Macroeconomic Implications of Remittances: Theory

Previous chapters have documented the rising importance of workers’ remittances as resource flows to developing countries. As with earlier surges in other types of resource flows to such countries, this change in circumstances dramatically alters the economic environment in which macroeconomic policy is formulated in countries receiving remittances. The challenge for policymakers is to understand the macroeconomic implications of these large new flows as well as the role that policy can play in maximizing the benefits that the recipient countries can derive from them.

Unfortunately, this challenge is complicated by the fact that economic theory gives us no reason to suppose that the macroeconomic effects of workers’ remittances should necessarily be uniform from country to country or from time to time. In theory, the nature of these effects depends on a variety of characteristics of the receiving economy, as well as of the remittance flows themselves. This chapter explores how the characteristics of remittance flows and those of the recipient economy are likely to interact to determine the effects of those flows on the types of macroeconomic variables that tend to be of concern to policymakers. The chapter is divided into three parts, focusing respectively on the implications of workers’ remittances for three aspects of macroeconomic performance: short-run macroeconomic equilibrium, the rate of growth of the economy’s productive capacity, and the sustainability of the debt of its public sector. The last of these is treated separately because debt sustainability is cross-cutting in its macroeconomic implications: depending on how a government uses its capacity to borrow, it may be able to influence both short-run macroeconomic performance and long-run growth as well.

Workers’ Remittances and Short-Run Macroeconomic Performance

We begin by considering the effect of flows of workers’ remittances on the recipient economy’s short-run macroeconomic performance. To be concrete, we assume at the outset that remittances are pure income transfers—that is, they represent the transfer of ownership of resources from a migrant household to a recipient household without constraints on how those resources are spent. This means that our initial assumptions are that remittances are not capital flows and that they do not have a merit good component. Later in the chapter we examine the effects of modifying these assumptions.

However, even if remittances are taken to represent pure income transfers, that leaves open the question of what motivates those transfers. In particular, a key issue is whether remittances should be considered to be exogenous or should be interpreted as responsive to developments in the receiving economy. If remittances are exogenous, then the question of their macroeconomic effects can be examined analytically by modeling their role in the receiving economy and then examining how a change in the level of remittances affects the endogenous macro variables of interest in that economy. If remittances are endogenous, however, then the analysis has to be approached differently. In this case, what matters is how the responses of the relevant macro variables to some other exogenous shock differ in the presence of remittances from what they would have been in their absence. These responses are likely to depend on how remittances themselves react to the shock, so the model adopted to explain the behavior of remittances is as important in this case as the way that the recipient economy is modeled.

Thus, the first step in analyzing the macroeconomic effects of remittances is to take a position about what drives remittance flows. As shown in Chapter 4, this turns out to be a nontrivial and controversial matter empirically, and competing perspectives remain on how best to think about the factors driving these flows. We begin with the simplest case of exogenous remittances, and then consider how the analysis needs to be modified if remittances are endogenous and driven by altruism on the part of the sender. A third possibility—that remittances are endogenous and arise as the result of a decision by the recipient household to invest in the form of sending household members abroad—is also considered in the second section of this chapter, where it has the potential of leading to results that differ from those of the first two cases.
Exogenous Remittances

Our strategy is to begin with the simplest analytical framework to describe the recipient economy in order to examine the effects of remittances on the macroeconomic variables of interest, and then to add complicating factors either one by one or in combination to examine their effects on the results.

Basic Framework

The reference economy is taken to contain two production sectors: a traded goods sector and a nontraded goods sector, with production in each sector determined as a function of some unspecified fixed factor as well as homogeneous labor, which is able to move freely between sectors. The economy is initially assumed to be perfectly open financially, so uncovered interest parity holds continuously. (We relax this assumption later.) For now, we focus on a strictly nonmonetary economy, and we assume that there are no frictions in domestic financial intermediation, so there is no “external finance premium” in the domestic economy: financial intermediation is costless.

The households in this economy optimize intertemporally by choosing the time path of consumption. Initially, we suppose that household utility depends only on the levels of consumption of traded and nontraded goods and not on the household’s consumption of leisure; in this case the economy’s aggregate labor supply is exogenous. (Later we allow utility to depend on leisure as well, making the aggregate supply of labor endogenous.) We also assume initially that if the household saves or dissaves, it does so by accumulating or decumulating an internationally traded bond.1 In the reference framework we assume that the world real interest rate equals the representative household’s rate of time preference, so that the optimal time profile of consumption is flat.

Finally, the government in our simplest framework does not optimize; it simply levies lump-sum taxes, which it either saves or uses to finance an exogenously given level of spending that has no effect on household utility or on sectoral production functions. In this case the government essentially represents a mechanism for wasting resources.

Exogenous Labor Supply

Suppose, then, that remittance receipts consist of exogenous external transfers received by domestic households, and consider the effects of an unantici-

1In the second section of this chapter, which examines the effects of remittances on economic growth, the household whose behavior we are analyzing is assumed also to have the option to accumulate physical capital.
balance (equivalently, the creation of an excess domestic demand for traded goods) is brought about through a combination of lower output of traded goods, as a result of the real appreciation, and a larger demand as well for traded goods, resulting from the combination of a greater overall level of consumption and the reduction in the relative price of traded goods associated with the real appreciation.

The distribution among domestic households of the welfare gains associated with the increase in remittance flows depends both on the allocation of remittances among households and on household consumption patterns as well. Consumption patterns matter to the extent that the arrival of remittances causes a change in domestic relative prices—that is, a real exchange rate appreciation. When the real exchange rate appreciates, the households that benefit the most from the increase in remittances are those recipients of remittances that tend to orient their consumption toward traded rather than nontraded goods.

Now consider the effects of direct taxation of remittances. To take an extreme example, suppose the government taxes all of the increase in remittances away by increasing its level of lump-sum taxation at a rate equal to the increase in the size of remittance flows. In this case, the macroeconomic effects of the increase in remittances depend on how the government allocates the increase in its revenue.

We suppose first that the government simply saves the additional revenue it receives. In that case, since the conditions for Ricardian equivalence hold in our simple framework, domestic households behave exactly as they did when remittance flows were not taxed: they increase consumption expenditure by the amount of the increase in remittances. All the other previously described effects on the economy still occur, including the beneficial effects on household welfare.

On the other hand, if the government allocates the additional revenue to public spending on traded goods, and if, as assumed earlier, the government’s consumption of traded goods has no effect on household utility functions or on firms’ production functions, then the increase in remittance flows has no effects whatsoever on the domestic economy. In particular, household consumption and welfare are unchanged. The current account of the balance of payments is also unchanged, and the deterioration in the trade balance required to keep the current account in equilibrium in the face of increased remittance flows arises strictly as the result of the increase in government spending on traded goods.

Finally, if the government spends all of its increased income on nontraded goods, the effects on the domestic economy are equivalent to those of an exogenous decrease in the output of the nontraded goods sector: there is no change in household disposable income, but the supply of nontraded goods available for domestic households to consume decreases by the amount of the increase in remittance flows, since the government increases its consumption of nontraded goods by exactly that amount. In equilibrium the real exchange rate must appreciate, causing production to switch from traded to nontraded goods and households’ demand for traded goods to rise. Since both the household and government budgets remain balanced, the current account must remain in balance, and the combination of these effects must cause the trade balance to deteriorate by an amount that is exactly enough to offset the effects of the increased remittance receipts on the current account. Note that, precisely because the effect of increased remittance flows in this case is equivalent to that of an exogenous reduction in the economy’s output of nontraded goods, greater remittance flows actually reduce the welfare of domestic households.

When remittances are taxed, therefore, the relevant issue is how the government disposes of its increased tax revenues—even if all government spending is equally (non)productive. Differences in macroeconomic outcomes in this case extend even to such core issues as whether an increase in remittance receipts increases or decreases the economic welfare of domestic households. For simplicity, and to focus on other characteristics of the economy that influence the macroeconomic effects of remittances, unless otherwise stated we assume in the rest of the chapter that remittances are not taxed directly.4

**Endogenous Labor Supply**

Now suppose that household utility depends on consumption not only of traded and nontraded goods, but also of leisure. Treating the consumption of leisure as a choice variable for households allows us to treat the domestic supply of labor as an endogenous variable. When the consumption of leisure becomes a choice variable, households respond to an increase in remittance flows both by increasing their consumption spending and by reducing their supply of labor as well, so they

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4This begs the question of whether there is in fact a case for taxing remittances in the simple economy considered in this subsection. One would expect that the answer must be no as long as the economy is initially undistorted and the government is simply a mechanism for creating waste. However, a second-best case for taxing remittances would exist under the assumptions of this subsection if Dutch disease effects are important (see “Remittances and Growth”) and the government spends the proceeds on traded goods, since greater remittance flows could be welfare reducing in this case and the macroeconomic effects of a government policy of taxing remittances and spending the proceeds on traded goods are equivalent to a reduction in the size of remittance flows. More generally, a case for taxing remittances could be based on the productivity of government expenditures and/or the distortionary effects of other forms of taxation. Such a case would depend on the response of remittances to taxation (which depends in turn on the factors driving remittance flows), since this response determines the size of the distortions associated with remittance taxes.
can consume more leisure as well as more goods. As a result of the reduction in the aggregate supply of labor, the economy’s real output must fall. Because of this reduction in household income from production, the intertemporal budget constraint implies that household consumption must rise by less than the increase in the flow of remittances. However, the increase in the resources available to households in the form of remittance flows means that household utility must rise, and therefore the increase in remittances remains welfare enhancing in the absence of distortions.

The increase in household consumption means that domestic demand for both traded and nontraded goods must increase. At the same time, the reduced supply of labor means that, at the original real exchange rate, the supply of both types of goods must decrease. The result is that to maintain equilibrium in the market for nontraded goods, the real exchange rate must appreciate. As before, the household’s intertemporal budget constraint implies that the current account must remain in balance, which means that the trade deficit must increase by the same amount as in the previous subsection, because the change in the flow of remittances is the same. The contraction in the aggregate labor supply and real appreciation both contribute to creating the excess demand for traded goods that yields this result.

Note that remittance flows are countercyclical in this case: an increase in remittances is associated with a reduction in domestic output. Causation runs from the change in remittances to the change in real output in the receiving economy, and the mechanism of transmission is the endogenous labor supply response of recipient households. As we show later in the chapter, however, the correlation between increased remittances and decreased domestic output can change, depending on the motivation for remitting and the type of shock affecting the domestic economy.

An Extension: Endogenous Country Risk Premium

In the preceding analysis, we assumed that the domestic interest rate in the country receiving workers’ remittances was exogenous, determined by uncovered interest parity. This assumption is obviously unrealistic, because developing countries face borrowing spreads in international capital markets that reflect creditor perceptions of country creditworthiness. Since creditworthiness depends on the resources that the country has available to service debt, it is reasonable to suppose that country risk premiums in international capital markets are inversely related to the size of the remittance flows the country receives (this issue is discussed from the perspective of sovereign debt in “Remittances and Government Debt Sustainability”), a factor that can be expected to influence the macroeconomic effects of exogenous changes in the size of those flows. How would the preceding analysis be affected under these circumstances?

As before, an exogenous increase in remittances increases the real income of domestic households. However, when country risk premiums are endogenous and depend on the total resources available to domestic households, an exogenous increase in remittances also reduces the domestic interest rate. Assuming that the country is a net debtor, the welfare of domestic households now increases, for two reasons: because of the increase in resources associated with larger remittance flows, and also because the reduction in the interest rate that domestic households face reduces their debt-servicing costs.

Consider first the case of exogenous labor supply. As in “Exogenous Labor Supply,” domestic consumption expenditure increases. But the short-run increase in consumption is larger now than previously, because in addition to the increase in the present value of consumption over the household’s time horizon made possible by the larger amount of resources at its disposal, the household’s consumption path now has a downward slant rather than being flat, as the reduction in the domestic real interest rate causes it to shift intertemporally toward present consumption and away from future consumption. In other words, the increase in consumption caused by the increase in remittances on impact is larger in this case than when the domestic real interest rate is exogenous, and thus on impact the increase in consumption is greater than the increase in the flow of remittances. This has two interesting implications:

- Because household consumption increases by more than the inflow of remittances on impact, the increase in remittances actually increases the current account deficit on impact, since households must borrow internationally to sustain their higher levels of consumption in the short run.
- Because the demand for nontraded goods sustains a larger increase than before, an exogenous increase in remittances causes greater real appreciation in this case than in “Exogenous Labor Supply.”

If the supply of labor is endogenous, the reduction in the domestic interest rate causes households not only to substitute current for future consumption, but also to substitute current leisure for future consumption. Thus the contraction in domestic output that follows the increase in remittance flows is larger when the risk premium is endogenous than when it is not. But note...
that, although the reduction in domestic real output is magnified in this case, it remains true that household welfare must rise.

**Endogenous Remittances**

So far, we have been assuming that remittance flows are exogenous. That assumption has made it possible to examine the short-run macroeconomic effects of remittances simply by considering how the economy responds to a change in remittance flows. If remittance flows are endogenous, however, things become more complicated, because the macroeconomic implications of the presence of remittance flows then depends not just on characteristics of the economy such as those examined in the last subsection, but also on the factors that determine the size of remittance flows.

The first step in examining the macroeconomic effects of remittances in this case is therefore to take a position on the factors that influence remittance flows. We assume in this subsection that remittance flows are determined by altruistic motives on the part of migrants, in the sense that the utility of the recipients enters the remitters’ utility function. To be concrete, let us suppose that migrants value the welfare of the recipients as much as they do their own.6

**The Effects of Macroeconomic Shocks Under Altruistic Remittances**

Since remittances are now endogenous, we can no longer take the shock we analyze to be an increase in the flow of remittances. Instead, a change in remittances must be caused by a change in some exogenous variable. The presence of altruistic remittance flows alters the way that the recipient economy responds to the array of macroeconomic shocks to which it may be subjected. To illustrate, in this section we analyze two such shocks: an exogenous productivity shock and a policy-induced real exchange rate depreciation. Chapter 7 analyzes in greater detail the effects of stochastic shocks under endogenous remittances in the context of a closed economy.

Suppose, then, that the economy is affected by an unexpected, permanent favorable productivity shock that is sectorally neutral (i.e., one that does not give rise to a Harrod-Balassa-Samuelson effect). For simplicity, we consider first the case of inelastic labor supply. Because the shock increases output in both sectors, it also increases the resources available to domestic households and thus their consumption and utility. Because the utility of the recipient affects the welfare of the migrant under altruism, the shock affects the migrant’s income positively, inducing him or her to increase his or her own consumption. But this can be achieved only by reducing his or her level of remittances. Thus a positive productivity shock in the recipient economy increases real output in that economy and increases welfare for both domestic and émigré households: the existence of remittances transfers some of the benefits of the domestic productivity shock to the émigré community.7

In general, the reduction in the level of remittances partly, but not completely, offsets the positive effects of the productivity shock on domestic household income. Suppose, however, that remittances are indeed reduced one for one with the increase in domestic household income, so that émigrés effectively seize all of the benefits of the productivity shock. In this case domestic consumption remains unchanged but, because of the favorable productivity shock, domestic output of both traded and nontraded goods rises. The current account of the domestic economy’s balance of payments remains in balance with domestic absorption unchanged, which is possible because the level of domestic output rises and that of remittances falls by exactly offsetting amounts. Since the demand for nontraded goods does not rise at the original real exchange rate, whereas the output of nontraded goods increases as the result of the productivity shock, the relative price of nontraded goods must fall—that is, the real exchange rate has to depreciate.

Note that the reduction in the level of remittances does not cause this depreciation—instead, both are caused by the favorable domestic productivity shock.

Now let us go back to the general case in which the reduction in remittances only partly offsets the favorable income shock. In this case, the increase in domestic consumption caused by the favorable productivity shock remains smaller than it would have been if the same shock had occurred in the absence of remittances. The smaller the remittance offset, the greater the increase in domestic consumption the favorable productivity shock causes. In the limit, if the offset is zero, the increase in consumption is equal to the increase in domestic income. In this case, there is no reason for the real exchange rate to change, since the productivity shock causes the demand for nontraded goods to increase by the same amount as the supply of nontraded goods. It follows that, in the presence of altruistic remittances, a favorable sectorally neutral productivity shock leads to a real exchange rate depreciation that is larger the greater the extent to which remittances offset the effects of the productivity shock.

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6In other words, the intercohort discount factor applied to the utility of the recipients in the utility function of the remitters is unity.

7It is worth noting in passing that, to the extent that productivity “shocks” are not exogenous, but are produced by policy reform, the existence of altruistic remittances acts as a tax on reform, because part of the benefits of reform are reaped externally. This provides a negative link between remittances and growth that operates independently of the effects considered in “Remittances and Growth.”
If we allow for an endogenous labor supply response by domestic households, then the effect of the favorable productivity shock on domestic labor supply depends on a trade-off between income and substitution effects: the favorable productivity shock increases the households’ lifetime resources, inducing it to consume more leisure and thus reducing its supply of labor, but at the same time the higher productivity of labor increases the cost of leisure relative to that of consuming goods. Assuming that substitution effects dominate, domestic income increases, both because of the increase in productivity and because of the increase in the supply of labor as well. For the same reasons as before, remittance receipts fall, and the welfare of both domestic and émigré households increases. It is worth noting that remittance flows are once again countercyclical in this situation, as in the case of exogenous remittances analyzed previously. However, in this case causation is indirect: it runs from a third variable (the productivity shock) to both remittances and domestic real output, rather than directly from remittances to real output.

Countercyclicality is not a necessary characteristic under altruistic remittances, however. An illustration can be provided by simply assuming that the improvement in productivity considered in the foregoing discussion is anticipated before it arrives. The positive income effect associated with a productivity improvement arises at the instant the improvement becomes anticipated, whereas the substitution effect emerges only when the improvement actually materializes. Thus if domestic households come to expect a favorable future productivity shock, they immediately increase their consumption and reduce their supply of labor, thus causing domestic real income to fall on impact. The improvement in their welfare at the same time causes altruistic migrants to reduce their flow of remittances. Thus, when the shock that affects the economy is an anticipated future improvement in productivity, altruistic remittance flows move procyclically.

The case of a real exchange rate depreciation provides a further illustration of how the macroeconomic effects of remittance flows depend on the types of shocks to which an economy is subjected. In the “real” macroeconomic framework that we have been considering, a real depreciation must be brought about by a “real” policy change. Consider two ways in which such a depreciation can be achieved: through an increase in government spending on traded goods financed by an increase in lump-sum taxes, or through a reduction in government spending on nontraded goods offset by a reduction in lump-sum taxes.

In either case, there are two effects on remittance flows. First, no matter how the real exchange rate depreciation is brought about, it both increases migrants’ real income (which is earned in the form of traded goods) and reduces the cost to migrants of purchasing an additional unit of consumption for the recipients through remittances, since not all recipient consumption is in traded goods. The altruistic model predicts that these income and substitution effects will combine to induce migrants to attempt to increase remittance recipients’ utility. But if migrants’ own utility is a normal good, this should nevertheless be associated with a reduction in remittance flows (measured in units of the traded good): since migrants do not consume nontraded goods produced in the recipient economy, the increased real value of remittances can be shared between the remitter and the recipient only by migrants’ retaining more of their earnings (see Faini, 1994).

The second effect depends on how the real exchange rate depreciation is brought about. If it results from a reduction in government spending on nontraded goods in the domestic economy, the associated tax cut causes recipient households’ real income to increase, which under the altruistic model reinforces the tendency for remittance flows to fall. If instead it comes about through an increase in government spending on traded goods, then the associated tax increase causes recipient households’ welfare to decrease, which under the altruistic model tends to induce an increase in remittance flows. The net effect on remittance flows in this case could be positive.

**Altruistic Remittances and Structural Policies**

The presence of altruistic remittances in a particular economy may have macroeconomic implications for that economy that extend beyond the influence of such remittances on the effects of specific shocks. Precisely because they influence how the economy responds to shocks, such remittances may affect the desirability of alternative macroeconomic policy regimes. In this subsection we illustrate this point for the cases of capital account liberalization and the exchange rate regime.

A standard argument in support of capital account liberalization goes as follows: when an economy is financially closed, projects with high expected returns but high risk, whose returns are highly correlated with the domestic economy’s real capital portfolio, tend to face a high cost of capital. When the capital account is liberalized, however, the cost of capital for such projects can be expected to decrease, because their returns will not be as highly correlated with the world portfolio as they had been with the domestic portfolio under financial autarky. Consequently, capital account liberalization promotes growth by reducing the cost of capital for such projects, encouraging the undertaking of investment projects with high expected returns.

The presence of altruistic remittances in an economy, however, changes the stochastic properties of domestic economic activity. Under altruism, remittances are likely to be negatively correlated with shocks to the domestic economy that increase the well-being of domestic agents, such as favorable productivity shocks.
Since the effects of such shocks on domestic real income are dampened in the presence of altruistic remittances (because remittances fall when domestic productivity rises and rise when domestic productivity falls), and since fluctuations in foreign output are transmitted to the domestic economy via remittance flows as migrants share their own productivity gains or losses with remittance recipients, the correlation between domestic real income and the world business cycle increases and thus the effect is equivalent to that resulting from diversification of the country’s real portfolio under financial autarky. Since this reduces the correlation between the “effective” domestic real autarkic portfolio and any single high-return/high-risk domestic investment, the cost of capital falls for such projects even under financial autarky. In this way, the existence of altruistic remittances in an economy tends to be prograd. As shown in Chapter 7, however, if the domestic labor supply is endogenous, the labor supply effects of altruistic remittances may actually magnify domestic business cycles (see also Chami, Cosimano, and Gapen, 2006) and reduce the correlation of domestic economic activity with the world business cycle.

By the same token, however, the increased correlation between the “effective” real portfolio under autarky and the world portfolio that emerges under altruistic remittances weakens the case for capital account liberalization, since it reduces the force of the cost-of-capital perspective on financial liberalization’s benefits. On the other hand, the case for capital account liberalization is strengthened to the extent that labor is endogenous.

A similar argument applies to the choice of optimal exchange rate regime. A familiar argument from the optimal currency area literature is that the presence of asymmetric real shocks favors the adoption of floating rather than fixed exchange rates in countries with limited international labor mobility and sticky nominal wages, since floating rates reduce the costs of adjustment to such shocks by facilitating real exchange rate changes. It has long been acknowledged that this argument is tempered if the domestic economy has access to external transfers that help to alleviate the effects of such asymmetric shocks. Altruistic remittances in effect play the role of such transfers, reducing the effects of real shocks on domestic households’ real incomes. As such, they provide an alternative mechanism of adjustment to that provided by exchange rate flexibility and weaken the argument for floating exchange rates when asymmetric real shocks are important.

Remittances and Growth

The preceding section focused on the short-run macroeconomic effects of remittances, taking as given the domestic capital stock and level of total factor productivity (TFP) in the economy receiving remittances. But remittance flows can also affect the evolution of the capital stock and of TFP over time—that is, they can affect the rate of growth of productive capacity in the receiving economy. This section examines the channels through which remittance receipts may affect an economy’s growth.

To do this, it is useful to examine separately the possible effects of remittance flows on the accumulation of productive capital and on TFP, as well as to decompose TFP growth into two components: the growth in the economy’s technological capacity (which determines the position of its production possibilities frontier, given its stock of productive assets) and changes in the efficiency of its resource allocation (which determines where the economy operates on that frontier). With these distinctions in mind, remittance receipts can in principle affect growth through three channels:

- their effects on the growth of the economy’s technological capacity;
- their effects on the rate of accumulation of productive assets (i.e., the level of domestic investment); and
- their effects on the efficiency of the allocation of new capital.

We consider each of these effects in turn.

Remittances and Growth of Technological Capacity

A familiar channel through which the arrival of workers’ remittances can affect the rate of growth of an economy’s technological capacity is through Dutch disease effects—that is, effects that operate through the influence of remittances on the real exchange rate. Suppose, for example, that the rate of growth of domestic technological capacity is at least partly a function of the share of domestic traded goods production in GDP. This could be the case if production in some component of the traded goods sector—for example, nontraditional manufactures intended for export—increases the technological capacity of other firms in the economy. This could come about as the result of training, learning by doing, demonstration effects, “self-discovery,” or similar dynamic production externalities. Since these externalities are positive on firms outside the traded goods sector, in the absence of corrective policy intervention the presence of such externalities creates a distortion that renders the domestic traded goods sector suboptimally small.

The arrival of (or an increase in) workers’ remittances can affect the severity of this distortion. To the extent that an increase in remittance receipts results in an appreciation of the economy’s equilibrium real exchange rate, as analyzed in “Workers’ Remittances and Short-Run Macroeconomic Performance,” it causes a contraction in traded goods production. Since the traded goods sector would in any case have been sub-
optimally small even without remittance inflows, the addition of workers’ remittances aggravates a preexisting distortion, reducing the rate of growth of the economy’s technological capacity and thus of TFP. This is precisely the phenomenon that has come to be known as Dutch disease. However, it is important to emphasize that this outcome is not a necessary implication of the appreciation of the real exchange rate and contraction of the traded goods sector associated with the arrival of (or an increase in) remittances. There is no “disease” if there are no distortions, because the real exchange rate appreciation is optimal in that case.

**Remittances and Investment**

The presence of workers’ remittances may affect the rate of investment in the recipient economy. Whether this happens depends on how remittance receipts are used. In turn, the disposition of remittance receipts depends on the motives driving remittance flows. Consider three cases:

- pure income transfers, as in previous sections;
- transfers with a merit good component; and
- remittance flows as disguised capital flows, representing investments by migrants in the receiving economy.

The “pure transfer” case subsumes both of the cases considered previously—that is, it applies both to remittances that are purely exogenous transfers and to those that are altruistically motivated as well. It also subsumes a third possibility not discussed up to this point: remittances that reflect a return on a migration investment made by the household in the migrant’s country of origin. The reason that the same analysis applies in any of the three cases is that the disposition of an additional dollar of remittance receipts does not depend on whether remittances are exogenous, motivated by altruism, or generated as the result of an explicit investment by the source family. In each case, the remittance simply takes the form of an additional dollar of income, and no other aspects of the recipient household’s optimization problem are affected.

**Pure Transfer Remittances**

This being the case, consider the growth effects of remittances that are pure exogenous transfers. It is useful to begin by examining the effects of remittances on investment spending in a frictionless world, and then analyze the implications of introducing specific frictions. As in “Workers’ Remittances and Short-Run Macroeconomic Performance,” we adopt a simple analytical framework to explore these effects. The framework differs from that in the earlier section in that it assumes a one-good production structure (so there are no real exchange rate effects) and allows the representative household not only to consume goods and leisure, but also to accumulate capital. To keep matters simple, we suppose that current output can be costlessly converted into physical capital, so the economy’s capital stock is always at its desired level.

In a frictionless world, whether the receiving household consumes or saves an additional dollar of remittances it receives depends on whether that additional dollar is perceived to be a temporary or permanent alteration. The more permanent the increase in the remittance flow is expected to be, the larger the share that will be consumed. Assumption of an endogenous labor supply does not affect this analysis. The only difference that such an assumption makes is that when leisure is included in the utility function, part of the additional consumption in each period takes the form of increased leisure.

But even if the remittance is perceived to be transitory, so that a share of it is saved, in a frictionless world the additional saving does not lead to an increase in domestic investment, since it does not affect the domestic cost of capital, which is determined by uncovered interest parity. This being so, the additional saving takes the form of an accumulation of foreign assets. The implication is that, whether permanent or transitory, in a frictionless world remittance receipts do not affect the level of domestic investment.

Now retain the assumption of no domestic external finance premium, but suppose that perfect capital controls impose a condition of financial autarky on the domestic economy. In this case, the domestic real interest rate is given by the marginal product of capital. As in the frictionless world, the share of remittances that households choose to consume depends on whether remittances are perceived as temporary or permanent. But now, to the extent that remittances are saved, the increased saving must be completely devoted to financing domestic real investment, since that is the only way that the domestic household sector as a whole can accumulate wealth. The amount of additional investment is an increasing function of the perceived permanence of the remittance flow. The shorter the expected duration of the remittance flow, the more of it will be saved, and thus the larger the effect on domestic investment.

In a more realistic setting, with multiple types of domestic productive assets (e.g., physical and human capital) available for the household to accumulate, the form that the saving takes (accumulation of physical or human capital) depends on the relative rates of return among the competing domestic investment opportunities. Since households allocate their investable resources among productive assets so as to equalize their rates of return at the margin, the allocation of investment across different types of assets depends on the strength of diminishing returns in the respective activities.

Now suppose that there are frictions in domestic financial intermediation, so the domestic economy is characterized by the presence of an external finance
premium. For now, assume that this premium is exogenous with respect to the level of remittances. The solution to the household’s optimization problem in this case sets the marginal product of capital \((MP_K)\) equal to the market interest rate \(r\) the household faces, which now includes an external finance premium. The presence of the external finance premium causes the domestic market interest rate, \(r\), to exceed the household’s rate of time preference, \(\rho\), which is the cost of internal finance. Thus the solution to the household’s optimization problem yields \(MP_K = r > \rho\), and the household therefore chooses an upward-sloping consumption path with slope equal to \((r - \rho)\) and present value equal to that of its resources.

In this context, the introduction of a permanent flow of remittances shifts the consumption path upward by the amount of the remittance flow without altering its slope. If the remittance flow introduced is perceived to be transitory, on the other hand, the consumption path shifts upward by a smaller amount, reflecting the smaller impact on the household’s lifetime resources, again without altering the path’s slope. So the foregoing analysis carries through: domestic investment is affected only when external capital mobility is less than perfect.

It has been claimed that, in contradiction to this result, a remittance-receiving country’s state of financial development may cause remittance receipts to have an important influence on domestic investment. The argument is as follows: when a country’s domestic financial system is poorly developed, a large number of households are rationed out of formal credit markets, because the cost of providing credit to them is prohibitively high. Such households are therefore unable to finance potentially highly productive investment projects. The arrival of remittances allows them to undertake these projects and thus increases the level of investment and boosts economic growth.

How general is this argument? For it to be valid, credit-constrained households must have access to productive investment opportunities, the credit-constrained households with good investment projects must be the ones receiving the remittances, their receipt of remittances must ease their credit constraints, and they must respond to this easing of their credit constraints by spending on investment rather than consumption. The last of these conditions may appear to be inconsistent with the previous analysis: since households have already achieved \(MP_K = r\), they devote any additional income to consumption, rather than to investment. However, the argument here departs from the previous analysis by making the assumption that some households are credit rationed. One way of describing this situation is that for such households, \(MP_K > r > \rho\) (it is hard to see what else credit rationing could mean in this context). But if this is the case, then the analysis suggests that any additional resources the household receives would indeed be devoted to investment, since \(MP_K > \rho\), implying that the household can increase its lifetime utility by postponing consumption. Unfortunately, as described in Chapter 4, the preponderance of the micro evidence seems to suggest that remittances finance consumption, rather than investment, though the verdict is not unanimous on this issue.

If the external finance premium is endogenous—for example, if it depends on the borrowing household’s collateralizable net worth—then another channel through which remittances may affect investment is by lowering the interest rate \(r\) faced by a non-credit-constrained household (i.e., one with \(MP_K = r > \rho\)), or by shifting households from credit-constrained to non-credit-constrained status (i.e., by lowering \(MP_K\) so that the household moves from \(MP_K > r > \rho\) to \(MP_K = r > \rho\)). The problem with this argument, however, is that remittance income does not represent collateralizable net worth. Thus, a positive effect of remittances on investment is unlikely to emerge through reductions in the external finance premium households face or through the provision of additional bank credit to credit-constrained households.

**Remittances as Transfers with a Merit Good Component**

While retaining the interpretation of remittances as transfers (rather than loans), suppose that the remitter cares about the specific use that the receiving household makes of the remittance transfer, implying that there is a merit good component to the transfer (sometimes referred to in the remittances literature as the “Filipino mother” phenomenon, reflecting the concerns of migrant mothers for the well-being of their children back home). This obviously could affect the allocation of remittances between consumption and investment and therefore the effect of remittance receipts on economic growth in the receiving economy. However, assessing the importance of this phenomenon for determining the growth effects of remittance flows is problematic. It depends not just on how important the merit good component of remittance flows is, but also on whether the merit good takes the form of consumption or investment, as well as on the migrant’s effectiveness in enforcing his or her preferences on the receiving household. Resource fungibility and asymmetric information create problems for the enforcement of such preferences. In an extreme case, the migrant’s preferences may be completely disregarded, causing the situation to devolve to that of a pure transfer.

**Remittances as a Capital Flow**

It is also possible that at least some part of what is recorded as an unrequited transfer in the recipient country’s balance of payments accounts is instead a
Remittances and the Efficiency of Investment

Aside from their effects on the level of investment, remittance flows may affect the efficiency of investment in the receiving country, both in the short run and in the long run. In the short run, remittance flows can have an effect on investment efficiency if remittances are transfers with a merit good component, that merit good happens to be an investment good (e.g., education for the children, residential investment), and the migrant can indeed enforce his or her preferences on the recipient, as discussed previously. Under these circumstances, remittance flows may affect the efficiency of investment if the migrant is either more or less well informed about relative rates of return among competing projects in the domestic economy than is the recipient. To the extent that remittances represent a disguised capital inflow, replacing other flows that would have been intermediated differently in the domestic economy (e.g., through the domestic banking system), they tend to have effects on the efficiency of investment depending on whether the individual investing the funds on behalf of the migrant is a more or less efficient intermediary than the alternative intermediary in the domestic financial system.

In the longer run, remittance flows may influence the efficiency of domestic investment less directly: by affecting the state of financial development in the recipient economy. This effect may be operative if the presence of remittances affects the domestic demand for money and thus the public’s demand for the liabilities of the domestic financial system; this can happen in at least two ways.

First, if remittance flows are exogenous, a higher level of remittances increases the resources (income) available to domestic households and thus increases household expenditure, as argued in “Workers’ Remittances and Short-Run Macroeconomic Performance.” The implication is that the transactions demand for money increases in the receiving economy.

Second, if remittances are altruistic, the presence of remittance flows may affect the demand for money through the implications of those flows for the level of economic uncertainty the recipient households face. A commonly held view is that the demand for domestic money decreases in response to an increase in domestic macroeconomic uncertainty (i.e., domestic uncertainty causes domestic agents to shift their assets abroad, rather than holding them in the domestic financial system). To the extent that altruistic remittances function as insurance for the recipient household, however (see Chapter 4), the presence of such remittances tends to reduce the impact of aggregate uncertainty on the individuals who receive them, thus tending to weaken the effect of aggregate uncertainty on their demand for money. For a given level of aggregate uncertainty, then, altruistic remittances tend to increase the demand for money at any given level of income.8

In either case—with either exogenous or altruistic remittance flows—the presence of remittances tends to increase the supply of funds faced by the domestic banking system. Such an increase lowers the cost of borrowing for banks, and with the marginal cost of intermediation held constant, reduces the cost of funds for the banks’ private and public borrowers. The implication is that remittance inflows increase conventional measures of financial development such as the ratio of M2 to GDP or the ratio of credit to the private sector to GDP.

But financial development is best understood as referring not to such variables, which are just crude indicators of an economy’s degree of financial development, but rather to the size of the external finance premium in the economy. In the context of banks, this is measured by the spread between deposit and lending rates. When this spread falls, the two conventional indicators of financial development mentioned in the previous

8In other words, suppose the nominal demand for money (M0) can be written as a function of the price level (P), interest rates (i), income (Y), and uncertainty (σ), such that

\[ M^D = P L (i, Y, σ), \]

where the signs beneath the variables indicate the relationship between money demand and that variable. Then altruistic remittances reduce the absolute value of the coefficient of σ.
paragraph tend to increase (which is what makes them useful indicators), but the converse (that an increase in these indicators implies a reduction in the spread) does not follow. Thus the question for remittances’ impact on financial development is whether the increase in the demand for bank liabilities is likely to be associated with reductions in the marginal cost of intermediation.

One channel through which this could occur is through economies of scale in the domestic banking industry. As the demand for the liabilities of domestic banks increases and the banking system therefore increases in scale, the associated reduction in unit costs reduces the external finance premium. A less direct channel could also operate if the increased demand for domestic financial intermediation among the remittance-receiving public causes it to pressure the government to implement financial reforms to improve the domestic financial system’s efficiency (as foreign banks are sometimes said to do when they are allowed into developing country financial sectors). The public would indeed have an incentive to do so, because a greater share of its financial portfolio would be invested in the domestic financial system in the presence of remittances than in their absence. Unfortunately, this is not the only possibility. An alternative outcome is that the increase in demand for domestic bank liabilities may cause the public to pressure the government to make banks more secure (as appears to have been the case in several bank-dominated economies in East Asia). This may have perverse implications for financial development: the implementation of policies that promote concentration in the financial system and that induce banks to hold relatively safe assets, such as government bonds.

Remittances and Government Debt Sustainability

As indicated in “Workers’ Remittances and Short-Run Macroeconomic Performance,” the fiscal response to the arrival of (or an increase in) workers’ remittances can have a critical influence on how those remittances affect domestic short-run macroeconomic equilibrium. By allowing for productive public expenditures, distortionary taxation, or both, it is possible to extend the analysis presented in “Remittances and Growth” to explore how the possibility of taxing remittances and either saving or spending the proceeds also affects the rate of growth of an economy’s productive capacity. However, the set of possible fiscal responses to an increase in remittance flows is potentially richer than those restricted to contemporaneous effects on government revenues and expenditures, because the presence of remittances may have more far-reaching effects on the government’s intertemporal budget constraint. This section explores those effects, focusing particularly on the impact of workers’ remittances on the sustainability of government debt. Because remittance flows may affect both the magnitude and the stability of government revenues, we analyze this impact separately in a world of perfect certainty and one with stochastic elements.

The Certainty Case

The maximum sustainable value of the ratio of government debt to GDP is the present value of the ratio to GDP of the government’s maximum sustainable primary surplus plus seigniorage revenue, discounted at a rate equal to the difference between the real interest rate and the economy’s sustainable real growth rate.

If workers’ remittances are taxable, an increase in the ratio of remittances to GDP increases the government’s tax base, without a necessary increase in the tax rate. Because there are no necessary implications for government spending, the sustainable value of the primary surplus will rise, and so will the sustainable value of government debt. In other words, with taxable remittances an increase in the size of remittance inflows eases the government’s intertemporal budget constraint.

However, an increase in remittance flows may increase the maximum sustainable ratio of government debt to GDP even if remittances are not taxable. This can happen in a variety of ways. First, even if they are not taxed directly, remittance flows may indirectly increase the revenue that the government receives from other taxes, such as the consumption taxes considered in Chapter 7, even if the applicable tax rates are not changed. Second, since remittance inflows represent an increase in domestic household incomes, they may make it possible for the government to raise the tax rate on the portion of household incomes that is taxable. In other words, the presence of remittance income may increase the maximum feasible tax rate on GDP.

Third, even with no change in tax rates, if an increase in remittance inflows increases the economy’s growth rate, as discussed in “Remittances and Growth,” the rate at which the government’s future primary surplus plus seigniorage revenue are discounted will fall. Finally, if remittances increase the domestic demand for banking sector liabilities, as discussed in “Remittances and Growth,” the demand for the monetary base will rise. As a result, for a given rate of inflation, the government’s seigniorage revenue will tend to increase. For all three of these reasons, an increase in workers’ remittances will result in an increase in the maximum sustainable value of the ratio of government debt to GDP.

9In this case, even if remittances do not affect the rate of growth of GDP, they may affect the rate of growth of the tax base if the government’s maximum sustainable tax effort depends on the ratio of remittances to GDP and that ratio is increasing over time because remittances grow faster than GDP.
sustainable debt-to-GDP ratio. In other words, whether remittance flows are taxable or not, through these mechanisms their presence will increase the sustainable value of government debt and thus its borrowing capacity.

In addition to these considerations, if the size of the domestic banking sector affects the demand for government debt, a separate effect may be at work that operates in the same direction. Suppose that, for whatever reason, banks are willing to pay a premium to hold government debt rather than other assets. In that case, the larger the size of the domestic banking sector, the higher the demand for government debt, and thus the lower the cost to the government of financing its debt. It follows that if an increase in the flow of workers' remittances increases the demand for the liabilities of the domestic banking system, as discussed in “Remittances and Growth,” then a larger flow of remittances tends to increase the government's maximum sustainable debt-to-GDP ratio.

The Role of Uncertainty

In reality, of course, a government’s future fiscal intentions are unknown, and it would be reasonable to expect a variety of future exogenous shocks to affect its budget. Consequently, in calculating the government’s maximum sustainable debt-to-GDP ratio, the appropriate discount factor to apply to the government’s future flows of primary surpluses plus seigniorage revenue is not the risk-free real interest rate, but the interest rate applicable for discounting cash flows with the risk characteristics of government debt.

The implication of this observation is that another channel through which workers’ remittances may affect the maximum sustainable value of government debt is through their effect on the stability of government revenues. To the extent that the presence of workers’ remittances in an economy makes government revenue more stable—say, by stabilizing household consumption and thus government revenue from consumption taxes—the interest rate appropriate for discounting government debt falls. The opposite is true, of course, if the presence of remittances makes government revenue less stable. In the former case the sustainable value of government debt increases, whereas in the latter it decreases.

For example, if remittances are countercyclical, and if they consequently have the effect of stabilizing the time path of real GDP, then their effect is to stabilize the government’s tax base over time and thus stabilize the future ratio of primary surplus to GDP. This reduces the risk profile of government debt and allows future government debt service payments to be discounted at a lower real interest rate (i.e., it reduces the sovereign risk premium). Since a given expected flow of future government resources (primary surplus plus seigniorage) is discounted at a lower rate, the present value of the maximum sustainable primary surplus plus seigniorage increases, and that increases the maximum sustainable value of the government’s debt-to-GDP ratio (increases the government’s borrowing capacity).

Conclusion

The purpose of this chapter has been to explore how the macroeconomic variables of interest to policymakers behave given the interaction between remittance flows and the recipient economy. Although the challenge for policymakers is to understand this interaction and the role that policy can play in maximizing the benefits derived from remittance flows, the analysis in this chapter shows that workers’ remittances may not have uniform macroeconomic effects from country to country or over time. We therefore urge policymakers to conduct a thorough diagnostic analysis of the role remittances play in economies, with particular emphasis on the incentive effects of remittance flows, the effects of these flows on macroeconomic variables of interest, and the existence of any specific constraints on economic growth in the given environment in a particular economy.

Although the conclusions presented in the various sections of this chapter may appear general and incontrovertible, any specific policy recommendations must come after a thorough examination of the interplay between economic structure and remittances. In the next chapter, we develop an example of such an examination using a specific real business cycle model and analyze the optimal conduct of fiscal and monetary policy in this setting. The model is designed to investigate the incentive effects that remittances have on household labor supply and traces these effects to the macroeconomy and government policy under the existence of technology and government spending shocks.

References
