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Migrant Remittances

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When many people think about international financial flows to developing countries, they focus on those that occur through firms, financial institutions, and governments—namely, direct foreign investment, portfolio investment, and official development assistance. But since the late 1990s, remittances sent home by international migrants have exceeded official development assistance and portfolio investment, and in several years have approached the magnitudes of foreign direct investment flows. In nominal terms, remittances to developing countries in 2009 and 2010 were $325 billion and $307 billion, respectively. Figure 1 graphs these four categories of financial flows to developing countries from 1991 to 2009 in constant 2005 U.S. dollars. The growth rate of remittances in real terms has been impressive: in the decade preceding the 2008 financial crisis (1999–2008), the average annual real growth rate of remittances was 12.9 percent, comparable to the 11.0 percent annual real growth rate of foreign direct investment and exceeding the 5.8 percent annual real growth rate of official development assistance. Many have noted the stability of remittances in the face of worldwide economic conditions (for example, Ratha 2003; World Bank, 2011). Indeed, remittances remained remarkably stable in the wake of the recent financial crisis, dropping just 5.2 percent between 2008 and 2009. By contrast, foreign direct investment plummeted 39.7 percent over the same time period.

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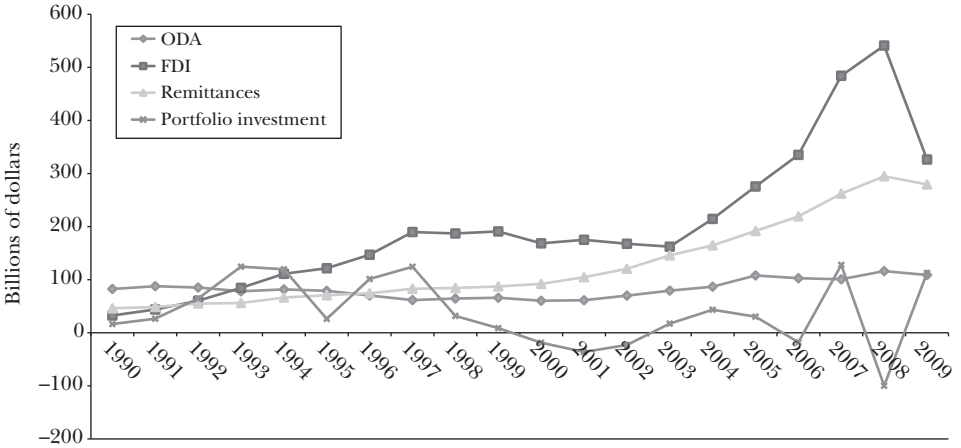
Figure 1
Remittances vs. Other International Financial Flows to Developing Countries (1990–2009)
(in billions of constant 2005 U.S. dollars)



Sources: Data for all flows except ODA are from the World Bank's World Development Indicators (WDI) 2010. Data on ODA up to 2008 are also from WDI 2010, and for 2009 are from OECD (http://www.oecd.org/document/0,3343,en_2649_34447_44981579_1_1_1_1,00.html).
Notes: Data are in billions of constant (2005) US$, in total across developing countries (low and middle income as classified by World Bank). Variables displayed are: "Net official development assistance and official aid received (current US$)", "Foreign direct investment, net inflows (BoP, current US$)", "Workers' remittances and compensation of employees, received (current US$)", and "Portfolio investment, excluding LCFAR (BoP, current US$)".

Many questions related to remittances should be of interest to economists. First of all, there are their effects on development. How do remittances affect recipient households and countries? Do they facilitate investment, or do they primarily fund higher consumption? Do remittances play an insurance role, responding countercyclically to economic conditions in migrant home areas? From a policy perspective, how do remittances figure into the calculation of net benefits of migration for migrant families?

Second, analysis of remittances can shed light on questions related to the nature of decision making within households (in this case, transnational households composed of the migrant and family members remaining behind in the home country). Remittances are more readily observable for analysis than other intrahousehold resource flows because they typically flow through international financial intermediaries and are also often asked about in household surveys in developing countries. Analysis of remittances has the potential to shed new light on old debates over whether intrahousehold resource allocations can plausibly be viewed as made by a unitary decisionmaker. In particular, do migrants have different preferences over the uses of household income—specifically, the remittances they send—than do household members remaining behind in the home country? How

do migrants weight their own utility versus the utility of remittance recipients when making remittance decisions?

A third set of questions are motivated by (at first glance) puzzling characteristics of remittance transactions that may provide insight into the economics of financial decision making. Why are remittances typically sent in relatively small magnitudes at relatively high frequencies? What pattern of costs and frictions would predict this characteristic of remittances in the context of a rational economic model? Do behavioral factors, perhaps self-control problems, help to explain this pattern?

As remittances have grown, they have attracted substantial attention from both the private and public sectors. In the private sector, the growth of remittance services has been phenomenal, both by dedicated "money transmission operators" such as Western Union and MoneyGram, but also on the part of other financial institutions providing money transmission services (Orozco, 2004; Orozco, Burgess, and Romei, 2010).[1] In the public sector, several national governments have established public agencies dedicated to harnessing international migrant diasporas for national economic development. Exploiting the development potential of migrant remittances is a central motivation behind establishment of such public agencies, even as countries seek to expand their scope "beyond remittances" to activities such as promotion of foreign direct investment by the diaspora. Examples include El Salvador's Vice-Ministry for Salvadorans Abroad and India's Ministry of Overseas Indian Affairs. The Philippine government has perhaps gone the farthest in integrating international labor migration into its national development strategies. In 1982, it established the Philippine Overseas Employment Agency which regulates recruiting of Filipino workers for legal employment in a wide variety of overseas destinations and carries out worker protection initiatives in key migrant destinations. The agency has served as a model for other countries seeking to emulate the Philippines' success in the international labor market. The Global Forum on Migration and Development has provided an annual venue since 2007 for policymakers and practitioners worldwide to discuss and share best practices on migration and development.

International development institutions and private foundations have also established initiatives to integrate migration and remittances into development policies and programs, and to research the topic. Examples among international development institutions include the Migration and Remittances Unit at the World Bank and the Diaspora Networks Alliance of the U.S. Agency for International Development. While not focusing exclusively on remittances, the Inter-American Development Bank's Multilateral Investment Fund has provided substantial loan financing for initiatives to increase the development impact of remittances. A proliferation of recent policy-oriented reports and publications underlines the burgeoning interest in remittances on the part of international development

[1] See Orozco's *Migrant Remittances Newsletter* at ⟨http://www.thedialogue.org/migrantremittances newsletter⟩ for recent developments in the remittance industry. DeParle (2007) chronicles the global reach of Western Union, the market leader in dedicated money transmission services.

agencies, including Suro, Bendixen, Lowell, and Benavides (2002), produced in cooperation with the Pew Hispanic Center and the Multilateral Investment Fund; Terry and Wilson (2005), funded by the Multilateral Investment Fund of the Inter-American Development Bank; and various World Bank (2006b, 2007) reports. On the private foundation side, the John D. and Catherine T. MacArthur Foundation provides substantial research and program funding via its Global Migration and Human Mobility grant program.

This article is about the economics of migrant remittances sent to developing countries. I first review the overall magnitude of remittances and then turn to what current research reveals about the motivations for migrant remittances and what effects they have. I discuss field experimental evidence on migrant desires for control over the uses of their remittances, which is likely to be an important area for future remittance research. I then highlight some key distinctive characteristics of remittances—such as their high frequency and relatively small individual magnitudes—as well as recent experimental evidence on the effect of reductions in remittance transaction fees, as a prelude to outlining a research agenda on the microeconomics of remittance decision making. I close with a discussion of what the future holds for remittances, considering aggregate trends but also approaches likely to be taken by international development agencies, national governments, the private sector, and academic economists. New data collection and empirical approaches have expanded what we know about migration, remittances, and development in recent years, but many fundamental questions remain incompletely answered; this will likely be a fruitful research area for some time to come.

Definition, Magnitude, and Characteristics

Remittances are household income received from abroad, resulting mainly from the international migration of workers. Remittances may be sent as cash or in kind, and may flow through a variety of formal or informal channels. Probably the most widely recognized type of formal channel is dedicated money transfer operators such as Western Union and MoneyGram, which have networks of agents where remittances can be initiated in the sending country and redeemed in the receiving country. Formal channels also include banks and credit unions in both sending and receiving countries that often operate in collaboration with money transfer operators. Informal channels include systems—such as *hawala* and *hundi* in South Asia and *padala* in the Philippines—operated by nonfinancial firms or brokers with physical presence in remittance-sending migrant enclaves and in remittance-receiving areas in migrant home countries.

In international balance-of-payments data compiled by remittance-recipient countries, remittances are measured as the sum of two categories of transactions: "workers' remittances" and "compensation of employees." Workers' remittances are cash and noncash resources sent by migrants residing overseas to domestic households. Transactions in this category are explicitly defined as one-sided transactions

that do not involve an economic exchange—that is, the transaction should not be a payment for a good or service. Compensation of employees, on the other hand, represents the earnings of temporary workers who are not resident in their host countries, and whose earnings are therefore presumed to return with the workers upon return migration to their origin country. For balance of payments reporting purposes, migrants are considered "residents" after presence in the host economy for one year or more, irrespective of their immigration status. While the parties to remittance transactions are relatives in the vast majority of cases, the definition of remittances of course does not restrict this to be the case. Readers interested in a comprehensive discussion of challenges in compilation of systematic country-level data on remittances might usefully begin with IMF (2009).

Table 1 presents the 30 largest remittance receiving countries, ranked by absolute magnitude (column 1) and by share of GDP (column 2). The largest remittance-receiving countries in 2010 by dollar value are India and China, which received $55 billion and $51 billion respectively. Mexico and the Philippines are nearly tied for the next two places, receiving $22.6 billion and $21.3 billion respectively. When it comes to remittances as a share of GDP, on the other hand, rankings (based on 2009 data) are very different. Countries with small populations but large migrant flows end up at the top of this list, led by Tajikistan (where remittances amount to 35 percent of GDP) and followed by Tonga (28 percent), Lesotho (25 percent), Moldova (23 percent), and Nepal (23 percent). Seven countries are on both "top-30" lists, with large absolute remittances that also account for a substantial share of GDP: the Philippines, Bangladesh, Lebanon, Serbia, Guatemala, Jordan, and El Salvador.

Not only are remittances large in aggregate magnitudes, they also loom large as one of the most important financial activities of migrant workers at the individual level. Perhaps the most direct evidence of this is that remittances make up a substantial fraction of the earnings of migrant workers. Table 2 displays data on remittances sent as a fraction of earnings from a variety of surveys of a selection of migrant populations. For many surveyed migrant populations, the share of earnings sent home as remittances is substantial. For example, Mexican migrants (surveyed in 2000–2009 upon return to Mexico by the Mexican Migration Project) report remitting 31.1 percent of their U.S. earnings,[2] while migrants from El Salvador surveyed in the Washington, D.C. area in 2007–2008 report remitting 37.7 percent of their U.S. earnings. Senegalese in Spain remit 49.9 percent of earnings, and Ghanaians in Italy, 23.3 percent. In other surveyed migrant populations, the share of remittances out of earnings is more modest: Moroccan immigrants in France remit 10.4 percent of earnings; Algerians in France, 7.7 percent; Turks in Germany, 2.1 percent; Chinese in Australia, 6.1 percent; Filipinos in the United States, 5.8 percent; and Cubans in the United States, slightly more than 2 percent (the latter is consistent across two

[2] Mexicans in the United States from other survey sources report much lower shares of remittances out of earnings, which is likely due to differences in sample populations. The U.S. New Immigrant Survey, for example, is a survey of legal permanent residents ("green card" holders).

Table 1
Top Remittance Recipient Countries

	Remittances received (in 2010; U.S.$ billions)		*Remittances received as % of GDP, 2009*
India	55.0	Tajikistan	35
China	51.0	Tonga	28
Mexico	22.6	Lesotho	25
Philippines	21.3	Moldova	23
France	15.9	Nepal	23
Germany	11.6	Lebanon	22
Bangladesh	11.1	Samoa	22
Belgium	10.4	Honduras	19
Spain	10.2	Guyana	17
Nigeria	10.0	El Salvador	16
Pakistan	9.4	Jordan	16
Poland	9.1	Kyrgyz Republic	15
Lebanon	8.2	Haiti	15
Egypt	7.7	Jamaica	14
United Kingdom	7.4	Bosnia and Herzegovina	13
Vietnam	7.2	Serbia	13
Indonesia	7.1	Bangladesh	12
Morocco	6.4	Philippines	12
Russian Federation	5.6	Albania	11
Serbia	5.6	Togo	10
Ukraine	5.3	Nicaragua	10
Romania	4.5	Guatemala	10
Australia	4.3	Cape Verde	9
Brazil	4.3	Guinea-Bissau	9
Guatemala	4.3	Senegal	9
Netherlands	4.1	Armenia	9
Colombia	3.9	Grenada	9
Jordan	3.8	Sri Lanka	8
Portugal	3.7	Gambia	8
El Salvador	3.6	Dominican Republic	7

Source: Development Prospects Group, World Bank.
Notes: Data on the dollar value of remittances received are from 2010, and data on remittances received as a portion of GDP are from 2009.

surveys). Mean annual amounts sent per migrant are also often substantial in absolute magnitudes: $4,125 for Mexicans in the United States, $5,314 for Salvadorans in Washington, D.C., and $3,304 for Senegalese in Spain. Gibson and McKenzie (2010) survey top secondary school academic performers from Ghana, Micronesia, Tonga, New Zealand, and Papua New Guinea and find they have high rates of both international migration and remittance sending, the latter in magnitudes ranging from $2,000 to $7,000 per year. For more detailed analyses of remittance patterns by country and destination, as well as migrant-level correlates of remittances, see Bollard, McKenzie, and Morten (forthcoming) and Bollard, McKenzie, Morten, and Rapoport (2011).

Table 2
Remittance Activity in Selected Migrant Origin–Destination Country Pairs

Origin country	*Migrant destination country*	*Average remittances as a percentage of earnings*	*Average annual remittances ($ value)*	*Data source*	*N*
China	Australia	6.09%	$552	Australia LSIA	65
Morocco	France	10.37%	$1,283	France 2MO	128
Algeria	France	7.67%	$1,079	France 2MO	121
Senegal	France	11.23%	$1,517	France 2MO	40
Turkey	Germany	2.14%	$512	Germany SOEP	334
Ghana	Italy	23.28%	$2,528	Italy NIDI	497
Morocco	Spain	30.80%	$2,947	Spain NIDI	461
Senegal	Spain	49.91%	$3,304	Spain NIDI	399
Mexico	United States	31.12%	$4,125	MMP	1268
Mexico	United States	1.91%	$312	US NIS	790
Mexico	United States	10.80%	$1,769	US Pew	321
El Salvador	United States	37.72%	$5,314	ESSMF	877
China	United States	3.60%	$568	US NIS	291
Philippines	United States	5.84%	$958	US NIS	344
India	United States	1.39%	$728	US NIS	526
Vietnam	United States	3.39%	$297	US NIS	101
Cuba	United States	2.12%	$230	US NIS	98
Cuba	United States	2.32%	$398	US Pew	111
Dominican Republic	United States	9.14%	$381	US Pew	95

Sources: **China–Australia:** 1997 Longitudinal Survey of Immigrants to Australia (Australia LSIA), ⟨http://www.immi.gov.au/media/research/lsia/⟩; **Morocco–France, Algeria–France, Senegal–France:** Survey of Households' Transfer of Funds to their Countries of Origin (France 2MO), Miotti, Mouhoud, and Oudinet (2009); **Turkey–Germany:** 2000 German Socio-Economic Panel (Germany SOEP), ⟨http://www.diw.de/english/soep_overview/33899.html⟩; **Morocco–Spain, Senegal–Spain:** Netherlands Interdisciplinary Demographic Institute International Migration Survey (Spain NIDI), Groenewold and Bilsborrow (2004); **Mexico–United States:** Mexican Migration Project (MMP), ⟨http://mmp.opr.princeton.edu/⟩; **Mexico–United States, China–United States, Philippines–United States, India–United States, Vietnam–United States, Cuba–United States:** New Immigrant Survey (US NIS), ⟨http://nis.princeton.edu/⟩; **Mexico–United States, Cuba–United States, Dominican Republic–United States:** Pew National Survey of Latinos (US Pew), ⟨http://pewhispanic.org/datasets/signup.php?DatasetID=7⟩; **El Salvador–United States:** El Salvador Survey of Migrant Families (ESSMF), Ashraf, Aycinena, Martinez, and Yang (2011).

Motivations Behind and Effects of Remittances

Why do migrants send remittances? A number of motivations for remittances as well as for the original migration decision have been suggested by a fairly large previous literature in economics, which I will sketch briefly here; for a more complete treatment, interested readers might start with Docquier and Rapoport (2006) and the references there. Docquier and Rapoport provide a model of the remittance-sending decision that incorporates a variety of motives, including altruism, exchange (compensation for services rendered to the migrant by recipients), insurance, loan repayment, and investment, some or all of which could be operative simultaneously.

Altruistically motivated remittances may be sent to increase average consumption levels of recipients (Stark, 1995) and may also be responsive to shocks experienced by recipients and thus serve an insurance role (for example, Cox, Eser, and Jimenez, 1998; Gubert, 2002). Remittances may be intended for investments on the part of recipients—whether in human capital or physical capital in small enterprises. Self-interested motivations for remittances may include repayment of debts incurred for the migrant's education in the home country or the initial fixed costs of migration (Poirine, 1997; Ilahi and Jafarey, 1999). Remittances may be intended to fund future investments in their home country by the migrants themselves, or to pay for monitoring or administration of investment assets (like small businesses or land purchases). Remittances may be sent to secure a future inheritance from elders being supported in the home country (Hoddinott, 1994; de la Brière et al., 2002, Osili, 2004).[3] For the most part, this literature establishes correlations in microdata that are consistent with particular motivations for remittances. Researchers have found it a greater challenge, however, to quantify the relative importance of the different motivations or to establish strong causal linkages that could rule out alternative explanations for remittance flows.

Thus, another set of papers in the remittance literature has somewhat sidestepped the question of motivations for remittances and simply asked how remittances affect recipient households or countries. Taken together, aggregate analyses of the relationship between remittances and economic performance at the country level are inconclusive, with some studies finding a positive relationship between remittances and economic growth (Faini, 2007; World Bank, 2006a; Barajas, Chami, Fullenkamp, Gapen, and Montiel, 2009) and others finding no relationship or a negative relationship (Chami, Fullenkamp, and Jajah, 2003; IMF, 2005; Giuliano and Ruiz-Arranz, 2005). Studies using country-level data face inherent challenges in conclusively establishing causal impacts of remittances on outcomes. Differences in conclusions across studies arise from differences in instruments used, time periods, regression specifications, and control variables.

Studies using microdata are partly motivated by attempts to achieve better causal identification, as well as a desire to understand remittance impacts in greater detail. In studies using microdata, a natural distinction is made between consumption and investment expenditures by remittance-recipient households. It should be noted, of course, that neither use of remittances—consumption or investment—should be assumed a priori to be "better." It could be optimal for households to use remittances mainly on consumption, particularly if they are starting from very low consumption levels. For households somewhat further above subsistence consumption levels, remitted earnings from migrants can allow investments that would not have otherwise been made due to credit constraints and large fixed costs of investment.

[3] Migrants may help family members in ways other than remittances: for example, helping others to join the original migrant in the host country (Jasso and Rosenzweig, 2010).

Many papers argue that resources received from overseas rarely fund productive investments, and instead mainly allow higher consumption: for example, see Brown and Ahlburg (1999) and references cited in Durand, Kandel, Parrado, and Massey (1996). However, other research finds that migration and remittance receipts are positively correlated with various types of household investments in developing countries. Examples include Brown (1994), Massey and Parrado (1998), McCormick and Wahba (2001), Dustmann and Kirchkamp (2002), Woodruff and Zenteno (2007), and Mesnard (2004) on entrepreneurship and small business investment in a variety of countries; Adams (1998) on agricultural land in Pakistan; Taylor, Rozelle, and de Brauw (2003) on agricultural investment in China; Cox-Edwards and Ureta (2003) and Adams (2005) on schooling investments in El alvador and Guatemala, respectively; and others.

A central methodological concern with existing work that attempts to understand the effect of remittances on household consumption or investment is that migrant earnings are in general not randomly allocated across households, so that any observed relationship between migration or remittances and household outcomes may simply reflect the influence of unobserved third factors. For example, households with greater unobserved entrepreneurial ability could have more migrants, receive larger remittances, and also have higher investment levels. Alternately, households that recently experienced an adverse shock to existing investments (say, the failure of a small business) might send members overseas to make up lost income, so that migration and remittances would be negatively correlated with household investment activity.

An experimental approach to establishing the impact of migrant economic opportunities on household outcomes could start by identifying a set of households that already had one or more members working overseas, assigning each migrant a randomly-sized economic shock, and then examining the relationship between changes in household outcomes and the size of the shock dealt to the household's migrants.

In Yang and Martinez (2005) and Yang (2008b), we take advantage of a real-world natural experiment that is analogous to the experiment just described. A non-negligible fraction of households in the Philippines have one or more members working overseas at any one time. These overseas Filipinos work in dozens of foreign countries, many of which experienced sudden changes in exchange rates due to the 1997 Asian financial crisis. Crucially for the analysis, the changes were unexpected and varied in magnitude across the locations of overseas Filipinos. The net result was large variation in the size of the exchange rate shock experienced by migrants across source households. Between the year ending July 1997 and the year ending October 1998, the U.S. dollar and currencies in the main Middle Eastern destinations of Filipino workers rose 50 percent in value against the Philippine peso. Over the same time period, by contrast, the currencies of Taiwan, Singapore, and Japan rose by only 26, 29, and 32 percent, while those of Malaysia and Korea actually fell slightly by 1 and 4 percent, respectively, against the peso. Taking advantage of this variation in the size of migrant exchange rate shocks, these papers examine the

impact of the shocks on changes in outcomes in migrants' origin households, using detailed panel household survey data from before and after the Asian financial crisis.

In Yang (2008b), I show that these exogenous increases in migrant resources are used primarily for investment in origin households, rather than for current consumption. Households experiencing more favorable exchange rate shocks raise their nonconsumption disbursements in several areas likely to be investment-related—in particular, educational expenditures—and show enhanced participation in entrepreneurial activities. Households raise hours worked in self-employment and become more likely to start relatively capital-intensive household enterprises like transportation/communication services and manufacturing. By contrast, there is no large or statistically significant effect of the exchange rate shocks on current household consumption. In Yang and Martinez (2005), my coauthor and I extend the analysis and show that these positive migrant exchange rate shocks also lead these households to be more likely to exit poverty status.

These effects of Philippine migrants' exchange rate shocks on the households left behind were large in magnitude. Consider an appreciation in the migrant's exchange rate of 25 percent against the Philippine peso, which is a reasonable-sized shock and roughly the size experienced by migrants in Taiwan. A shock of this size had a number of beneficial effects on migrant households on average. Remittances increased by 6 percentage points (as a share of pre-shock household income, from a base of 40 percent of pre-shock household income). From a base of 9 percent, households became 1.5 percentage points less likely to be below the income poverty line. Households became 14 percentage points more likely to enter a new entrepreneurial activity (from a base likelihood of 23.7 percent). Total hours worked in self-employment activities rose by 2.5 hours from a base of 21.5 hours (across all individuals in the household). Households also became 3.6 percentage points more likely to own a vehicle (from a base of 13 percent), which is likely related to the increase in hours spent on entrepreneurial activity: one category of entrepreneurial activities receiving increases in time allocation was transportation services.

Perhaps surprisingly, in Yang (2008b), I did not find that exogenous shocks to remittances raised consumption in recipient households. This could be because, due to the nature of the exogenous variation exploited, the analyzed sample was restricted to households that already had a migrant overseas in the pre-crisis period. It very well may have been true that the act of sending the migrant overseas initially (and the resulting new remittances sent) raised household consumption, while shocks to remittances later (conditional on having the migrant overseas already) mainly affected investment uses of the funds. Indeed, economic theory tells us we should expect households to save or invest more in response to temporary income shocks (including temporary increases in remittances caused by exchange rate fluctuations) than they would from regular income (or their usual level of remittances).

Another set of recent papers has established that remittances serve an insurance role. Rural households in many developing countries are highly exposed to weather risk, experiencing storms, flooding, and droughts with great frequency. Households therefore should benefit greatly from access to formal and informal

insurance that alleviates their most important sources of weather risk. Potential benefits include the ability to maintain nutritional, health, and educational investments, to adopt new production technologies, and to start new entrepreneurial activities that weather risk previously made unattractive.

A large literature in development economics has examined the mechanisms through which households cope with risk in developing countries. Among others, Townsend (1994), Udry (1994), Ligon, Thomas, and Worall (2002), and Fafchamps and Lund (2003) have documented risk-pooling arrangements among households in developing countries intended to smooth consumption in response to shocks. Households may also autonomously build up savings or other assets in good times and draw down these assets in hard times (Paxson, 1992; Rosenzweig and Wolpin, 1993; Udry, 1994); increase their labor supply when shocks occur (Kochar, 1999); or take steps (such as crop and plot diversification) to reduce the variation in their incomes (Morduch, 1993).

In addition to these mechanisms, households may also be insured by international migrant relatives whose remittances buffer economic shocks in the migrants' home countries (as noted by Ratha, 2003), but there have been relatively few empirical tests of this claim with micro-level household data. Mishra (2005) examines aggregate remittances in 13 Caribbean countries from 1980 to 2002 and finds that every 1 percent decrease in GDP is associated with a 3 percent increase in remittances two years later.[4] Related research on the role of internal (domestic) migration in pooling risk within extended families includes Rosenzweig and Stark (1989) and Paulson (2000).

In Yang and Choi (2007) and Yang (2008a), my coauthor and I explore whether migrant remittances serve as insurance in the wake of negative weather shocks, with a strong focus on credible identification of the effect of shocks on remittances. Much previous work on the impact of household income on remittance receipts uses cross-sectional data and so is subject to potentially severe biases in directions that are not obvious a priori. Reverse causation is a major concern: productive investments funded by migrant remittances can raise household income, leading to positive correlations between household income and remittances. Alternately, remittances may reduce households' need to find alternative income sources, leading to a negative relationship between remittances and domestic-source income. Even if reverse causation from remittances to income in migrants' source households was not a problem, it would be difficult to separate the cross-sectional relationship between income and remittances from the influence of unobserved third factors affecting both income and remittances (for example, the entrepreneurial ability of household members).

In Yang and Choi (2007), we resolve these identification problems by focusing on income changes due to shocks—changes in local rainfall—that are credibly

[4] Lueth and Ruiz-Arranz (2007) examine the response of Sri Lankan aggregate remittances to changes in macro variables in a quarterly time-series, and find that they are procyclical, inconsistent with their playing an insurance or consumption-smoothing role.

exogenous, so that bias due to reverse causation is not a concern. Among households in the Philippines with members who are overseas migrants, this work finds that changes in income from domestic sources lead to changes in remittances in the opposite direction of the income change: remittances fall when income rises, and remittances rise when income falls. In such households, the amount of insurance is large: roughly 60 percent of exogenous declines in income are replaced by remittance inflows from overseas. One cannot reject the hypothesis that consumption in households with migrant members is unchanged in response to income shocks, while consumption responds strongly to income shocks in households without migrants.

In a similar vein, Clarke and Wallsten (2004), using panel data from Jamaica, find that remittances from overseas replaced 25 percent of damages from Hurricane Gilbert in 1992. In Yang (2008a), I examine the impact of hurricanes on international financial flows using country-level panel data, and find that, for the poorest developing countries, hurricane damage leads to large inflows of migrants' remittances, amounting to 20 percent of experienced damages. The remittance response to hurricanes for these countries is large in magnitude: roughly one-quarter the size of the foreign aid response.

Migrant Control over Remittances

While remittances bring numerous benefits to households in developing countries, to date we know very little about how migrants make their remittance-sending decisions. In particular, it is unknown whether migrants desire greater control over how family members back home use the remittances they receive. This question is relevant for understanding 1) motivations for migration, 2) intrahousehold resource allocation, and 3) what might stimulate remittance flows or channel them towards more productive uses in migrant source countries.

In Ashraf, Aycinena, Martinez, and Yang (2011), my coauthors and I address some of these questions via a randomized controlled trial among migrants from El Salvador living and working in the Washington, D.C. metro area. Our research aims to shed light on the extent to which migrants' lack of direct control over the use of remittances affects remittance flows, and on the effect of new financial products that could increase migrant control. In particular, we focus on improving the ability of migrants to ensure that remittances are deposited and accumulated in savings accounts in the home country.

In survey data collected as part of the study, Washington, D.C.–based migrants from El Salvador report that they would like recipient households to save 21.2 percent of remittance receipts, while recipient households prefer to save only 2.6 percent of receipts. As described in Ashraf, Aycinena, Martinez, and Yang (2011), we designed a field experiment that offered new facilities for Salvadoran migrants to directly channel some fraction of their remittances into savings accounts in El Salvador. Savings facilities were offered in conjunction with Banco Agricola, El Salvador's

largest bank. To isolate the importance of migrant control over savings, we test demand for different products that offer migrants varying levels of control. For example, we investigate differential demand for savings accounts that must be solely in the name of a remittance recipient in El Salvador, versus accounts that are either jointly owned with the migrant or for which the migrant is the sole owner.

Migrants in the study are randomly assigned across treatment conditions, and so comparisons across the various treatment conditions reveal the causal effect of offering migrant control on savings account take-up, savings balances, and remittances. The intervention studied is unusual among development economics field experiments in that it is conducted among migrants who are located in a developed country, while several primary outcomes of interest (savings) are those of individuals who remain behind in a developing country. Data on activity at our partner bank are available from the bank's administrative records. Baseline and follow-up surveys administered to both migrants in the United States and their corresponding remittance-receiving households in El Salvador provide data on a broader set of other outcomes.

Across the experimental conditions in the sample, migrants were much more likely to open savings accounts when offered the option of greater control over the accounts. What's more, offering greater migrant control over El Salvador–based savings accounts led to higher savings accumulation in El Salvador. These results provide evidence that a desire for control over remittance uses—in particular, control over the extent to which remittances are saved in formal savings accounts—is quantitatively large and has an important influence on financial decision making by migrants.

A related randomized experiment on savings among immigrants was conducted by Chin, Karkoviata, and Wilcox (2010). This study examines the impact of providing Mexican immigrants in the United States with assistance obtaining a form of identification (a *matricula consular*) that can be used as identification when opening a U.S. bank account. Study participants were made aware of a collaborating U.S. bank that had an ongoing savings promotion among Hispanic immigrants, but the *matriculas consulares* in principle could have been used at any number of U.S. banks. Effects of the treatment were assessed in an in-person follow-up survey. Assignment to the treatment is found to lead to increased opening of U.S. bank accounts, higher savings in the United States, and reduced remittances to Mexico. Among migrants who report they have "no control" over how remittances are used in Mexico, the abovementioned effects are larger, and there is also a large, positive, and statistically significant treatment effect on migrant earnings.

These two studies, taken together, support the conclusion that migrants have a variety of types of demand for savings facilities. There is demand for savings in the destination country, as well as demand for savings in the country of origin, and providing access to appropriate savings devices can have large effects on savings. Both studies also underline the importance of migrant control over savings

accounts in facilitating savings accumulation.[5] There is likely to be great potential for analogous future studies that partner with institutions to offer a variety of financial services to immigrants. Products that have yet to be investigated include credit, insurance, and direct payment facilities targeted towards the needs of migrants and their origin households.

Explaining Remittance Decision Making: Insights from Remittance Transaction Particularities and Responsiveness to Price Changes

Remittances differ from the other large types of international financial flows to developing countries—foreign direct investment, portfolio investment, and official development flows—in that they are sent at relatively high frequencies and in very small magnitudes. To get a more concrete sense of this, it is useful to examine unusual, transaction-level remittance data that my coauthors and I obtained in the course of research projects we conducted among migrants from El Salvador in the greater Washington, D.C. metro area. The transactions are for a defined set of 253 customers who were customers of (had transacted at least once with) a particular money transmission operator between October 2006 and March 2007. We examine their remittance transactions with this money transmission operator over the 12-month period from April 2007 to March 2008.[6]

These data illustrate that remittances are sent at very high frequencies. The 253 remittance-sending individuals in this sample sent 4,271 remittances during the 12-month period—on average 16.9 remittance transactions per year. Figure 2 displays a histogram of frequencies in this sample; each bar represents the percent of remitters in the sample who sent each specified number of remittances over the 12-month period. The histogram has a fairly long right tail: that is, 79.1 percent of individuals sent six or more remittances over the sample period (at least bi-monthly), 56.5 percent sent 12 or more (at least monthly), and 21.0 percent sent 26 or more (at least every two weeks).

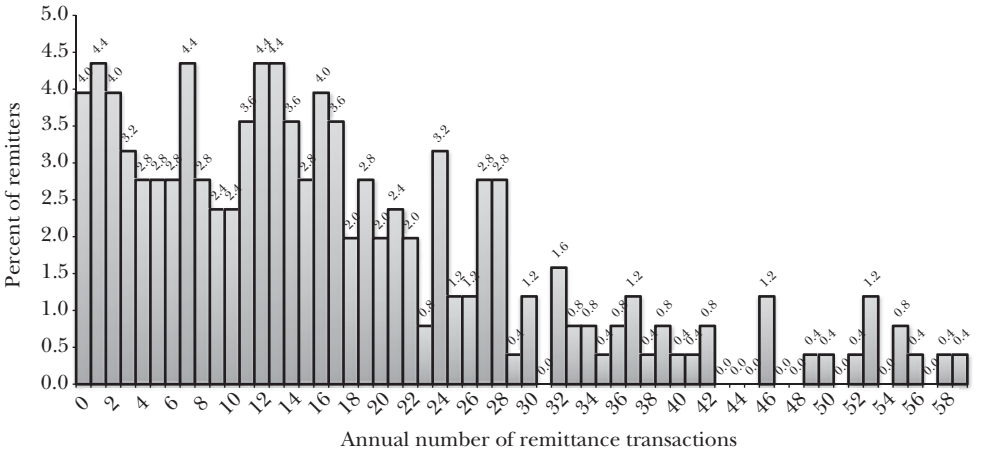
The typical remittance amount is quite small in dollar value. The average amount remitted across the 4,271 remittances in the sample is $299.21, and the median is $200.[7] Remittances of $100 or less account for 24.8 percent of transactions, while

[5] Toreo and Viceisza (2011) conduct an experiment among U.S.-based Salvadoran migrants and find that allowing migrants to direct remittances toward grocery purchases (versus sending cash) does not raise remittances. They speculate that migrants do not seek to control grocery spending out of remittances, and cite qualitative reports that migrants would rather control expenditures such as school fees, medicine, or clothing.

[6] These individuals are the subset of participants in the experimental studies Ashraf, Aycinena, Martinez, and Yang (2011) and Aycinena, Martinez, and Yang (2010) who were already customers of the partner money transmission company in the October 2006 to March 2007 period. To ensure that these data are not affected by the experimental treatments in those studies, we further restrict the sample to individuals who were only exposed to the experimental treatments in April 2008 or later.

[7] El Savador uses the U.S. dollar as currency so there is no exchange rate to consider; recipients receive exactly the amount remitted in U.S. dollars.

Figure 2
Distribution of Number of Annual Remittance Transactions
(April 2007–March 2008)



Source: Based on transaction-level remittance data obtained in the course of research projects conducted among migrants from El Salvador in the greater Washington, D.C. metro area (Ashraf, Aycinena, Martinez, and Yang, 2011; Aycinena, Martinez, and Yang, 2010).
Notes: The figure shows remittances over the period April 2007–March 2008. The sample is limited to 253 customers of the money transmission operator who sent a remittance at the money transmission operator between October 2006 and March 2007, and is also restricted to include only those remitters who received the experimental treatment in April 2008 or after.

those amounting to $500 or less account for 88.6 percent of transactions. Individual remittance transactions are also quite bunched at round numbers. Fully one in eight (12.7 percent) of the remittance transactions in the sample was for an amount of exactly $100; this was the single most common remittance amount. The next most common remittance amounts were $200 (accounting for 9.0 percent of transactions), $150 (6.5 percent of transactions), and $300 (5.9 percent of transactions).

While these figures are for a sample of migrants from a particular country, a particular host location, and a specific money transfer organization, the broad patterns are consistent with other surveys of Hispanic immigrants in the United States. For example, Orozco and Fedewa (2006) report that 81 percent of individual remittance transactions sent to a major bank in Guatemala were equal to or less than $300. Bendixen (2008), in a survey of 5,000 Hispanics in the United States, found that 50 percent sent remittances on a regular basis, remitters sent on average 15 remittances per year, and the average amount sent per remittance was $325. Other survey-based studies finding similar results include Menjivar, DaVanzo, Greenwell, and Valdez (1998), DeSipio (2000), Clark and Drinkwater (2001), Bendixen and Associates (2001, 2004a, b), and Amuedo-Dorantes, Bansak, and Pozo (2005).

This pattern of small individual transactions at high frequencies poses a puzzle because the transaction fees for remittances typically include a non-negligible fixed

component per transaction. For example, in our sample of Salvadoran remittances in the Washington, D.C. area discussed above, remittances in amounts equal to or less than $1,500 (accounting for the vast majority of transactions) incurred a flat fee of $9 (if sent directly into the recipient's bank account) or $10 (if the remittance was to be redeemed by the recipient in cash at a bank teller). If remittances are intended to support consumption of family members back home, remitters should minimize fees paid per transaction and send large amounts relatively rarely, expecting these funds to be drawn down over time. If remittances respond to shocks or emergencies occurring back home, this would lead to somewhat higher transaction frequencies, but it is unlikely that shocks could fully explain sending transactions on a monthly basis—or even more frequently. The economics literature on this topic is nearly nonexistent. Here I offer some thoughts as to the outlines of a theory that could explain these patterns.

One possible explanation for high-frequency, low-value transactions would be that it reduces the costs of a possible adverse event that could lead to losses of liquid financial resources for either the sender or recipient. For example, perhaps recipients face a risk of theft if their savings are kept at home, or of a bank collapse for funds kept in a savings account. Alternatively, perhaps migrants face a risk of theft or loss of liquid cash.

One can also venture into behavioral explanations by reframing the "adverse event" as a self-control problem. For example, individuals may be tempted to spend down their resources immediately rather than save for the future, as in O'Donoghue and Rabin (1999) and Duflo, Kremer, and Robinson (forthcoming). This self-control problem could afflict either remittance senders or recipients. If migrants believe that recipients have such a self-control problem, they could send remittances in low amounts at high frequency to help recipients smooth expenditures over time (for a theoretical model along these lines, see Niu 2010). Framed in this way, high-frequency remittance sending would be motivated by similar considerations that lead to wages and welfare payments being paid at fairly high frequencies in high-income countries. The self-control problem could also be on the part of the remittance sender; in this view, migrants send remittances more frequently so as to reduce the average size of their stock of savings and thus exposure to temptation spending. This would be an example of individuals entering into commitments to reduce future losses due to temptation or self-control problems, as discussed in Laibson (1997).

Yet another alternative possibility is that the high frequency of remittances is simply a transitional matter, driven mainly by new immigrants. When migrants first arrive in their host countries, they seek to support their families back home immediately but have not yet accumulated large savings stocks. So initially they need to send remittances frequently, but eventually, once they have accumulated enough savings, they can transition to sending larger amounts less frequently, thus saving on transaction costs. However, in the survey data on Salvadoran migrants in the Washington, D.C. area, it turns out that the opposite is true: migrants who had been in the United States for five years or less remitted an average of 13.4 times in the

twelve-month period we consider, compared to 17.2 times over the same period for migrants who had been in the United States for more than five years. This evidence is not the final word on the issue, of course, but it is suggestive.

Providing empirical evidence on these or other explanations for the "puzzle" of high-frequency, low-value remittances in the presence of non-zero transaction costs is a good potential direction for future research on remittances. One approach to this question is to examine the responsiveness of remittances to exogenous price variation, to which I now turn.

What Can We Learn from Remittance Responses to Price Variation?

Because individual remittance transactions tend to be small in value, remittance transaction fees tend be relatively large as shares of amounts sent. In the data on remittances to El Salvador described above, for remittances amounting to $1,500 or less per transaction (which accounted for 99 percent of transactions), the money transfer organization charged a flat fee of $10 for a remittance to be retrieved in cash from a bank teller in El Salvador, and $9 if the remittance was sent into a bank account at the parent company bank of the money transfer organization in El Salvador. The average fee paid as a share of the amount sent had a mean of 6.1 percent. Globally, prices for sending remittance are slightly higher on average than this level: the most widely-representative global dataset on remittance fees, Remittance Prices Worldwide, finds that remittance fees average 8.9 percent of amounts sent (World Bank, 2010); the comparable figure from that dataset for remittances to the Latin America/Caribbean region is 7.3 percent.[8]

There has not been a great deal of research on the responsiveness of remittances to variation in fees, but the existing evidence suggests that response to fee reductions can be quite large. Gibson, McKenzie, and Rohorua (2006) provide evidence on remittance responses to fee reductions from survey hypotheticals. Tongan migrants in New Zealand who they surveyed say that they would send substantially higher remittances in response to reductions in the fixed cost component of the remittance fee. The estimated elasticity of remittances to changes in the fixed cost component of the remittance fee is –0.22.[9]

In Aycinena, Martinez, and Yang (2010), my coauthors and I implemented a randomized field experiment among migrants from El Salvador in the Washington, D.C., area that estimates the causal impact of transaction fees on remittances. In partnership with the same money transfer operator whose remittance microdata we present above, Salvadoran migrants in the experiment were randomly assigned

[8] This is an average across sender–recipient country pairs in their database, for a remittance of $200 in the third quarter of 2010. The dataset is available at ⟨http://remittanceprices.worldbank.org/.⟩ The corresponding figure for $200 remittances in our El Salvador data for fees as a share of amount sent is 4.5 percent.

[9] Freund and Spatafora (2008) use cross-country data to show that remittance fees are negatively correlated with total remittance flows at the country level.

differently sized discounts on remittance transaction fees. The remittance fee reductions led to higher transaction frequency by remitters: each $1 fee reduction led to an additional 0.11 transactions per month. Also, each $1 fee reduction led to reductions in total fees for remitters of $0.47 per month (total fees fell even with the increase in transaction frequency because of fee savings on transactions that remitters would have made anyway). There was no change in the dollar amount remitted per transaction, resulting in an increase in total remittances sent. The increase in remittance frequency combined with constant amounts sent per remittance led each $1 fee reduction to raise remittance flows per month by $25. There is no evidence that this increase in remittances was shifted from other remittance channels, sent on behalf of others, or substituted intertemporally out of funds that would have been sent later.[10]

The remittance responses to price reductions we found are large in magnitude: a $1 reduction in the remittance transaction fee leads to average fee savings per month of only $0.47, but the corresponding increase in average remittances sent per month is an order of magnitude larger: $25. An important avenue for future research in this area is to explore rational as well as behavioral models that can generate such substantial responses of total remittances sent to relatively small changes in remittance fees. Follow-on empirical work could then seek to distinguish among alternative models with real-world experimental or observational data.

On the policy front, our results suggest that reforms that reduce migrant remittance fees can have larger impacts on remittance flows than might have been expected. Such reforms include increases in competition in money transmission markets or improvements in information for migrants on the relative costs of different money transmission services.

Migration and Remittances in the Future

Absent a dramatic and widespread increase in immigration restrictions in destination countries, remittances should remain one of the most important types of international financial flows destined for developing countries. Alongside the global recovery from the financial crisis, remittances are projected to continue to grow in the coming years, reaching $404 billion in nominal terms by 2013 (Mohapatra, Ratha, and Silwal, 2011).

Declines in remittance transaction costs, driven by continued competition in the money transfer industry, are also likely to drive continued strong growth of remittances. Sending remittances is likely to become increasingly convenient for migrants, with expansions of service locations (in both sending and receiving countries) and the advent of cell phone–based remittance services. As one example, the

[10] The discount was valid until a pre-announced expiry date. We argue that the results are not consistent with intertemporal substitution of later remittances to before the expiry date because there is no spike in remittances immediately prior to expiration.

M-PESA payment system run by Kenyan telecom provider Safaricom has attracted worldwide attention for fostering dramatic growth of cell phone–facilitated payments and remittances within Kenya. It and others have also ventured into the realm of facilitating international remittance transactions. The existing empirical evidence suggests that migrants are likely to respond to the reductions in transaction costs by sending substantially more remittances in dollar terms.

The future will almost certainly see continued remittance-related innovation on the part of private-sector financial institutions as well as by academics and the nonprofit and government sectors. Existing research has begun to reveal the importance of migrant control in channeling remittances towards savings. A potential avenue for future innovation would be to enhance migrant control over other remittance uses—for example, human capital investments or investments in small enterprises. To the extent that innovation by financial institutions expands the financial services available to migrants and their families back home, and in particular allows migrants to better control and monitor how remittances are used by recipients, these innovations may very well magnify the positive effects of remittances on the economic development of migrant source countries, and could also lead to increases in remittances sent.

Academics, governments, and development agencies can also fruitfully drive this experimentation and innovation in the remittance arena. These efforts could exploit collaborations with private financial institutions where this makes sense, but can also be independent of the private sector, particularly if innovations require initial subsidy or in cases where social benefits are expected to exceed private benefits.

Promising innovations should be rigorously evaluated for their impacts on the well-being of migrants and remittance-recipient households. Such studies should aim to use the gold-standard of evaluation via randomized control trials to maximize credibility of results and allow easy communication to the broader policy and financial community. The community of remittance researchers in academia can be fruitfully enlisted for their expertise in evaluation design. Since private-sector institutions have insufficient incentives to fund proper scientific evaluations of their products, international development institutions and private foundations should step in to provide financing for such evaluations. Lessons from these studies should be disseminated to encourage the spread of innovations that are found to have the most positive effects. While recent studies have made strides in revealing the development effects of remittances, the impacts of remittance-related financial services, and the impacts of transaction cost reductions on remittance sending, the scientific knowledge in this area is still in its infancy. Coming years should see dramatic expansions of our knowledge on these and related questions. A whole range of potential remittance-related research questions, policies, and interventions have yet to be conceptualized and studied, making this an area that holds much promise for productive research and experimentation.

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References

Adams, Richard H., Jr. 1998. "Remittances, Investment, and Rural Asset Accumulation in Pakistan." *Economic Development and Cultural Change,* 17(1): 155–73.

Adams, Richard H., Jr. 2005. "Remittances, Household Expenditure and Investment in Guatemala." In *International Migration, Remittances, and the Brain Drain,* ed. Ç. Özden and M. Schiff, 53–80. Washington, DC: World Bank.

Amuedo-Dorantes, Catalina, Cynthia Bansak, and Susan Pozo. 2005. "On the Remitting Patterns of Immigrants: Evidence from Mexican Survey Data." *Economic Review,* 90(1): 37–58.

Ashraf, Nava, Diego Aycinena, Claudia Martinez A., and Dean Yang. 2011. "Remittances and the Problem of Control: A Field Experiment among Migrants from El Salvador." http://www-personal.umich.edu/~deanyang/papers/aamy_remittancecontrol.pdf.

Aycinena, Diego, Claudia Martinez A., and Dean Yang. 2010. "The Impact of Remittance Fees on Remittance Flows: Evidence from a Field Experiment among Salvadoran Migrants." http://www-personal.umich.edu/~deanyang/papers/aycinena%20martinez%20yang%20-%20remittances.pdf.

Barajas, Adolfo, Ralph Chami, Connel Fullenkamp, Michael Gapen, and Peter Montiel. 2009. "Do Workers' Remittances Promote Economic Growth?" *IMF Working Paper WP 09/153.*

Bendixen & Associates. 2001. "Survey of Remittance Senders: U.S. to Latin America." Set of slides. http://www.bendixenandassociates.com/studies/IDB%20Remesas%202001.pdf.

Bendixen & Associates. 2004a. "Remittances and the Dominican Republic: Survey of Recipients in the Dominican Republic and of Senders in the United States." Set of slides. http://www.bendixenandassociates.com/studies/IDB%20Dominican%20Republic%20Presentation%20FINAL%202004.pdf.

Bendixen & Associates. 2004b. "2004 State by State Survey of Remittance Senders: U.S. to Latin America." Set of slides. http://www.bendixenandassociates.com/studies/IDB%20National%20Survey%20of%20Remittance%20Senders%202004.pdf.

Bendixen & Associates. 2008. "Survey of Latin American Immigrants in the United States." Set of slides. http://www.bendixenandassociates.com/studies/IDB_2008_National_Survey_Presentation.ppt.

Bollard, Albert, David McKenzie, and Melanie Morten. Forthcoming. "The Remitting Patterns of African Migrants in the OECD." *Journal of African Economies.*

Bollard, Albert, David McKenzie, Melanie Morten, and Hillel Rapoport. 2011. "Remittances and the Brain Drain Revisited: The Microdata Show that More Educated Migrants Remit More." *World Bank Economic Review,* 25(1): 132–56.

Brown, Richard P. C. 1994. "Migrants' Remittances, Savings, and Investment in the South Pacific." *International Labour Review,* 133(3): 347–67.

Brown, Richard P. C., and Ahlburg, Dennis A. 1999. "Remittances in the South Pacific." *International Journal of Social Economics,* 26(1/2/3): 325–44.

Chami, Ralph, Connel Fullenkamp, and Samir

Jajah. 2003. "Are Immigrant Remittance Flows a Source of Capital for Development?" IMF Working Paper 03/189.

Chin, Aimee, Léonie Karkoviata, and Nathaniel Wilcox. 2010. "Impact of Bank Accounts on Migrant Savings and Remittances: Evidence from a Field Experiment." http://www.uh.edu/~achin/research/ckw_banking_june2010.pdf.

Clark, Kenneth, and Stephen Drinkwater. 2001. "An Investigation of Household Remittance Behavior." University of Manchester Discussion Paper 0114.

Clarke, George, and Scott Wallsten. 2004. "Do Remittances Act Like Insurance? Evidence from a Natural Disaster in Jamaica." http://www.ssrc.org/workspace/images/crm/new_publication_3/%7Bdfae0da7-7650-de11-afac-001cc477ec70%7D.pdf.

Cox, Donald, Zekeriya Eser, and Emmanuel Jimenez. 1998. "Motives for Private Transfers over the Life Cycle: An Analytical Framework and Evidence for Peru." *Journal of Development Economics,* 55(1): 57–80.

Cox-Edwards, Alejandra, and Manuelita Ureta. 2003. "International Migration, Remittances, and Schooling: Evidence from El Salvador." *Journal of Development Economics,* 72(2): 429–61.

de la Brière, Bénédicte, Elisabeth Sadoulet, Alain de Janvry, and Sylvie Lambert. 2002. "The Roles of Destination, Gender, and Household Composition in Explaining Remittances: An Analysis for the Dominican Sierra." *Journal of Development Economics,* 68(2): 309–28.

DeParle, Jason. 2007. "Western Union Empire Moves Migrant Cash Home." *New York Times,* Nov. 22.

DeSipio, Louis. 2000. *Sending Money Home . . . For Now: Remittances and Immigrant Adaptation in the United States.* Washington DC: Tomas Rivera Policy Institute and Inter-American Dialogue.

Docquier, Frédéric, and Hillel Rapoport. 2006. "The Economics of Migrants' Remittances." *Handbook of the Economics of Giving, Altruism and Reciprocity,* vol. 1, pp. 1135–98.

Duflo, Esther, Michael Kremer, and Jonathan Robinson. Forthcoming. "Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya." *American Economic Review.*

Durand, Jorge, Willia Kandel, Emilio A. Parrado, and Douglas S. Massey. 1996. "International Migration and Development in Mexican Communities." *Demography,* 33(2): 249–64.

Dustmann, Christian, and Oliver Kirchkamp. 2002. "The Optimal Migration Duration and Activity Choice after Re-migration." *Journal of Development Economics,* 67(2): 351–72.

Fafchamps, Marcel, and Susan Lund. 2003. "Risk-sharing Networks in Rural Philippines." *Journal of Development Economics,* 71(2): 261–87.

Faini, Riccardo. 2007. "Migration and Remittances: The Impact on the Countries of Origin." In *Migration and Development: Mutual Benefits?* Proceedings of the 4th AFD-EUDN Conference, 2006, p. 185–216. Agence Française de Développement. http://www.afd.fr/jahia/webdav/site/afd/shared/PUBLICATIONS/RECHERCHE/Archives/Notes-et-documents/35-notes-documents-VA.pdf#page=185.

Freund, Caroline, and Nikola Spatafora. 2008. "Remittances, Transaction Costs, and Informality." *Journal of Development Economics,* 86(2): 356–66.

Gibson, John, and David McKenzie. 2010. "The Economic Consequences of 'Brain Drain' of the Best and Brightest: Microeconomic Evidence from Five Countries." Policy Research Working Paper No. WPS5934, World Bank.

Gibson, John, David McKenzie, and Hala Rohorua. 2006. "How Cost Elastic are Remittances? Evidence from Tongan Migrants in New Zealand." *Pacific Economic Bulletin,* 21(1): 112–28.

Giuliano, Paola, and Marta Ruiz-Arranz. 2005, "Remittances, Financial Development, and Growth." IMF Working Paper 05/234.

Groenewold, George, and Richard Bilsborrow. 2004. "Design of Samples for International Migration Surveys: Methodological Considerations, Practical Constraints and Lessons Learned from a Multi-Country Study in Africa and Europe." Paper presented at the Population Association of America 2004 General Conference, in Boston, Massachusetts, April, 1–3, 2004. http://paa2004.princeton.edu/download.asp?submissionId=40771.

Gubert, Flore. 2002. "Do Migrants Insure Those Who Stay Behind? Evidence from the Kayes Area." *Oxford Development Studies,* 30(3): 267–87.

Hoddinott, John. 1994. "A Model of Migration and Remittances Applied to Western Kenya." *Oxford Economic Papers,* 46(3): 450–75.

Ilahi, Nadeem, and Saqib Jafarey. 1999. "Guestworker Migration, Remittances and the Extended Family: Evidence from Pakistan." *Journal of Development Economics,* 58(2): 485–512.

IMF. 2005. "Two Current Issues Facing Developing Countries." Chap. 2 in *World Economic Outlook: Globalization and External Imbalances,* April 2005, Washington DC: International Monetary Fund.

IMF. 2009. *International Transactions in Remittances: Guide for Compilers and Users.* Washington, DC: International Monetary Fund.

Jasso, Guillermina, and Mark Rosenzweig. 2010. "Remit or Reunify? US Immigrant Parents, Remittances, and the Sponsorship of Children." http://www.frbatlanta.org/documents/news

/conferences/10AC_remittances_rosenzweig.pdf.

Kochar, Anjini. 1999. "Smoothing Consumption by Smoothing Income: Hours-of-Work Responses to Idiosyncratic Agricultural Shocks in Rural India." *Review of Economics and Statistics,* 81(1): 50–61.

Laibson, David. 1997. "Golden Eggs and Hyperbolic Discounting." *Quarterly Journal of Economics,* 112(2): 443–47.

Lambert, Sylvie. 1994. "La Migration Comme Instrument de Diversification Intrafamiliale des Risqué: Application au Cas de la Cote d'Ivoire." *Revue d'Economie du Développement,* vol. 2, p. 3–38.

Ligon, Ethan, Jonathan P. Thomas, and Tim Worall. 2002. "Informal Insurance Arrangements with Limited Commitment: Theory and Evidence from Village Economies." *Review of Economic Studies,* 69(1): 209–44.

List, John A. 2011. "The Market for Charitable Giving," *Journal of Economic Perspectives,* 25(2): 157–80.

Lueth, Erik, and Marta Ruiz-Arranz. 2007. "Are Workers Remittances a Hedge against Macroeconomic Shocks? The Case of Sri Lanka." *IMF Working Paper WP 07/22.*

Massey, Douglas, and Emilio A. Parrado. 1998. "International Migration and Business Formation in Mexico." *Social Science Quarterly,* 79(1): 1–19.

McCormick, Barry, and Jackline Wahba. 2001. "Overseas Work Experience, Savings and Entrepreneurship amongst Return Migrants to LDCs." *Scottish Journal of Political Economy,* 48(2): 164–78.

Menjivar, Cecilia, Julie DaVanzo, Lisa Greenwell, and R. Burciaga Valdez. 1998. "Remittance Behavior among Salvadoran and Filipino Immigrants in Los Angeles." *International Migration Review,* 32(1): 97–126.

Mesnard, Alice. 2004. "Temporary Migration and Capital Market Imperfections." *Oxford Economic Papers,* 56(2): 242–62.

Miotti, Luis, El Mouhoub Mouhoud, and Joel Oudinet. 2009. "Migrations and Determinants of Remittances to Southern Mediterranean Countries: When History Matters." Paper presented at the 2nd Migration and Development Conference, Washington DC, September 10–11.

Mishra, Prachi. 2005. "Macroeconomic Impact of Remittances in the Caribbean." Unpublished paper, International Monetary Fund.

Mohapatra, Sanket, Dilip Ratha, and Ani Silwal. 2011. "Outlook for Remittance Flows, 2011–13." Migration and Development Brief 16, Migration and Remittances Unit, World Bank, May 23.

Morduch, Jonathan. 1993. "Risk, Production, and Saving: Theory and Evidence from Indian Villages." Unpublished paper.

Niu, Ben. 2010. "A Model of Remittance Behavior under Time-Inconsistent Preferences." Unpublished paper.

O'Donoghue, Ted, and Matthew Rabin. 1999. "Doing It Now or Later." *American Economic Review,* 89(1): 103–124.

Orozco, Manuel. 2004. "The Remittance Marketplace: Prices, Policy, and Financial Institutions." Pew Hispanic Center Report. http://pewhispanic.org/files/reports/28.pdf.

Orozco, Manuel, Elizabeth Burgess, and Landen Romei. 2010. "A Scorecard in the Market for Money Transfers: Trends in Competition in Latin America and the Caribbean." http://www.thedialogue.org/PublicationFiles/Scorecard%20Report%206.18.2010_FINAL.pdf.

Orozco, Manuel, and Rachel Fedewa. 2006. "Leveraging Efforts on Remittances and Financial Intermediation." INTAL-ITD Working Paper 24, Institute for the Integration of Latin America and the Caribbean—Integration, Trade, and Hemispheric Issues Division. http://nalacc.org/fileadmin/Documents/Biblioteca_recursos/INCIDENCIA_TRANSNACIONAL/DESARROLLO_ECON/Financial_Intermediation_and_Remittances_Orozco.pdf.

Osili, Una Okonkwo. 2004. "Migrants and Housing Investment: Theory and Evidence from Nigeria." *Economic Development and Cultural Change,* 52(4): 821–50.

Paulson, Anna. 2000. "Insurance Motives for Migration: Evidence from Thailand." http://www.kellogg.northwestern.edu/faculty/paulson/ftp/thaimig.pdf.

Paxson, Christina. 1992. "Using Weather Variability to Estimate the Response of Savings to Transitory Income in Thailand." *American Economic Review,* 82(1): 15–33.

Poirine, Bernard. 1997. "A Theory of Remittances as an Implicit Family Loan Arrangement." *World Development,* 25(5): 589–611.

Ratha, Dilip. 2003. "Workers' Remittances: An Important and Stable Source of External Development Finance." In *Global Development Finance 2003: Striving for Stability in Development Finance.* Washington, DC: International Monetary Fund.

Remittance Prices Worldwide Database. 2011. Compiled by Massimo Cirasino, Carlo Corazza, Hemant Baijal, Paloma Monroy, Maria Teresa Chimienti, Marco Nicoli, and Kai Schmitz. http://remittanceprices.worldbank.org/.

Rosenzweig, Mark, and Oded Stark. 1989. "Consumption Smoothing, Migration, and Marriage: Evidence from Rural India." *Journal of Political Economy,* 97(4): 905–26.

Rosenzweig, Mark, and Kenneth Wolpin. 1993. "Credit Market Constraints, Consumption

Smoothing and the Accumulation of Durable Production Assets in Low-Income Countries: Investments in Bullocks in India." *Journal of Political Economy,* 101(2): 223–44.

Stark, Oded. 1995. *Altruism and Beyond*. Oxford and Cambridge: Basil Blackwell.

Stephens, Melvin, Jr. 2003. "'3rd of tha Month': Do Social Security Recipients Smooth Consumption between Checks?" *American Economic Review,* 93(1): 406–22.

Suro, Robert, Sergio Bendixen, B. Lindsay Lowell, and Dulce C. Benavides. 2002. "Billions in Motion: Latino Immigrants, Remittances and Banking." A Report produced in cooperation between the Pew Hispanic Center and the Multilateral Investment Fund. http://pewhispanic.org/files/reports/13.pdf.

Taylor, J. Edward, Scott Rozelle, and Alan de Brauw. 2003. "Migration and Incomes in Source Communities: A New Economics of Migration Perspective from China." *Economic Development and Cultural Change,* 52(1): 75–101.

Terry, Donald F., and Steven R. Wilson, eds. 2005. *Beyond Small Change: Making Migrant Remittances Count*. Washington, DC: Inter-American Development Bank.

Torero, Maximo, and Angelino Viceisza. 2011. "To Remit or Not to Remit: That is the Question. A Remittance Field Experiment." Unpublished paper.

Townsend, Robert. 1994. "Risk and Insurance in Village India." *Econometrica,* 62(3): 539–91.

Udry, Christopher. 1994. "Risk and Insurance in a Rural Credit Market: An Empirical Investigation in Northern Nigeria." *Review of Economic Studies,* 61(3): 495–526.

United Nations. 2008. *Trends in the International Migrant Stock: The 2008 Revision*. New York: UN Population Division.

Woodruff, Christopher, and Rene Zenteno. 2007. "Migrant Networks and Microenterprises in Mexico." *Journal of Development Economics,* 82(2): 509–28.

World Bank. 2006a. *The Development Impact of Workers' Remittances in Latin America,* Vol. 2: Detailed Findings. Report No. 37026. Washington: World Bank.

World Bank. 2006b. *Global Economic Prospects 2006: Economic Implications of Remittances and Migration*. Washington, DC: World Bank.

World Bank. 2007. *Close to Home: The Development Impact of Remittances in Latin America*. Washington, DC: World Bank.

World Bank. 2010. "An Analysis of Trends in the Average Total Cost of Migrant Remittances." *Remittance Prices Worldwide,* Issue 2, November.

World Bank. 2011. *Migration and Remittances Factbook 2011*. Washington, DC: World Bank.

Yang, Dean. 2006. "Why Do Migrants Return to Poor Countries? Evidence from Philippine Migrants' Responses to Exchange Rate Shocks." *Review of Economics and Statistics,* 88(4): 715–35.

Yang, Dean. 2008a. "Coping with Disaster: The Impact of Hurricanes on International Financial Flows, 1970–2002." *B.E. Journal of Economic Analysis and Policy,* 8(1): Article 13.

Yang, Dean. 2008b. "International Migration, Remittances, and Household Investment: Evidence from Philippine Migrants' Exchange Rate Shocks." *Economic Journal,* 118(528): 591–630.

Yang, Dean, and HwaJung Choi. 2007. "Are Remittances Insurance? Evidence from Rainfall Shocks in the Philippines." *World Bank Economic Review,* 21(2): 219–48.

Yang, Dean, and Claudia Martinez A. 2005. "Remittances and Poverty in Migrants' Home Areas: Evidence from the Philippines." In *International Migration, Remittances, and the Brain Drain,* ed. Ç. Özden and M. Schiff, 81–123. Washington, DC: World Bank.