31(1), 1-18.

Lewis, W.A. 1954. "Economic Development with Unlimited Supplies of Labor." *Manchester School of Economic and Social Studies* 22:139-91.

Massey, D. 1988. "Economic Development and Migration in Comparative Perspective." *Population and Development Review* 14(3): 383-413.

Massey, Goldring, and Durand. 1994. "Continuities in Transnational Migration: An Analysis of Nineteen Mexican Communities." *American Journal of Sociology* 99(6): 1492-1533.

Massey DS, Espinosa KE. 1997. "What's driving Mexico-US migration? A theoretical, empirical, and policy analysis." *American Journal of Sociology* 102 (4): 939-999.

Sassen, S. 1988. *The Mobility of Labor and Capital: A Study in International Investment and Labor Flows.* New York: Cambridge University Press.

Secretary of Social Development (SEDESOL), National Population Council (CONAPO), and the National Institute of Statistics, Geography and Information (INEGI). 2004. *Delimitaciones de las zonas metropolitanas de México.* Mexico City: CONAPO.

Stecklov, Winters, Stampini, Davis. 2005. "Do Conditional Cash Transfers Influence Migration? A Study Using Experimental Data from the Mexican PROGRESA Program." *Demography* 42(4): 769-790.