International Transfers by Mexican migrants in the United States

Gabriela Farfán
Duke University

Graciela Teruel
UIA, Mexico City

María Genoni
World Bank

Duncan Thomas
Duke University

Luis Rubalcava
CAMBS, Mexico City

Andrea Velasquez
Duke University

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It is estimated that there are over 12 million people living in the U.S. who were born in Mexico. They are thought to represent about 30% of the U.S. foreign-born population, and account for about 10% of the entire Mexican population (Pew Hispanic Center 2009). Many of these Mexican-born migrants retain close connections with members of their extended families in Mexico and, once they have established themselves, they regularly send remittances back to Mexico. It is estimated that in 2010 remittances worth US$22 billion were sent from the U.S. back to Mexico, which makes Mexico the third largest recipient of remittance income across the globe, behind China and India (World Bank 2011). Unlike those countries, nearly all remittances to Mexico originate in the United States.

While investigation of international remittances has a long history in both the scientific and policy literatures, developing a full understanding of the motivations for and the impact of these transfers has been constrained by inadequate data. Specifically, the vast majority of population-based studies contain information from the perspective of only one side of the transaction. It is well known that relative to those who send transfers, recipients tend to under-state transfers. This paper uses recently-collected and extremely rich longitudinal household survey data drawn from interviews of Mexican migrants living in the U.S. and interviews with their families in Mexico to provide a more complete description of cross-border transfers between Mexico and the United States.

The Mexican Family Life Survey (MxFLS) is representative of the Mexican population living in Mexico at baseline, in 2002. The study is designed to follow all baseline respondents in subsequent waves including those who move within Mexico and those who move to the United States. In principle, the sample of MxFLS respondents interviewed in the U.S. is representative of the population of all Mexicans

who have moved from Mexico to the U.S. since 2002 and were living in the U.S. at the time of the follow-up. Preserving the representativeness of the sample is crucial if we want to learn about the transfer behavior among Mexican migrants. In Farfan et.al. (2013) we describe how we interviewed 91% of the respondents believed to be in the U.S. at the time of the second round of MxFLS (in 2005-6), and 85% of those believed to be in the U.S. at the time of the third round of MxFLS (2009-13).

A key advantage of MxFLS for this research is that information about the same transfers is collected from the perspective of those on both sides of the border. The first part of this paper compares information collected from migrants about transfers sent with information from recipients of those transfers about the amounts received in a multivariate framework. Furthermore, we exploit the longitudinal dimension of the data to describe changes in transfers over time. These descriptions lay the foundation for testing hypotheses about the causes and consequences of international transfers.

The second part of the paper describes the economic and socio-demographic characteristics of migrants and their families who send and receive international transfers. Keeping in mind that our sample represents relatively recent migrants is important, as we document how the demographic composition of Mexican migrants to the U.S. has changed over time. While a couple of decades ago migration was not prominent among women, our data shows how that has changed in recent years: 40% of our adult migrants are women. Therefore, it is no longer the case that the male comes to the U.S. by himself while the rest of the family remains in Mexico, but spouses and children come too.[1] Another element that speaks to a migrant population that is relatively more established in the U.S., despite having arrived to the U.S. relatively recently, is the analysis of living arrangements. While migrants do generally engage in various types of non-standard living arrangements to save on costs, once we identify the household unit we see that the structure of the household roster is quite similar to that in Mexico. All these changes in composition of our migrant population most likely have important consequences on the underlying motives of remittances and its dynamics.

We estimate models of characteristics that predict both the incidence and the magnitude of transfers to Mexico, stratifying all models by gender of the sender. Our first specification includes demographic characteristics of the individual, such as age, education, time in the U.S. and marital status, as well as, household composition and household resources (as measured by per capita expenditure, PCE). In addition, we include detailed composition of family members living in Mexico as well as characteristics measured at baseline in Mexico prior to this migration to the U.S.

[1] In general the male comes first, and then spouse and children join him.

One hypothesis in the literature is that migrants send money home to provide for their children. Our preliminary estimates are consistent with this hypothesis: the presence of biological children in Mexico is positively associated with both the probability of sending transfers in the last year as well as the amount sent.[2] However, as migrants lay roots in the U.S. and their immediate family members live with them in the U.S., we might expect this factor to be less relevant in explaining longer-term remittance patterns. In fact, we see in our sample that even among those who do not have parents, spouse or children in Mexico, 35% sent transfers to Mexico as a means of support to the recipient.[3]

It has also been suggested in the literature that migrants send transfers to Mexico to build wealth there rather than in the U.S. and this wealth is either used for retirement or to build a business to which the migrant will return. The survey instrument was designed to test this hypothesis and explicitly asks about the motivation for transfers. Respondents were able to indicate multiple motivations including to support the daily living of recipients, for savings and for investment purposes. Looking directly at this information it does not seem like savings or investments are the primary motivations for remittances. Among those who sent any transfers to Mexico in the last 12 months, 93% sent some amount for support while only 14% sent some amount for investment or saving purposes.[4] Nevertheless, for those who did send transfers to help individuals in Mexico as well as to invest or save, the amounts sent for investment or savings was not trivial as they represent on average about 50% of the total amount sent. To further explore this hypothesis we will see whether migrants have any savings in the U.S., whether past savings in the U.S. and measures of wealth in Mexico predict current transfers and whether migrants working in occupations that are amenable to building a business in Mexico are more likely to make transfers. Recall we can use measures of wealth, type of family business and occupation measured at baseline, when the migrant was living in the household in Mexico, to address issues regarding reverse-causality. Further, we exploit information collected from each migrant about her expectations regarding if and when the migrant will return to Mexico, to test whether those who plan to return are more likely to send transfers home.

Finally, we also explore whether the presence of other family members in the U.S. predicts transfers. On the one hand, a class of models suggests that all migrants share the burden of sharing with the family in Mexico. On the other hand, there are models that suggest migrants compete by sending higher transfers. We will test this hypothesis.

[2] The only exception being the probability of sending transfers on the male sample.

[3] As families reunite in the U.S. transfers across household within the U.S. can also be relevant. We ask about transfers sent to and received from other individuals living in the U.S. and that will allow us to speak to this phenomenon.

[4] Only 1.2% sent all of the transfers for savings or investment. The rest sent some amount for support and some amount for other purposes.

The third part of this paper will describe the relationship between the incidence and value of remittances, on the one hand, and the health and well-being of family members in Mexico. Exploiting the panel dimension of the data, we will examine how changes in transfers are predictive of changes in health of adults and children, holding all other characteristics constant. These results will be interpreted in light of the evidence on motivations for transfers. The research will explore whether the associations can be given a causal interpretation by highlighting the relationship between the timing of transfers and the height of young children. The nutrition and biology literatures have established that the trajectory of height is largely determined by the time a child reaches age two or three. Under that assumption, an association between transfers and height of children age four and older likely reflects the role of unobserved heterogeneity rather than a causal mechanism. We will explore this issue in detail.

In sum, MxFLS was designed to provide new evidence on international transfers. The combination of the panel dimension of the survey, tracking of Mexican migrants to the United States and interviewing migrants as well as their family members left behind assures these data are well-suited to provide new insights into the motivations for and impact of transfers in a dynamic setting and examine in greater detail both sending and receiving households. Overall, the research will provide an in-depth description of transfer behavior which lays the foundation for testing models that explain transfer patterns as well as identifies the impact of remittances on well-being.

Data

The data used in the paper is the Mexican Family Life Survey (MxFLS), an ongoing longitudinal survey that collects a rich set of information on individuals, households and communities. The first wave, conducted in 2002, includes 35,677 individuals in 8,440 households and spread out across 150 Mexican communities. At baseline, the sample is representative at the national, rural-urban and regional level. The second wave of the survey (MxFLS2) was implemented in 2005-2006, reaching a 90% re-contact rate. The third wave (MxFLS3) spans over 2009-2013 with an 85% re-contact rate.[5]

One distinctive feature of the data is that it tracks all 2002 respondents over time, including those that migrate to the United States. Many studies collect information on international migrants from other household members, but few large-scale surveys have tried to follow migrants across international borders. In the second wave MxFLS interviewed 91% of those believed to be in the U.S. at that time. In MxFLS3, we have re-contacted 85% of the respondents who have moved to the U.S.

[5] This is a preliminary estimate. Intensive tracking and data cleaning are still in process, and official re-contact rates are not yet available.

The U.S. component of the survey is designed to collect comparable information with the survey conducted in Mexico as well as additional modules specifically designed to capture important aspects of the lives of Mexicans in the United States. An innovative module on transfers was designed for this research project. Pilot work with the instrument identified several challenges. For example, identification of target recipients is not straightforward since many transfers are made to one person in Mexico (to save on transfer fees) and then the funds are redistributed within Mexico. We developed a sequence of question to efficiently collect this information. We also carefully pilot-tested questions to elicit the purpose of the transfers, differentiating among transfers sent for support (for consumption or free disposal of the recipient), or transfers sent as saving or investment of the sender (for investment).

Table 1 presents some sample statistics of our sample of migrants (age 15 and older). Migrants are on average 30 years old, 40% of them are female. Most of these migrants are married: 76% of females and 58% males are married and whereas 20% of these males do not co-reside with their wives (who are in Mexico), only 1% of female migrants have a spouse in Mexico. Female migrants are also more likely to have children and, conditional on being a parent, females are much less likely than males to have children living in Mexico (15% and 34%, respectively). Many male migrants and the majority of

With respect to transfers, 65% of our sample sent some transfers to Mexico in the 12 months prior to the interview date. Conditional on having sent a positive amount, almost all migrants sent transfers for consumption (or support) of the recipients, and they send on average to 1.7 individuals in Mexico. In terms of other purposes, about 14% sent for investment, which contemplates both savings and to invest on a business. Finally, we note that the amount of remittances sent is not trivial. These migrants sent on average US$3,370 (median=1,500), which represents on average 35% of labor income (median=17%) and 40% of per-capita expenditures (median=19%).

Preliminary Results

We estimate the models for men and women separately as we anticipate the patterns to be different across genders. Additionally, at this time we do not differentiate across different transfer motives. All models control for interview date and location in the U.S.

We estimate first a linear probability model on the probability that the migrant sent transfers in the 12 months prior to the interview date. We show two specifications. The first one has all covariates measured at the time of interview and the second one has additional covariates measured at baseline. Next, we estimate the same two models to explain the amount sent in the last year, amount that is expressed in logs. Results are shown in Table 2.

Results for males

Columns 1 and 2 present estimates of the probability of sending transfers for males. We start by looking at the associations with demographic characteristics. With middle aged individuals (age 26 to 30) as the excluded group, younger males are less likely to send transfers and males age 31 to 40 are more likely to send transfers, though the age pattern in older individuals is not robust to the inclusion of baseline characteristics in the model. The associations with age are not linear, as males 41 years old or above are not more likely to send than individuals 26 to 30. Education is also predictive of sending transfers with the most and least educated being less likely to remit funds to Mexico than migrants in the middle of the education distribution. Recent arrivals in the U.S. are more likely to send transfers as are those whose spouses live in Mexico. There is no evidence in these data that, conditional on the spouse living in Mexico, men are more likely to sent funds if they have one or more children in Mexico. Neither household composition in the U.S. nor household resources is predictive of sending transfers although it is important to recognize those characteristics are potentially endogenous in these models.

Lastly, Table 2 suggests that none of the characteristics measured at baseline explains who sends transfers. We included measures of household composition, household resources and whether the individual was born in a rural community. Using household assets instead of per-capita expenditures does not change the conclusions.

When we analyze which variables predict how much migrants send we note that in general the same patterns emerge. The age group 31 to 40 who were the most likely to send transfers are also the ones that send more. Similarly, migrants who came after 2005 are more likely to send and when they do they send more remittances back home. Finally, having spouse or parents in Mexico increases the amount of transfers sent. However, a couple of differences are worth pointing out. While males with some high-school education are more likely to send transfers relative to less or more educated migrants, conditional on sending transfers education does influences how much they send. Conversely, having children in Mexico does not increase the probability of sending transfers, but does increase the expected amount sent for those who do.

Results for women

When we analyze the results for women some interesting differences emerge. With respect to the probability of sending transfers, it is still the case that very young women (15-20 years old) are less likely to send transfers to Mexico, but the probability of sending does not depend on age beyond that point. Also, two important predictors for males, education and time in the U.S., do not explain whether women

send or do not send transfers back home. On the contrary, marital status now does have a strong effect on the probability of sending transfers, with married women more likely to send. Furthermore, household resources do have an important effect. Women in relatively better-off households, those in the third and fourth quartile of the log per-capita expenditure distribution, are more likely to send transfers to Mexico. Finally, having children in Mexico has a significant effect on the probability to send remittances.

Predictors of how much migrants send to Mexico are more similar across males and females, although two variables stand out in the female models. One is that when females are in a one-person household, which implies that all their relatives are living elsewhere, the amount of transfers sent to Mexico increases substantially. Finally, women who have children are expected to send less (though conditional on having children, women with children in Mexico do send more).

On-going research

This research will exploit the richness of data on transfers in MxFLS to carefully describe the ways resources are transferred, the costs of transfers and the ways that resources are redistributed in Mexico after they have been transferred. Information collected in Mexico from recipients will be compared with the information provided by senders to develop a fuller understanding of the resource flows and their usage. In so doing, we will also extend the analyses to include additional detail on other family members, including the whereabouts of others who have moved to the U.S., to test hypotheses about the ways in which resources are shared among extended families. Finally, we will test hypotheses about the use of funds in a multivariate regression framework and evaluate the evidence provided by migrants that resources are largely used for consumption purposes and proceed to test hypotheses about the causal impact of transfers on health and well-being of family members.

Table 1: Sample statistics

	All		
	mean	sd	median
Adult migrants			
Age	30	11	27
Female	0.40	0.49	
Married	0.65	0.48	
Has children	0.66	0.64	
Born in rural place	0.74	0.44	
Year arrived to US	2002	7	2004
Relatives in Mexico			
Father (cond. fa alive)	0.69	0.46	
Mother (cond. mo alive)	0.74	0.44	
Spouse (cond. married)	0.11	0.31	
Children (cond. having ch)	0.33	0.96	
Children 18+ (cond. having ch)	0.11	0.31	
# children in MX (cond. ch in Mx)	2.21	1.46	2
Transfers to Mexico (12months prior interview date)			
Sent transfers	0.65	0.48	
Sent for consumption	0.92	0.27	
Sent for savings	0.12	0.33	
Sent for business	0.02	0.15	
# recipients (for consumption)	1.77	1.43	1
Amount sent	3343	4962	1500
Transfers/labor income	0.35	0.73	0.17
Transfers/pce	0.37	0.52	0.19
Transfers for consumption to Mexico			
Sent to spouse (cond. sp in Mx)	0.87		
Sent to mother (cond. mo in Mx)	0.73		
Sent to father (cond. fa in Mx)	0.31		
Sent to children (cond. ch in Mx)	0.44		
Sent to siblings	0.29		
Sent to other relatives	0.23		
Sent to other	0.05		

Observations: 1,163

Source: MxFLS3

Table 2: Probability of sending transfers and amount sent (conditional on sending)

	Sent transfers last 12 months				Amount Sent (logs)			
Sample	**Males**		**Females**		**Males**		**Females**	
Covariates	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
base: 26-30 years old								
15-20 years old	-0.11	-0.15	-0.16	-0.145	0.0843	0.0489	-0.659	-0.611
	[0.0598]*	[0.0635]**	[0.0782]**	[0.0818]*	[0.251]	[0.264]	[0.328]**	[0.345]*
21-25 years old	-0.0013	-0.0139	0.0477	0.0485	0.207	0.186	-0.402	-0.347
	[0.0448]	[0.0460]	[0.0645]	[0.0669]	[0.177]	[0.183]	[0.224]*	[0.230]
31-40 years old	0.0858	0.0711	-0.0522	-0.0238	0.378	0.467	0.0784	0.267
	[0.0501]*	[0.0505]	[0.0655]	[0.0688]	[0.189]**	[0.194]**	[0.239]	[0.248]
41 and older	0.011	0.00596	-0.086	-0.0286	-0.0123	0.0376	0.439	0.682
	[0.0628]	[0.0630]	[0.0987]	[0.105]	[0.244]	[0.248]	[0.369]	[0.397]*
married	-0.0438	-0.0484	0.128	0.136	0.157	0.263	0.317	0.328
	[0.0669]	[0.0674]	[0.0707]*	[0.0715]*	[0.253]	[0.260]	[0.285]	[0.290]
household size =1	0.0697	0.0501	0.135	0.145	0.158	0.161	1.235	1.42
	[0.0668]	[0.0676]	[0.129]	[0.131]	[0.246]	[0.252]	[0.445]***	[0.443]***
hhsize	-0.0123	-0.014	0.0294	0.0292	0.0544	0.0384	-0.035	-0.0404
	[0.0205]	[0.0208]	[0.0242]	[0.0248]	[0.0810]	[0.0826]	[0.0939]	[0.0955]
household w/children<15	-0.0554	-0.0327	-0.0799	-0.0865	-0.248	-0.224	0.346	0.163
	[0.0637]	[0.0637]	[0.0922]	[0.0950]	[0.265]	[0.268]	[0.365]	[0.381]
base: primary school								
Some high school (7-11)	0.071	0.0981	0.0158	0.027	-0.0538	0.00689	0.222	0.144
	[0.0365]*	[0.0378]***	[0.0553]	[0.0582]	[0.138]	[0.143]	[0.193]	[0.205]
High school or more (12+)	-0.0346	-0.0216	-0.0364	-0.0081	0.00377	0.0853	-0.0525	-0.146
	[0.0472]	[0.0491]	[0.0634]	[0.0690]	[0.196]	[0.207]	[0.236]	[0.252]
base: log pce09 - first quartile								
log pce09_q2	-0.0518	-0.0417	0.0807	0.0925	-0.274	-0.268	0.122	0.289
	[0.0540]	[0.0543]	[0.0650]	[0.0662]	[0.213]	[0.214]	[0.252]	[0.256]
log pce09_q3	-0.0523	-0.0377	0.158	0.175	-0.00741	-0.0054	0.0633	0.124
	[0.0552]	[0.0556]	[0.0676]**	[0.0688]**	[0.213]	[0.214]	[0.258]	[0.264]
log pce09_q4	0.0282	0.0408	0.183	0.202	0.248	0.334	0.307	0.347
	[0.0572]	[0.0575]	[0.0771]**	[0.0781]**	[0.207]	[0.210]	[0.275]	[0.278]
base: First arrived to US before 2002								
arrived between 2002-2005	0.0164	-0.00145	0.0783	0.0934	0.118	0.147	0.131	0.0529
	[0.0417]	[0.0423]	[0.0667]	[0.0680]	[0.164]	[0.167]	[0.267]	[0.267]
arrived after 2005	0.099	0.0725	0.0721	0.0806	0.342	0.336	0.401	0.344
	[0.0491]**	[0.0494]	[0.0702]	[0.0718]	[0.192]*	[0.194]*	[0.281]	[0.282]
Location of close relatives								
has children	-0.0514	-0.0217	0.0682	0.0567	-0.325	-0.301	-1.084	-1.2
	[0.0649]	[0.0681]	[0.117]	[0.124]	[0.256]	[0.266]	[0.431]**	[0.446]***
has children in household	0.157	0.114	-0.015	-0.00239	0.0334	0.00422	0.521	0.691
	[0.0674]**	[0.0695]	[0.107]	[0.115]	[0.270]	[0.277]	[0.407]	[0.430]
has spouse in Mexico	0.168	0.158			0.493	0.413		
	[0.0805]**	[0.0806]**			[0.296]*	[0.297]		
has mother or father in Mexico	0.407	0.416	0.322	0.313	0.783	0.721	1.041	0.872
	[0.0503]***	[0.0508]***	[0.0588]***	[0.0598]***	[0.236]***	[0.240]***	[0.259]***	[0.257]***
has children in Mexico	0.0288	0.0123	0.212	0.205	0.473	0.465	1.459	1.238
	[0.0640]	[0.0662]	[0.0826]**	[0.0849]**	[0.251]*	[0.259]*	[0.297]***	[0.302]***
Characteristics at baseline (2002)								
household size		-0.0128		0.0133		0.0561		0.0416
		[0.0126]		[0.0175]		[0.0492]		[0.0600]
# children in household		0.00185		-0.00784		-0.0341		-0.0148
		[0.0160]		[0.0238]		[0.0598]		[0.0827]
base: log pce02 - first quartile								
log pce02_q2		-0.00914		0.0145		0.18		0.244
		[0.0493]		[0.0773]		[0.184]		[0.271]
log pce02_q3		-0.0581		-0.0157		-0.209		0.041
		[0.0526]		[0.0808]		[0.204]		[0.277]
log pce02_q4		-0.0593		-0.0553		-0.266		-0.152
		[0.0599]		[0.0826]		[0.230]		[0.294]
born in rural place		0.00804		-0.039		0.0984		-0.174
		[0.0386]		[0.0558]		[0.158]		[0.204]
Constant	0.0872	0.407	-0.118	-0.267	6.936	11.9	6.572	5.613
	[0.148]	[0.455]	[0.192]	[0.232]	[0.599]***	[7.743]	[0.749]***	[0.886]***
Observations	696	696	462	462	480	480	256	256
R-squared	0.31	0.33	0.28	0.30	0.24	0.27	0.37	0.43

Notes: Standard errors in brackets.*** p<0.01, ** p<0.05, * p<0.1. All models control for interview date and location in the U.S. Model 2 also controls for location of interview in Mexico in 2002. The covariate 'spouse in Mexico' was removed from the models on females because only two observations have their spouse in Mexico.