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How Do Migration and Remittances Affect Inequality?

A Case Study of Mexico

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Abstract

The poverty-reducing effects of remittances have been well-documented, however, their effects on inequality are less clear. This paper examines the impact of remittances on inequality in Mexico using household-level information on the receiving side. It hopes to speak to their insurance role by examining how remittances are affected by domestic and external crises: the 1994 Mexican Peso crisis and the Global Financial Crisis. We find that remittances lower inequality, and that they become more pro-poor over time as migration opportunities become more widespread. This also strengthens their insurance effects, mitigating some of the negative impact of shocks on the poorest.

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I. INTRODUCTION

A large literature has documented the beneficial effects of remittances on poverty, however, their effects on inequality are much less clear. At the macro level remittances constitute an important source of external financing for many emerging market and developing economies; at the micro level they can facilitate investments in health, education or small businesses. Little is, however, known about their effects on inequality. These effects would depend on which households across the income distribution are most likely to receive remittances and how much they receive. The empirical literature is inconclusive on the impact of remittances on inequality, with some studies finding positive, and others finding negative or no significant effects.

This paper aims to contribute to this literature by examining the impact of remittances on inequality in Mexico using counterfactual analysis based on several cross-sections of a large-scale representative household survey. It starts off with an examination of the determinants of remittances across income deciles, looking at whether remittances play an insurance role. It then examines explicitly how the likelihood of receiving remittances as well as received amounts were affected by domestic and external crises, the 1994 Mexican Peso crisis and the Global Financial Crisis of 2008–09. Finally, it constructs counterfactual income distributions in the absence of remittances to examine the impact of remittances on inequality measured using Gini coefficients.

The paper is structured as follows: Section 2 reviews the empirical literature on the effects of remittances on inequality, with a particular emphasis on studies that create counterfactual income distributions. Section 3 introduces the household surveys used in the analysis, and Section 4 presents a brief overview of Mexico's migration history. Section 5 outlines the empirical strategy, Section 6 presents the results on the determinants of remittances by income deciles, counterfactual simulations that document their impact on inequality, and how this effect varies during crisis periods. Section 7 concludes.

II. LITERATURE REVIEW

While there is a large literature on the poverty-alleviating impact of remittances,[2] the empirical literature has not yet reached a consensus on their effects on inequality. This effect would depend on which part of the income distribution migrants come from and whether remittances in turn are sent to poorer or richer households. While some studies found that migration and remittances increase inequality (e.g. Adams 2006, Adams and others 2008, Barham and Boucher 1998, Bouoiyour and Miftah 2014, Möllers and Meyer 2014), others found that they reduce it (e.g. Acosta and others 2006, Brown and Jimenez 2007, Gubert and

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[2] As international remittances often represent significant shares of migrant household incomes, and incomes earned working abroad are typically multiples of those earned at home, most studies have found that remittances reduce poverty in home countries (see e.g. Acosta and others 2006, Loritz 2008, Taylor and others 2009 for studies of Latin American countries).

others 2010, Jones 1998, Loritz 2008, Margolis and others 2013, Mughal and Anwar 2012, Taylor and others 2009), or have no significant effect (e.g. Beyene 2014, Yang and Martinez 2005).

These conflicting findings could be driven by changing effects over time. 'Pioneer' migrants (who face higher costs of migration) may come from relatively richer households than later migrants, who benefit from falling costs of migration due to improved access to labor markets as migrant networks expand (Lipton 1980; Stark, Taylor and Yitzhaki 1986; Portes and Rumbaut 1990; Massey, Goldring, and Durand 1994). Migration would thus first increase then decrease inequality in sending countries over time. In the cross-section, one would observe a positive link between outmigration and inequality in sending countries with a more recent migration history (Stark, Taylor and Yitzhaki 1988).

A number of papers have examined the distributional effects of remittances by comparing income distributions with and without remittances (e.g. Barham and Boucher 1998; Gustafsson and Makonnen 1993; Knowles and Anker 1981; Oberai and Singh 1980) or by using income-source decompositions of inequality measures (e.g. Adams 1989, 1991; Adams and Alderman 1992; Stark, Taylor and Yitzhaki 1986, 1988; Taylor and others 2009). These estimates are, however, likely to be imperfect if remittances are not a truly exogenous transfer, but a substitute for the earnings that the migrant would have earned at home if they had not decided to migrate and work abroad.

A number of recent studies have thus focused on creating counterfactual income distributions. These studies examine the determinants of income in non-remittance-receiving households to predict what the income of households who send emigrants would have been in the absence of outmigration and resulting remittance receipts. The studies then compare resulting Gini coefficients to the ones actually observed in the data to deduce the impact of emigration and remittances on inequality (see e.g. Barham and Boucher 1998 for Nicaragua, Adams 2006 for Ghana, Brown and Jimenez 2007 for Fiji and Tonga, Acosta and others 2008 for Latin American and Caribbean countries, Beyene 2014 for Ethiopia, Bouoiyour and Miftah 2014 for Morocco). These studies rely on parametric reduced form approaches, typically estimating ordinary least squares regressions of the determinants of per capita or household income, expenditure or consumption levels for households that received remittances on the basis of the determinants of these among households which did not receive remittances. Acosta and others (2008) focus on ten Latin American and Caribbean countries including Mexico, and find that (in Mexico as well as most other countries in the region) inequality based on such imputed income is lower than inequality based on actual income, so remittances lower inequality relative to a no-remittances, no-migration scenario.[3]

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[3] Beaton and others (2017) and IMF (2017) examine the effect of remittances on consumption smoothing more broadly relying on country-level analysis.

This paper follows a similar empirical strategy, but allows for more flexibility by adopting a non-parametric approach, estimating counterfactual incomes using propensity score matching. To the best of our knowledge there are few other studies adopting this approach—a notable exception is the recent work by Möllers and Meyer (2014), examining the impact of remittances on inequality in Kosovo. As discussed in Section 5 in detail, a key advantage of this strategy relative to simple ordinary least squares lies in (i) not imposing structure on the functional form between income and its determinants, and (ii) explicitly enforcing a common support condition, that is comparing remittance-receiving households only to those non-remittance-receiving households, which are otherwise 'similar' to them.

We aim to contribute to the literature by furthermore focusing on how the effects of remittances on inequality change during crises. If remittances are pro-poor (and reduce inequality) during good times, does this effect strengthen or weaken as a result of domestic or external shocks? In order to do so, the paper examines the impact of remittances on inequality before, during and in the aftermath of a domestic crisis, the 1994 Mexican peso crisis, as well as the Global Financial Crisis, which affected both the sender and receiver countries.

III. Data

The paper relies on the National Survey of Income and Expenditure (ENIGH), a nationally representative household survey conducted by the Instituto Nacional de Geografia, Estadistica e Informatica (INEGI). The surveys are conducted broadly every second year in the 3rd and 4th quarter of the year and capture various characteristics of households in Mexico, including income, expenditure, living conditions and assets. Remittances are measured using the following question: *'What was your income from other countries last month? Two months ago? Three months ago?'*, then aggregated to quarterly and annual amounts.[4]

We focus here on the years 1989, 1994 and 2000 to capture remittances before the crisis, around the 1994 Peso crisis (unfortunately no survey is available for 1995), and after the crisis. For the later period we rely on the years 2002, 2008 and 2014 as proxies for the pre-crisis period, the Global Financial Crisis of 2008–09 and the post-crisis period (unfortunately no surveys are available for 2007 or 2009). Our crisis years would thus include the buildup of tensions before the crises as well as part of the actual slump.

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[4] Numerous studies use the response to this question as a proxy for remittances received. While in theory the reported amount could include investment income from abroad, such income is likely to be negligible for the typical household in Mexico.

IV. MIGRATION FROM MEXICO

Mexico has a long history of outmigration, in particular to the United States. In the 1970s migration from Mexico to the United States picked up as a result of both push and pull factors. Changes in US immigration policy, such as the Immigration and Nationality Act (1965), provided incentives for family reunification, while migration also intensified as a result of fluctuations in economic activity in Mexico culminating in economic crises in 1976 and 1983 (Rosenblum and Brick 2011).

Migration flows only slowed recently with the increased enforcement of immigration laws since 2005 (Gonzales-Barrera 2015) and reversed during the Global Financial Crisis and the subsequent slow recovery in the United States (Figure 1). The United States remains by far the largest recipient of Mexican migrants, accounting for 97 percent of Mexican outmigration.

The profile of migrants has evolved over time (Gonzales-Barrera 2015). In 1990 Mexican migrants in general were predominantly male, young, and typically less educated. While the typical migrant is still male and less educated, the median age increased reflecting the longer history of migration combined with a recent drop in new (younger) inflows (Table 1).

Figure 1. Migration and remittances

Sources: UNPD and World Bank.
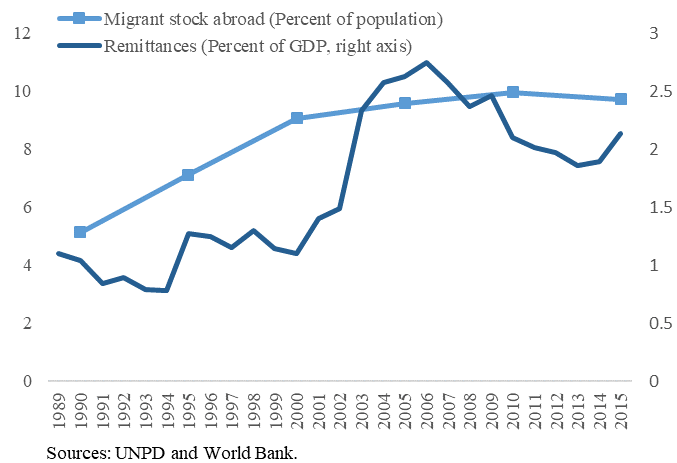
Most migrants send money home to support their families. Despite this long history of migration, the likelihood of remitting remains high, although it declines with age. The likelihood of sending remittances falls from 40 percent for migrants below the age of 30 to 30 percent after the age of 50 as a result of weakening links with the home country and family re-unification (Gonzales-Barrera 2015).

This paper examines how the impact of remittances on inequality varies as a result of domestic and external crises. We focus on the Mexican Peso crisis of 1994 and the Global Financial Crisis of 2008. The first refers to the currency crisis sparked by a sudden devaluation of the peso against the US dollar in December 1994, which resulted in a 6 percent contraction of the Mexican economy by 1995. Unemployment increased and the share of informal employment and the wage-gap between formal and informal employment

rose dramatically (IMF 2010). The second crisis examined here is the Global Financial Crisis, which unlike the Peso crisis, originated in the United States and was propagated into Mexico through the strong economic relationship between the two countries (for instance around 75 percent of Mexican exports go to the United States). While this time Mexico was better equipped to handle the crisis (unemployment, the share of informal employment and the formal-informal wage gap increased less dramatically), this crisis stands in contrast with the Peso crisis in that the main migrant destination country as well as the home country were hit.

It should be noted that the two crises occur more than two decades apart, with important changes to migration flows in the meantime. In particular, while we would expect a domestic shock to be more easily insured using remittances from an unaffected host country, a more established migrant community (with a more stable position in the host country), or more widespread migration opportunities (including to lower deciles of the income distribution) could more than offset this and help mitigate shocks. The following analysis indirectly examines which of these effects dominates.

Table 1: Demographic characteristics of Mexican Immigrants in the United States

	1990	2013
Male	55	53
Median age (years)	29	39
Age groups		
Younger than 18	15	6
18 to 29	35	19
30 to 39	24	26
40 to 49	13	24
50 to 64	9	18
65 or older	5	7
Educational attainment (ages 25 and older)		
Less than high school dip	76	58
High school diploma	12	24
Some college or more	13	18
Years in the US		
5 years or less	30	8
6 to 10 years	20	15
11 to 20 years	31	35
More than 20 years	19	42

Source: Gonzalez-Barrera (2015).
Note: Pew Research Center tabulations of 1990 Census and 2013 American Community Survey data. Numbers may not sum to 100 due to rounding. Mexican immigrants are people born in Mexico to two parents who were not US citizens. Percent unless noted otherwise.

V. ESTIMATION STRATEGY

The paper starts off by documenting who receives remittances – how the socioeconomic characteristics of remittance-receiving households differ from those of non-remittance-receiving households. We then examine the determinants of remittance behavior by income decile in order to assess whether different factors influence remittance behavior at different points of the income distribution. We look at the determinants of receiving remittances (a binary variable), the amount received (in Pesos), as well as remittances received as percent of household income. Regressions examine the roles of household characteristics, such as household composition, location, and characteristics of the household head. Furthermore, we document how remittance receipts and their determinants changed as a result of the two crises.

We also construct counterfactual income distributions in the absence of remittances in order to compare resulting Gini coefficients with those of the original income distribution. As highlighted earlier, simply relying on the non-remittance income of remittance-receiving households is likely to result in biased estimates, since it does not take into account that the migrant may have had positive earnings in the home country in the absence of migration, and would thus likely underestimate the 'true' counterfactual income of the household in the absence of migration. Since remittances are the outcome of migration, they do not constitute an exogenous source of income, rather, they replace the income the migrant would have earned at home. Estimating the effect of remittances on inequality thus requires constructing such hypothetical counterfactual incomes for the remittance-receiving households, which take this into account. In line with the work of Möllers and Meyer (2014), we estimate counterfactual incomes using propensity score matching, a non-parametric approach, which not only allows for more flexibility, but also explicitly enforces common support, requiring that remittance-receiving households are only compared to non-remittance-receiving households, which are otherwise 'similar enough' to them (see Rosenbaum and Rubin 1983).

VI. RESULTS

A. Who Receives Remittances?

This section examines remittance patterns over time, as well as variation in remittance receipts across the income distribution. The share of households receiving remittances increased in the 1990s, from about 4 percent to almost 6 percent by 2000 (which could be in line with migration opportunities becoming more widespread), but has declined slightly since (Figures 2 and 3). Households have, however become less dependent on them, with remittances declining from 30–40 percent of household income in the 1990s to around 20 percent in 2014. In 2014 households received on average about 290 USD per month (mean; 140 USD median). Poorer households are generally more likely to receive remittances, though in the 1990s this was not the case for the poorest decile, as fixed costs of migration may still have been prohibitively high for this group.

While in the earlier years remittance-receiving households were typically in the middle of the income distribution, we observe a clear shift over time, with remittances becoming increasingly pro-poor. As expected, remittances were higher for households in higher deciles in nominal terms, but constituted a larger share of income for poorer households. Remittance-receiving households are on average poorer than non-remittance-receiving households, even when taking remittances into account. The average income of remittance receiving households would put them in the 4th decile without remittances, in the 6th decile with remittances; non-remittance receiving households would be on average in the 7th decile in 2014.

Figure 2. Remittances before, during and after the Peso Crisis

1. Share of households receiving remittances, by decile (Percent)

2. Remittances as a share of household income, by decile (Percent)

3. Remittances, by decile (Pesos)

Source: INEGI and authors' calculations.

4. Average Household Income (Pesos)

Figure 3. Remittances before, during and after the Global Financial Crisis

1. Share of households receiving remittances, by decile (Percent)

2. Remittances as a share of household income, by decile (Percent)

3. Remittances, by decile (Pesos)

Source: INEGI and authors' calculations.

4. Average Household Income (Pesos)

Remittance-receiving households tend to be slightly smaller, but (as expected) tend to have fewer employed household members present, and more children and elderly (Table 2). They are more likely to have a female household head, and are relatively less educated compared to non-remittance-receiving households. Both of these patterns become starker over time, in line with predominantly male, low-skilled migration from Mexico to the United States (see also Amuedo-Dorantes and others 2004). Remittance-receiving household are also more likely to be from rural areas (also in line with Amuedo-Dorantes and others 2004).

Table 2. Characteristics of Remittance-Receiving and Non-Remittance-Receiving Households

| | 1989 | | | | 2014 | | | |
| | Remittance receiving households | | Non-remittance receiving households | | Remittance receiving households | | Non-remittance receiving households | |
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
No. of hh members	4.78	2.58	4.95	2.41	3.62	1.96	3.78	1.87
No. of children	1.62	1.65	1.48	1.50	0.82	1.06	0.85	1.07
No. of elderly	0.33	0.62	0.23	0.53	0.46	0.71	0.26	0.56
No. of employed	1.23	1.16	1.65	1.07	1.41	1.16	1.68	1.06
Age of hh head	38.75	27.87	44.47	16.34	53.95	17.68	48.23	15.55
Male hh head	0.82	0.39	0.86	0.35	0.58	0.49	0.75	0.43
Education of hh head	0.88	1.51	2.43	2.37	0.58	0.49	5.57	2.61
Income decile (total income)	5.38	2.69	5.51	2.88	4.57	2.68	5.54	2.87

B. Do the Determinants of Remittances Vary Across the Income Distribution?

The determinants of remittances are broadly similar for the two periods examined here. However, examining the drivers of remittance receipts by income decile points to differences across the income distribution, especially between the very top and the very bottom (Tables 3 and 4).

Looking at characteristics of the household, the likelihood of receiving remittances falls with the number of employed in the receiving household, except at the very top in the later period, where it is likely pointing to investment motives. It increases with the number of elderly, but falls with the number of children in the household (in line with the effects of family re-unification), though these effects are less pronounced at the top in the later period. Across all deciles, households with female household heads are more likely to receive remittances, possibly reflecting a male migrant. Households with a higher educated household head are less likely to receive remittances, except for the bottom decile where the impact is not significant in the later period. Remittances appear to be more important for rural households, across the income distribution.

Table 3. Determinants of Remittances by Decile; Before, During and After the Peso Crisis

Determinants of receiving remittances, by decile

	Bottom decile	2	3	4	5	6	7	8	9	Top decile
No. of hh members	0.0542	0.0638*	-0.00221	0.00747	0.0650**	0.0311	0.0276	0.0243	0.0751**	0.0421
	(0.0445)	(0.0348)	(0.0314)	(0.0294)	(0.0290)	(0.0292)	(0.0300)	(0.0290)	(0.0315)	(0.0353)
No. of children	-0.0365	-0.118**	-0.0321	-0.0827**	-0.0944**	-0.0150	-0.0598	0.0476	-0.0873*	-0.0705
	(0.0611)	(0.0493)	(0.0452)	(0.0441)	(0.0417)	(0.0413)	(0.0442)	(0.0445)	(0.0471)	(0.0563)
No. of elderly	0.387***	0.255***	0.316***	0.128	0.0868	0.202**	0.246***	0.348***	0.294***	0.254***
	(0.0874)	(0.0788)	(0.0857)	(0.0841)	(0.0960)	(0.0834)	(0.0905)	(0.0903)	(0.0888)	(0.0963)
No. of employed	-0.387***	-0.227***	-0.178***	-0.172***	-0.290***	-0.280***	-0.231***	-0.183***	-0.247***	-0.179***
	(0.0819)	(0.0866)	(0.0660)	(0.0591)	(0.0581)	(0.0581)	(0.0548)	(0.0504)	(0.0603)	(0.0556)
Age of hh head	-0.0140***	-0.00848**	-0.0107***	-0.00752**	-0.0103***	-0.00839**	-0.0168***	-0.0121***	-0.0155***	-0.0150***
	(0.00354)	(0.00328)	(0.00325)	(0.00345)	(0.00356)	(0.00342)	(0.00342)	(0.00328)	(0.00387)	(0.00449)
Male hh head	-0.540***	-0.344***	-0.419***	-0.323***	-0.351***	-0.177	-0.245**	-0.377***	-0.557***	-0.314**
	(0.109)	(0.104)	(0.107)	(0.105)	(0.104)	(0.109)	(0.110)	(0.113)	(0.110)	(0.143)
Education of hh head	-0.102***	-0.0430**	-0.100***	-0.116***	-0.131***	-0.117***	-0.194***	-0.173***	-0.106***	-0.0897***
	(0.0302)	(0.0212)	(0.0215)	(0.0216)	(0.0200)	(0.0181)	(0.0212)	(0.0213)	(0.0153)	(0.0164)
Urban hh	-0.410***	-0.572***	-0.665***	-0.582***	-0.630***	-0.633***	-0.641***	-0.594***	-0.640***	-0.340*
	(0.134)	(0.109)	(0.1000)	(0.0815)	(0.0836)	(0.0808)	(0.0873)	(0.0881)	(0.101)	(0.139)
1994 dummy	0.0512	0.0199	-0.145	0.00576	0.101	-0.100	-0.128	-0.0199	-0.257**	-0.357***
	(0.105)	(0.0958)	(0.0941)	(0.0897)	(0.0990)	(0.0946)	(0.0964)	(0.107)	(0.114)	(0.134)
2000 dummy	0.365***	0.351***	0.512***	0.546***	0.934***	0.726***	1.031***	1.048***	0.716***	0.687***
	(0.134)	(0.126)	(0.124)	(0.119)	(0.130)	(0.122)	(0.133)	(0.151)	(0.153)	(0.165)
Number of obs.	3422	3403	3413	3410	3415	3426	3415	3423	3433	3425

Determinants of the amount of remittances received, by decile

	Bottom decile	2	3	4	5	6	7	8	9	Top decile
No. of hh members	-248.6	1542.6	40.60	561.5	2735.5	1104.9	5983.1*	3339.1	3859.1	2478.6
	(585.7)	(1404.5)	(1166.4)	(1729.0)	(2056.8)	(2122.3)	(3281.7)	(2622.2)	(3186.5)	(4484.3)
No. of children	389.4	-2785.2	-1300.7	-2070.3	-4575.9*	-85.39	-11622.6**	-1463.5	-13344.0**	-18255.6*
	(818.6)	(1870.2)	(1536.0)	(2094.7)	(2604.7)	(3290.6)	(5750.8)	(3918.8)	(5575.3)	(9848.7)
No. of elderly	4660.8***	11701.2***	13431.7***	14734.3***	18646.5***	28732.4***	39439.0***	26691.4**	21374.8	40815.2
	(1765.6)	(3564.2)	(3977.9)	(5593.5)	(6769.6)	(10909.6)	(15222.6)	(12409.8)	(13240.6)	(27341.5)
No. of employed	-2555.4***	-5369.5***	-7448.5***	-9208.5***	-12438.5***	-16180.1***	-13784.9***	-14870.2***	-22775.7***	-11037.0**
	(854.6)	(2008.9)	(2170.0)	(3231.4)	(4043.0)	(4116.3)	(4724.3)	(4333.3)	(6617.5)	(5535.0)
Age of hh head	-248.0**	-783.4***	-868.0***	-1022.4***	-1552.5***	-1418.7**	-2783.2***	-2057.0***	-3721.2***	-4459.1**
	(98.83)	(225.9)	(262.7)	(355.3)	(475.6)	(567.3)	(805.1)	(784.7)	(1320.3)	(1895.4)
Male hh head	-1807.3	-4158.7	2505.2	-7132.8	-17317.8***	673.0	299.9	-9903.5	-24061.2	-44704.4
	(1329.1)	(2639.5)	(2325.4)	(5159.7)	(6538.1)	(5999.9)	(5621.3)	(8255.3)	(15129.9)	(32252.6)
Education of hh head	-858.4**	-2832.3***	-3800.4***	-4462.1***	-5650.2***	-6888.8***	-9299.7***	-7578.5***	-13639.2***	-11451.3***
	(342.2)	(744.0)	(871.6)	(1158.9)	(1396.0)	(1686.4)	(2054.7)	(2168.8)	(4060.7)	(4290.1)
Urban hh	-3806.1***	-8727.5***	-11522.1***	-16676.7***	-11358.0**	-21103.1***	-40525.5***	-35813.9***	-27830.6*	-13734.4
	(1236.0)	(2410.5)	(3078.2)	(4397.8)	(4862.0)	(6556.5)	(10563.6)	(11266.7)	(15763.3)	(25690.9)
1994 dummy	-8428.3***	-18484.5***	-26752.3***	-37091.6***	-34560.1***	-50435.7***	-73939.3***	-55527.3***	-74838.3***	-74267.8***
	(1711.6)	(3260.6)	(4141.3)	(5903.2)	(6354.8)	(7997.9)	(11151.9)	(10635.1)	(14945.3)	(17351.4)
2000 dummy	-4932.7***	-3229.2	-4738.3	-10095.0*	914.9	-7429.8	-9609.8	-2873.8	11989.9	9005.0
	(1520.6)	(2506.5)	(3252.5)	(5404.3)	(5229.7)	(6786.5)	(9612.7)	(9901.1)	(18436.2)	(26665.8)
Number of obs.	3422	3403	3413	3410	3415	3426	3415	3423	3433	3425
Adjusted R-sq.	0.028	0.051	0.054	0.045	0.049	0.052	0.064	0.042	0.047	0.031

Determinants of remittances as a share of household income, by decile

	Bottom decile	2	3	4	5	6	7	8	9	Top decile
No. of hh members	0.129	0.488**	0.154	0.171	0.393***	0.215*	0.300**	0.154	0.265***	0.114*
	(0.126)	(0.193)	(0.136)	(0.155)	(0.150)	(0.119)	(0.131)	(0.102)	(0.0909)	(0.0681)
No. of children	-0.0368	-0.755***	-0.215	-0.452**	-0.531***	-0.174	-0.511**	0.130	-0.426***	-0.273**
	(0.181)	(0.248)	(0.205)	(0.190)	(0.198)	(0.178)	(0.216)	(0.187)	(0.153)	(0.135)
No. of elderly	1.795***	1.798***	1.790***	1.679***	1.316***	1.703***	2.717***	1.509***	0.782**	0.670*
	(0.423)	(0.482)	(0.473)	(0.522)	(0.508)	(0.524)	(0.620)	(0.402)	(0.331)	(0.371)
No. of employed	-1.077***	-1.663***	-1.436***	-1.275***	-1.641***	-1.496***	-1.200***	-0.883***	-0.930***	-0.451***
	(0.204)	(0.320)	(0.308)	(0.292)	(0.292)	(0.246)	(0.222)	(0.193)	(0.173)	(0.118)
Age of hh head	-0.0708***	-0.0972***	-0.115***	-0.106***	-0.124***	-0.0992***	-0.180***	-0.0935***	-0.0964***	-0.0624***
	(0.0194)	(0.0259)	(0.0256)	(0.0278)	(0.0297)	(0.0275)	(0.0316)	(0.0241)	(0.0265)	(0.0226)
Male hh head	-1.753***	-1.479***	-2.178***	-1.286**	-2.252***	-0.812*	-1.046**	-0.881**	-1.631***	-1.389**
	(0.419)	(0.539)	(0.636)	(0.585)		(0.478)	(0.454)	(0.418)	(0.498)	(0.558)
Education of hh head	-0.309***	-0.390***	-0.539***	-0.577***	-0.642***	-0.582***	-0.734***	-0.584***	-0.408***	-0.235***
	(0.0980)	(0.114)	(0.104)	(0.103)	(0.0977)	(0.0952)	(0.0959)	(0.0900)	(0.0804)	(0.0661)
Urban hh	-0.995***	-1.896***	-2.619***	-2.170***	-2.189***	-2.108***	-2.766***	-1.811***	-1.315***	-0.119
	(0.372)	(0.359)	(0.385)	(0.354)	(0.375)	(0.375)	(0.457)	(0.378)	(0.404)	(0.344)
1994 dummy	-0.176	-0.203	-0.474	-0.804*	-0.386	-0.721*	-0.843**	-0.655**	-0.733**	-0.416**
	(0.352)	(0.411)	(0.403)	(0.411)	(0.381)	(0.378)	(0.411)	(0.292)	(0.307)	(0.205)
2000 dummy	1.049**	1.982***	3.278***	2.564***	4.040***	3.184***	3.577***	3.990***	2.363***	1.898***
	(0.511)	(0.615)	(0.644)	(0.651)	(0.644)	(0.626)	(0.635)	(0.741)	(0.534)	(0.589)
Number of obs.	3422	3403	3413	3410	3415	3426	3415	3423	3433	3425
Adjusted R-sq.	0.032	0.042	0.056	0.050	0.069	0.062	0.100	0.080	0.058	0.034

Note: * denotes significant at the 10 percent level, ** at 5 percent, * at 1 percent in all tables. The regression examining the determinants of receiving remittances (a dummy variable) is a probit model, the regressions looking at the determinants of the amount received (in pesos and as a share of household income) are simple OLS regressions with robust standard errors. Dataset is a pooled cross-section of households in 1989, 1994 and 2000; 1989 is treated as the base year.

Table 4. Determinants of Remittances by Decile; Before, During and After the Global Financial Crisis

|	Bottom decile	2	3	4	5	6	7	8	9	Top decile
Determinants of receiving remittances, by decile										
No. of hh members	0.0209	0.0187	0.0103	0.0676***	0.0349	0.0547**	0.0472**	0.0872***	0.0630**	0.0426
	(0.0252)	(0.0228)	(0.0250)	(0.0240)	(0.0234)	(0.0228)	(0.0234)	(0.0241)	(0.0257)	(0.0288)
No. of children	-0.0779**	-0.0528	0.0333	-0.0473	0.0268	0.0106	0.0519	-0.0428	0.00727	0.0635
	(0.0382)	(0.0374)	(0.0375)	(0.0353)	(0.0343)	(0.0356)	(0.0348)	(0.0379)	(0.0402)	(0.0477)
No. of elderly	0.0465	0.0231	-0.0862	-0.0151	0.0485	0.112*	-0.0190	0.0206	0.0136	0.132*
	(0.0582)	(0.0558)	(0.0619)	(0.0597)	(0.0599)	(0.0600)	(0.0625)	(0.0676)	(0.0658)	(0.0709)
No. of employed	-0.162***	-0.188***	-0.214***	-0.230***	-0.198***	-0.198***	-0.160***	-0.194***	-0.0956***	-0.0306
	(0.0413)	(0.0406)	(0.0399)	(0.0394)	(0.0380)	(0.0376)	(0.0361)	(0.0355)	(0.0356)	(0.0398)
Age of hh head	0.0000496	0.00647***	0.0107***	0.00972***	0.00507**	0.000534	0.00696**	-0.00184	0.00305	-0.00392
	(0.00228)	(0.00231)	(0.00273)	(0.00251)	(0.00257)	(0.00262)	(0.00283)	(0.00297)	(0.00337)	(0.00375)
Male hh head	-0.372***	-0.416***	-0.489***	-0.513***	-0.477***	-0.448***	-0.402***	-0.461***	-0.292***	-0.548***
	(0.0559)	(0.0547)	(0.0592)	(0.0572)	(0.0608)	(0.0598)	(0.0616)	(0.0641)	(0.0678)	(0.0809)
Education of hh head	-0.0116	-0.0349***	-0.0406**	-0.0350***	-0.0530***	-0.0530***	-0.0496***	-0.0660***	-0.0406***	-0.0413***
	(0.0123)	(0.0120)	(0.0168)	(0.0112)	(0.0107)	(0.0117)	(0.0129)	(0.0133)	(0.0111)	(0.00872)
Urban hh	-0.406***	-0.664***	-0.647***	-0.562***	-0.578***	-0.509***	-0.526***	-0.501***	-0.417***	-0.692***
	(0.0703)	(0.0623)	(0.0615)	(0.0558)	(0.0571)	(0.0562)	(0.0587)	(0.0622)	(0.0675)	(0.0773)
2008 dummy	0.229***	0.122*	0.0628	0.0665	-0.00308	-0.0667	-0.0848	-0.242***	-0.185**	-0.270***
	(0.0677)	(0.0647)	(0.0684)	(0.0676)	(0.0693)	(0.0713)	(0.0711)	(0.0722)	(0.0761)	(0.0922)
2014 dummy	0.188***	0.0264	-0.162**	-0.0507	-0.282***	-0.267***	-0.232***	-0.529***	-0.359***	-0.606***
	(0.0727)	(0.0704)	(0.0770)	(0.0760)	(0.0788)	(0.0784)	(0.0793)	(0.0839)	(0.0857)	(0.106)
Number of obs.	6563	6556	6563	6579	6569	6564	6582	6585	6524	6596
Determinants of the amount of remittances received, by decile										
No. of hh members	6.846	15.86	28.39	66.35***	68.03***	60.73***	71.79***	125.9***	109.4**	189.8***
	(7.058)	(11.98)	(18.64)	(19.52)	(22.51)	(22.92)	(25.37)	(37.97)	(43.76)	(70.26)
No. of children	-15.39	-15.42	13.12	-32.07	-12.85	7.085	11.36	-111.0**	-29.52	-50.30
	(10.72)	(19.40)	(26.25)	(29.89)	(33.30)	(35.27)	(36.21)	(47.37)	(47.37)	(130.5)
No. of elderly	9.403	2.600	-41.69	-7.254	35.32	90.78	-95.81	-10.03	-98.97	46.40
	(18.19)	(32.68)	(36.51)	(51.68)	(62.76)	(65.97)	(62.78)	(80.37)	(63.94)	(98.26)
No. of employed	-77.05***	-162.4***	-217.1***	-297.3***	-298.5***	-313.4***	-261.5***	-347.7***	-215.9***	-269.7***
	(12.41)	(22.23)	(29.84)	(38.36)	(42.91)	(42.82)	(43.80)	(60.17)	(56.52)	(100.00)
Age of hh head	-1.752**	-0.577	1.780	1.347	0.264	-5.306*	-0.537	-7.402*	-0.0765	-15.16*
	(0.805)	(1.299)	(1.674)	(1.847)	(2.207)	(2.865)	(2.485)	(4.043)	(3.361)	(8.798)
Male hh head	-175.3***	-332.0***	-516.7***	-627.5***	-663.4***	-695.2***	-632.9***	-715.5***	-498.3***	-713.8***
	(25.15)	(43.31)	(59.13)	(73.39)	(86.15)	(94.02)	(94.11)	(121.2)	(117.4)	(205.2)
Education of hh head	0.0598	-14.45***	-19.10***	-23.17***	-24.35***	-30.86***	-30.67***	-47.16***	-28.11***	-25.57***
	(2.980)	(4.597)	(5.293)	(4.942)	(4.880)	(5.338)	(5.215)	(7.020)	(5.592)	(8.464)
Urban hh	-122.2***	-308.2***	-389.9***	-433.3***	-495.8***	-505.1***	-542.8***	-674.6***	-273.2***	-1037.4***
	(20.86)	(29.59)	(39.97)	(48.68)	(60.56)	(68.65)	(81.17)	(111.5)	(86.29)	(280.7)
2008 dummy	79.04***	108.8***	133.8***	81.08*	107.4**	37.17	48.36	-104.4	-149.1*	-159.5
	(16.82)	(29.68)	(39.99)	(48.06)	(53.19)	(56.28)	(59.34)	(79.99)	(84.40)	(139.9)
2014 dummy	62.80***	30.46	-37.89	-70.48	-154.7***	-127.5***	-152.5**	-406.9***	-160.0	-158.1
	(18.64)	(31.03)	(37.90)	(49.33)	(52.31)	(62.39)	(60.73)	(86.43)	(98.59)	(175.3)
Number of obs.	6563	6556	6563	6579	6569	6564	6582	6585	6524	6596
Adjusted R-sq.	0.031	0.048	0.061	0.063	0.057	0.049	0.040	0.040	0.016	0.015
Determinants of remittances as a share of household income, by decile										
No. of hh members	0.111	0.182	0.185	0.391***	0.285***	0.236***	0.205***	0.252***	0.183***	0.124**
	(0.111)	(0.116)	(0.130)	(0.118)	(0.109)	(0.0886)	(0.0764)	(0.0916)	(0.0707)	(0.0536)
No. of children	-0.276*	-0.235	0.0926	-0.220	-0.0187	0.00766	0.0809	-0.202	-0.0586	0.0745
	(0.165)	(0.185)	(0.185)	(0.182)	(0.161)	(0.133)	(0.113)	(0.140)	(0.0804)	(0.0985)
No. of elderly	0.0653	-0.0891	-0.417	-0.126	0.118	0.295	-0.301	0.0622	-0.175	-0.0356
	(0.265)	(0.313)	(0.267)	(0.305)	(0.306)	(0.260)	(0.193)	(0.215)	(0.114)	(0.0912)
No. of employed	-1.236***	-1.583***	-1.593***	-1.692***	-1.442***	-1.240***	-0.815***	-0.821***	-0.408***	-0.211***
	(0.186)	(0.215)	(0.213)	(0.225)	(0.200)	(0.167)	(0.129)	(0.145)	(0.0980)	(0.0760)
Age of hh head	-0.0213*	-0.00257	0.0168	0.0121	0.00688	-0.0179	-0.000725	-0.0149	-0.000438	-0.00775
	(0.0119)	(0.0122)	(0.0118)	(0.0109)	(0.0105)	(0.0110)	(0.00767)	(0.00951)	(0.00615)	(0.00621)
Male hh head	-2.528***	-2.934***	-3.510***	-3.438***	-3.008***	-2.604***	-2.001***	-1.619***	-0.895***	-0.724***
	(0.366)	(0.399)	(0.412)	(0.409)	(0.396)	(0.349)	(0.287)	(0.282)	(0.207)	(0.199)
Education of hh head	-0.0298	-0.162***	-0.166***	-0.162***	-0.135***	-0.134***	-0.107***	-0.134***	-0.0629***	-0.0342***
	(0.0463)	(0.0491)	(0.0449)	(0.0336)	(0.0266)	(0.0218)	(0.0183)	(0.0201)	(0.0122)	(0.0104)
Urban hh	-1.944***	-2.907***	-2.772***	-2.552***	-2.456***	-1.967***	-1.756***	-1.794***	-0.515***	-0.941***
	(0.290)	(0.277)	(0.280)	(0.278)	(0.286)	(0.261)	(0.252)	(0.282)	(0.157)	(0.228)
2008 dummy	0.617**	0.155	0.177	-0.329	-0.280	-0.491*	-0.361	-0.875***	-0.609***	-0.494**
	(0.299)	(0.340)	(0.338)	(0.346)	(0.308)	(0.267)	(0.226)	(0.260)	(0.197)	(0.196)
2014 dummy	0.0205	-0.809**	-1.148***	-1.323***	-1.521***	-1.178***	-0.989***	-1.590***	-0.653***	-0.502**
	(0.295)	(0.338)	(0.317)	(0.343)	(0.304)	(0.283)	(0.232)	(0.278)	(0.214)	(0.210)
Number of obs.	6563	6556	6563	6579	6569	6564	6582	6585	6524	6596
Adjusted R-sq.	0.032	0.046	0.061	0.062	0.059	0.051	0.044	0.041	0.018	0.019

Note: The regression examining the determinants of receiving remittances (a dummy variable) is a probit model, the regressions looking at the determinants of the amount received (in pesos and as a share of household income) are simple OLS regressions with robust standard errors. Dataset is a pooled cross-section of households in 2002, 2008 and 2014; 2002 is treated as the base year.

Turning to the determinants of the amount of remittances received (results are similar whether looking at the amount of remittances or at remittances as a share of household income), these (as the likelihood to receive) increase with the number of elderly in the household, especially in the earlier period, and fall with the number of children and the number of employed in the household, for male household heads and urban households, across the distribution. Again, education plays a role, except at the very bottom in the later period.

C.   What Does This Imply for Inequality?

This pro-poor pattern of remittances could translate into remittances lowering inequality even at the macro level. A simple comparison of Gini coefficients based on actual income (including remittances for remittance-receiving households) and income excluding remittances would suggest that remittances lower inequality (Figure 4). This, as noted earlier, is, however, not a measure of the true effect, as 'missing' remittances would likely be associated with behavioral responses affecting income: hours or employment could rise to try and make up for 'missing' remittances, but it is unclear *ex ante* how this would differ across the income distribution.

Figure 4. Gini coefficients
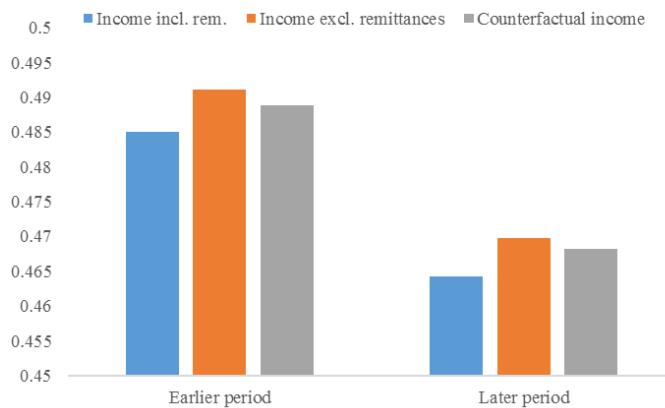
Source: INEGI and authors' calculations.
Note: Counterfactual income uses actual income for non-remittance-receiving households and an estimated counterfactual income for remittance-receiving households based on propensity score matching. 'Earlier period' includes the surveys in 1989, 1994 and 2000; 'later period' includes the surveys in 2002, 2008 and 2014.

Propensity score matching is thus used to construct counterfactual incomes for remittance-receiving households, providing an estimate of what their income would be once this behavioral response is taken into account, assuming that their income would be similar to that of non-remittance-receiving households with comparable characteristics. These specifications thus use the same individual and household characteristics as above to predict counter-factual incomes.[5]

The resulting Gini coefficient is lower than that based on income excluding remittances, but is still higher than that of actual income, suggesting that inequality would be higher in the absence of remittances, even when taking the behavioral response into account (in line with

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[5] The following results rely on radius matching, where each treated household is matched only with control households whose propensity score falls within a predefined neighborhood of the propensity score of the treated household. Results are however robust to alternative matching estimators.

the parametric results of Acosta and others 2008). This pattern holds up in both the 1990s and the 2000s and 2010s.

To illustrate the economic significance of this result, the Gini coefficient fell by about 0.01 between 2002 and 2012, whereas the differences between the Gini coefficients based on actual income and income without remittances, and actual income and counterfactual income respectively, are about 0.006 and 0.004 in the later period, as shown in Figure 4. The behavioral response, captured as the difference between income excluding remittances and counterfactual income, appears to be large: it reduces the impact of remittances on inequality by more than two thirds, suggesting that labor supply at the household level is very elastic to remittance income (as discussed above remittances accounted for about 20 percent of household income in 2014 for households in the median decile).

D. What Are the Effects of the Crises?

The effects of the Peso crisis and Global Financial Crisis are examined further based on Tables 3 and 4, which suggest that even controlling for a range of household characteristics, there are very clear crisis effects. Figure 5 depicts how the likelihood of receiving remittances and the amount of remittances received as a share of income changed across income deciles during the Peso and Global Financial Crisis, respectively. Both crises showed an increasingly pro-poor pattern of remittances. During the Peso crisis the likelihood of receiving remittances as well as amounts as a share of income fell at the top, while there was little change in the lower income deciles. During the Global Financial Crisis, the likelihood of receiving remittances as well as remittance amounts as a share of income again fell at the top, but now even increased at the bottom. The decline of remittances to richer households during crises periods in the receiving country is consistent with falling investment motives. The increase in remittances to poorer households during the Global Financial Crisis could reflect both the more widespread migration opportunities in Mexico and/or migrants with a longer history of migration being better able to cushion the shock in the United States. This

Figure 5. Crisis Effects
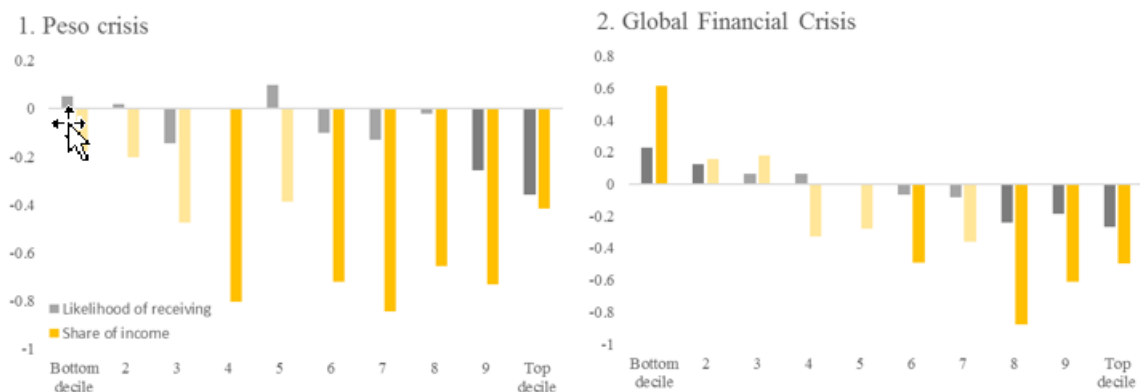
Source: INEGI and authors' calculations.
Note: The figure plots crisis year dummy coefficients (1994 in panel 1 and 2008 in panel 2) from Tables 3 (panel 1) and 4 (panel 2). Darker colors denote statistically significant coefficients at the 10 percent level.

insurance effect is quite striking in a context where both the sending and receiving countries were hit by a common shock.

Regressions so far did not include variables which are likely endogenous to remittance receipts, such as income. The results are qualitatively similar when household income (excluding remittances) is included, with the effects of the crisis being positive for a larger share of the bottom of the distribution, and the effect of income itself being negative, as expected.

While the results so far relied on simple probit and ordinary least squares regressions, results are very similar when accounting for non-random selection into receiving remittances using the Heckman two-step estimator (Annex Table 1).

VII. CONCLUSIONS

The paper examined the evolution and determinants of remittances across the income distribution. Remittances were found to lower inequality at the macro level: the Gini coefficient based on an income distribution with counterfactual incomes for remittance-receiving households is higher than that based on the actual income distribution, suggesting that inequality would be higher in the absence of remittances, even taking behavioral responses into account.

Remittances could also help absorb shocks. During both the Peso crisis and the Global Financial Crisis, households at the top of the income distribution became both less likely to receive remittances and received smaller amounts. During the Global Financial Crisis, households in the bottom part of the income distribution became even significantly *more* likely to receive remittances relative the pre- and post-crisis years. This suggests that the pro-poor pattern of remittances became stronger over time, consistent with migrants becoming better integrated in the host country and migration opportunities becoming more widespread. This allowed them to cushion some of the shocks, especially at the bottom of the distribution, despite the fact that migrant incomes too were likely hit in the sending country.

Overall, these results, tentatively suggest that as migration opportunities became more widely available, remittances can not only reduce income inequality in the home country but could also help to some extent absorb shocks hitting the poorest.

Annex Table 1. Determinants of Remittances by Decile, Heckman Two-Step Estimator, Global Financial Crisis

Determinants of the amount of remittances received, by decile

	Bottom decile	2	3	4	5	6	7	8	9	Top decile
No. of hh members	95.36***	132.6	59.12	107.0	403.3***	229.0***	395.4***	6.287	485.3	798.7
	(26.62)	(150.9)	(152.9)	(160.1)	(99.80)	(59.14)	(137.7)	(155.6)	(429.6)	(495.7)
No. of children	-61.90	-124.5	38.23	-36.13	-674.9***	-9.001	-558.7**	157.4	-145.6	-835.3*
	(39.46)	(228.8)	(229.0)	(259.0)	(160.4)	(30.68)	(220.8)	(301.3)	(754.4)	(504.9)
No. of elderly	587.5***	288.1	-323.8	303.8	619.7***	1346.8***	262.0	1183.9*	-2098.6	356.6
	(114.7)	(388.5)	(439.6)	(407.9)	(223.6)	(234.9)	(247.6)	(605.2)	(1382.3)	(755.8)
No. of employed	-762.3***	-1245.1***	-1209.2***	-1517.0***	-2347.0***	-1892.7***	-1571.8***	-1094.6***	-2268.2***	-2850.3**
	(93.65)	(261.4)	(259.9)	(274.5)	(225.0)	(185.2)	(312.6)	(283.2)	(666.7)	(1123.5)
Age of hh head	-21.06***	-46.12***	-12.91	-43.29**	-71.99***	-63.76***	-72.98***	-65.27**	-41.18	-125.9***
	(4.081)	(13.41)	(18.76)	(20.42)	(11.43)	(10.76)	(18.69)	(27.77)	(61.67)	(13.72)
Male hh head	-1044.0***	-1389.4***	-1548.4***	-2313.3***	-2795.3***	-1600.9***	-1777.8***	-2059.4***	-4525.0***	-3713.1**
	(107.6)	(426.5)	(477.9)	(512.2)	(322.1)	(191.5)	(441.1)	(741.5)	(1543.3)	(1701.6)
Education of hh head	-120.0***	-189.9**	-2.185	-73.30	-1052.7***	-1037.9***	-928.1***	-1100.9***	-88.69	-1541.1***
	(27.32)	(90.12)	(132.2)	(159.6)	(98.06)	(105.4)	(150.8)	(179.6)	(284.2)	(446.5)
Urban hh	-861.7***	-2042.4	-916.9	-888.8	-5153.0***	-3919.2***	-2118.1***	-2421.7***	1117.4	-5025.2***
	(109.2)	(.)	(680.0)	(727.1)	(454.5)	(381.7)	(373.2)	(642.3)	(1520.2)	(1611.2)
2008 dummy	-9.782	569.6*	1744.4***	78.62	613.1**	-419.8***	-213.1	-256.5	401.8	-844.3***
	(126.1)	(320.2)	(405.6)	(538.0)	(266.4)	(81.97)	(449.7)	(450.6)	(1525.9)	(125.4)
2014 dummy	50.03	289.4	856.2*	-513.7	428.8	-590.2***	-329.6	-29.87	4372.2**	-1620.7***
	(118.3)	(368.9)	(460.4)	(566.9)	(307.4)	(91.42)	(446.0)	(713.6)	(1729.3)	(543.0)
Pred. prob. (ln)	0.158***	0.451***	0.313***	0.325***	0.259***	0.200***	0.0770***	0.0753***	0.121***	0.115***
	(0.0197)	(0.0343)	(0.0228)	(0.0238)	(0.0196)	(0.0195)	(0.0124)	(0.0127)	(0.0165)	(0.0250)
Number of obs.	6563	6556	6563	6579	6569	6564	6582	6585	6524	6596

Determinants of the amount of remittances received, by decile

	Bottom decile	2	3	4	5	6	7	8	9	Top decile
No. of hh members	-0.864	46.43	53.96	120.9	371.2*	115.0	665.2**	297.5	596.4**	3221.5**
	(94.88)	(129.3)	(152.6)	(161.8)	(203.1)	(255.4)	(282.9)	(345.2)	(248.9)	(1279.9)
No. of children	-144.7	98.73	27.51	-151.9	-88.22	350.2	-450.2	-455.9	-356.6	-3066.1
	(149.8)	(194.2)	(229.3)	(268.5)	(315.3)	(367.0)	(429.6)	(566.8)	(440.0)	(1943.2)
No. of elderly	-1.238	-206.1	-187.4	462.5	-138.1	-96.72	-634.4	830.2	961.2	-327.6
	(198.5)	(272.8)	(385.5)	(406.8)	(504.4)	(593.9)	(698.8)	(985.9)	(789.7)	(4684.6)
No. of employed	-526.6***	-830.0***	-1283.3***	-1745.0***	-1767.2***	-1631.7***	-2401.8***	-2777.9***	-2025.1***	-6511.8***
	(126.6)	(189.9)	(232.2)	(290.6)	(308.1)	(342.7)	(375.8)	(479.0)	(362.1)	(1601.7)
Age of hh head	-22.22**	-28.00**	-18.49	-53.74***	-14.12	-18.15	-65.15**	-102.1**	-158.1***	-339.7
	(10.98)	(12.12)	(15.47)	(20.44)	(24.51)	(26.37)	(32.13)	(45.33)	(26.22)	(257.3)
Male hh head	-559.7***	-738.5**	-1717.1***	-2724.5***	-3287.1***	-3117.7***	-4086.2***	-3888.7***	-4873.4***	-2643.2
	(192.7)	(338.8)	(398.8)	(514.2)	(551.3)	(614.9)	(692.9)	(1004.7)	(739.2)	(4550.3)
Education of hh head	54.81	-87.66	-58.56	-215.8*	-95.63	17.15	-186.6	-260.8*	-319.8***	-288.1
	(62.40)	(66.19)	(61.69)	(116.3)	(123.4)	(121.9)	(127.1)	(148.8)	(88.73)	(508.4)
Urban hh	-278.0	-881.7**	-1198.8***	-1578.2***	-1477.7***	-1341.2**	-2660.8***	-2322.5**	-1827.0**	-4746.6
	(237.9)	(377.5)	(443.7)	(594.4)	(568.8)	(666.6)	(720.6)	(1009.9)	(769.0)	(4368.8)
2008 dummy	380.5	711.0**	1738.8***	60.49	1630.7***	1883.2**	2958.2***	1145.4	-1674.4*	1744.2
	(265.0)	(307.4)	(405.4)	(540.2)	(631.4)	(761.4)	(869.7)	(1230.3)	(889.6)	(3519.8)
2014 dummy	356.5	455.4	857.6*	-527.7	948.8	1357.5	1470.8	99.27	-518.8	9633.7
	(267.8)	(329.0)	(460.6)	(568.7)	(733.7)	(844.0)	(934.7)	(1429.4)	(1044.0)	(.)
Pred. prob. (square)	33.15***	75.89***	43.96***	74.48***	75.98***	60.14***	53.60***	34.48***	26.93***	88.65***
	(4.200)	(5.709)	(3.600)	(5.251)	(7.584)	(5.534)	(6.667)	(4.979)	(4.367)	(13.02)
Number of obs.	6563	6556	6563	6579	6569	6564	6582	6585	6524	6596

Note: The selection variable is a nonlinear transformations (the logarithm and the square respectively) of the predicted probability of sending as a control in the amount equation, acting as a selection correction. Dataset is a pooled cross-section of households in 2002, 2008 and 2014; 2002 is treated as the base year.

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