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What are Migration Networks?

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ABSTRACT

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Migration networks are usually captured by the number of people from the migrant's country in the host region. Using Mexican migration data, we analyze the effects of the usual network variable and two additional origin-village-specific variables on migrants' location choice.

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I. INTRODUCTION

The prevailing explanation for ethnic clustering is the existence of beneficial network externalities. Migration networks affect migrants' location decisions through three channels. First, they provide information about the host region labor market. Second, migrants' utility increases with the amount of ethnic goods available in a location. Third, migrants expect previous migrants to help them in the settlement process.

In network externalities models, costs of relocation decrease with the number of immigrants, encouraging more emigration, and leading to immigrant clustering (Darvish-Lecker, 1990; Epstein and Hillman, 1998). It is not straightforward, however, that a larger local network increases the probability of migrating to that location. A migrant's utility is a positive function of both wages and the number of immigrants at a location. However, an increasing number of migrants in a location increases the supply of workers with similar characteristics, and decreases wages as a result of additional competition. As the number of migrants increases, the network externalities effect on utility initially dominates the negative wage effect. Later the negative wage effect will dominate network externalities; increasing the number of immigrants further will decrease the migrant's utility. Overall, an inverse U-shaped relationship between the number of migrants in a location and the probability of moving there will appear. An alternative explanation of such an inverse U-shaped relationship is the possibility that as the number of migrants in a location increases beyond a certain point there will be negative reactions from the local community towards the immigrants.

Empirically, migration networks are usually captured by the number of people from the migrant's country currently in the host region, or by the number of people

speaking the migrant's native language (Chiswick and Miller, 2000). These variables, however, do not allow us to differentiate the various elements of migration networks.

We examine the location choices of Mexican migrants to the United States. In addition to the usual network variable we include two origin-village-specific effects: the origin-village's total experience in the host region and the total number of origin-village members currently in the host region. The former captures the sum of information – including the village's migration history, available to the immigrant. The latter captures current links as well as labor supply effects. By including these two village-specific network measures, the usual network variable captures the effects of the availability of ethnic goods.

II. DATA

We estimate conditional logit models to study the location choice of Mexican migrants in the United States (McFadden, 1984). We use individual level data on Mexican-U.S. migration collected by the Mexican Migration Project since 1982.[1] The data comprises more than 7,000 households in 52 Mexican communities and includes information on the socioeconomic characteristics and the migration history of the household head. The data further allows us to analyze whether there are differences in the location choice of migrants on their first and last trips.

The key variables in our analysis are three measures of migration networks. Similar to other studies, we calculated the share of the total Mexican population in a

[1] See Donato, Durant and Massey (1992) and Phillips and Massey (2000) for a description of the data. The data is available at http://www.pop.upenn.edu/mexmig/.

particular U.S. community *j*.[2] Second, for each year *t*, we calculated the number of current migrants from the Mexican community *k* in the U.S. community *j*, M_{kjt}, which gives us our first origin-village-specific measure of migration networks. Third, using the migration duration information provided in an event-history file of the data set, we calculated for each year *t* the migration duration experience of each migrant *m* from the Mexican community *k* in each U.S. location *j*, D_{mkjt}. The cumulative migration experience of a Mexican community in a specific U.S. location at time *t*, $CMEXP_{kjt}$, is then given by $CMEXP_{kjT} = \sum_{t=0}^{T} \sum_{m=1}^{M} D_{mkjt}$ for each $t = 0,...,T$ and $m = 1,...,M$. This measure shows the absolute migration experience of a Mexican community in a particular U.S. community in years.

To control for other factors that might affect the utility levels associated with a receiving area, we include the total population and the unemployment rate in an U.S. area. We further include the consumer price index (with the base year 1982-1984) in an U.S. area, to control for the relative the costs of living. We use the driving distance in miles from the place of origin to the destination as a proxy for migration costs.

III. RESULTS

Columns two to four of Table 1 present the results for our three network variables (and their squares) on a migrant's first trip to the U.S. The second column includes the standard variable, the share of the Mexican population in a location in the U.S., and its square. Similar to the existing literature (Bartel, 1989; Jaeger, 2000) our results show

[2] See Phillips and Massey (2000) for the construction of this variable.

that as the size of the network in a location increases, the probability of choosing this location increases. The coefficient on the squared-term indicates that there is an inverse U-shaped relationship. In the third column we have added cumulative migration experience and the number of current migrants, and their squares, to the estimation. The share of the Mexican population and its square maintain their significance and signs, but the size of the coefficients becomes much smaller. From the estimated coefficients one can calculate that the positive effect of the share of the Mexican population in an U.S. location becomes negative when it increases beyond 10%.

Our results show that village-specific effects play an important role in the migrant's location decision: the total effect of networks on a migrant's location choice significantly depends on both the cumulative migration experience of the sending village and the current number of fellows from the home village in an U.S. location. The effect of the cumulative migration experience of a village is U-shaped, becoming positive after 500 years of experience. In our data, on average, the probability of choosing a specific location in the U.S. increases with the total migration experience of a Mexican village in this location, indicating the importance of the provision of information through migration networks. The number of current migrants from a certain village has an inverse U-shaped effect – too many immigrants located at a certain time at the destination decreases the probability of choosing this location (the probability is at a maximum at 24 migrants from a certain community). Such negative size effects could be the result of wage decreases or local population objections.

The effect of network externalities may vary for different types of migrants. For example, illegal migrants may depend more on migration networks than legal migrants.

Our above results also hold when we differentiate between legal and illegal migrants. Village-specific effects are more important for illegal migrants if compared to their legal counterparts. Our estimation results confirm the expectation that migrants who already have some migration experience in the U.S. are less dependent on the information provided by the migration network. The effect of the cumulative migration experience of a village on the location choice is much smaller for migrants on their last trip if compared to their first trip, whereas the effects of the other network measures on the location choice does not change.

IV. CONCLUSION

Our empirical results show that the size of a Mexican migration network in an U.S. location has a positive effect on the probability that individuals will immigrate to this location. However, if the size of the migrant population at a certain location is too large, then there are negative size effects and the probability of choosing this location decreases.

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Table: Conditional Logit Analysis of Location Choice of Mexican Migrants

Variables	First Trip				Last Trip			
	Constrained		Unconstrained		Constrained		Unconstrained	
			Legal	Illegal			Legal	Illegal
CPI	0.034††	-0.012	-0.081††	0.001	-0.017	-0.044††	-0.077††	-0.015
	(0.015)	(0.016)	(0.041)	(0.018)	(0.011)	(0.013)	(0.019)	(0.018)
Unemployment Rate	-0.031††	-0.038††	0.057	-0.049††	-0.034††	-0.023	-0.026	-0.013
	(0.014)	(0.015)	(0.045)	(0.016)	(0.013)	(0.015)	(0.023)	(0.020)
Total Population/10^6	0.037††	0.017††	0.024††	0.016††	0.031††	0.007††	0.005††	0.011††
	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Distance in Miles/10^4	-4.234††	-0.437	1.912	-0.688	0.521	3.432††	6.273††	1.177
	(0.782)	(0.863)	(2.752)	(0.913)	(0.893)	(1.029)	(1.688)	(1.312)
Share of Mexican Population in %	0.400††	0.163††	0.244††	0.156††	0.482††	0.186††	0.296††	0.115††
	(0.018)	(0.019)	(0.062)	(0.020)	(0.020)	(0.022)	(0.037)	(0.028)
Share of Mexican Population in % Squared/10^2	-2.010††	-0.774††	-1.307††	-0.726††	-2.131††	-0.788††	-1.265††	-0.500††
	(0.119)	(0.108)	(0.390)	(0.112)	(0.120)	(0.115)	(0.206)	(0.140)
Cumulative Migration Experience (in hundred years)	-	-1.477††	-1.203††	-1.604††	-	-0.323††	-0.048	-0.820††
		(0.135)	(0.338)	(0.151)		(0.096)	(0.135)	(0.153)
Cumulative Migration Experience Squared	-	0.144††	0.095††	0.163††	-	0.030††	0.002	0.087††
		(0.014)	(0.030)	(0.017)		(0.001)	(0.011)	(0.015)
Number of Current Migrants	-	0.533††	0.487††	0.549††	-	0.469††	0.446††	0.506††
		(0.015)	(0.040)	(0.016)		(0.015)	(0.022)	(0.021)
Number of Current Migrants Squared/10^2	-	-1.109††	-0.912††	-1.168††	-	-1.056††	-1.009††	-1.136††
		(0.050)	(0.107)	(0.057)		(0.047)	(0.068)	(0.070)
Individuals	1,751	1,751	215	1,536	1,565	1,565	739	826
Number of Mexican communities	52		52		52		52	
Number of U.S. communities	43		43		46		46	
Log-Likelihood	-5,003.73	-3,845.27	-3,830.11		-4,575.09	-3,280.84	-3,252.09	
Pseudo-R^2	0.240	0.416	0.418		0.236	0.452	0.457	
Observations	75,293				71,990			

Note: Standard errors in parentheses. †: statistically significant at least at the 10%-level. ††: statistically significant at least at the 5%-level.

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