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Remittances, Households, and Poverty

Chapter 4 presented evidence on the macroeconomic dimensions of remittance flows—their overall size, determinants of their composition (formal versus informal), the role of government policies in determining their magnitude and use, and their macroeconomic impacts—to developing countries. But as previously noted, these aggregate flows are comprised of millions of individual remittance transfers among private households, all undertaken by senders and receivers striving to improve household welfare. This chapter considers the impact of remittance flows at the micro-level, in particular on the welfare and opportunities of the recipient households and their members.

Evaluating household impact depends on data and analysis carried out at the household level, often through household surveys. Surveys are available for many countries and periods, and many of these have common or comparable structures, but substantial differences in coverage and circumstances complicate their interpretation. Such caveats notwithstanding, the evidence presented in this chapter suggests that remittances can:

- Reduce poverty, even where they appear to have little impact on measured inequality;
- Help smooth household consumption by responding positively to adverse shocks

(for example, crop failure, job loss, or a health crisis);

- Ease working capital constraints on farms and small-scale entrepreneurs;
- Lead to increased household expenditures in areas considered to be important for development, particularly education, entrepreneurship, and health.¹

Our evaluation of the empirical analysis on remittances and development is structured as follows. In the next section, we consider the effects of remittances on poverty and inequality. We then explore how remittances can alleviate the difficulties that households face in smoothing consumption. The next section considers the indirect effects of remittances on household budgets in terms of induced labor supply effects, increased access to working capital, and multiplier effects. We then examine how households allocate remittances to various categories of spending, with a particular emphasis on evidence of remittance-funded investments in human capital, micro-enterprises, and property.

Before continuing, two broad observations on the scope and interpretation of the available analysis help to put the results in perspective. First, in evaluating the impact of remittances, it is important to consider the alternative (or counterfactual) situation that serves as a comparison. If a household

member migrates and sends back remittances, one could evaluate the *net* change in the migrant's contribution—that is, adding the remittances and subtracting the income of the migrant had he or she stayed and worked at home.² That approach is the appropriate focus when the goal of migration is to generate remittances, or when we are interested in the overall effect of migration on remaining household members. The alternative is to ignore the lost domestic contribution—so that the counterfactual is now simply *no remittances*. This approach measures the narrow impact of remittances, which seems appropriate when migration is being treated as exogenously given, and our interest is simply in the remittance flows generated by the *existing* migration stock. The second approach merits close attention because the existing migrant stock is large, and also because not all remittances are received from migrant relatives abroad; third-party remittances are common.³

Second, in evaluating the benefits of remittances, we also need to weigh the welfare of the migrants themselves. To take a concrete example, imagine the migration decision facing a young husband and father in a country that borders on a much richer country. Economic opportunity (and possibly social pressure) may make remittance-motivated migration irresistible. However, separated from family and community support, this young man could end up living a quite miserable existence. Clearly, a simple tracking of cash provides an inadequate guide to the welfare implications of the move.

Remittances, poverty, and inequality

Remittances directly affect poverty by increasing the income of the recipient. They also indirectly affect poverty in the recipient country through their effects on growth, inflation, exchange rates, and access to capital. Measuring the impact of remittances is complex (in part because of the difficulties of

accounting for the counterfactual loss of income from migration, as just mentioned). But a growing body of evidence from poverty simulation models, cross-country regressions, and analysis of household survey data shows that remittances, in fact, do reduce poverty—although the evidence of their effect on inequality is mixed.

Remittances reduce poverty

In what follows, we present evidence on the poverty effects of remittances, based on three sources: a poverty simulation model, a cross-country regression analysis, and household survey data from selected countries. The illustrative poverty simulation model asks a straightforward question: how would poverty rates change in our sample of developing countries if remittances were to disappear completely? Because this model is easy to implement for most countries, it can provide some sense of the effect of remittances across countries. However, the model is relatively crude and cannot account for the fact that while remittances affect poverty, the level of poverty also affects the volume of remittances. In comparison, cross-country regression analysis requires more data and is harder to implement, but it is better able to control for reverse causality between remittances and poverty. Household surveys are most likely to provide the data required for a rigorous analysis of the relationship between remittances and poverty. The surveys also allow one to analyze the counterfactual loss of income due to migration. It is difficult, however, to generalize across countries on the basis of household data, particularly because most available household surveys do not have usable data on remittances, especially international remittances.

To understand how remittance flows might affect measures of poverty, we start with an illustrative poverty simulation model and ask a straightforward (although unrealistic) question. The model relates the *change* in poverty to *income growth* and *inequality change*. It is estimated using cross-country data for

Box 5.1 Estimating a cross-country poverty change model

The basic idea behind a poverty change model is that a particular measure of poverty (say the fraction of the population with incomes below \$1 per day) is a function of descriptive parameters of the income distribution, such as the mean and the Gini coefficient. Building on Ravallion (1997), we posit a conditional constant elasticity specification, in which there is a constant growth elasticity of poverty reduction that varies with the initial level of inequality. After reformulation, the basic relationship (see annex 5A.1) relates the *rate of poverty change* to a measure of inequality-adjusted *income growth* and an income-adjusted *change in inequality*.

To estimate the relationship, we use the dataset assembled by Adams and Page (2005), in which the observations relate to the period between comparable nationally representative household surveys. For each country, we have data from surveys for the initial and final values of poverty, inequality, and per capita income. Below is the estimated poverty change equation for the headcount measure of poverty.

Using survey income and consumption data as the income variable (last column), results from the model are robust, with statistically significant impacts from both income growth and inequality change on the headcount rate.

Estimated poverty change model		
Income variable	Income variable	Survey mean income or consumption
Dependent variable—proportionate change in the headcount rate	GDP per capita	
Intercept	0.39 (2.21)	0.33 (2.42)
Inequality-adjusted growth	−4.93 (−2.57)	−5.60 (−2.27)
Income-adjusted inequality change	0.60 (1.57)	1.11 (2.82)
R ²	0.08	0.30
Number of observations	81	81

Source: World Bank staff estimates.

Note: Standard errors are robust to country-level clustering; *t* statistics are in parentheses. The model is estimated using first difference of variables. The poverty line for the headcount poverty calculation is \$1.08 in purchasing-power-parity-adjusted 1993 dollars (equivalent to \$1 in 1985 dollars). The per capita income measure is mean survey income or consumption (depending on availability from the survey).

81 countries. The methodology and results are presented in box 5.1 and in annex 5A.1. The premise behind the analysis is that the incremental income from remittances can be analyzed in the same way as incremental income from economic growth—so we can simulate the impact of eliminating remittances by modeling an income decline equal to the original remittance level. For the sake of simplicity, we

assume that nothing else changes—that there are no offsetting increases in domestic sources of income or other adjustments to spending behavior or labor supply.⁴

Results from the simulation are summarized in table 5.1 (see also annex 5A.1). We report averaged results for different groups of countries—first, by distinguishing between higher-remittance recipients (greater than

Table 5.1 Simulated impact of eliminating remittances on poverty rate

Country group	No. of countries	Remittances/GDP (%)	Poverty headcount rate	Change in headcount rate, no Gini change
Low remittances	23	2.2	25.6	5.0
Low headcount rate	12	2.0	11.8	1.2
High headcount rate	11	2.5	40.6	9.1
High remittances	14	11.0	24.8	12.2
Low headcount rate	7	8.0	10.7	4.1
High headcount rate	7	14.1	38.9	20.3

Source: World Bank staff estimates.

Note: Low (high) remittances refer to the remittance share in GDP less (greater) than 4 percent. Low (high) headcount rate refers to a rate less (greater) than 20 percent. Allowing inequality to change ± 2 Gini points has minimal effects on the change in the headcount rate. See annex 5A.1 for detailed results.

4 percent of GDP) and lower (less than 4 percent but greater than 1 percent), and second, by the extent of poverty (headcount above 20 percent or below 20 percent).

These results show that the impact of eliminating remittances depends on how large they are to begin with (higher initial levels mean steeper income declines), the initial extent of poverty, and the degree of inequality. For example, the average increase in the headcount ratio for higher-remittance countries (12.2 percentage points) is more than twice that of the lower-remittance countries (5 percentage points). Similarly, with each of these two groups, the impact is much greater for those countries with higher headcount ratios to start with. The estimated impact of inequality—an assumed 2 point worsening in the Gini coefficient—has only a small marginal impact on the estimated change in the poverty rate.

This simple analysis has significant limitations. First, the simulated effects depend on accurate country-level measures of remittances, which, as emphasized in chapter 4, are of variable reliability. Second, many of the country simulations are made outside the sample used for the regression analysis and are therefore subject to the standard out-of-sample prediction problems. Third, the analysis assumes that remittances are included in household income when calculating the measures of poverty and inequality from household surveys. In reality, there is variation

across surveys in how remittances are accounted for in the household surveys.⁵

The results just described provide an indication of the role that remittances can play in reducing poverty, but because of the simplicity of the model and other limitations, the results are not conclusive. More rigorous analytic work has been undertaken to investigate the link between remittances and poverty based on careful analysis of cross-country data.

In a model that relates national poverty levels to mean income and the Gini measure of inequality for 71 developing countries, a 10 percent increase in per capita official international remittances leads to a 3.5 percent decline in the share of people living in poverty (Adams and Page 2005).⁶ Other recent studies have broadly confirmed these findings, including IMF (2005) (see chapter 2), which uses a sample of 101 countries for the period 1970–2003.

Although the available evidence is still relatively limited, growing evidence from household survey data complements the findings of the model that international remittances have reduced the incidence and severity of poverty in several low-income countries. According to that evidence, remittances are believed to have reduced the poverty headcount ratio by 11 percentage points in Uganda, 6 percentage points in Bangladesh, and 5 percentage points in Ghana (Adams 2005b). Completely removing remittances for Lesotho would raise the

headcount poverty ratio (with a poverty line equal to 60 percent of mean household expenditure) from 52 to 63 percent (Gustafsson and Makonnen 1993).

While remittances had only a limited role in reducing the number of poor people in Guatemala, they did significantly reduce the depth and severity of poverty (Adams 2004a).⁷ International remittances accounted for 60 percent of income for households in the lowest income decile, but were not very large for households located near the poverty line (roughly the fifth income decile). As a result, international remittances had more impact on reducing the depth of poverty than on the poverty headcount; in other words, they were really helpful for the poorest of the poor.

Wodon and others (2002) conclude that in Guerrero and Oaxaca, two southern Mexican states with significant international emigration and remittance inflows, the share of the population living in poverty is lower by 2 percentage points due to remittance income. They argue that this poverty effect is similar in magnitude to that of many government programs in poverty reduction, education, health, and nutrition. Taylor, Mora, and Adams (2005), using data from a 2003 survey, find that international remittances account for 15 percent of per capita household income in rural Mexico. They conclude that an increase in international remittances would reduce both the poverty headcount and the poverty gap.

Yang and Martinez (2005) studied the impact of variations in the exchange rate on remittances sent by Filipino workers and the ultimate impact of remittances on poverty in the recipient regions. Using a large dataset from the Overseas Filipino Survey, they found that an appreciation of the Philippine peso led to an increase in remittance flows, which contributed to the reduction in poverty. Interestingly, increased remittances not only reduced poverty in the migrant families, they also had spillover effects on nonmigrant families. (We will have more to say on multiplier effects later in this chapter.)

The effect of remittances on inequality is unclear

In contrast to the link between remittances and poverty, no strong conclusion is found in household studies of the relationship between remittances and inequality: remittances sometimes go disproportionately to better-off households and so widen disparities, but in other cases they appear to target the less well off, causing disparities to shrink. Some studies suggest that the remittances from new migration may raise inequality in the short term, but the effect on inequality is small over the long term.⁸ Calculations that impute incomes for the migrant had he stayed and worked at home generally show an increase in inequality from the combined effect of migration and remittances. For example, inequality was found to have increased in Bluefields, Nicaragua, when an imputation was made for the lost domestic income of migrants, but it fell when the domestic income of migrants was ignored (Barham and Boucher 1998).

Two recent studies, however, did not find an increase in inequality even after controlling for the counterfactual income loss from migration: Adams (2005a) found that in Ghana, the inclusion of international remittances in household expenditures led to only a slight increase in income inequality, but that the Gini coefficient remained relatively stable, between 0.38 and 0.40.⁹ De and Ratha (2005) found that in Sri Lanka, the Gini coefficient drops from 0.46 to 0.40 as a result of remittance receipt.

Differences in findings on the impact of remittances on inequality also stem from varying geographic and historic circumstances, such as the distance from high-income destination countries and the prevalence of networks of earlier migrants. Both proximity to high-income countries and established networks will tend to reduce the cost of migration, making migration an option for poorer (and often credit-constrained) households.¹⁰ For example, remittances to a Mexican village with a well-established history of

international migration had an equalizing effect, whereas remittances to another Mexican village for which international migration was a relatively new phenomenon tended to make the distribution of income more unequal (Stark, Taylor, and Yitzhaki 1986). For a large number of Mexican communities, the overall impact of migration and remittances is estimated to reduce inequality for communities with relatively high levels of past migration (McKenzie and Rapoport 2004).¹¹

One reason for the inconclusive empirical evidence on inequality effects is that the Gini coefficient does not adequately capture income mobility; it remains unchanged, for example, if one person moves up and another moves down the income ladder. Using household survey data from Sri Lanka, De and Ratha (2005) show that the poor income deciles also have significant overseas migration and that remittance recipients in the middle income deciles move up the income ladder (figure 5.1).¹²

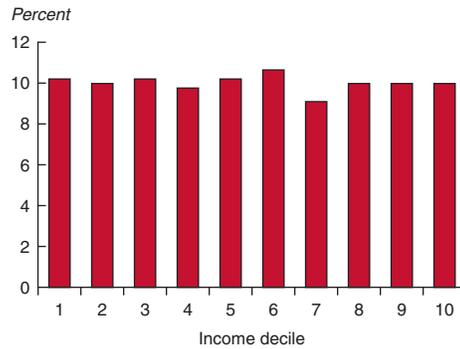
Beyond the contradictory or inconclusive results, some scholars question whether the link between remittances and inequality is all that important. Inequality matters when it interferes with the functioning of the economy (for example, when credit constraints bind more households¹³) or the political system (for example, when growing inequality increases support for governments that pursue damaging populist policies¹⁴). Greater inequality may also be considered bad because of its impact on social welfare (see Sen 1973 for a discussion). But it should be kept in mind that in the context of remittances, inequality relates to income differences among groups that would all be viewed as relatively poor in an industrial-country context. The rich in developing countries probably receive little in the way of remittances; the rich who migrate tend to take their families with them.

Remittances and household consumption smoothing

Remittances may play a significant role in smoothing consumption. Poor households

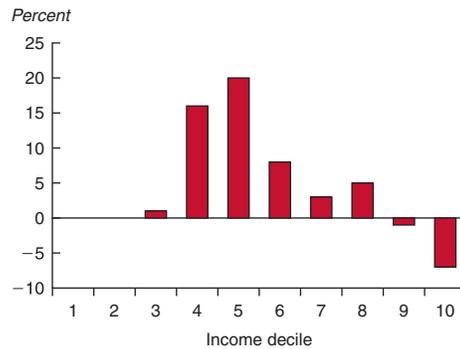
Figure 5.1 Sri Lankan migration

a Percent of Sri Lankan households with migrants abroad



Source: De and Ratha 2005.

b Percent of Sri Lankan households that moved up to a higher income decile after receiving remittances



Source: De and Ratha 2005.

that lack access to insurance and credit markets are vulnerable to severe declines in income from adverse shocks, and they may be forced to forgo income-generating—but risky—strategies (Morduch 1994). Informal community institutions generally play a limited role in mitigating risk (see, for example, Coate and Ravallion 1993 and Fafchamps 2004), especially in the face of adverse events such as a community-wide crop failure. One strategy to reduce risk is for households to send family members to other regions or countries, where

they are not likely to face the same income shocks as those found in the domestic market.¹⁵ Migration patterns and policies that encourage migrants to travel unaccompanied by family members encourage this form of risk sharing.

There is some evidence that remittances from internal migration provide insurance. Remittances to Botswana increased with the extent of drought in the migrant's home region, and the responsiveness of remittance levels to drought was greater for households with more drought-sensitive assets such as cattle (Lucas and Stark 1985).¹⁶ The anticipation of insurance may allow the household to pursue a more risky asset accumulation strategy—although it is also possible that households with more to lose from drought (whatever the reason) are simply more likely to receive remittances. The likelihood that Thai internal migrants move to Bangkok is reduced the more closely income in Bangkok aligns with income in the province of origin (Paulson 2000).¹⁷ The effect is particularly strong for remittances to rural households, which are likely to be poorer and have less access to formal insurance products to mitigate weather-related risks. The more volatile a household's income (and the more restricted its ability to self-insure), the greater the distance that households in rural India tend to send their daughters to marry (Rosenzweig and Stark 1989). Greater distance means that the covariance of income shocks with the home region will be smaller, facilitating consumption-smoothing transfers between these related households.

Studies of how remittances respond to adverse household shocks generally support the view that remittances provide some insurance. However, interpreting these correlations is complicated by the likelihood of reverse causality (remittances can influence household outcomes as well as be influenced by them) and omitted variable bias (certain hard-to-measure household characteristics may affect a household's susceptibility to risks as well as the likelihood of receiving remittances).

Consider, for example:

- Migrants responded to the cost of hurricane damage borne by Jamaican households, with each additional dollar of hurricane damage leading to \$0.25 in additional remittances (Clarke and Wallsten 2004). The authors use panel data to control for the household-level risk aversion and vulnerability effects that potentially bias the estimates.¹⁸)
- Remittances are estimated to have replaced 60 percent of income loss due to weather-related shocks in a sample of Filipino households (Yang and Choi 2005).¹⁹ Rainfall is used as an instrument for income to avoid reverse causality; panel data are used to control for the tendency for risk-averse households to locate in places where incomes are more stable and to send migrants to manage risk.)
- In cross-country data, a dollar's worth of hurricane damage leads to roughly \$0.13 in additional remittances in the year of the hurricane and \$0.28 cents over five years (Yang 2005). (Yang uses meteorological data to instrument for reported disaster damage, because damage reports may be affected by the anticipation of financial flows.)

Remittances and indirect effects on household income

Remittances may indirectly affect household income through changes to the labor supply of those remaining behind; relaxation of working capital constraints that expand income from entrepreneurial or farming activities; and multiplier effects on household income. Unfortunately, the evidence on each of these channels is quite limited, so we are constrained here to identifying important areas for additional research.

Remittances may affect labor supply

Remittances may tend to reduce the supply of labor provided by remaining household members, who may take a portion of the

remittance gain as leisure. This *income effect* is generally not a concern, because it represents part of the welfare gain from remittances. By contrast, remittances may change the return to supplying labor, for example, if the migrant conditions the remittance on low household income.²⁰ Such a *substitution effect* will reduce the welfare gain from remittances by distorting household labor decisions.

However, it is difficult to separate income and substitution effects of remittances on the labor supply of those remaining behind. Looking at the overall effect, a rise in remittances reduced labor force participation in Managua, Nicaragua, but increased self-employment (Funkhouser 1992). Remittances were estimated to reduce the participation rates of remaining household heads in a number of Caribbean countries, although the direction of causality was hard to establish (Itzigsohn 1995). Yang (2004) points to more encouraging labor-supply effects than the standard model when he determined that remittances reduce the supply of child labor but increase that of adult labor.

Remittances provide working capital

There is some evidence that remittances provide working capital to households that lack access to credit markets. For example, migration to South Africa's mines initially reduced agricultural production in countries of origin, because labor was removed from the farm (Lucas 1987). However, over time production rose with migration, perhaps due to remittance-funded capital investment and a greater willingness to take risks with agricultural production, owing to the more diversified sources of family income. Remittances had a small negative effect on household income for Mexico in 1982, but a large positive effect for 1988 (Taylor 1992). One possible explanation is that over time the development of migrant networks allowed migration from poorer households that are more likely to be credit constrained (see the discussion of inequality, above). The effect of remittances on household income depends on both the liquidity of

household assets (which determines their value as collateral) and on the availability of inputs that complement entrepreneurial activity (Taylor and Wyatt 1996). The role of remittances in relaxing household credit constraints in rural cropping income in China dominated the direct loss of productive labor from migration, so that internal migration increased per capita household income (excluding remittances) by 14 to 30 percent (de Brauw, Taylor, and Rozelle 2001). Mishra (2005) found that a 1 percentage point increase in remittance inflows in 13 Caribbean countries increased private investment by 0.6 percentage point (all measured relative to GDP).

Remittances may ease credit constraints because a stable stream of remittance income may make households more creditworthy in the eyes of formal sector financial institutions. Remittance receipts that increase when the household receives an adverse shock may be even more important in relaxing credit constraints, since they increase the lender's confidence that they will be repaid even if things turn out badly for the household. This creditworthiness effect deserves careful empirical investigation, given the increasing interest in channeling remittances through formal financial channels.

Remittances may have multiplier effects

Some studies have found that remittances have a multiplier effect, whereby the increase in domestic income is some multiple of the remittance income. For example, each dollar sent by Mexican migrants to the United States was estimated to boost Mexican GDP by \$2.90 (Adelman and Taylor 1992). Such multipliers will occur if output is constrained by insufficient demand. However, in many developing countries sustained underemployment is likely to have supply-side causes, for example, government policies that increase the cost of hiring and firing workers, so that increased demand will ultimately result in higher inflation rather than increased output.²¹

Nevertheless, there may be greater scope for sustained multiplier effects at the regional

level. The local spending of remittance income will generate further income for other local households, which in turn is likely to cause local inflation for nontraded goods and possibly a small increase in national inflation. A national government with a formal or informal inflation target is likely to respond to any increase in the national inflation rate by tightening monetary policy, thereby leading to an offsetting effect on national aggregate demand. The net effect would be multiplier effects at the local level but not at the national level. Indeed, the local gains come partly at the expense of the regions that do not receive the remittances but are forced to suffer the tighter monetary policy.

Remittances also may have multiplier effects in the context of increasing returns, typically as the expansion of one sector increases the optimal size of other sectors.²² Although such income-expanding feedback loops could be present at the national level, they are again more likely to be relevant at the regional level, because expanding regions attract labor and capital from elsewhere in the economy. The bottom line is that remittance-induced multiplier effects cannot be ruled out—especially at the regional level—but our current empirical understanding of their importance is quite limited.

Remittances, savings, and investment

Does it matter how households allocate remittance income between consumption and saving? Allocations to the latter may boost household investment or national investment through allocation to financial assets. But from a welfare perspective, an extra dollar of investment is only better than an extra dollar of present consumption if the marginal social value of investment is greater than its marginal private value.²³ Although a number of factors can drive a wedge between social and private values (such as capital income taxes, monopoly powers, and credit constraints), one prominent reason raised in the development context is the

possible existence of positive externalities from investment expenditure.²⁴ Thus the way that remittances are allocated by households may affect the social value of a given remittance flow.

The rate of investment of remittance income will be high when:

- Remittance flows are viewed by the household as transitory rather than permanent and thus should be saved (and invested) rather than spent.
- The sender conditions the remittance on it being spent for particular purposes, which are more likely to involve investment than current consumption. Examples include education or the purchase of new farm machinery.
- The remittance is targeted (or “tagged”) to household members more likely to use the funds for investment purposes (women rather than men).²⁵
- Households practice a form of mental accounting with their overall budget, with remittances being disproportionately put in accounts set aside for investment purposes.²⁶

On the other hand, some of the literature already reviewed suggests reasons to expect that the marginal propensity to invest remittance income will be low when (a) remittances are targeted to poor households that are struggling to meet subsistence needs and (b) they are targeted to credit-constrained households that are experiencing adverse consumption shocks.

The empirical challenge in identifying the causal effect of remittances on investment is that remittances are likely to be correlated with the extent of *opportunities* for investment, thereby biasing the estimated remittance effect. That correlation could be positive or negative. When more enterprising households are the ones sending migrants *and* the ones with substantial investment opportunities, high remittances will be wrongly associated with high investment. On the other hand, to the extent that households send migrants

when investment opportunities are absent at home, then high remittances will be wrongly associated with low investment. The empirical solution is to find a source of variation in remittances that is plausibly unrelated to household investment opportunities.

Measuring the impact of remittances on investment—either in physical or in human capital—is not easy. Household budget surveys are best suited for this purpose, but most of the existing surveys either do not record data on international remittances or are poorly designed. Since remittances are fungible, it is difficult to isolate their effects from those of other sources of income. Simply asking how remittances are spent is unlikely to reveal the true marginal effect on spending, because remittances, even when used for investment purposes, may free up the marginal dollars for consumption spending.²⁷

Remittances can lead to investments in education and health

Some of the clearest evidence for remittance-induced investments comes from work on human capital. The dramatic depreciation of the Philippine exchange rate during the Asian financial crisis increased remittances from Filipino migrants (because from the migrants' perspective, exchange-rate depreciation raised the relative price of their own consumption in the destination country compared with consumption by household members back home), leading to greater child schooling, reduced child labor, and increased educational expenditure in origin households (Yang 2004).²⁸ In El Salvador, remittances are estimated to reduce the probability of children leaving school by 10 times the effect of other sources of income in urban areas and by 2.6 times in rural areas (Cox Edwards and Ureta 2003).²⁹ They speculate that remittances have a disproportionate influence on schooling expenditures because the migrant has made it a condition for the financial support. Mexican children in households with migrants completed significantly more schooling, with the

largest impact (an additional 0.89 years of schooling) for girls in households where the mother has a low level of education (Hanson and Woodruff 2003).

Health status is both an important component of human capital and a central element of well-being in its own right. Unfortunately, the effect of migration on the health of family members remaining behind—notably children—is poorly understood. Migration from Mexico is associated with lower (by 3 percent) infant mortality and higher birth weights of children left behind (Hildebrandt and McKenzie 2005). The positive health effects come through increased access to health-related knowledge as well as through increased household wealth. Notwithstanding these encouraging outcomes, the authors caution that the impact of migration on child health is quite nuanced, with migration associated with lower measures of preventive health care such as breast-feeding and vaccinations.³⁰ De and Ratha (2005) find that in Sri Lanka, remittance income has a positive and significant impact on the weight of children under five; this result is especially strong for female-headed households. However, the health impact of absenteeism of one of the parents is negative.

Remittances can encourage entrepreneurship

There has been a marked shift from the belief that migrants are unlikely to establish new business enterprises in their countries of origin (either upon return or through remittance financing) to the view that migration encourages entrepreneurship. Large receipts of remittances from the United States are associated with a greater likelihood of productive investment in Mexico (Massey and Parrado 1998).³¹ A survey of 6,000 small firms in 44 urban areas in Mexico shows that remittances are responsible for almost 20 percent of the total capital in urban micro-enterprises (Woodruff and Zenteno 2001). The share rises to one-third for the 10 states with the highest rates of United States-bound migration.

Remittances also appear to ease credit constraints on new business formation in the Philippines (Yang 2004). The effect of exogenous increases in remittance income on the probability of entering into entrepreneurship is larger for low- to middle-income households, which are the ones most likely to face credit constraints. Policies that facilitate easy exit and reentry for migrants may encourage increased involvement in remittance-funded investments or enterprises.

Remittances are often invested by recipient households

Contrary to the conventional wisdom that remittances tend to be “frittered away” by recipient households, recent work has estimated that a large proportion of remittance income is saved. Only 12 percent of net increments to expenditure by rural Egyptian households were allocated to consumption, with large propensities to invest in the construction and repair of houses, and in agricultural or building land (Adams 1991). This relatively high propensity to invest is assumed to result from households treating remittance receipts as temporary income flows, which forward-looking households save (and invest) rather than consume. These findings are largely confirmed in a later study of Pakistani households (Adams 1998).³² In Guatemala, remittance-receiving households are found to have *lower* marginal propensities to consume and a higher propensity to invest in education, health, and housing than other households (Adams 2005c).

It should be noted that some survey results for a number of Latin American countries point to much higher propensities to consume remittance income (see, for example, IADB-MIF 2004). The percentages of remittances spent on household expenditures are 78 percent in Mexico, 77 percent in Central America, and 61 percent in Ecuador, while spending on real estate and education is low. However, surveys of how income from a particular source is spent tend to be unreliable, because monies from different sources are considered

perfect substitutes by the household. In contrast, studies such as Yang (2004) econometrically estimate expenditure propensities given exogenous changes in remittance income, so that the estimates should be less susceptible to the fungibility problem. A second explanation for the different results is that the econometric studies measure *marginal* propensities, whereas the direct surveys measure *average* propensities. It is the marginal propensity that is of interest when we consider the expenditure effects of policies that increase remittance flows.³³

The role of remittances in funding investment has recently been questioned in a macroeconomic paper by Chami, Fullenkamp, and Jahjah (2005), who find that remittances tend to be negatively associated with economic growth. This countercyclical behavior of remittances is consistent with the evidence discussed above that remittances respond to adverse household shocks. But the observation that remittances tend to move countercyclically does not necessarily obviate their role in funding investment. The micro studies we reviewed point to remittances as both smoothing consumption and providing funds for investment. Moreover, the increased flow of remittances in the face of adverse shocks may allow households to sustain funding for key investments in areas such as business working capital, education, and health care.

The evidence reviewed in this chapter suggests that remittances play multifaceted roles in poverty reduction, consumption smoothing, and investment, with the balance of roles varying by time and place.

Annex 5A.1 Poverty simulation model: description and results

The poverty change model assumes that a particular measure of poverty (say the fraction of the population with incomes below \$1 per day) is a function of descriptive parameters of the income distribution, such as the mean and the Gini coefficient. Building on

Ravallion (1997), we assume that there is a constant growth elasticity of poverty reduction, but we allow that elasticity to vary with the initial level of inequality.³⁴ We call this a conditional constant elasticity specification. Specifically, the poverty measure, P , is given by,

$$P = AY^{-\beta(1-I)},$$

where Y is per capita income (measured as mean survey income or consumption), I is the

measure of inequality (which we take to be the Gini coefficient), and A and β are parameters. Differentiating the poverty equation and writing it in rate-of-change form yields our basic poverty change model,

$$\frac{dP}{P} = -\beta(1-I)\frac{dY}{Y} + \beta \ln Y dI$$

This equation can be interpreted as saying that the rate of poverty change depends on a

Table 5A.1 Effect of removing remittances on the poverty headcount rate

Country	Survey year	Poverty headcount rate (\$1 a day, PPP, \$1993)	Remittances as share of GDP (%)	Change in headcount rate (Gini = 0)	
				Using per capita GDP	Using survey mean income
Armenia	1998	13	5	2	4
Azerbaijan	2001	4	2	0	0
Bangladesh	2000	36	4	5	13
Bolivia	1999	14	1	0	1
Botswana	1993	31	2	1	3
Burkina Faso	1998	45	3	3	4
Colombia	1999	8	2	0	0
Côte d'Ivoire	1998	16	1	0	1
Ecuador	1998	18	3	2	3
Egypt, Arab Rep.	2000	3	3	0	1
El Salvador	2000	31	13	10	41
Gambia, The	1998	54	7	9	12
Georgia	2001	3	6	0	0
Guatemala	2000	16	3	1	2
Honduras	1999	21	6	3	4
India	2000	35	3	3	23
Kenya	1997	23	3	2	2
Lao PDR	1997	26	2	2	4
Lesotho	1995	36	44	29	34
Mali	1994	72	6	10	17
Mexico	2000	10	1	0	1
Moldova	2002	22	19	13	21
Mozambique	1997	38	2	2	2
Nepal	1996	39	1	1	2
Nicaragua	2001	45	2	3	13
Pakistan	1999	13	2	1	2
Panama	2000	7	2	0	0
Paraguay	1999	15	4	1	2
Peru	2000	18	1	1	2
Philippines	2000	16	8	3	10
Senegal	1995	22	3	2	3
Sierra Leone	1989	57	3	3	4
Sri Lanka	1996	7	6	1	3
Swaziland	1996	8	6	1	1
Tajikistan	1999	14	6	3	3
Uganda	1999	85	4	9	40
Yemen, Rep.	1998	16	19	10	7

Source: World Bank staff estimates.

Note: Remittance share is 1995 for Sierra Leone. Estimates are based on poverty reduction model.

measure of inequality-adjusted growth and an income-adjusted change in inequality.³⁵

To estimate the relationship, we utilize the dataset assembled by Adams and Page (2005). The observations relate to spells between comparable nationally representative household surveys. For a given spell, we have data for the initial and final values of poverty, inequality, and per capita income.³⁶ The estimated equation for the headcount measure of poverty is reported in the table in box 5.1 in the main text. Similar results were found for the poverty gap measure.

The next step is to simulate the effect of removing remittances on the poverty measure under various assumptions about how remittances affect inequality. The proportionate increase in per capita income due to remittances is given simply by the share of remittances in GDP multiplied by the ratio of per capita GDP to mean survey income/consumption.³⁷ It is important to emphasize that the simulated poverty-increasing effect of removing remittances applies to the latest year for which a survey is available for that country, and thus different years are being used for different countries. Care should thus be taken in making comparisons about the importance of remittances in reducing poverty across different countries. Where the headcount rate is below 2 percent we do not attempt to estimate the poverty change effect of remittances.

Table 5A.1 shows results on the poverty headcount when remittances are removed (assuming there is no impact of remittances on inequality) for 37 countries where remittances are above 1 percent of GDP and where the poverty headcount rate is greater than 2 percent at the outset.

Notes

1. This represents a significant shift from the traditional earlier pessimism about the role of remittances in development. For example, Papademetriou and Martin (1991) emphasize how migration increases the dependence of emigration countries that are unable “to regulate or channel remittances,” while Jacobs (1984)

states that remittances “did nothing to convert stagnation to development” in abandoned regions.

2. Since data on what the migrant was earning before leaving are typically unavailable, the lost domestic income is estimated or imputed based on observed characteristics of the migrant and on knowledge of how those characteristics are rewarded in the domestic economy.

3. In the Sri Lanka Integrated Survey 1999–2000, nearly a third of households receiving remittances did not report having a migrant member overseas. It is possible that those households received remittances from their extended family; it is also possible that they received remittances from friends (De and Ratha 2005). The literature also notes third-party remittances in other countries (see, for example, Yang 2004 for the Philippines). A survey of African diasporas in Belgium found that more than one member in a typical migrant household sent regular remittances and that each remitter might send remittances to different recipients.

4. This situation is akin to the second counterfactual (a decline in remittances but no change in migration and hence household income) discussed at the outset. To the extent that a decline in remittance income may encourage households to devote more labor hours to domestic income-generating activities, the total decline in household income and the consequent poverty effect may be smaller than assumed in the simulation, a point made in Adams (2004a).

5. If we adopt the other extreme assumption—that remittances are not included in household income—the results can be interpreted with a simple reversal of the sign, which gives the reduction in poverty that would result if remittances were included.

6. As higher poverty increases the incentive to migrate, the ordinary least squares (OLS) estimates of the impact of remittances and stock of migrants are biased downward. On the other hand, when credit-constrained poor families do not have the resources to send migrants, the OLS coefficients are biased upward as poorer countries send fewer migrants. To deal with the bias, Adams and Page (2005) allow for remittances and emigrant stock variables in their regressions, using measures of international distance, government stability, and levels of education.

7. The poverty *depth* is the average shortfall below the poverty line expressed as a fraction of the poverty line (or simply the poverty gap ratio); and poverty *severity* is the squared poverty gap ratio. A key feature of this severity measure is that it is sensitive to the distribution of income among the poor (Foster, Greer, and Thorbecke 1984).

8. Stark, Taylor, and Yitzhaki (1986) found that a 1 percent increase in international remittances leads to

a 0.14 percent increase in the Gini coefficient in the case of Mexican villages with a short migration history; but in other villages with a long migration history, the Gini coefficient actually declines by 0.01 percent. Taylor (1992), McKenzie and Rapoport (2004), and Taylor, Mora, and Adams (2005) also find negative effects on the Gini in the case of Mexico.

9. Nearly 40 percent of households in a representative sample in Ghana receive remittances, of those remittances, 4 times as many households receive internal than international remittances (Adams 2005b). Households receiving internal remittances are disproportionately poor, indicating the importance of internal remittances in reducing poverty. Households surveys in Europe and Central Asia also show that in a number of countries (Albania, Kosovo, Moldova, and Tajikistan, for example) a large number of households receive remittances, many in rural areas (World Bank 2005).

10. Research has also shown that the inclusion of remittance-induced, indirect effects on income—such as income-induced reductions in nonmigrant labor supply or increases in entrepreneurial income due to the relaxation of credit constraints—can change the direction of the inequality effect.

11. The authors experiment with various instruments for location-specific migration levels in their regressions. The instruments include the historic (1924) state-level migration rate and unemployment rates for the U.S. state that includes the city that is the likely destination for migrants from a particular Mexican location.

12. This study imputes the counterfactual income by calculating the income from equivalent activities at home. In the bottom two deciles, remittance income is offset by the counterfactual loss of income from migration, whereas in the top two deciles, remittance income falls short of the counterfactual loss of income.

13. See, for example, Banerjee and Newman (1993).

14. See, for example, Alesina and Rodrik (1994) and Persson and Tabellini (1994).

15. The New Economics of Labor Migration (NELM) emphasizes that (a) migration is often better viewed as a family rather than an individual decision; (b) risk management and provision of credit are seen to play a central role in migration and remittance decisions; and (c) migration is often seen as a response to the failure of markets for insurance and credit (Taylor 1999). Rosenzweig (1988, p. 1167) highlights the informational problems that undermine crucial markets and emphasizes how ties of common experience, altruism, and heritage “enable families to transcend some of the informational problems barring the development of impersonal markets.”

16. See also Stark and Lucas (1988).

17. Rainfall is used as an instrument for provincial income in establishing the covariance pattern.

18. Simple cross-sectional estimates of how remittances respond to hurricane damage will be biased downward if more risk-averse households are more likely to send migrants as a general insurance strategy *and* are more likely to take actions to reduce the risk of costly damage to the home. They will be biased upward if households with more vulnerable dwellings are more likely to send migrants *and* more likely to suffer hurricane damage. An additional complication is moral hazard, where insured (remittance receiving) households have less incentive to avoid risky behavior. Clarke and Wallsten (2004) deal with the potential endogeneity problem by using the average damage done in the neighborhood as an instrument for household-specific damage.

19. They cannot reject the null hypothesis that *all* of an exogenous decline in income is matched by an increase in remittances.

20. There is a disincentive to work if remittances are conditioned on low income. Conversely, if remittances are conditioned on domestic labor supply—“I will help you if you help yourself”—there is an added incentive to work. From the migrant’s perspective, there is some similarity with the challenges faced by governments in providing social assistance without creating poverty traps and dependency. A traditional “welfare” model conditions remittances on household income, whereas the modern “workfare” model attempts to condition remittances on household effort in an attempt to avoid putting the household in a trap where working makes little economic sense. However, from the strict welfare perspective of the standard model, *any* distortion to the labor supply of the remaining members—negative or positive—reduces the welfare gain from the remittance.

21. See Layard, Nickell, and Jackson (1991) for a discussion of supply-side constraints on employment.

22. See Cooper (1999) for an introduction to multiplier effects under increasing returns where the outputs in different sectors are “strategic complements.”

23. These values are assumed to be expressed in units of current consumption.

24. As examples, consider that the social return from human capital investments is greater than the private return due to knowledge spillovers (Moretti 2003); the social return from investments in vaccination is greater than the private return due to the spillover of reduced disease contagion (Miguel and Kremer 2001); and that the social return from entrepreneurship is greater than the private return due to externalities from demonstration effects about where a country’s comparative advantage might actually lie (Hausmann and Rodrik 2002).

25. See Bourguignon and Chiappori (1992) and Browning and others (1994) for treatments of collective decision making in the “nonunitary household.” Duflo (2003) demonstrates that pensions received by women in South Africa have a larger impact on the weight and height of girls than of boys living in the household. In other words, how that income is spent depends on who receives it. Using data from the Côte d’Ivoire, Duflo and Udry (2004) show that where husbands and wives farm different plots of land, the effect of rainfall shocks that differentially affect the plots has implications for the composition of household expenditure. They consequently reject the hypothesis of “full insurance” within the household.

26. See Thaler (1990) for a discussion of mental accounting.

27. Adams 2005a. See also Swaroop and Devarajan (2000) for a discussion of the fungibility problem in the context of evaluating the impact of official flows.

28. This is a useful test of the allocation of remittances between consumption and savings if the depreciation-induced change in remittances is independent of household investment opportunities.

29. This finding is subject to the problem of identifying whether remittances increase schooling or whether households with migrants are more likely to use additional income for schooling. The authors argue that remittances are closer to a randomly assigned transfer, particularly for political exiles whose migration is less likely to be correlated with household factors that affect the likelihood of human-capital investment.

30. Again, it is difficult to separately identify the impact of migration on health outcomes. Individuals from households with poor health status may not be well enough to make a difficult border crossing; the most prosperous and healthy households may find that local opportunities outweigh those yielded by a risky illegal move; or adverse shocks may affect both migration decisions and health status. Hildebrandt and McKenzie’s (2005) empirical solution to this identification problem is to instrument for migration using the historic migration rate for the migrant’s community.

31. Remittances sent during a household head’s absence do not affect the likelihood of starting a new business; rather the resources accumulate and are available as seed capital after an adjustment period following the migrant’s return. This delay may explain why contemporaneous surveys miss the business funding effect.

32. Likewise, Yang (2004) finds no evidence that aggregate household consumption expenditures were affected at all by the remittance-inducing exchange-rate shocks he studies, which contrasts with the signif-

icant positive effects he finds for education spending, adult labor supply, and capital investments.

33. On the other hand, the exogenous changes in remittance income that are used to identify the expenditure propensities in studies such as Yang (2004) are likely to be viewed by the household as temporary, leading the forward-looking households to invest rather than consume. These estimates would then provide a poor guide to the expenditure effects of policies that led to more sustained increases in remittance flows—for example, policies that permanently lower the cost of sending remittances.

34. Bourguignon (2003) uses a highly flexible functional form with multiple interactions between the key variables to estimate the relationship between poverty reduction, growth, and changes in inequality. Here we make stronger assumptions about the functional form of the relationship as a first pass in estimating the poverty-reducing effect in a relatively simple poverty-reduction model.

35. We actually take a slightly less restrictive version of this equation to the data by allowing for an intercept and allowing the coefficients on the two explanatory variables to differ. We also allow for the change in inequality to enter in separately, but the coefficient on this variable is insignificantly different from zero.

36. Observations where the initial and/or final poverty measure for the interval is zero are excluded. We also exclude observations from the Eastern Europe and Central Asian region due to concerns about comparable measurement during post-communist transition.

37. The growth in per capita income is given by $\Delta Y/Y$. Denoting per capita remittances as R , and letting the absolute change in per capita income equal the level of per capita remittances (that is, $\Delta Y = R$), then the growth rate of income due to remittances is simply R/Y . Since we use mean survey income/consumption as our measure of per capita income, R/Y is conveniently calculated as $(R/Y^{GDP}) \times (Y^{GDP}/Y)$, where the first term is equal to remittances as a share of GDP, and the second term is the ratio of per capita GDP to mean survey income.

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