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KURT UNGER

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Tel. 5727•9800 exts. 2202, 2203, 2417
Fax: 5727•9885 y 5292•1304.
Correo electrónico: publicaciones@cide.edu
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Abstract

This paper shows evidence of positive effects in the economic development of sending communities in Mexico due to migration. The principal hypothesis of this study is that remittances and the experience acquired by migrants during their migratory cycle, can be translated into larger economic growth in the out migration municipalities. This result presupposes that Government creates complementary incentives to profitable activities.

Economic and migration data for each municipality is used which allows to associate characteristics of communities, migratory flows and the effects in profitable activities. There are three sections. A first section describes the sending municipalities according to migratory intensity and their urban / rural nature. The second section analyzes the relation between remittances and socioeconomic conditions of the communities. In a third section the effect over time is estimated, relating per capita income growth and migratory flows intensity.

The most relevant results are the existence of income convergence over time between high and low migration municipalities in the North and South of Mexico. As well, we find a positive and significant relation between per capita income growth and the percentage of households that receive remittances across communities, both at the country level and for the northern and southern regions separately.

Resumen

En este trabajo se da evidencia de las contribuciones de la migración al desarrollo económico de las comunidades de origen de México. La hipótesis principal es que el flujo de remesas y la experiencia que los individuos adquieren durante el ciclo migratorio, representan factores que pueden traducirse en un mayor crecimiento económico en su lugar de origen. Esto supone que el Gobierno crearía los incentivos necesarios para un mejor aprovechamiento en actividades productivas. La unidad de análisis es el municipio, para asociar las características de las comunidades, los flujos de migración y los efectos de actividades productivas.

La primera sección describe las comunidades de origen por intensidad migratoria y su naturaleza urbana o rural. La segunda analiza la relación entre remesas y las características de los municipios. En una tercera sección se estima el efecto de la migración a través del tiempo, relacionando el crecimiento del ingreso per cápita y la intensidad del flujo migratorio.

Dos resultados destacan: la convergencia en ingreso al paso del tiempo entre las comunidades de alta y baja migración en el Norte y Sur del país; y la relación positiva entre el crecimiento del ingreso per cápita y la intensidad migratoria, a nivel nacional y en el Norte y Sur por separado.

Introduction

The debate on how migration experiences may effect the development of sending communities is still heated and far from being settled. One may find two basic extremes in the argument, one in favour of the positive contributions to development in the regions of origin as in the subscribers of the new economics of labour migration –NELM (for instance Durand 1996 and Taylor 1999); the other side insisting on a full and permanent dependency relation expressed in migration remittances used merely for basic consumption purposes, the classical ´self-perpetuating´ argument in most of the earlier literature (for instance Cornelius 1990 and Díaz-Briquets 1991).

The real world may rather stay somewhere in between these two extremes, so it is important to refine the analysis. We may distinguish different situations at one point in time and also in their evolution over time. This is the main task here, focusing in the relation between migration and the development of sending regions in Mexico during the recent decade, while reviewing other relevant experiences in other parts of the world.[1]

Many of the development benefits anticipated for Mexican migration were probably overestimated. Given the substantial backwardness observed in most of the out – migration areas from Mexico during the XX century, remittances acted primarily as a subsidy to the basic needs of the very poor. Lately, however, the spread of Mexican sending communities obscures that picture because now migration includes urban areas and new states virtually from all parts of the country, including states others than the traditional ones in the western part of Mexico (Jalisco, Michoacan, Zacatecas, Guanajuato and the like). In support of the positive argument, however, the opening up of the economy under globalizing trends as with Nafta, may bring with migration new and wider benefits of integration and modernization, even if they remain controversial as experienced through both the Asencio study of the eighties and the Binational Study of the late nineties.[2]

Timing has always been important to the success of studies with a policy orientation. Sydney Weintraub made the argument some years ago with respect to migration initiatives in the United States changing in accordance to

[1] For an introduction to the debate, centered on remittances effects, see Taylor 1999, p.63-86. Earlier, Appleyard (1992) expressed "... Although remittances are frequently cited as one contribution, .. their value or role in the development process is by no means concurred by scholars... Scholars remain divided in their judgments concerning the effect of the use of remittances in the development process" (p.261). And also Martin in a more challenging vein (1990, p.657): ".. if remittances are to be the external pump which primes an area for economic take-off, they need to be coordinated to provide the infrastructure necessary for development or sending governments must find additional funds to invest in infrastructure".

[2] Development goals have always been a prime in these initiatives. These were already well stressed in the mandate to the Asencio Commission: "... (among) the key issues the Commission was asked to address: ... b) economic development initiatives that could be undertaken cooperatively to alleviate pressures for emigration in the sending countries" (Weintraub and Díaz-Briquets, 1990, p.i).

the political and economic context of the country and its international concerns (1990, p.1166-7). For instance, at the beginning of the new millenium there was open optimism in favour of larger migration needs for the US economy to continue growing (Greenspan, among other influential opinions), though the events of 2001 changed the agenda back to the stand-still observed today.

Our task here is to estimate the impacts of migration for the communities of origin, showing the positive effects of remittances in those communities. The comparison is for communities in different regions and with different characteristics, according to migration intensity, their urban – rural nature, their economic orientation (manufacturing, services or agriculture activities), and size in population. Of major significance will also be to account for the evolution of impacts over time. The expectation is to capture the relation of remittances (proportion of households receiving them as estimated in the Conapo index) as an indication of both current and past migration activity, to economic improvement in the point of origin.[3] The impacts anticipated include gains in productivity, wages and earnings, through some investment efforts that may be associated to remittances from migration in the various regions of Mexico.

Anticipating the most important results we find a general trend towards income convergence at the level of municipalities,[4] for which migration acts positively over the product per capita indicator. The result, however, is better in some regions in the North and South of Mexico, but not in the Central region which encompasses many varying development situations. In respect of promoting convergence, a previous review (Unger and Verduzco 2000) has highlighted other international experiences and actions to maximize benefits from migration. These complementary actions may have to do with maximizing remittances, stimulate their productive use, design labour market initiatives to the best use of skills at both sides of the migrant experience, plus an adequate management of the migration exchanges. If successfully implemented, migration could then be foreseen as a temporary event, much in line with other proposals (Athukorala 1993; Russell 1992 and Taylor 1999).

[3] The index of Conapo (2002) is a very ambitious estimate of migration intensity based in the 2000 Population Survey's sample. It includes four components aiming to capture both current and past migratory activity, as follows:

1st) Percentage of households that receive remittances, defined as households in which at least one of its members reported receiving monetary transfers from abroad.

2nd) Percentage of households with migrants in the US in the last five years, defined as households in which at least one member changed its residency to the US.

3rd) Percentage of households with circular migrants in the last five years, defined as households in which at least one member migrated in the last five years, but came back.

4th) Percentage of households with returning migrants, defined as households in which at least one member used to live in the US, but came back.

Our exercise is based only on remittances, which are more closely related to the economic estimates intended.

[4] The positive trend towards convergence has also been reported at the level of Mexican states. See for instance Rodríguez-Posé and Sanchez Reaza 2002.

There are three sections besides this introduction. A first section describes the sending regions in numbers, migration intensity and the urban / rural nature of the municipalities. The second section introduces regression analysis of migration with respect to socioeconomic characteristics such as size of the municipality, wages, productivity of industries in the municipality, and production per capita. In a third section the effect of migration over time is estimated, relating migration experience with regional incomes convergence. Finally, some brief conclusions emphasize the role of policy to improve the local benefits of migration.

I. The Sending Out-Migration Regions: a description.

Migration between Mexico and the US has been important for many years given its large effects on social, economic and political matters at both sides. From the Mexican perspective, the integration of the North American economic region during most of the eighties and nineties, and certainly highlighted in the subscription of NAFTA, enhanced the expectations for increased and wider economic progress related to such integration in many aspects, including migration exchanges.

Until the early nineties, out migration was mostly restrained to certain areas in México. The traditional sending states, undisputed for most if not all observers, were concentrated in the Central West region of the country including Jalisco, Michoacan, Zacatecas, Guanajuato, San Luis, Durango and Oaxaca. The Mexican Census of 1990 confirmed these states accounting for most of the Municipalities with high migration participation (Unger and Verduzco 1998, p.5). However, during the nineties the migration spread reached to virtually all of México, moving beyond its rural origin and giving raise to many urban areas as new-comers to the migration experience, even if predominantly at a lower – partial scale.[5] The 2000 Population Survey's sample, used in the construction of the migratory intensity index, identifies also some major causes and effects of international migration.[6]

The migratory intensity index of Conapo (2002) was constructed ambitiously aiming to capture both current and past migratory activity. It includes both economic and demographic issues related to migration. In this paper we retain only the estimate of households receiving remittances as an

[5] The 2000 Population Survey's sample used for the construction of the migratory index, helps to identify international migration patterns throughout all the 2443 Mexican municipalities.

[6] The 2000 Population Survey's information was compiled using two questionnaires: a basic one and an extended one. The second one was applied to a household probabilistic sample while the first one was applied to the rest of the households. The extended questionnaire includes the same topics as the basic one, but adds some information, including a section on international migration.

explanatory variable, which is expected to show closer ties to economic effects.

Our results are shown more significant and straight if the municipalities are grouped into two major sets according to migration (remittances) activity: high and low proportion of households receiving remittances. These two groups are obtained through cluster analysis, which defines 11.2% of households as a threshold separating the high and low migration municipalities. Their distribution according to the level of migration is still quite skewed towards lower migration participation: 79.2% at low levels of migration (1934 municipalities, including about a hundred with no migration involvement at all, mostly in the southern states of Oaxaca, Chiapas, Yucatan, Veracruz and Puebla); but there are also 20.8% at high levels of migration intensity (509 municipalities) (Table 1).

Most relevant now is the very high importance of urban communities, a total 58.6% of municipalities engaged in migration (1432 out of 2443). The other 1011 municipalities are considered rural by the importance of agricultural activities; all municipalities of this kind are small with less than 150,000 population.[7] The urban representation is also much larger in the high migration group: 67.2% of the group (Table 1).

The description of municipalities at the state level is also quite relevant for policy purposes, even if federal involvement is always required for migration policy.[8] There is a common cause now for all states since the 32 Mexican states are now engaged, at some level, in international migration (Table 2). Most important are still the traditional migration states of the past, but there are some noted additions as we show below.

In Table 2 the remittances index ranks very high for five states: Zacatecas, Michoacan, Durango, Nayarit and Guanajuato; others follow closely, such as San Luis, Guerrero, Jalisco, Colima y Aguascalientes, all of them in the Central Western regions of the country. With the exception of Colima and Guerrero where the intense migration experience is concentrated in less than one third of the municipalities, for the other states the event is more disseminated usually into more than 60% of the municipalities (Table 3). The ranking in number of high migration municipalities for each state shows Oaxaca (92 municipalities), Jalisco (80 municipalities), Michoacan (68), Puebla (45), Zacatecas (35), Durango (28), San Luis Potosi (26), Guerrero (25) and Guanajuato (24) at the top. In other words, the important traditional migrating states rank high in all accounts, while others like Oaxaca, Puebla

[7] Rural municipalities are those where half or more of the working population (EAP) is in agriculture. Several alternative definitions of rural communities are available for research; many of them consider as rural the small population areas. In this case we use the employment intensity in agricultural activities, which also leads to smaller population municipalities. This measure of rural nature allows to relate them to their productive activities, important in the study of economic development impacts.

[8] In Unger and Verduzco (2000) was shown that state and federal public expenditures in Mexico have not been related to migration activity. In fact, migration states seem to be discriminated against (p.216).

and San Luis Potosi show well in the number of high migration municipalities but these still are not a majority in the state.

II. Characterizing economic variables effecting migration.

This section aims to identify the key socio-economic variables that may have an impact on out migration. Among these, we anticipate the influence of size of the towns and cities, as well as local employment conditions, namely wages, productivity and local competitiveness in general.

It is common sense to assume that migration occurs from places where individuals estimate to reap larger benefits moving across the border than staying at home. Undoubtedly, many of the municipalities that exhibit higher migration are those with a larger gap in economic development, living conditions, and infrastructure with respect to other better developed localities. In this respect, working opportunities, salaries, and general economic conditions are perceived better abroad before migrating.

To establish the relation between migratory intensity and economic indicators, however, it is important to characterize the high migration conditions. Our basic equation relates the Conapo index which measures the proportion of households with remittances as a dependent variable while population (size), per capita income, labour productivity and wages per worker are used as explanatory variables. In order to obtain finer and more specific results, the municipalities are analyzed according to their economic nature into urban and rural municipalities.

The results are shown in Table 4. First of all, when the municipalities engaged in migration are taken as a whole there are significant results in the direction anticipated, that is, a negative relation of population (size) to migration and a negative relation of per capita income to migration. There is also a negative effect of urban wages on migration. The latter effect of wages remains significant only for the urban municipalities. Nonetheless, for both the urban and rural groups the results can be interpreted in that more migration tends to occur from small municipalities where it is difficult to find a steady job in the modern and most productive activities, and younger workers migrate given that local options of higher wages are not at hand. In the rural side, the only significant effect is the negative relation of size of towns to migration. Later on, however, some other more specific effects will be shown of significance for the poorer rural areas in the South, including the positive result of per capita income to migration, as an indication of the importance to finance the costs of migrating (what others have termed, "overcoming the poverty trap line").

The urban group coefficients in Table 4 are significant for size and wages, both negatively as expected. In this case population keeps the negative

relation with migratory intensity, probably due to the same employment constraints in small cities explained above. The negative coefficients for both variables in urban communities indicate a clear expulsion effect due to the gap in the economic conditions related to size and lower wages in those high migration cities. In other words, migration occurs from the poorest and smaller urban municipalities where high productivity activities will hardly exist and individuals prefer to migrate to the US to obtain a higher salary per hour than staying home, probably doing similar activities but more badly paid at home.

In rural municipalities the inverse relation between migratory intensity and size in population is maintained, as expected and noted earlier. There are not other effects on migration for the group as a whole. However, according to the literature,[9] migration requires a minimum amount of wealth to occur and individuals who live in the poorest rural municipalities may not have the opportunity to finance their migration movement. This seems to be the case of rural municipalities in the Southern region, as we show below. For other rural sites, other typically urban variables such as labour productivity and wages per worker are not significant, probably because there are no real differences in the economics of these sites. For rural municipalities, other variables closer to their agricultural conditions ought to be used, but the lack of relevant statistics on agriculture is a well documented obstacle in studies of the Mexican rural sector.

Breaking the analysis into the three regions in Table 5 reveals substantial regional differences. The Central region shows significant results much in accordance with trends for the country, and also for the urban and rural groups separately. In other words, small communities in the Center with less per capita income are more migration intensive, and for urban municipalities the negative effect of wages is also significant. Migration from Northern municipalities, on the other hand, does not show any relation to the size and income variables found significant for the country as a whole. In this region the only significant effect is for urban wages, negatively related to migration as expected. And for the Southern region, perhaps the most interesting result beyond the common negative relation of urban wages to urban migration, is the positive effect of income on migration from the rural municipalities. The latter may be taken as evidence of financial conditions to jump the poverty trap impeding migration from the very poor communities.

[9] It has been shown that rural municipalities have in general worst economic conditions than urban cities (Unger and Verduzco 1998). It is in these rural areas where one may find clearer evidence about the poverty trap argument.

III. Migration over time: Regional Convergence.

A most relevant exercise when studying international migration is to look at the dynamics of economic performance among migration communities, in order to anticipate the conditions that may define migration as a temporary event.[10] One way to analyze this is to determine if there exists a trend to convergence in per capita income among rich and poor communities engaged in migration. It is expected that economic performance will be different but converging in favour of the lower income / high migrating municipalities.

In the economic literature convergence is addressed in many different ways. In this study, we utilize the β-convergence regression analysis, in the standard version frequently used. It was successfully applied, for instance, in a recent test of income convergence at the level of Mexican states (Rodríguez-Posé and Sanchez Reaza 2002). This method relates initial levels of income to income growth rates, and it is appropriate and feasible to our purpose as it relies on per capita GDP. This information, as we have seen in previous sections, is available for each municipality and for a reasonably extended period of years.

The empirical equation to measure convergence is based on a log-linear version of the Ramsey model according to Barro and Sala-i-Martin (1995), of the form:

$$\frac{1}{T} \times \ln\left(\frac{PCI_{it}}{PCI_{i0}}\right) = \alpha + \beta \ln\left(PCI_{i0}\right) + u_{i0,t} \quad ,$$

where T is the number of years within the period; PCI_{i0} is the initial per capita income of the i-th municipality; PCI_{it} is the per capita income of the i-th municipality at the end of the period. For convergence to exist, there must be an inverse relation between the income variables used, that is, the □ coefficient must be negative. The economic implication is that municipalities with lower initial levels of per capita income exhibit higher growth rates than richer ones, eventually narrowing the income gap and reducing the pressure on economically based migration.

For the convergence of the Mexican municipalities, the extended period from 1989 to 1999 is considered, which includes the latter part of the decade and the possible effects of migration that may be due to NAFTA and its related global trends. In search of a finer analysis, once again the country is divided in groups according to three variables: the three regions (see Map A),

[10] This is economic performance at the point of origin of migration in Mexico. A complementary analysis may be conducted at the US side, considering the effects of both the savings due to Mexican migration and the preference / aversion to consumption in the US. See for instance Cuecuecha 2004.

the economic nature of the municipalities (urban / rural) and their level or intensity of migration.

The basic and stronger convergence result is for all the municipalities during 1988 – 1998, indicating the existence of convergence; the ¤ coefficient is negative and significant for all the breakings in Table 6. In that Table 6, convergence shows regardless the region, the economic status and the migration intensity of the Municipalities. This means that low income communities have higher growth rates than richer ones within each of the groups (each row in Table 6). The same holds when comparing the two five years periods, but is safer to restrict the estimates to a full decade.

The results considering migration intensity (remittances) for the three regions separately are more revealing: high migration municipalities in the North and South show better income dynamics, i.e. their rate of income growth is larger than for lower migration sites (Table 7 and Figs. 2-4), though the income levels are still much in favour of the low migration places in the North and Center.[11] The Central region has a more obscure pattern due to both, the larger number of municipalities (1199) and also a more heterogeneous composition due to many of them in the newer group of high migration and urban municipalities (252). For this Central region income growth is the same regardless migration intensity (Fig.3), though the expulsion force to migrate remains in the income differences: three times larger in the low migration sites (Table 7).

A conclusion from this exercise is that there is convergence in per capita income of the Mexican municipalities regardless of their nature and their migratory propensity. Nevertheless, the results on convergence have to take into account substantial differences between income levels of the different groups of municipalities compared.

[11] The Southern region has much lower income levels in average than other regions (see Table 8).

Conclusions

We have described migratory activity from Mexican communities, associating its intensity to local development. To characterize the nature and effect of migration some economic features of municipalities were considered, mainly to relate migratory intensity and their urban – rural nature.

Three main characteristics on migration are highlighted. First, about 96% of the municipalities present migratory activity, and 509 of them at a high migratory intensity. Thus migration has become a generalized phenomenon to all the Mexican states. Second, the number of urban communities engaged in migration is larger than the rural group. The urban origin is more important in the high migration group (nearly 70%). Thirdly, migration originating from the traditional states of the past, those in the Central Western region (Zacatecas, Michoacan, Guanajuato, Durango, Aguascalientes, Jalisco and San Luis Potosi), remains very high. Given these new features of migratory activity, policy at the state level is now probably more relevant than in the past, even if the federal involvement is still required for macro migration policy.

Then we estimated a differentiated impact of out migration in relation to the size, wealth, wages and productivity figures of each municipality. Regression analysis showed a negative and significant effect of size for all the municipalities, and also when urban and rural municipalities are treated separately. Urban municipalities show a negative relation between wages and migratory intensity, indicating that migration occurs from small communities where economic conditions are worst. Differing from urban, rural municipalities in the Southern region have a positive relation between income and migratory intensity, suggesting the ruling of a "poverty trap" where there is not the minimum wealth for migration to occur. Other indicators are only significant for urban communities, indicating that migration takes place from the poorest municipalities with lower wages and individuals prefer to migrate in order to obtain higher salaries than staying at home.

Finally we approached the dynamics of economic performance among communities. The presence of convergence in per capita income among rich and poor communities over time is one important conclusion. The high migration group have a higher convergence rate than the low migration municipalities. The results of migration intensity (remittances) for the high migration municipalities in the North and South show better income dynamics than for lower migration sites, though the income levels are still much in favour of the low migration places. The Central region shows a less clear pattern in the relation of income and migration, which probably would need to separate the region into subregions of closer similarities. On the whole however, the main results are suggesting the contribution of migration to the catching up of poorer communities.

Tables and Figures.

Table 1. Mexican municipalities according to migratory activity[a] and economic orientation[b], 2000.

	Urban		Rural		Total	
	No.	**%**	**No.**	**%**	**No.**	**%**
High Migration	342	*67.2*	167	*32.8*	509	*20.8*
Low Migration	1090	*56.4*	844	*43.6*	1934	*79.2*
Total	1432		1011		2443	*100*

Notes: (a) Percentage of households that receive remittances as an estimate of migratory activity. Municipalities are divided in high and low migration through cluster analysis. In the low group are included the municipalities with index levels equal to zero. (b) "Rural" is defined as municipalities where a half or more of the EAP is occupied in agriculture.
Sources: Population Census, INEGI 2000. Migratory Intensity Index, CONAPO 2002.

Table 2. Migratory activity in the Mexican States, 2000.

	Ranking	% Households that receive remittances
Zacatecas	1	13.03
Michoacán	2	11.37
Durango	3	9.70
Nayarit	4	9.64
Guanajuato	5	9.20
San Luis Potosí	6	8.20
Guerrero	7	7.86
Jalisco	8	7.70
Colima	9	7.34
Aguascalientes	10	6.69
Morelos	11	6.44
Hidalgo	12	5.06
Sinaloa	13	4.60
Chihuahua	14	4.32
Oaxaca	15	4.13
Baja California	16	4.02
Querétaro	17	3.71
Tamaulipas	18	3.64
Coahuila	19	3.38
Puebla	20	3.28
Sonora	21	3.16
Veracruz	22	2.74
Nuevo León	23	2.46
Tlaxcala	24	2.24
México	25	2.11
Distrito Federal	26	1.72
Yucatán	27	1.41
Baja California Sur	28	1.08
Campeche	29	1.02
Quintana Roo	30	0.99
Chiapas	31	0.76
Tabasco	32	0.64

Note: The rank correlation between remittances index and migratory intensity index (0.875) is significant at 1% level.
Sources: Population Census, INEGI 2000. Migratory Intensity Index, CONAPO 2002.

Table 3. Distribution of municipalities with migratory activity in the Mexican States, 2000.

	Urban		*Rural*				
	High Migration	**Low Migration**	**High Migration**	**Low Migration**	*Total*	*Total High Migration municipalities*	*High Migration municipalities per State (%)*
Aguascalientes	7	4	-	-	11	7	**63.6**
Baja California	-	5	-	-	5	-	-
Baja California Sur	-	5	-	-	5	-	-
Campeche	-	7	-	4	11	-	-
Coahuila	2	32	1	3	38	3	7.9
Colima	1	7	1	1	10	2	20.0
Chiapas	-	24	-	94	118	-	-
Chihuahua	10	33	10	14	67	20	**29.9**
Distrito Federal	-	16	-	-	16	-	-
Durango	24	7	4	4	39	28	**71.8**
Guanajuato	22	21	2	1	46	24	**52.2**
Guerrero	16	28	9	23	76	25	**32.9**
Hidalgo	8	53	3	20	84	11	13.1
Jalisco	67	42	13	2	124	80	**64.5**
México	4	113	1	4	122	5	4.1
Michoacán	48	34	20	11	113	68	**60.2**
Morelos	4	25	-	4	33	4	12.1
Nayarit	9	4	2	5	20	11	**55.0**
Nuevo León	1	43	-	7	51	1	2.0
Oaxaca	32	140	60	338	570	92	16.1
Puebla	24	79	21	93	217	45	20.7
Querétaro	4	12	-	2	18	4	**22.2**
Quintana Roo	-	6	-	2	8	-	-
San Luis Potosí	16	20	10	12	58	26	**44.8**
Sinaloa	-	10	1	7	18	1	5.6
Sonora	3	50	1	18	72	4	5.6
Tabasco	-	14	-	3	17	-	-
Tamaulipas	-	23	1	19	43	1	2.3
Tlaxcala	1	52	-	7	60	1	1.7
Veracruz	3	91	4	112	210	7	3.3
Yucatán	2	70	2	32	106	4	3.8
Zacatecas	34	20	1	2	57	35	**61.4**
Total	*342*	*1090*	*167*	*844*	*2443*	*509*	*20.8*

Sources: Population Census, INEGI 2000. Migratory Intensity Index, CONAPO 2002.

Table 4. Correlation coefficients between remittances (households) and socieconomic conditions: Mexico.

	All the Municipalities	Urban	Rural
No.	*2443*	*1432*	*1011*
Population	-0.0721 [0.000]***	-0.0824 [0.002]***	-0.1206 [0.000]***
PCI	-0.0417 [0.040]**	-0.0025 [0.926]	-0.0092 [0.771]
VA/L	-0.0077 [0.706]	0.0125 [0.637]	0.0198 [0.532]
W/L	-0.0245 [0.228]	-0.1360 [0.000]***	0.0018 [0.953]

Notes: *P-values* shown in parenthesis. ** Significance at 5% level.

*** Significance at 1% level.

Sources: Economic Census 1999, INEGI. Migratory Intensity Index, CONAPO 2002.

Table 5. Correlation coefficients between remittances (households) and socioeconomic conditions: Northern, Central and Southern Mexico.

	Northern			*Central*			*Southern*		
	All the Municipalities	Urban	Rural	All the Municipalities	Urban	Rural	All the Municipalities	Urban	Rural
No.	*338*	*248*	*90*	*1199*	*845*	*354*	*906*	*339*	*567*
Population	-0.0829 [0.130]	-0.0940 [0.142]	-0.1714 [0.112]	-0.1027 [0.000]***	-0.1071 [0.002]***	-0.1614 [0.002]***	-0.0433 [0.196]	-0.0297 [0.589]	-0.1335 [0.002]***
PCI	0.0123 [0.823]	0.0235 [0.714]	0.0781 [0.472]	-0.0631 [0.029]**	-0.0087 [0.801]	0.0638 [0.233]	0.0932 [0.036]**	-0.0023 [0.966]	0.1130 [0.009]***
VA/L	-0.0190 [0.729]	-0.0121 [0.850]	-0.0814 [0.454]	0.0007 [0.982]	0.0251 [0.468]	0.0072 [0.893]	0.0207 [0.536]	0.0670 [0.221]	-0.0296 [0.485]
W/L	-0.2089 [0.000]***	-0.2315 [0.000]***	-0.0868 [0.424]	-0.0412 [0.155]	-0.1558 [0.000]***	-0.0357 [0.505]	-0.0731 [0.029]**	-0.1522 [0.005]***	-0.0094 [0.824]

Notes: *P-values* shown in parenthesis. ** Significance at 5% level. *** Significance at 1% level.

Sources: Economic Census 1999, INEGI. Migratory Intensity Index, CONAPO 2002.

Table 6. β – Income convergence regression analysis in Mexican municipalities, 1988-1998.

	All the municipalities		*Northern*		*Central*		*Southern*	
Sample	β	R^2	β	R^2	β	R^2	β	R^2
All the Municipalities	-0.02008 [-17.78]***	0.117	-0.02271 [-6.76]***	0.121	-0.01967 [-11.67]***	0.105	-0.02673 [-12.88]***	0.158
Urban Municipalities	-0.02729 [-18.75]***	0.200	-0.02689 [-7.01]***	0.168	-0.02714 [-13.46]***	0.182	-0.03283 [-11.58]***	0.287
Rural Municipalities	-0.03892 [-16.65]***	0.220	-0.05244 [-5.14]***	0.235	-0.03987 [-9.94]***	0.224	-0.04020 [-12.59]***	0.225
LowMigration Municipalities	-0.01869 [-15.15]***	0.109	-0.02340 [-6.16]***	0.127	-0.01805 [-9.54]***	0.098	-0.02523 [-11.41]***	0.146
High Migration Municipalities	-0.03016 [-10.42]***	0.179	-0.02381 [-2.20]**	0.080	-0.02879 [-7.40]***	0.146	-0.04094 [-6.80]***	0.282

Notes: PCI data of 1988 and 1998 are in 1998 prices. *t-statistic* shown in parenthesis. ** Significance at 5% level. *** Significance at 1% level.

Sources: Economic Census, 1989 and 1999, INEGI. Migratory Activity Index, CONAPO 2002.

Table 7. Per Capita Income in high and low migration municipalities in the Mexican Regions, 1988-1998.

	PCI 1988 (MX$)	PCI 1998 (MX$)	Δ PCI (%)[a]	*t*[b]
COUNTRY				
Region	2661.26	3547.62	51.55	
High Migration	989.08	1489.61	55.22	0.915
Low Migration	3106.41***	4091.51***	50.57	
NORTHERN				
Region	6400.94	7256.39	44.66	
High Migration	669.70	1415.61	64.23	1.671*
Low Migration	7605.33***	8466.26***	40.55	
CENTRAL				
Region	2990.80	4226.05	49.20	
High Migration	1249.09	1788.83	46.61	-0.550
Low Migration	3660.38***	5152.65***	50.20	
SOUTHERN				
Region	831.35	1249.16	57.23	
High Migration	441.69	709.01	73.88	1.863*
Low Migration	892.35***	1333.17***	54.59	

Notes: *** Higher PCI in low migration municipalities (significance at 1% level).
(a) Percent of income growth (simple average for all municipalities in each group). (b) Difference in income growth between high and low migration municipalities (significance at 10% level).
Sources: Economic Census, 1989 and 1999, INEGI. Migratory Intensity Index, CONAPO 2002.

Table 8. Per Capita Income in high and low migration municipalities according to the Mexican Regions, 1998.

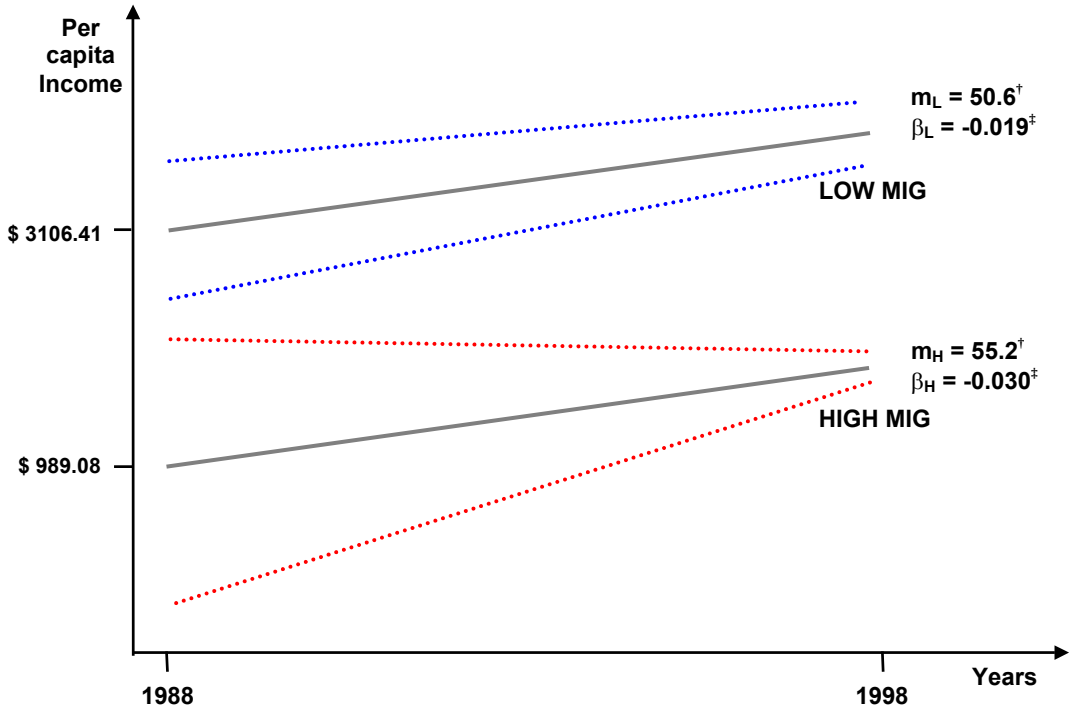
	$Central_{HIGH}$	$South_{HIGH}$	$North_{LOW}$	$Central_{LOW}$	$South_{LOW}$
$North_{HIGH}$	1415.60	1415.60	1415.60	1415.60	1415.60
	1788.83	709.01	8446.26	5152.64	1333.16
	[-1.33]	[2.61]**	[-5.95]***	[-6.98]***	[0.27]
$Central_{HIGH}$		1788.83	1788.83	1788.83	1788.83
		709.01	8446.26	5152.64	1333.16
		[6.23]***	[-5.73]***	[-6.82]***	[2.16]**
$South_{HIGH}$			709.01	709.01	709.01
			8446.26	5152.64	1333.16
			[-6.67]***	[-9.11]***	[-3.15]***
$North_{LOW}$				8446.26	8446.26
				5152.64	1333.16
				[2.64]***	[6.10]***
$Central_{LOW}$					5152.64
					1333.16
					[7.61]***

Notes: ** Significance at 5% level. *** Significance at 1% level.

Sources: Economic Census, 1989 and 1999, INEGI. Migratory Intensity Index, CONAPO 2002.

All the country

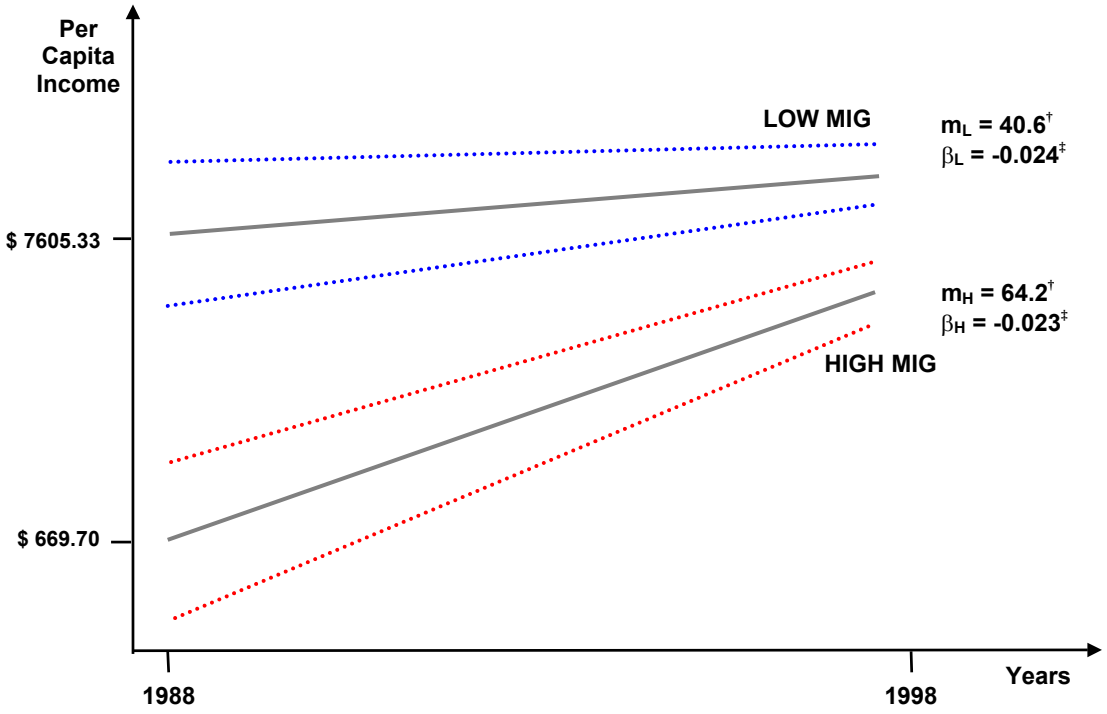
Figure 1. Per Capita Income in High and Low Migration Municipalities in Mexico, 1988-1998.



Notes: † Difference between PCI growth rates in high (m_H) and low (m_L) migration municipalities is not significant. ‡ The β's indicate convergence of Per Capita Income for each group of municipalities. The absolut convergence is faster in the high migration group.

Northern Region

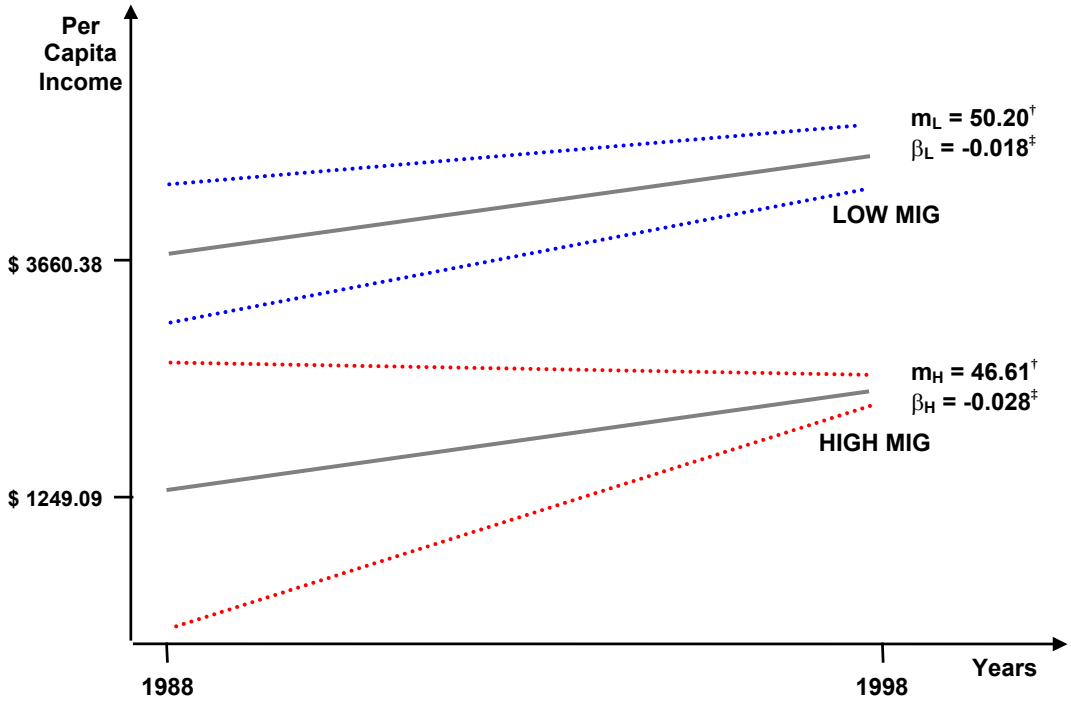
Figure 2. Per Capita Income in High and Low Migration Municipalities in Northern Mexico, 1988-1998.



Notes: † Difference between PCI growth rates in high (m_H) and low (m_L) migration municipalities is significant. ‡ The β's indicate convergence of Per Capita Income for each group of municipalities. The absolut convergence is the same in both high and low migration groups.

Central Region

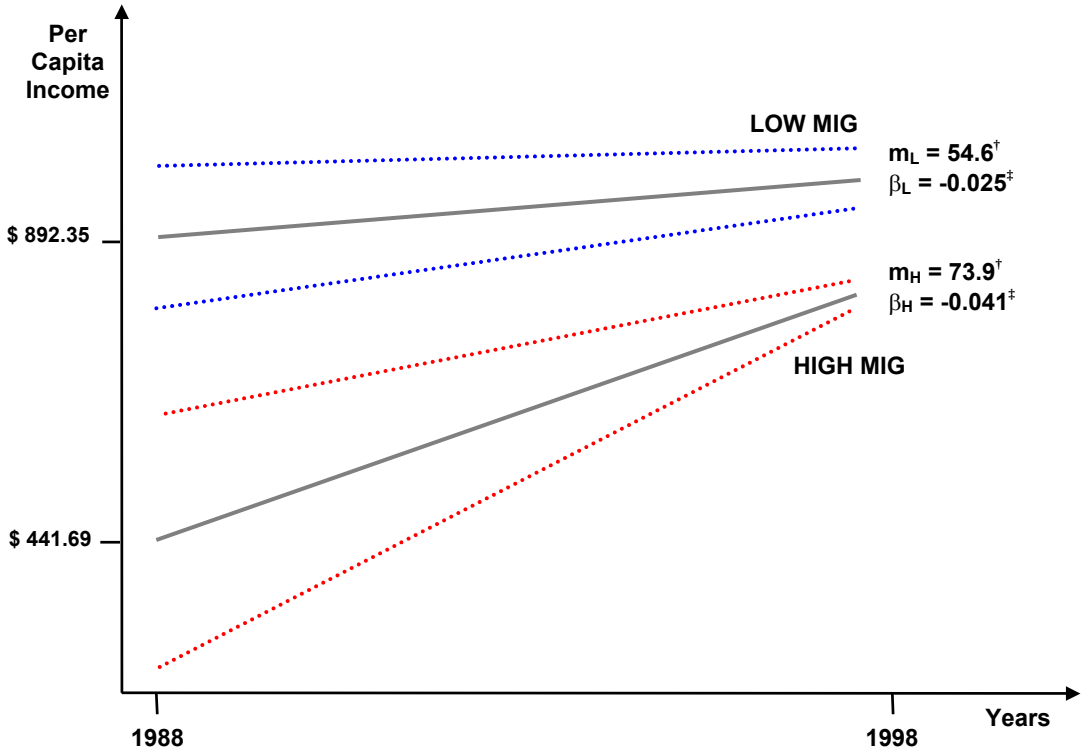
Figure 3. Per Capita Income in High and Low Migration Municipalities in Central Mexico, 1988-1998.



Notes: † Difference between PCI growth rates in high (m_H) and low (m_L) migration municipalities is not significant. ‡ The β's indicate convergence of Per Capita Income for each group of municipalities. The absolut convergence is faster in the high migration group.

Southern Region

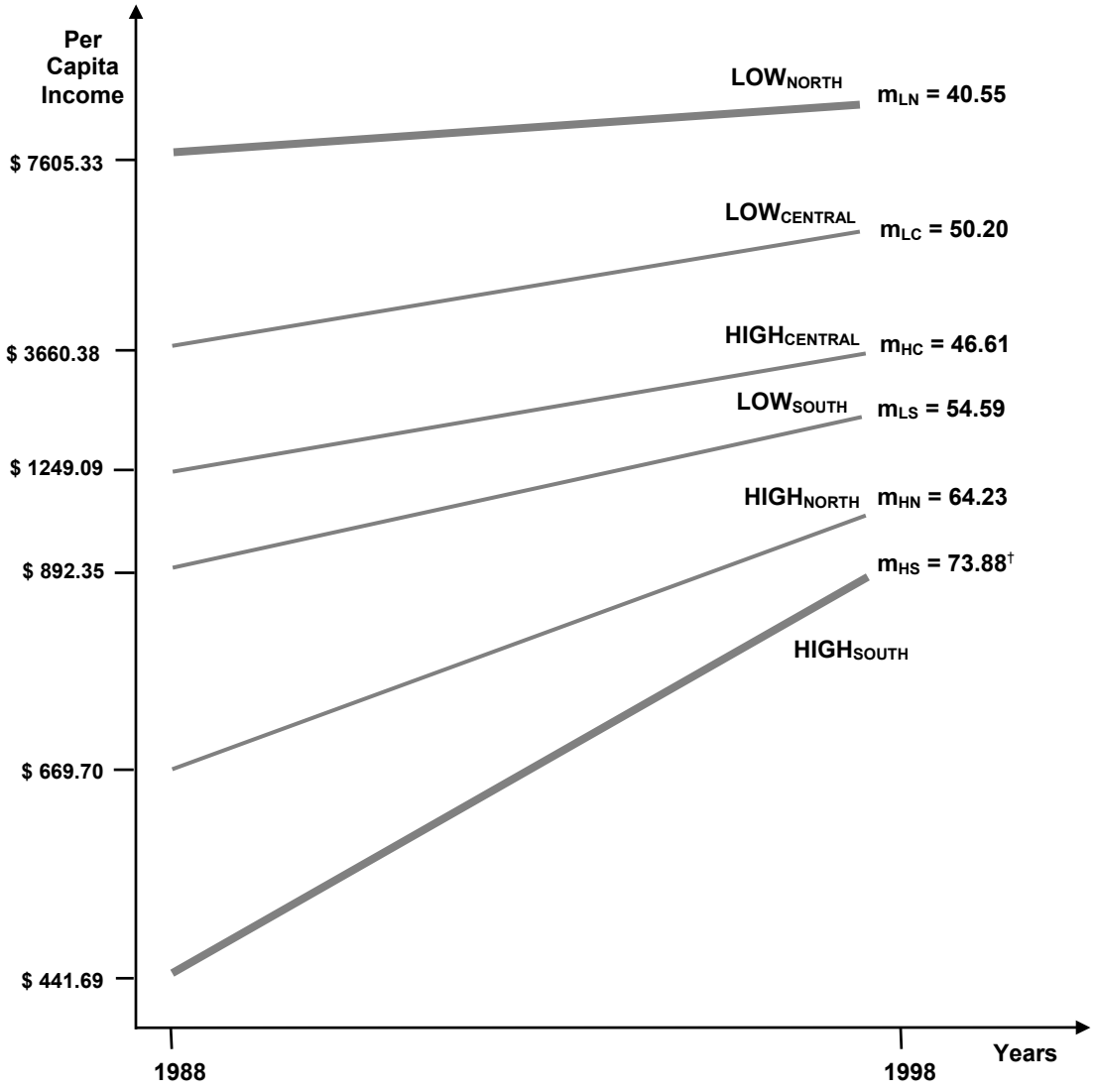
Figure 4. Per Capita Income in High and Low Migration Municipalities in Southern Mexico, 1988-1998.



Notes: † Difference between PCI growth rates in high (m_H) and low (m_L) migration municipalities is significant. ‡ The β's indicate convergence of Per Capita Income for each group of municipalities. The absolut convergence is faster in the high migration group.

Northern, Central and Southern Mexico

Figure 5. Per Capita Income in High and Low Migration and Urban and Rural Municipalities in the Mexican Regions, 1988-1998.



Note: † Difference between PCI growth rates in high south (m_{HS}) and low north (m_{LN}) migration municipalities is highly significant (at 1%).

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