Migration, remittances and micro-finance in rural Mexico

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Recibido 16/12/2011 - Aceptado 23/03/2012

Resumen

Usando técnicas cuantitativas y cualitativas reunimos una base de datos de 334 familias de tres municipios rurales de México para estimar mediante un modelo de variables instrumentales el impacto de la migración y las remesas sobre las restricciones a la producción agrícola y financiamiento. Encontramos un efecto positivo de la migración y las remesas sobre la producción agrícola y un impacto negativo de la migración sobre la liquidez financiera, tal vez porque la migración a menudo es financiada con ahorros o préstamos por las propias familias a falta de liquidez, creando un círculo vicioso entre migración y falta de crédito.

Palabras clave: Municipios rurales, México, micro-finanzas, migración, remesas

Abstract

Using quantitative and qualitative techniques we gathered a 334 household basedata from three rural municipalities in Mexico to estimate through an instrumental variables model the impact of labor migration and remittances in household's agricultural yield and financial constraints. We found a positive effect of migration on agriculture yield and a negative impact of migration on financial liquidity maybe due to the migration is often financed by their own savings or borrowing of the household because of lack of liquidity, raising a vicious circle of migration and lack of credit.

Key words: Rural municipalities, Mexico, micro-finance, migration, remittances.

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Introduction

The international movement of capital is one of the main features of globalization. Labor in the other hand has remained attached to national territories (Pritchett, L., 2006). In the last decades, foreign banks have become an important part of Mexico's financial system through a complex history of merges and acquisitions with local banks. Foreign direct investment also had a considerable increased during the last 30 years. Albeit this increased flow of capital and foreign investment, rural Mexico remained with a scarce access to capital, drown in a considerable credit constraint. The few mechanism through which rural households can access capital for investment are a nascent or informal micro-finance sector, government programs and remittances from migrant worker in the United States.

Nevertheless labor migration to the United States is neither open nor free, rural households export its relative abundant labor (very often through illegal and dangerous means) in order to receive some remittances that cover the capital requirements for agricultural production. In other words, rural households often exchange working hands for working capital.

This paper study the impact of labor migration and remittances in agricultural production and financial liquidity in three municipalities of Mexico. We study the impact of changes in labor and capital in agricultural production and the value of financial assets. We found that agricultural production increased. In this sense, in an economy with credit constraint, international migration contributes to fighting poverty through gains in efficiency.

The value of agricultural yield is determined by the allocation of labor and capital. Financial access of the household is measured as the total amount of savings and borrowing that flow into the household. Considering that must of borrowing and lending activities are done by community neighbors through informal micro financial businesses, financial flows are consider to be determined by the community.

Following Taylor, E. and Dyer, G. (2006) and Rozelle, S.,Taylor, E. and DeBrauw, A. (1999) we tried to asses the impact of migration and remittances on income at the very local. Focusing in three cases of study is possible to combine quantitative and qualitative information to better understand household and community dynamics in terms of a participatory econometrics approach (Vijayendra, R., 2002).

Migration as a financial decision

The new economics of labor migration (NELM), understands the migrant as part of a larger social group, usually the family or household. The NELM provides a useful analytical starting point to understand how migration and remittances transform the economies of households with migrants in ways

that were overlooked by classical migration research (Stark O., 1991). Under NELM migrants keep ties with the source household after they migrate. Family members who remain behind (often, parents and siblings) reorganize their consumption and production activities in response to the migrant's departure; while migrants typically share part of their earnings with their household of origin, through remittances.

The perspective that migration decisions are not taken by isolated actors but by larger units of related people typically by households, involves that people act collectively not only to maximize income. Some other reasons involve loosing constraints on investment that are created by a variety of market failures, including missing or incomplete capital, insurance, and labor markets. That is, migrants play the role of financial intermediaries in imperfect-market contexts. A number of studies find evidence in support of the basic tenets of the NELM . A study of migration from households in rural China found that, in almost all production activities, the loss of labor to migration reduced net income. However, migrants generated remittances, and remittances, in turn, significantly increased net incomes in both farm and self-employment activities (Rozelle, S.,Taylor, E. and DeBrauw, A., 1999).

Taylor, E. and Dyer, G., (2006) studies an economy wide perspective on migration and its impacts. They presented a methodology to understand the ways in which households with migrants transmit influences of migration to others in the source economy, mainly via local market linkages. Using national level data for Mexico (*Encuesta Nacional a Hogares Rurales de México*, or ENHRUM 2003) they made an assessment of the impacts of international migration and remittances on sending areas. The results showed that impacts may be positive or negative depending critically on the ways in which local markets transmit externalities among households. Alcaraz, C., Chiquiar, D., and Salcedo, A. (2012) studied the short term effects of remittances on school attendance and child labor, finding that the negative shock on remittances caused an important increase in child labor and a decrease in school attendance of a similar magnitude. A possible interpretation of this findings is that remittance-recipient households are credit constrained, since they seem to face the negative shock on remittances by sending their children to work.

On the other hand, migration is expensive. Households sponsor the migration of its members and although remittances are an expected financial flow from migrants to households, costs of migration must be pooled among household members. Massey, D.S. and Aysa-Lastra, M., (2011) estimated models that considers individual social capital and community social capital. Individual social capital refers to migration enhancing resources that come from direct and usually close ties to particular people with migratory experience in the United States. Community social capital refers to resources emanating from weaker ties to U.S. migrants diffused throughout a community. Both sets of ties constitute important sources of instrumental value for people

contemplating a trip to the United States. The higher the cost and the more significant the barriers to international movement, the more migrants rely on social capital to gain entry and find work in a foreign country. Conversely, the lower the cost of international movement, the less necessary and less valuable social capital will be for potential migrants contemplating an international trip.

The Model

We use a constrain model of income and production where remittances and migration are important in shaping production constraints. We analyses the impact of labor migration and remittances on constrained agricultural yield and constrained financial access in two models. The core equation in both models is:

$$Y_i^c = \partial_0 + \partial_1 M + \partial_2 R + \partial_3 Z + \varepsilon \quad (1)$$

i represents the Y^c either for the value of agricultural yield or financial access. The null hypothesis is that neither migration nor remittances affect productivity (i.e. $\partial_1, \partial_1 = 0$). Remittances are produces by allocating family members to labor migration; they are shaped by human capital and household characteristics affecting migrant's motivations to remit:

$$R = \gamma_0 + \gamma_1 M + \gamma_2 Z_R + \varepsilon_R \quad (2)$$

Migration is represented in the following way:

$$M = \varphi_0 + \varphi_1 Z_m + \varepsilon_M \quad (3)$$

Equations (1) through (3) constitute a recursive system. Nevertheless, migration and remittances are endogenous variables, M is a function of migratory history of household. Networks and contacts from community members and relatives that have previously migrate are an important source for the allocation of migrant's labor. Motivation to remit R is also determined by the monitoring capabilities of households and communities, in this sense R is also driven by networks and contacts.

The stochastic terms $\varepsilon_i, i = Y, R, M$ are assumed to be normally and independently distributed with variance σ_i^2 . It is possible that there is cross-equation correlation. To account for contemporaneous correlation we estimate the model using iterative three-stage least squares. The variables $Z_i, i = Y, R, M$ include household demographic and human and physical capital variables. Human capital variables include years of schooling of the household head and age structure of the household. Land availability and property regime were also considered.

The data

As mention by Vijayendra, R. (2002), most econometricians analyses quantitative data collected by someone else, disconnecting herself from the very people whose life she is attempting to understand. In our cases, data was gathered using a combination of quantitative and qualitative research methods. A household survey was specially directed to track migratory tradition and economic and social impacts from labor migration and remittances. Alternatively we perform extensive field work using sociological and anthropological techniques. Quantitative data from the surveys were accompanied by a narrative from life histories records.

Salas, R. (2007) and Salas, R. (2009) gathered data from 334 households from villages in the states of *Michoacan* and *Oaxaca* (*Tarimbaro, San Angel Zurumucapio and San Miguel del Valle*). This villages have been identified as sources for migrant workers in northwestern Mexico and the United States. The survey collected detailed information on household characteristics and wealth, agricultural production and non-farm activities. Information on agricultural production and financial access were also collected. The survey contained a special roster on migration decisions and remittances.

The results

Table 1 and 2, reports some descriptive statistics from the samples of the three municipalities. In Table 1 is possible to observe that the percentage of households with migrants are identical to the percentage of households that received remittances. This result is consistent with NELM hypothesis. Migration is a household decision rather than and individual choice. In Table 2 is possible to observe the heterogeneity in asset's composition among research sites. While agricultural activities are relatively very important at Zurumucapio, Mich, are less important in Tarimbaro, Mich and even less in San Miguel del Valle, Oax. This can be explained by the greater extension of land in possession of Zurumucapio's households. While in San Miguel households have only 0.23 ha per household and Tarimbaro's household's have 1.04 ha on average, Zurumucapio families have 41.5 ha on average. Remittances in the other hand, are relatively more important in Tarimbaro than in San Miguel and Zurumucapio. In terms of labor force and human capital, the three communities are very similar in family's average size and number of migrants, children and elder per household. Average years of schooling are also very similar.

Table 1
Remittances and Household Head Characteristics

	Villages					
	Tarimbaro, Mich		San Miguel del Valle, Oax.		San Angel Zurumucapio, Mich.	
Variables	Number	Percentage	Number	Percentage	Number	Percentage
Households with migrants	51	52	61	39	20	22
Households without migrants	38	37	95	61	69	88
Households receiving remittances	51	52	61	39	20	22
Households not receiving remittances	38	37	95	61	69	88
Household head age	47.7		47.5		50.5	
Household head years of schooling	5.8		4.8		6.2	

Source: author's survey.

Table 2
Assests (descriptive statistics)

	Villages		
Variables	Tarimbaro, Mich (average)	San Miguel del Valle, Oaxaca (average)	San Angel Zurumucapio, Mich. (average)
Agriculture	9904.5	191.15	27662.92
Remittances	44566.53	15343.3	9983.25
Size of the family	4.71	5.8	5.78
Number of migrants	0.86	0.76	0.22
Number of children	0.92	1.07	1.42
Number of elder	0.59	0.34	0.62
Years of schooling of household head	5.8	4.8	6.2
Household age head	47.7	47.5	50.6
Land per person (ha)	1.04	0.23	41.54
Total value of assets	426837.7	166219.5	333152.3

Source: author's survey.

Table 3 reports our econometric results. Columns (a) and (b) report the instrumental variables estimation. Family size and age structure report important impacts on migration. Simultaneously, migration report strong impacts on remittances.

Table 3
Estimation of impact of Migrants and Remittances on Agricultural Yields and Financial Assets Using Iterative Three-Stage Least Square

	Estimations			
Independent Variables	**Dependent variables**			
	Migration (a)	**Remittances (b)**	**Agricultural yield (c)**	**Financial liquidity (d)**
Number of migrants (instrumented)		1.449 (6.07)**	0.1131 (1.82)*	-0.3620 (-1.79)*
Total remittances			0.0086 (0.45)	0.0604 (1.34)
Human capital and household characteristics				
Family size	0.2818 (9.62)**	-0.0116 (-0.10)	0.0180 (0.54)	0.1290 (1.44)
Household head age	-0.0076 (-1.31)	0.0001 (0.61)	0.000 (0.28)	0.0001 (0.72)
Household head years of schooling	0.0020 (0.07)	-0.0460 (-0.57)	-0.8641 (-2.06)**	0.1708 (1.06)
Assets and plot characteristics				
Value of total assets	0.0493 (0.57)	0.9183 (2.87)**	0.0808 (0.75)	0.1044 (0.40)
Per capita land	-0.420 (-1.02)	-0.0008 (-0.59)	-0.0148 (-0.42)	0.0013 (1.20)
Municipal dummys				
Tarimbaro, Mich	—–	1.9475 (2.55)**	9.3370 (6.75)	–––
San Angel Zurumucapio, Mich	-0.6557 (-2.28)	––––-	-9.6889 (7.11)	-1.0069 (-1.61)
San Miguel del Valle, Oax	0.1234 (0.58)	0.8256 (1.21)	5.1646 (4.16)**	2.6068 (4.41)**
Instruments				
Dependent children	-0.3185 (-4.11)**			
Dependent elder	0.0025 (0.06)			
Percentage of migrants in the family	2.3452 (12.15)**			

*Statistically significant at the 5-percent level.

**Statistically significant at the 1-percent level.

Column (c) reports the effect of labor migration and remittances in agricultural yield. The direct effect of migration is significant and positive. Yield seems to grow from efficiency gains in the allocation of production inputs. Results about remittances are not conclusive. Nevertheless results support NELM hypothesis that migrant remittances loosen constraints on crop production.

The definition of financial assets deserves a few words: In the long run, savings and credits should be accounted with opposite signs. Nevertheless we are dealing with a cross-sectional sample. Although, the dynamics of savings and credits are not captured here, is possible to measure the amount of liquidity available to the household for investment. In this sense, the sum of savings and credits allow to have a measure of access to financial services. Column (d) reports the effect of migration and remittances in financial liquidity. Migration reports a negative impact on financial assets maybe because is costly, often financed with savings. In the other hand, remittances suggest a positive impact although with a low statistical significance.

Conclusions

In this paper we test some hypothesis form the New Economics of Labor Migration at the very local level. We track the effects of migration and remittances on agricultural yield and financial liquidity. We found that impact of migration is positive for agricultural yield and negative for the amount of financial assets. Remittances effect is not conclusive. Households that lost labor could also be under financial stress due to the lack of financing. In a way we can imagine a vicious circle of migration and lack of credit. Households sponsor the migration of its members due to liquidity constraints and although remittances work as substitutes for financial access, migration has a negative impact on liquidity coming from savings or credits. We believe the costs of migration is associated with this situation.

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