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Migrant Remittances and Exchange Rate Regimes in the Developing World

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This article argues that the international financial consequences of immigration exert a substantial influence on the choice of exchange rate regimes in the developing world. Over the past two decades, migrant remittances have emerged as a significant source of external finance for developing countries, often exceeding conventional sources of capital such as foreign direct investment and bank lending. Remittances are unlike nearly all other capital flows in that they are stable and move countercyclically relative to the recipient country's economy. As a result, they mitigate the costs of forgone domestic monetary policy autonomy and also serve as an international risk-sharing mechanism for developing countries. The observable implication of these arguments is that remittances increase the likelihood that policy makers adopt fixed exchange rates. An analysis of data on de facto *exchange rate regimes and a newly available data set on remittances for up to 74 developing countries from 1982 to 2006 provides strong support for these arguments. The results are robust to instrumental variable analysis and the inclusion of multiple economic and political variables.*

> *"The Central Bank has adopted and will continue to adopt pro-market policies and will ensure price stability. This is essential . . . to believe in a country that enjoys annual remittances of six billion dollars, the highest per capita in the world. Our markets have shown resiliency in difficult times."*
>
> —Governor Riad T. Salameh, Central Bank of Lebanon, 2008[1]

Governments in developing countries have long realized that migrant remittances are a significant source of external finance. Remittances—which arise when migrants send money back home to their families—are not only an important lifeline for some of the poorest countries in the world, but also constitute a sizable share of gross domestic product (GDP) for emerging market countries. In countries such as El Salvador, Haiti, Honduras, and Jordan, inflows of remittances exceed 15% of GDP. In 2004, a total of 42 developing countries had inflows of remittances greater than 5% of GDP.[2] The World Bank estimates that total recorded flows of remittances reached $318 billion in 2007; this is a staggering sum that dwarfs other external financial sources, such as official development assistance, bank lending, and private investment. Annual flows of remittances even exceed foreign direct investment (FDI) for the majority of developing countries. Central bankers, such as Governor Salameh of the Central Bank of Lebanon (quoted previously), have certainly taken notice and are deeply aware of the impact of remittances on their economies.[3]

Remittances pose a challenge to our understanding of the influence of global finance on national policy choices in the developing world. Indeed, as a form of capital inflow, remittances have many unusual characteristics. Most strikingly, they are "unrequited": they do not result in claims on assets, debt service obligations, or other contractual obligations (Brown 2006; Kapur 2005). In contrast to purchases of financial or productive assets, which can be liquidated and repatriated, remittances cannot be withdrawn from a country ex post. They therefore cannot be lumped together with other capital flows that arguably cause household insecurity or income volatility, such as FDI and portfolio flows (e.g., Ahlquist 2006; Garrett 1998; Scheve and Slaughter 2004), or with financial capital that can be withdrawn by investors in reaction to unfriendly government policies (Jensen 2006; Li and Resnick 2003; Mosley 2000, 2003). Moreover, migrants tend to increase their remittances when their countries of origin experience economic difficulties. As a result, remittances smooth the incomes of families and shield policy makers from the vagaries of the global economy. In short, financial transfers from migrants are a form

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[1] Remarks from the Gala Dinner, Lebanese American Renaissance Partnership, Beirut, Lebanon, September 12, http://larpmission.org/larpii/remarks-salameh.html (April 2, 2010).

[2] Data from World Bank, World Development Indicators (2008).

[3] Indeed, an earlier version of this article was presented by the author at the Bangko Sentral ng Pilipinas in 2009 at a global conference on the impact of remittances on the macroeconomy and public policy making. Central bankers hesitate to give on-the-record interviews, and when speaking in public, they tend to obfuscate more than they clarify. However, it is clear that they are profoundly aware of the importance of remittances to their economies. Central banks from Argentina to Oman to Nepal have professional staffs who track remittances and study their effects.

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of insurance for developing countries against exogenous shocks (Kapur 2005; Lopez-Cordova and Olmedo 2006; Lucas and Stark 1985; Rapoport and Docquier 2005; Yang and Choi 2007).

What are the implications for national policy making when cross-border financial transfers *within families* emerge as a prominent force in the global economy? The prominence of remittances has potentially profound implications for a variety of national policy choices.[4] This article focuses on exchange rate policy, which is arguably the most important macroeconomic policy domain for governments in developing countries (Cooper 1999).[5] Indeed, the exchange rate is the most important price in an open economy, because it affects the prices of all other goods and services. As with most economic policy choices, exchange rate policy entails important trade-offs (Bernhard and Leblang 1999; Broz 2002; Cohen 1993; Frieden 1991; Leblang 1999; Walter 2008). Policy makers choose fixed rates to facilitate international trade and investment and provide an anchor for monetary policy, but they lose the ability to adjust monetary policy to changing domestic circumstances—an ability commonly dubbed "domestic monetary policy autonomy." Policy makers select floating rates to retain the ability to adjust interest rates in reaction to exogenous shocks or economic downturns, but they incur costs in terms of increased uncertainty in international economic relationships and greater difficulty in anchoring expectations about inflation.

This article argues that remittances are an important influence on exchange rate policy making in the developing world, along with political institutions, interest groups, and other political economy considerations. Remittances mitigate the political costs of lost monetary policy autonomy because they react countercyclically to economic downturns and otherwise insulate policy makers from economic volatility. In essence, remittances have the capacity to substitute (albeit imperfectly) for domestic monetary policy autonomy in the developing world. Therefore, I expect inflows of remittances to be positively associated with the implementation of fixed exchange rates. I develop this argument using conventional macroeconomic models in unconventional ways. Using Robert Mundell's (1961) optimum currency area framework, I argue that migrant remittances serve a function similar to that of cross-border government transfers (or other supraregional risk-sharing mechanisms) in allowing the domestic economy to adjust to a fixed exchange rate.

I begin with an overview of remittances in the global economy, including trends, causes, and consequences. I also summarize the ample evidence of the countercyclicality of remittance flows. I then provide an empirical test of the hypothesis that remittances, along with interest group pressures, political institutions, and macroeconomic conditions, are important determinants of exchange rate regimes in the developing world. Using newly available World Bank data on annual remittances from 1982–2006 for up to 74 developing countries, I demonstrate that countries for which remittances constitute a substantial share of GDP are more likely to adopt fixed exchange rates. This finding is of particular significance given the recent ideological shift against fixed rates: it appears that remittances encourage policy makers to go against the tide. The findings are robust to multiple model specifications, including de facto and de jure measures of exchange rate policy. I also account for possible endogeneity by using migrant flows to wealthy countries as an instrumental variable for remittances. The article concludes with a discussion of the broader implications of remittances for the political economy of national policy making in a global economy.

REMITTANCES: DEFINITIONS, TRENDS, AND CONSEQUENCES

International financial transfers from migrants to family members in their home countries are known as remittances. A typical remittance transaction contains two parts: (1) the migrant contracts with an agent—a money service business such as Western Union, a bank, or an informal agent—and transmits the money to the agent via cash, check, credit card, or other debit instruction; and (2) the agent instructs its own affiliate in the receiving country to deliver the remittance to the beneficiary (Ratha 2005a).

Remittances have experienced strong growth over the past two decades. Recorded remittances to developing countries increased from $31.2 billion in 1990 to $160 billion in 2004, and to more than $300 billion in 2007. The rate of growth was highest for "lower middle income countries" (with approximate GDP per capita between $1,000 and $3,500), a category that includes countries such as El Salvador, Indonesia, and Tunisia. The growth in remittances is particularly striking in comparison to portfolio investment (private debt and equity), which declined by 20% between 1995 and 2004, and official development assistance, which increased by a modest 34% over the same period. The result of these trends is that remittances are second only to FDI as a source of external capital flows in the developing world (Figure 1). Indeed, remittances were larger than the total of all public and private capital inflows—including FDI, foreign aid, and private debt and equity investment—for 36 countries in 2004. Even in Mexico, which is known for attracting investment from U.S. corporations, inflows of remittances have been nearly equal to FDI inflows since 2003.[6]

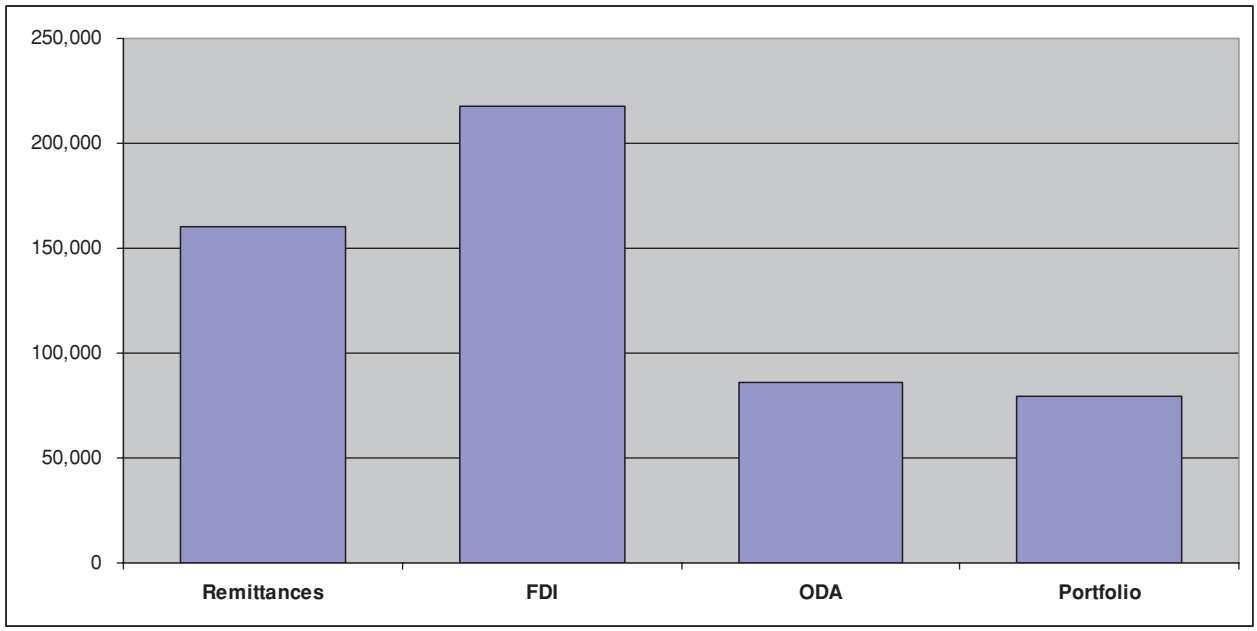
[4] For example, Leblang (2009) argues that countries extend dual citizenship rights to their emigrants as a way to engender loyalty and maximize remittance flows; Bhavnani and Peters (2010) and Pfutze (2009) argue that remittances increase support for democratization.

[5] See Klein and Shambaugh (2008) for quantitative evidence of the importance of exchange rate regimes.

[6] World Bank (2006, 88) states that remittances currently exceed FDI in Mexico. In 2003 and 2004, total FDI as a percentage of GDP was 2.4% and 2.8%, respectively, whereas remittances were 2.3% and 2.7%, respectively. Other data from World Bank (2006) and World Development Indicators (various years).

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FIGURE 1. Capital Inflows ($Millions) to Developing Countries, 2004



Source: World Bank (2006).

Migrants in the United States remitted nearly $39 billion to their countries of origin in 2004, making it the largest source country for remittances (World Bank 2006). The other significant source countries include many of the large continental European economies (Germany, France, Switzerland, and Italy) as well as the countries of the Gulf, including Saudi Arabia, Kuwait, and Oman.

It is a misconception that remittances flow only to very poor countries. Perhaps surprisingly, in 2004, France, Spain, and Belgium were among the 10 largest recipients of remittances. Among developing countries, more than 70% of total remittances accrue to those in the "middle income" bracket, including China, Honduras, and Peru. Nevertheless, for poor countries such as Mongolia, Nepal, and the Gambia, remittances frequently constitute more than 10% of GDP and thus are a critical lifeline for the resident population (Figure 2).

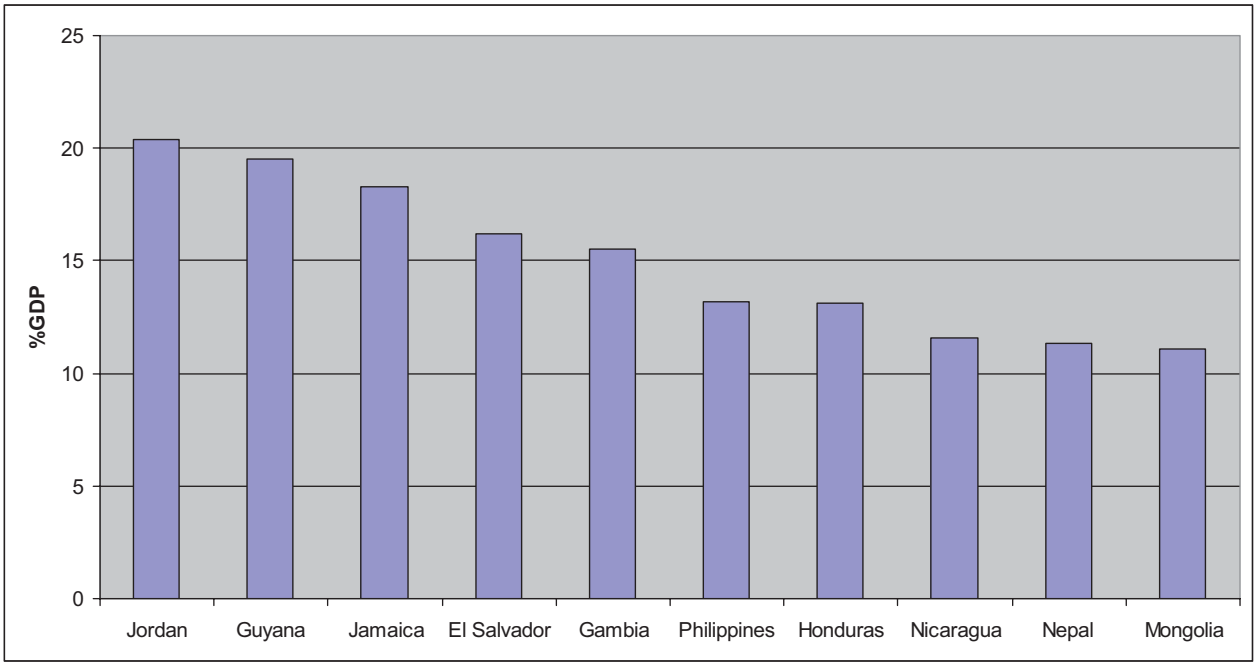
Causes and Consequences

Remittances are the international financial consequence of immigration, which has been steadily increasing in recent times. The total stock of migrants—estimated at 175 million in 2000—increases by approximately six million annually, which is appreciably faster than the growth of world population (International Labor Organization 2004). Between 1970 and 2000, the number of migrants in North America increased from 13 million to 41 million, or approximately 3.7% annually; for Europe, the number of migrants increased from 19 million to 33 million over the same period. Approximately 50% of all migrants are considered economically active—that is, they are gainfully employed in the host country—whereas the other half consist of students studying abroad, those accompanying economically active family members, and refugees [International Organization of Migration (IOM) 2005]. Although migration has been increasing steadily, it is certainly not a new phenomenon, and it alone cannot explain the steady increase in the flow of remittances. Other factors, such as technological developments in financial infrastructure, have reduced the costs of transmitting funds between countries. Money transfer businesses—especially Western Union—have experienced tremendous growth: there are now more than seven times as many Western Union agents worldwide (more than 400,000 locations in 200 countries) than McDonalds and Starbucks locations combined.[7] Capital account liberalization, including the relaxation of restrictions on foreign exchange deposits, has no doubt facilitated the international reach of these businesses [International Monetary Fund (IMF) 2005]. Domestic financial institutions have also matured as countries have liberalized capital flows and embraced (in varying degrees) the global economy. Banks throughout the developing world have adopted modern risk management techniques and improved their lending portfolios, and in the process they have reeled in many more citizens as customers. Kapur (2005) notes that banks in developed countries also facilitate the flow of remittances by competing with money transfer agents for migrants'

[7] Data compiled from corporate Web sites: www.mcdonalds.com, www.starbucks.com, and www.westernunion.com.

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FIGURE 2. Remittance Inflows (%GDP), to Selected Countries, 2004



Source: World Bank, World Development Indicators (various years).

business. Migrants in developed and emerging market countries now have several options for sending money back home. The transaction costs of remitting funds will continue to decline as developing country financial infrastructure improves and new transfer agents enter the market.

To understand the consequences of remittances, it is helpful first to understand the motivation of remitters. Rapoport and Docquier (2005, 10) note that migration should be viewed as "an informal familial arrangement, with benefits in the realms of risk diversification, consumption smoothing, and intergenerational financing of investments." This definition captures both altruistic and self-interested motivations for remittances.[8] Altruism within the context of family relationships is perhaps the most obvious motivation: migrants want to support their family members who remain behind, and their transfers of funds do not lead to promises of future compensation. Family members use remittances primarily to finance consumption, including food, shelter, health care, and basic utilities (Adida and Girod n.d.; Brown 2006; Chami, Fullenkamp, and Jahjah 2005; Durand and Massey 1992; Glytsos 1993).[9] Migrants might also send money home for self-interested reasons, such as to maintain or expand existing investments (businesses, land, etc.) that they left behind, or to repay loans. Some scholars have argued that ostensibly self-interested motivations can be subsumed under the rubrics of "enlightened selfishness" or "impure altruism" because remittances are transmitted between individuals with strong familial (i.e., nonfinancial) ties (Andreoni 1989; Lucas and Stark 1985).

There is a substantial literature on the poverty-reducing impact of remittances, which is largely beyond the scope of this article.[10] However, the "multiplier effects" of remittances deserve special mention here. Inflows of remittances generally contribute more than their initial value to the receiving economy (Orozco 2004; Ratha 2005b). One study of the Mexican economy found that each remitted dollar generates $4 in demand for goods and services (Durand, Parrado, and Massey 1996). An important implication of the multiplier effect is that households that do not receive remittances still benefit indirectly from remittances to other households. For example, construction workers, timber producers, and day laborers benefit if remittances are used for home building (Choucri 1986). Even remittances to rural and remote areas have a broader economic impact, because the secondary beneficiaries of these capital inflows include goods and labor markets in urban areas (Zarate-Hoyos 2004).

[8] In contrast, O'Mahony (2009) argues that migrants have overtly political motivations.

[9] It is possible that for certain countries, an increase in demand for these nontradable goods may cause "Dutch disease," an appreciation of the real exchange rate. See Acosta, Lartey, and Mandelman (2009).

[10] See Brown (2006) and Rapoport and Docquier (2005) for surveys of the literature. See Acosta, Fajnzylber, and Lopez (2008) for evidence of the impact of remittances on household behavior in Latin America.

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Countercyclical Remittance Inflows

Remittances are transfers between families that tend to flow countercyclically relative to the recipient country's economy (Frankel 2009; World Bank 2006). Migrants send more money home when their families experience economic difficulties. Moreover, adverse circumstances often trigger more migration, which then results in greater remittance inflows. As Brown (2006, 60) notes, remittances serve as "transnational intra-family or intra-community safety nets, cushioning societies from the disruption attending more volatile financial flows." If the receiving household experiences economic hardship, the migrant can increase her remittances by a relatively modest amount—say, 5% or 10%—without causing him- or herself inordinate financial harm. Yet, even an unchanging flow of remittances in response to economic adversity provides a powerful stabilizing influence. In the aggregate, such financial flows offer a powerful buffer against economic contractions in the receiving country, especially compared to other capital flows (with the exception of foreign aid), which are likely to decline in response to downturns or shocks.[11]

Several empirical studies, including Chami, Fullenkamp, and Jahjah (2005), Frankel (2009), IMF (2005), and Kapur (2005), find a strong relationship between economic contractions and subsequent increases in remittances for developing countries. Indeed, Kapur (2005) finds that the average share of remittances in private consumption for 14 developing countries more than tripled in the three years after an economic downturn.[12] An IMF (2005) study reports that countries such as Mexico, Indonesia, and Thailand experienced a significant increase in remittances in the two years immediately after their respective financial crises in the 1990s; similarly, Bangladesh, the Dominican Republic, Haiti, and Honduras experienced increases after natural disasters.[13] More recently, the Philippines central bank reported that remittances increased by 11% in November 2009 compared to a year earlier, largely as a result of migrants sending more funds home in the wake of two devastating typhoons.[14]

Among the most compelling studies of the countercyclicality of remittances are Yang (2008) and Yang and Choi (2007). Yang (2008) finds that remittances increase substantially in the wake of hurricanes in a panel of more than 70 developing countries between 1970 and 2002. Clarke and Wallsten (2003) find similar results for the responsiveness of remittances to Hurricane Gilbert in Jamaica in 1988. Given these articles' focus on natural disasters as the trigger for remittances, there is no concern over endogeneity. Yang and Choi (2007) are also sensitive to endogeneity in examining how remittances respond to household income shocks in the Philippines. Using rainfall shocks as an instrumental variable, they find that 60% of household income contractions are replaced by remittance inflows.

Remittances are unusual in their tendency to mitigate economic volatility (Frankel 2009). A large sample study conducted by the IMF (2005) found that remittances substantially reduce the volatility of output, consumption, and investment. Even in periods of stable economic growth, remittances are far less volatile than other capital flows; even foreign aid was more volatile than remittances from 1980 to 2003 (IMF 2005). Moreover, notwithstanding current reports of a temporary downturn in remittances from the U.S. to Mexico, a recent IMF study demonstrates that remittances to Latin America are relatively insensitive to the U.S. business cycle, thereby underlining their role as a stable source of external finance (Roache and Gradzka 2007). It is therefore becoming increasingly common for scholars to emphasize the "insurance" function of remittances for the developing world (Kapur 2005; Kapur and McHale 2005; Lopez-Cordova and Olmedo 2006; Yang and Choi 2007).

Many scholars believe that countries require some form of insulation from global financial markets, such as welfare state spending, a larger government, or some other form of redistribution (Garrett 1998; Katzenstein 1985; Rodrik 1998; Ruggie 1982; Scheve and Slaughter 2007).[15] If, however, remittances can serve as a form of insulation rather than a source of insecurity or volatility, then political economy models should pay careful attention to the unique influences of remittances on policy making.[16]

THE POLITICAL ECONOMY OF EXCHANGE RATE REGIMES

The analytical heart of the literature on the political economy of exchange rates is the Mundell-Fleming model and its famous implication that countries must choose to forgo one of three policy goals: exchange rate stability, full capital mobility, or domestic monetary policy autonomy (Fleming 1962; Mundell 1960). In today's world of highly integrated financial markets, a discrepancy between the domestic and world interest rates causes capital to flow in the direction of the higher return. If the exchange rate is allowed to float, it will adjust accordingly—appreciating with capital inflows and depreciating with capital outflows. However, if the exchange rate is fixed, then the interest rate differential

[11] In 2009, in the midst of the worst financial crisis in 50 years, remittances did indeed fall substantially for many countries, thereby compromising their insurance function for needy households. However, the overall decline in remittances—estimated at 6.1% for receiving countries in the developing world—is remarkably small in relation to the magnitude of the worldwide economic contraction. See World Bank 2009.

[12] Kapur (2005, 343) defines a downturn as a decline in GDP of 2% or greater.

[13] The same study reports that home country output has a statistically significant and negative impact on remittances for a panel of 87 countries.

[14] *Philippine Daily Inquirer*, January 15, 2010, http://www.inquirer.net/specialfeatures/remittance/view.php?db=1&article=20100115-247513 (accessed February 1, 2010).

[15] On the tensions between states and markets more generally, see Helleiner (1994) and Pauly (1998).

[16] Esteves and Khoudour-Castéras (2009) find that remittance flows were associated with financial stability for countries on the gold standard in the 1800s.

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is quickly arbitraged away by the capital flows. The result is that the combination of mobile capital and a fixed exchange rate renders monetary policy ineffective as a policy tool.

The Mundell-Fleming conditions imply that governments face a trade-off between credibility and flexibility (Bearce 2007; Bernhard, Broz, and Clark 2002; Frankel 1999). Credibility arises from the fixed exchange rate, which decreases transaction costs for investors, traders, and other groups with ties to the global economy (Frieden 2002). Reducing or eliminating exchange rate volatility can facilitate international borrowing and stabilize the real value of debts denominated in foreign currencies (Calvo and Reinhart 2002; Walter 2008). A fixed rate also leads to monetary stability by tying the hands of monetary policy makers (Giavazzi and Pagano 1988). Businesses and the public at large moderate their wage and price expectations because they believe the primary goal of monetary policy is to maintain exchange rate parity (Canavan and Tommasi 1997; Keefer and Stasavage 2002). Countries with high inflation are therefore especially interested in the credibility-enhancing features of a fixed exchange rate. However, at the most fundamental level, a fixed exchange rate requires the government to subordinate domestic concerns—whether political or economic—in favor of international concerns (Frieden 2006; Simmons 1994). Often this implies that the government must sacrifice short-term economic growth and employment levels to preserve the exchange rate. Moreover, rigidly fixed exchange rates may be prone to speculative attack, thereby undermining the currency stability they were designed to provide.[17]

In contrast, flexibility is associated with floating exchange rates, which provide monetary policy makers with the capacity to adjust interest rates to changing domestic economic circumstances. Under flexible rates, policy makers can ease monetary policy to offset an economic downturn, thereby stabilizing employment and output. Moreover, the exchange rate can adjust to counteract current account imbalances. This flexibility comes at the cost of lower monetary policy credibility, because in the absence of a transparent target for the exchange rate, the public is unsure of policy makers' commitments to maintaining stable prices.

A political economy model of exchange rate regime determination can be assembled largely around these trade-offs. The basic model starts with the presumption that political leaders respond to domestic (and sometimes international) political pressures from interest groups, and that these pressures are broadly mediated through and constrained by political institutions. Because actual lobbying efforts in favor of or against exchange rate policy are rare, I follow existing work in asserting a link between sectoral size (or the magnitude of a particular economic activity such as exports) and political influence over economic policy outcomes (e.g., Brooks 2004; Chwieroth 2007; Copelovitch n.d.; Frieden, Ghezzi, and Stein 2001).[18]

The institutional influences on exchange rate policy can be culled from the emerging literature on exchange rate regime determination. Existing scholarship argues that the degree of democracy is positively associated with floating exchange rates because leaders in democratic countries face pressures from constituents to use monetary policy for domestic adjustment purposes (Bernhard and Leblang 1999; Leblang 1999). Broz (2002) further argues that democracies, which benefit from greater political transparency than non-democracies, can guard the credibility of their monetary policy-making process without tying their hands with a fixed exchange rate. Other scholars examine the relative political costs of enduring the often painful domestic adjustments required to maintain a fixed exchange rate, which are arguably lower in stable governments and those with small numbers of veto players (Edwards 1999; Keefer and Stasavage 2002; Simmons 1994). Finally, focusing on developed democracies, studies such as those by Clark (2002), Clark and Hallerberg (2000), and Hallerberg (2002) examine the trade-off between fiscal and monetary policy discretion within the Mundell-Fleming framework. They note that fixed exchange rates enhance the power of fiscal policy when capital is fully mobile. Governments are therefore more likely to adopt fixed exchange rates when fiscal policy, rather than monetary policy, is the more effective tool for electoral gain, as in Organization for Economic Co-operation and Development (OECD) multiparty coalition states where targeted spending can be rewarded by voters (Hallerberg 2002).

Groups in society that benefit from stable currency relations with other countries, such as exporters and certain investors, can be expected to use their political influence to press for exchange rate stability (Frieden 1991). However, a clear mapping of sectoral interests is not always possible for a large sample of countries. Frieden and his colleagues argue that exporters and import-competers both value currency depreciation and therefore oppose a rigidly fixed exchange rate, whereas foreign investors and creditors value the stability of a fixed rate (Blomberg, Frieden, and Stein 2005; Frieden 2002; Frieden, Ghezzi, and Stein 2001). However, when international trade occurs between developing countries with limited capacities to hedge exchange risk, manufacturers and other exporters might prefer the currency stability and lower transaction costs afforded by a fixed exchange rate. Likewise, there are no clear partisan divides over exchange rate policy in a contemporary cross-national context. Although right governments have traditionally been in favor of price stability and the interests of the financial community, whereas left governments have favored full employment and income equality, today the mapping of those interests onto exchange rate policy is not straightforward. Left governments, for example, might be torn

[17] See Obstfeld and Rogoff (1995). For an opposing view, see Frankel (1999). On other trade-offs in exchange rate policy making, see Hall (2005) and Plümper and Troeger (2008).

[18] See Bearce (2003) for an argument about the importance of agents (namely, political parties) for monetary policy outcomes in the OECD.

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between an autonomous monetary policy to respond to economic downturns (under a floating exchange rate) and a possible expansion of export sector employment (under a fixed exchange rate). Likewise, right governments might prefer floating exchange rates if alternative mechanisms are available for ensuring stable prices, or if there are additional benefits to financial interests that result from a floating currency.[19]

REMITTANCES AND EXCHANGE RATE REGIME CHOICE

An important consideration in the political economy of exchange rate regimes is the influence of capital mobility.[20] The disparate studies discussed previously conceive of capital mobility as the sensitivity of capital flows to domestic rates of return (e.g., Goodman and Pauly 1993). Scholars generally measure capital mobility as a policy choice: if governments impose no restrictions on capital flows, then capital is assumed to be responsive to differential rates of return (e.g., Oatley 1999). In empirical studies of exchange rate regimes, an index of financial policy openness from Quinn (1997) or Chinn and Ito (2006), or a simple dichotomous variable based on IMF surveys of capital controls, is frequently the only included measure of a country's relationship with international financial markets.[21] The standard argument is that financial closure allows governments to reap the benefits of fixed exchange rates without sacrificing domestic monetary policy autonomy (Bernhard and Leblang 1999; Broz 2002; Leblang 1997, 1999). Financial openness, in contrast, makes the adoption of fixed exchange rates less attractive and therefore less likely.[22]

For developing countries, the international financial consequences of immigration must also enter the equation. Introducing remittances into the political economy model of exchange rates does not imply an abandonment of the Mundell-Fleming conditions. Indeed, mobile capital will respond to differential rates of return, even in countries that are heavily dependent on remittances. However, I argue that such countries will be less concerned about forgoing domestic monetary policy autonomy. Consider the impact of an increase in remittances during a recession in the receiving country. Households use the funds to bolster their consumption of food and basic necessities, and to maintain existing small businesses and other investments. Such spending and investment has a multiplier effect on the economy, triggering additional investment and consumer spending. In short, remittances—when sufficiently large in relation to the economy—constitute an automatic stabilizer that performs a function similar to that of countercyclical monetary policy. As such, remittances stand apart from other capital flows in that they do *not* exacerbate the trade-off between fixed exchange rates and domestic monetary policy autonomy. To be clear, remittances are not a panacea for economic instability: they are unlikely to *prevent* recessions or to respond with enough force to allow a country to sustain a fixed rate in the face of a massive speculative attack. The argument is simply that remittance inflows make it less costly for countries to adopt fixed rates.

Robert Mundell's (1960, 1961) analyses of optimum currency areas (OCAs) provide a useful perspective on the importance of remittances in the determination of exchange rate policy. The OCA framework, elaborated by McKinnon (1963) and others, argues that countries that choose to share a common currency should respond similarly to economic shocks, such as sudden changes in the prices of commodities. The logic is straightforward: a single currency implies a single monetary policy. The same logic applies to countries with fixed exchange rates: a country that fixes its currency to the U.S. dollar essentially imports U.S. monetary policy. If economic conditions vary substantially across different regions of the currency area, a single monetary policy will prove woefully inadequate in stabilizing the economy. However, because asymmetric shocks are always possible, even in the most economically homogeneous of currency unions, countries must somehow adjust their own domestic economies to fit the prevailing monetary policy. The OCA literature has focused on two adjustment mechanisms: (1) labor mobility within the union should be high enough to allow workers in adversely affected regions to relocate to more favorable employment environments; and (2) the currency union itself should have a system of "risk sharing"—usually defined as public transfers from a supraregional authority—to respond to local shocks, just as the U.S. federal government sends emergency funds to states in times of crisis.

The OCA criteria are rarely realized in practice, especially for developing countries that anchor their currencies to the Euro, the U.S. dollar, or other developed country currencies. Shocks to developed and developing economies are likely to be asymmetric, and labor mobility is rarely high enough to be an effective short-term stabilizer. On the issue of risk sharing, however, many developing countries depend on remittances to offset economic downturns. Remittances are not fiscal transfers per se, because no central government has the power to direct them to countries in need. Yet, they do enable countries to cede some of the risks of forgone monetary policy autonomy to migrants, who in turn remit funds to their families in countercyclical fashion.[23]

[19] The UK Conservative Party's opposition to joining the European Monetary Union (EMU) is just one example. For an opposing view as applied to developed countries, see Bearce (2003).

[20] On the capital mobility hypothesis more generally, see Andrews (1994).

[21] On "internationalization" as a single analytical concept, see Keohane and Milner (1996).

[22] In addition, economists argue that the speculative pressures enabled by capital mobility increase the difficulty of maintaining fixed rates; see Agenor (2001), Eichengreen (1999), and Obstfeld and Rogoff (1995).

[23] It is widely understood that monetary policy operates with a long lag: a decline in interest rates takes months, if not a year or longer, to have an effect on the macroeconomy. Remittances compare quite favorably to monetary policy in terms of responsiveness to downturns.

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The previous discussion sets the stage for an empirical analysis of exchange rate policy in the developing world. The existing literature has emphasized the political and economic factors that determine how policy makers reconcile the trade-off between credibility and flexibility, but has neglected the role of remittances in tilting the balance in favor of fixed exchange rates. To be clear, remittances are not dispositive for policy makers: they ease the political costs of tying their hands with a fixed rate, but other political economy factors will weigh heavily in a policy maker's decision calculus. A complete political economy model must therefore incorporate not only a range of political and institutional variables that determine how policy makers address the trade-offs of exchange rate regime choice, but also the role of remittances as a determinant of the severity of those trade-offs.

EMPIRICAL ANALYSIS

To assess the political economy of exchange rate regimes in the developing world, I assembled a time-series cross-sectional data set with annual observations on up to 74 developing countries from 1982 to 2006.[24] The hypothesis to be tested is that remittance inflows increase the probability that a country will choose to fix its exchange rate, controlling for a variety of political, economic, and institutional mechanisms. The dependent variable is the de facto exchange rate regime, coded as a four-category ordinal variable based on data from Reinhart and Rogoff (2004). Higher values indicate greater degrees of exchange rate flexibility.[25] Unlike de jure classifications based on official government policy, these de facto measures of exchange rate regimes are derived from a combination of foreign reserve activity, parallel market exchange rates, and extensive country chronologies (Reinhart and Rogoff 2004). They therefore capture the actual operation of the exchange rate regime over time. In the robustness section, I employ an alternative measure of the dependent variable based on the IMF's de jure classification.

The percentage of countries in the world with de facto fixed exchange rates has remained relatively stable since 1980, hovering around 45%. However, there has been a steady decline in the number of countries with de jure fixed exchange rates, arguably reflecting a shifting "climate of ideas" in favor of floating exchange rates in the developing world (Collins 1996).[26] Between 1980 and 1995, the percentage of countries with fixed exchange rates fell dramatically from 70% to less than 30% (Figure 3). The adoption of the Euro starting in 1999 reversed the overall trend, but for developing countries fixed rates remain far less popular today than in the 1970s and 1980s. This downward trend is addressed in the empirical analysis of de jure policy in the "Robustness" section.

Data on the key explanatory variable, inward remittances as a share of GDP, are newly available from the World Bank's World Development Indicators (various years).[27] I use these data with a degree of caution. World Bank researchers are able to estimate only the officially recorded inward remittances for each country-year, not the flows through unofficial channels, such as the *hawala* system and other informal value transfer systems. As discussed previously, recorded flows have risen substantially in recent times, and a portion of this increase may be attributable to a shift from unofficial to official transmission channels, rather than an increase in remittances per se. The World Bank attempts to mitigate this problem by using estimates from its own country desks or from national central banks when official balance-of-payments statistics are missing or of questionable construction. Nevertheless, unofficial flows remain outside the scope of the data set. I return to this issue in the "Robustness" section.

A cursory overview of the data suggests that remittances are highly correlated with exchange rate regime outcomes. Using the sample in Model 1 (described as follows), the mean level of remittances for countries with fixed exchange rates is 7.9% of GDP, whereas the mean for countries with floating rates is 3.5% of GDP.[28]

I first construct a model (Model 1) that adds remittances along with key policy indicators, macroeconomic conditions, and national institutional characteristics. The size of the economy (GDP, logged) and exports as a share of GDP (lagged one period) capture the conventional argument that smaller and more open economies are more likely to benefit from a fixed exchange rate. Exports are also an interest group indicator with the expectation that firms that are dependent on external demand for their revenues are likely to prefer the stability of a fixed rate. Based on prior scholarship, capital account openness should be negatively associated with the adoption of fixed rates. However, the OCA framework suggests that countries with more open capital accounts should be more likely to adopt fixed exchange rates because high levels of financial integration can generate strong domestic support for stable cross-border financial relationships. The model includes the "KAOPEN" index of capital account openness from Chinn and Ito (2006). It is based on the binary coding of restrictions in the IMF's

[24] The sample is unbalanced, and the limited availability of data on some of the covariates decreases the sample size as noted in Tables 2 and 3. The sample excludes countries that were members of the OECD by 1973.

[25] The categories are 1 = fixed, including traditional peg, currency board, no separate legal tender, and preannounced horizontal band of less than ±2%; 2 = crawling peg or band; 3 = managed floating, including crawling bands wider than ±2%; and 4 = free floating. See Reinhart and Rogoff (2004). I discard country-years in currency crisis (i.e., "freely falling" currencies) and those with "dual markets" with missing parallel market data. These categories cannot be logically ordered from fixed to floating. The potential role of remittances in preventing or responding to currency crises is beyond the scope of this article. For an analysis of remittances and balance of payments difficulties during the gold standard era, see Esteves and Khoudour-Castéras (2009).

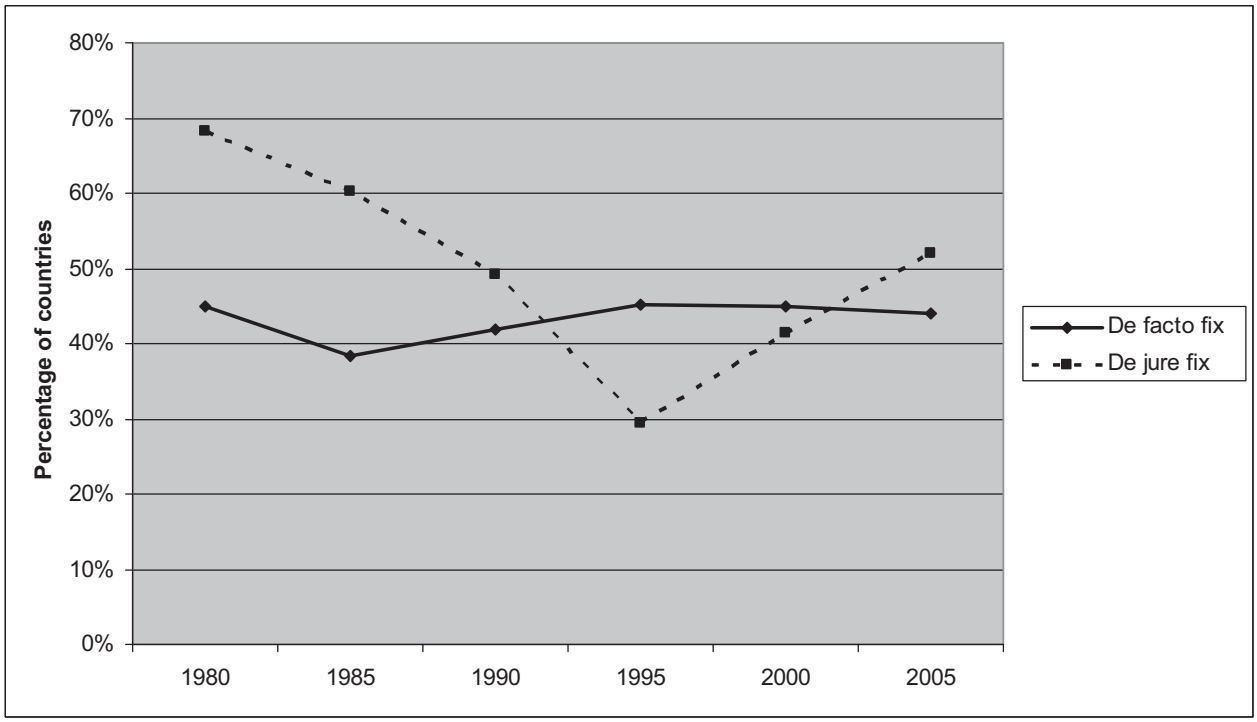
[26] On the role of ideas in monetary policy, see inter alia Helleiner (1994); McNamara (1998); and Pauly (1998).

[27] The measure includes funds classified as "workers' remittances" and "compensation of employees."

[28] Calculations using de facto exchange rate = 1 (for fixed) and 4 (for floating).

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FIGURE 3. Trends in de facto and de jure Fixed Exchange Rates, 1980–2005



Source: IMF (multiple years) and Reinhart and Rogoff (2004). Includes regimes coded as 1 (see text for discussion).

Annual Report on Exchange Arrangements and Exchange Restrictions and focuses on four dimensions of restrictions: the existence of multiple exchange rates, restrictions on the current and capital accounts (where the latter are measured as the proportion of the past five years without controls), and requirements to surrender export proceeds.[29] The index has a mean of zero and ranges from −2.66 (full capital controls) to 2.66 (complete liberalization).

Model 1 includes a measure of democracy based on the Polity IV database (Marshall and Jaggers 2007). The variable ranges from -10 (most autocratic) to 10 (most democratic). Following Broz (2002) and Leblang (1999), I expect this variable to be positively associated with floating. The rate of inflation (lagged one period) is included with the expectation that high inflation countries choose a fixed rate as an anchor for monetary policy.[30] The level of foreign currency reserves (as a ratio of months of imports) reflects the resources available to the central bank to intervene in foreign exchange markets.[31] Also included are the current account balance as a share of GDP and terms-of-trade volatility.[32] Policy makers in countries with current account imbalances and volatile trading patterns face incentives to allow the currency to float. Finally, the model includes the level of economic development (GDP per capita) and a dummy variable that takes a value of 1 after 1998 for any country that has joined the European Union (EU) during the sample period. This coding scheme accounts for the external pressure to maintain a stable parity with the Euro as a prerequisite to joining the EU and ultimately the Eurozone.[33]

Model 2 adds more refined interest group and institutional indicators. First, it includes Henisz's (2002) political constraints measure. The construction of this variable begins by identifying the number of effective branches of government—including the executive, the legislative body or bodies, the judiciary, and any other subnational units—with veto power over policy change. This initial measure is modified to reflect whether these veto points are controlled by different political parties, and the degree of preference heterogeneity within each branch. Higher values represent "stronger," or less constrained, governments. The theoretical expectation for the impact of political constraints is ambiguous

[29] For a detailed description of this measure, see Chinn and Ito (2006).

[30] The sample includes a handful of observations with inflation greater than 100%. Results are robust to including a high inflation dummy, dropping these observations, or using the log of inflation.

[31] On the political economy of foreign currency reserves, see Leblang and Pepinsky (2008).

[32] Terms of trade volatility is measured as the standard deviation in the terms of trade in year *t*, *t*-1, and *t*-2.

[33] Due to the limited availability of certain covariates, Hungary and Poland are the only two EU countries in the sample. Results on the key variables of interest are substantively unchanged if two official candidate countries (Croatia and Turkey) are coded the same as EU members, or if all EU countries are dropped from the sample.

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TABLE 1. Summary Data

Variable	Mean	Standard Deviation	Minimum	Maximum
Exchange rate regime	2.126	0.778	1	4
Remittances (%GDP)	3.330	4.385	0	25.096
GDP (log)	23.780	1.779	19.398	28.170
GDP per capita (log)	7.040	1.011	4.751	9.454
Exports (%GDP)	31.768	19.115	5.255	124.413
Capital account openness	−0.173	1.323	−1.812	2.532
Reserves (months)	4.206	3.414	0.077	27.084
Democracy (polity)	2.385	6.584	−10	10
Inflation	15.743	76.777	−8.238	2075.887
Current acct balance	−2.256	5.196	−29.094	31.982
Terms of trade volatility	6.029	6.223	0	41.059
Political constraints	0.290	0.198	0	0.691
Political instability	0.010	0.052	0	0.6
Manufacturing (%GDP)	17.539	7.034	3.058	40.678

(von Hagen and Zhou 2006). Weak governments might choose a fixed rate to fend off political pressures for expansionary monetary policy; however, the maintenance of a fixed rate might require a strong (i.e., relatively unconstrained) government to subordinate domestic concerns in favor of stable monetary relations with other countries.

Also included in Model 2 are a measure of government instability and the share of manufacturing output in GDP. Government instability is measured as the percentage of the previous five years in which the country experienced an "adverse shift in the pattern of governance," including a major shift toward authoritarianism, a revolution in the political elite, contested dissolution of federal states, or the collapse of central authority [Political Instability Task Force (PITF), various years].[34] It provides another indicator of the ability of the government to maintain a fixed exchange rate. However, as Edwards (1996) notes, greater instability increases the costs of abandoning a peg and therefore reduces the ex ante probability that a peg will be chosen, whereas instability makes decision makers less concerned about the costs of reneging on an exchange rate commitment in the future. The manufacturing indicator provides a more fine-grained interest group indicator alongside the more general measure of a country's export dependence. Frieden, Ghezzi, and Stein (2001) find that large manufacturing sectors are associated with floating exchange rates, but it is possible that this finding is limited to the high inflation Latin American countries in which fixed exchange rates were historically associated with an anticompetitive appreciation of the real exchange rate.

Given the ordinal nature of the dependent variable, I estimate the models using ordered probit with standard errors clustered on country. A lagged dependent variable is included to account for the temporal sluggishness of exchange rate policy.[35] Summary statistics for all variables are presented in Table 1. Table 2 presents the regression results. The sample for Model 1 consists of 992 country-year observations with 73 developing countries; the sample size is reduced to 824 observations and 70 countries for Model 2 due to the limited availability of the additional covariates.[36]

The results from Models 1 and 2 support the hypothesis that inward remittances are associated with fixed exchange rate regimes in developing countries. The coefficient for remittances is negative and statistically significant. (Recall that lower values of the dependent variable imply greater degrees of exchange rate fixity.) This result is robust to the inclusion of political, institutional, and OCA-related macroeconomic variables. In both models, inflation is negatively signed and significant, reflecting policy makers' desires to provide a nominal anchor for monetary policy when the domestic price level is unstable. In addition, the coefficient for democracy is positive and significant, which supports the idea that democratically elected leaders are vulnerable to popular pressures to conduct an autonomous monetary policy under a floating exchange rate. Not surprisingly, the lagged dependent variable is highly significant, reflecting the temporal sluggishness of exchange rate policy.

The results from Model 2, which contains additional covariates to capture a range of economic and

[34] The PITF database records the beginning and ending years of the adverse regime change. The variable "Political Crisis" can therefore range from 0% to 100%, depending on the status of the country in the previous five years.

[35] Results for Models 1 and 2 are substantively unchanged if year fixed effects are included.

[36] For all models, I exclude the countries in the CFA Franc zones in Africa, because their inclusion as independent observations is questionable in light of the prominent role of the French central bank in their monetary affairs. See, e.g., Stasavage (1997). Moreover, their inclusion in the sample could bias the results in favor of my argument because they are coded as fixed exchange rate regimes with relatively high levels of remittances. Lesotho is also dropped from the sample because of its extraordinary leverage over the results as a fixed rate country with remittance inflows that often exceed 75% of GDP. Panama, a country that adopted the U.S. dollar more than 100 years ago, is also dropped to avoid biasing the results.

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TABLE 2. Ordered Probit Results (de facto and de jure Exchange Rate Regimes)

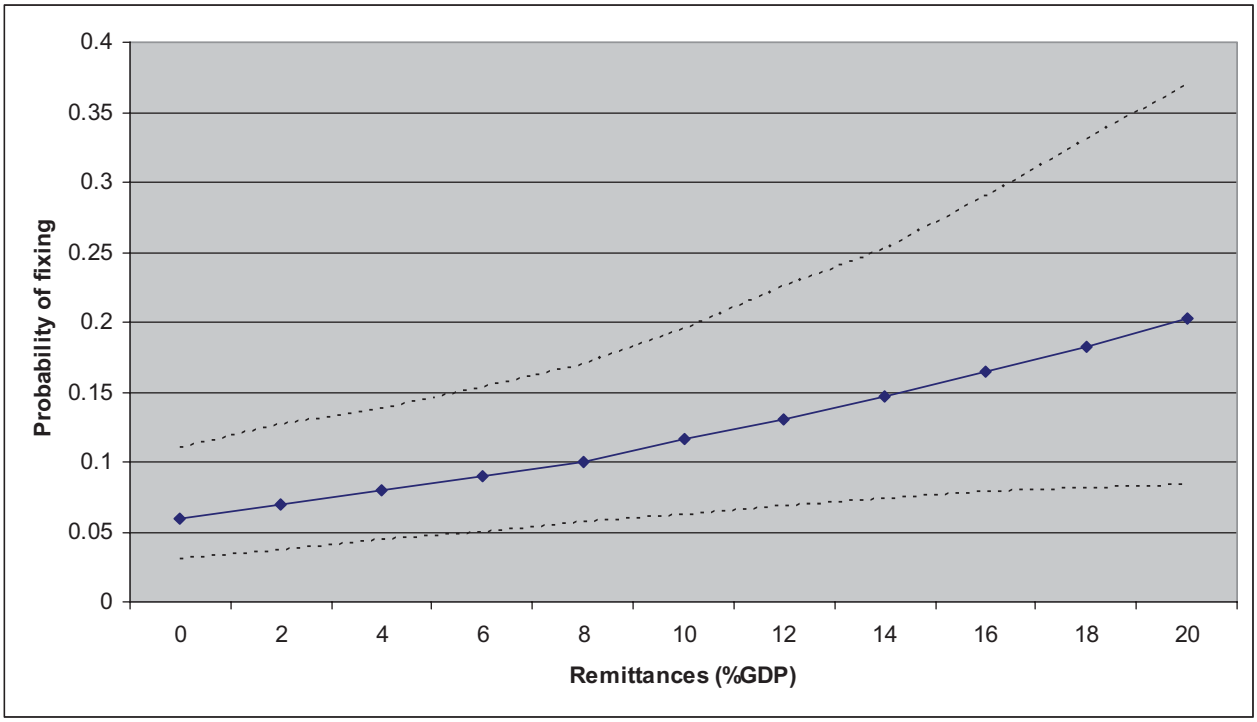
	Model 1 (*de facto*)	Model 2 (*de facto*)	Model 3 (*de jure*)
Lagged dependent variable	1.524***	1.415***	1.331***
	(0.149)	(0.151)	(0.106)
Remittances/GDP (lagged)	−0.025*	−0.034**	−0.040***
	(0.013)	(0.015)	(0.015)
GDP (log)	−0.017	0.054	−0.016
	(0.046)	(0.063)	(0.052)
GDP per capita (log)	0.047	0.094	−0.048
	(0.083)	(0.105)	(0.079)
Exports/GDP (lagged)	−0.005	−0.001	−0.011***
	(0.005)	(0.006)	(0.003)
Capital account openness (KAOPEN)	−0.063	−0.097*	0.002
	(0.045)	(0.052)	(0.042)
Reserves (in months of exports)	−0.020	−0.045**	−0.057**
	(0.021)	(0.019)	(0.022)
Democracy (polity score)	0.021**	0.028**	0.020
	(0.010)	(0.012)	(0.013)
Inflation (lagged)	−0.004***	−0.003***	0.000
	(0.001)	(0.001)	(0.000)
Current account balance	0.006	0.012	0.018*
	(0.011)	(0.014)	(0.011)
EU (dummy)	0.361	0.253	0.218
	(0.298)	(0.295)	(0.698)
Terms of trade volatility	0.009	−0.007	−0.004
	(0.008)	(0.009)	(0.008)
Political constraints		−0.369	0.152
		(0.309)	(0.392)
Political instability		1.232	0.671
		(1.040)	(0.751)
Manufacturing/GDP		−0.037***	−0.011
		(0.014)	(0.010)
Percent fix (de jure only)			−0.014***
			(0.005)
Cut 1	1.531	2.593	0.134
	(1.066)	(1.391)	(1.046)
Cut 2	3.919	4.931	0.337
	(1.083)	(1.404)	(1.051)
Cut 3	6.524	7.481	2.622
	(1.171)	(1.469)	(1.065)
Observations	992	824	899
Countries	73	70	74
Pseudo R^2	0.452	0.441	0.500
Prob $> \chi^2$	0.00	0.00	0.00

Note: Ordered probit coefficients; standard errors (clustered on country) in parentheses.
*$p \leq .10$; **$p \leq .05$; ***$p \leq .01$.

institutional determinants of exchange rate policy, demonstrate that remittances are an important influence on policy making. Note that this is a global analysis of 70 developing countries from 1982 to 2006. In addition to providing evidence of the impact of remittances on exchange rate politics, the findings support certain existing arguments in the literature and challenge others. Capital account openness is negatively signed and significant, indicating an association between financial openness and fixed exchange rates. This is largely in line with Mundell-Fleming expectations; however, simpler measures of capital controls have been shown to be positively associated with floating exchange rates in prior scholarship (Broz 2002; Leblang 1999). Although exports as a share of GDP is not significant, manufacturing production is significant and negatively signed. This finding is not consistent with Frieden, Ghezzi, and Stein's (2001) findings for Latin America, but it is theoretically consistent with the notion that manufacturers in the developing world desire stable currency relations with their foreign consumers. The level of reserves is also significant in Model 2, indicating an association between fixed exchange rates and ample supplies of foreign currency. The remaining covariates, including

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FIGURE 4. Predicted Probability of Fixing the Exchange Rate by Level of Remittances



Note: Results based on Model 2. All other variables held at their means. Dotted lines represent 95 % confidence intervals. Simulations conducted using CLARIFY (Tomz, Wittenberg and King 2003).

political constraints and government instability, are not significant.

Because the substantive interpretation of ordered probit coefficients is not straightforward, I provide simulations in Figure 4 using estimates from Model 2.[37] The solid line demonstrates how the probability of fixing the exchange rate changes as remittances increase while the other variables are held at their means. The dotted lines represent 95% confidence intervals. I limit the range of remittances (the *X* axis) to 0% to 20%, although a few countries in the sample have remittances in excess of this level.[38] When remittances increase from 0% to 10% of GDP, the probability of fixing the exchange rate increases from 6% to 12%. For countries with remittances at the high end of the sample range, the probability of fixing exceeds 20%. These findings are substantial, especially considering that the model includes a lagged dependent variable that may suppress the impact of the other independent variables (Achen 2000).

Robustness

There are a number of additional variables whose inclusion in the model could be theoretically justified. The following variables were added to Model 2 as robustness checks; none altered the statistical significance of remittances.[39] As expected, a measure of partisanship (coded as a left or center-right dummy variable) was not significant.[40] The inclusion of a measure of central bank independence reduced the sample size to just 35 countries, but it was in fact significant and negative.[41] It is possible that policy makers in developing countries are more likely to adopt fixed rates to "tie the hands" of central bankers who might not share their monetary policy preferences (O'Mahony 2007). It is also possible that central bank independence and fixed rates are imperfectly credible institutions with the same goal, and therefore may complement each other (Bodea n.d.). Some scholars argue that countries that want to stabilize the real value of their foreign debt service payments will prefer fixed exchange rates (e.g., Shambaugh 2004; von Hagen and Zhou 2006; Walter 2008). A measure of total external debt, however, was not significant. Finally, foreign aid could condition the choice of exchange rate regime if policy makers believed that it was a reliable source of foreign exchange, especially in times of economic downturn. To test this

[37] Simulations conducted using CLARIFY (Tomz, Wittenberg, and King 2003).

[38] Lesotho receives remittances in excess of 80% in certain years; the results are robust to dropping Lesotho from the sample.

[39] Results for the robustness tests described in this paragraph are available from the author.

[40] Data from Beck et al. (2001). Unfortunately, including partisanship substantially reduced the sample size; no variables were statistically significant.

[41] Central bank independence data come from Polillo and Guillén (2005), based on the Cukierman index.

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hypothesis, I included a measure of foreign aid as a percentage of GDP. Not surprisingly, it was not significant. Foreign aid is not a reliable capital inflow for most countries, and it is frequently tied to policy adjustments and other conditions. It is therefore not surprising that it does not have the same impact on exchange rate regime choices as remittances.

In addition, I tested the robustness of the findings by using the IMF's de jure exchange rate regime classification as the dependent variable.[42] Since the end of the Bretton Woods monetary system, the IMF has required member countries to make official announcements of their exchange rate regimes. Article IV, Section 2 of the IMF's Articles of Agreement grants the IMF the responsibility for exercising "firm surveillance" over the exchange rate policies of members, which it has used to publish its Annual Report on Exchange Rate Arrangements and Exchange Restrictions. If remittances mitigated the opportunity costs of fixing the exchange rate, then they might also affect government pronouncements about exchange rate regimes.[43] The results are included in Table 2, Model 3. This model includes an annual measure of the percentage of countries in the world under fixed rates as a way of capturing the "climate of ideas" regarding exchange rate policy (Collins 1996; see also Broz 2002, Frieden, Ghezzi, and Stein 2001, and Simmons 1994). This measure also captures the trend away from de jure fixed exchange rates for developing countries (Figure 3). As shown in Table 2, Model 3, the coefficient for remittances remains statistically significant and negatively signed.

Because the ordered probit model is limited in its ability to account for cross-country heterogeneity,[44] I transformed the dependent variable into a binary measure and estimated a logit model with country fixed effects.[45] This conditional logit model accounts for unobserved cross-country variation, including inter alia the degree of correlation between the economic cycles of the remitting and receiving countries, the cultural motivations for remitting, and other time-invariant characteristics of countries.[46] It should be noted that exchange rate regimes and remittance levels *as a share of GDP* are relatively slow to change over time for many countries, and therefore, the fixed effects model provides a particularly strenuous test. Nevertheless, the coefficient for remittances remains negative and significant, although the sample size is reduced to 28 countries (434 observations) because of the fixed effects estimator.[47] Results are included in Table 3, Model 4.[48]

Finally, as mentioned previously, it is not controversial to state that remittances data suffer from measurement error. The goal of the empirical models discussed is to subject the data to rigorous analysis and ensure that any inherent biases in favor of the argument are adequately addressed. Nevertheless, it is important to acknowledge the limitations of the analyses because the remittances data only reflect the information that governments are able to record. This prompts the question: is a country's ability to track and record remittances associated with its exchange rate policy?

It is highly unlikely that better recording capacity is associated with the adoption of fixed exchange rates. Indeed, the opposite case is more likely to hold. A floating exchange rate requires that the central bank conduct an independent monetary policy, which is a highly information-intensive process. Under a floating exchange rate, central banks require detailed models of the economy, frequent financial updates from financial institutions, reliable indicators of the domestic price level and money supply, and sufficient expertise (by way of governors, economists, and financial analysts) to make appropriate decisions about monetary policy. These are the types of characteristics that are likely to be associated with the ability to track inflows of remittances through the banking sector and through less formal channels. If this is true, the measurement error in the preceding analyses should make finding a positive association between fixed exchange rates and remittance inflows less likely, rather than more likely.

Instrumental Variable Analysis

If migrants take exchange rate instability into account when deciding whether to remit, then the models presented previously may be biased due to endogeneity. To be clear, there is little reason to expect that fixed exchange rates themselves cause a greater inflow of remittances as a share of GDP. Nevertheless, to address the possibility of endogeneity, I employ an instrumental variable analysis using the five-year rolling average annual emigration to 15 advanced industrial countries, scaled by the sending country's population.[49] This variable is a suitable instrument because it is clearly correlated with remittances (one would expect that countries with high levels of emigration to wealthy countries would experience high levels of remittances), but it plausibly satisfies the exclusion restriction—namely, that there is no theoretical reason for it to

[42] Data were generously provided by Carmen Reinhart. The 1-to-4 classification is roughly equivalent to the de facto measure. Data available at http://terpconnect.umd.edu/~creinhar/Data/ERA-IMF%20class.xls (accessed February 1, 2010).

[43] On the importance of exchange rate proclamations and macroeconomic outcomes, see Guisinger and Singer (2010).

[44] Fixed-effects ordered probit models do not provide consistent estimates.

[45] The binary variable is calculated from the four categories discussed previously: regimes coded as 1 or 2 take the value of 0 (fixed), and those coded 3 or 4 take the value of 1 (floating). As in the previous analyses, regimes coded as 5 or 6 are discarded.

[46] On the *insensitivity* of remittances to the sending country's business cycle, see Roache and Gradzka (2007).

[47] Because of the fixed-effects estimator, the sample necessarily excludes countries with no temporal variation in the dependent variable.

[48] The EU dummy variable is not included in Model 4 or 5 because it makes no discernible impact on the results.

[49] Data from United Nations 2006. I thank Dean Yang and Jessica Hoel for graciously compiling and sharing the data. The 15 countries are Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, the Netherlands, New Zealand, Norway, Spain, Sweden, the United Kingdom, and the United States. Data are available through 2004.

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TABLE 3. Conditional Logit and Instrumental Variable Probit Results

	Model 4 (Fixed Effects Logit)	Model 5 (IV Probit)
Lagged dependent variable	5.835***	2.956***
	(0.798)	(0.578)
Remittances/GDP (lagged)	−0.477**	−0.151**
	(0.200)	(0.080)
GDP (log)	−3.319	−0.075
	(3.451)	(0.123)
GDP per capita (log)	6.668	0.300**
	(4.374)	(0.145)
Exports/GDP (lagged)	−0.012	−0.007
	(0.033)	(0.007)
Capital account openness (KAOPEN)	−0.074	−0.084
	(0.409)	(0.086)
Reserves (in months of exports)	−0.378**	−0.069**
	(0.162)	(0.033)
Democracy (polity score)	0.279**	−0.006
	(0.119)	(0.028)
Inflation (lagged)	−0.004	−0.000
	(0.036)	(0.004)
Current account balance	0.117**	0.041**
	(0.051)	(0.018)
Terms of trade volatility	0.049	−0.005
	(0.054)	(0.013)
Political constraints	−3.147	−0.116
	(2.258)	(0.610)
Political instability	21.246	0.914
	(76.813)	(1.321)
Manufacturing/GDP	−0.204	−0.016
	(0.149)	(0.021)
Observations	434	767
Countries	28	70
Log likelihood	−48.139	−2217.710
Prob > χ^2	0.00	0.00

Note: Dependent variables exchange rate regime 0 = fixed; 1 = floating. Standard errors (clustered on country) in parentheses. Model 4 contains country fixed effects. Model 5 uses a measure of annual emigration to 15 advanced countries as an instrument for remittances; second stage results shown.
**$p \leq .05$; ***$p \leq .01$.

be causally related to the country's exchange rate regime.[50] Results from an instrumental variable probit model—with the same dichotomous dependent variable as in Model 4—are included in Table 3, Model 5.[51] Similar results are obtained by using a linear two-stage least squares model using the original ordered (1–4) dependent variable.[52] The coefficient for remittances in Model 5 is negative and statistically significant; also significant are foreign exchange reserves and the current account balance, in line with expectations. GDP per capita is also significant, possibly reflecting the connection between the availability of human and financial resources and the ability of a government to run an autonomous monetary policy. The polity score and capital account openness, however, are not significant as in the previous models, and the other covariates are also not significant.

CONCLUSION

The rise of remittances has profound implications for the study of international financial relations. As families extend beyond national boundaries through migration, the resulting flow of funds is changing the character of financial market influence on government policy making. Indeed, the evolution of financial globalization is taking an interesting turn in the developing world. While their developed country counterparts react to the increasing integration of asset markets and the spread of the multinational corporation, developing countries are also adapting to the international financial consequences of immigration. Remittances

[50] Mishra and Spilimbergo (2009) argue that exchange rate depreciation affects domestic labor supply by encouraging migration when labor is internationally mobile. If the exchange rate regime was systemically associated with the level of the exchange rate, then the exclusion restriction would be in question.
[51] The *F* statistic on the instrument is approximately 20 in the first stage of the instrumental variable probit model.
[52] Results obtained using Stata's xtivreg command with random effects. In the first stage, the instrument is positive and significant at the 99% level, with an *F* statistic in excess of 100.

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from overseas migrants constitute a major source of capital for the majority of developing countries, and some countries rely almost exclusively on remittances for foreign exchange. Unlike nearly all other types of capital flows, remittances respond primarily to the needs of families and not the profit-seeking motives of investors. This study demonstrates that remittances not only transform the financial status of the receiving household, but also have a systematic influence on how governments choose macroeconomic policies.

This article introduced the flow of remittances into the study of the political economy of exchange rate regimes and challenged the notion of financial market openness as an undifferentiated influence on economic policy making. Prior scholarship views the free movement of capital as a constraint on policy makers that decreases the probability of selecting a fixed exchange rate. In contrast, this article argued that remittances mitigate the costs of forgone domestic monetary policy autonomy and therefore increase the probability of choosing to fix the exchange rate. Several large *n* empirical analyses presented in this article support this conclusion. As noted previously, the newly available data on remittances from the World Bank have many drawbacks, most notably the fact that they only account for recorded flows. One should therefore assume that the empirical tests in this article are tentative, pending the availability of more accurate and comprehensive data on remittances.

The introductory section of this article alluded to the many policy areas in which remittances could have an important influence. For example, remittances could substitute for welfare state spending by lessening the need for governmental subsidization of health care or government-sponsored employment programs. Governments that would otherwise feel compelled to insulate their citizens from the forces of the global economy—for example, by increasing the size of the government in line with Garrett (1998) and Rodrik (1998)—might scale back their spending priorities in response to remittance inflows.[53] The implications of this effect need not be negative; as Pfutze (2009) argues, remittances might lessen household reliance on clientelistic networks and enhance political competition, thereby facilitating the process of democratization.[54] In addition, to the extent that remittances help stave off balance-of-payments difficulties, developing countries with substantial remittance inflows might be less likely to require assistance from the IMF and the World Bank.[55] These speculations should form the basis for future research.

As a final note, this article contributes to a growing literature that seeks to unpack the components of financial globalization and gauge their varying (and often contradictory) effects on economic policy making. The literature contains several careful studies that isolate the political and institutional determinants of specific types of capital flows, including FDI (e.g., Jensen 2003, 2006; Li and Resnick 2003), sovereign bonds (e.g., Mosley 2000, 2003; Sobel 1999), foreign exchange (Bernhard and Leblang 2002; Freeman, Hays, and Stix 2000; Moore and Mukherjee 2006), and equity investment (Ahlquist 2006; Bernhard and Leblang 2006; Mosley and Singer 2008). The disparate findings in these studies should encourage future scholarship to avoid generalizations about the impact of global finance on economic policy making. The popular metaphor of global finance as a "golden straitjacket" (Friedman 2000) might be more appropriately revised as a tug of war with various capital flows pulling policy makers in different directions.

[53] On the influence of labor (im)mobility on government responses to globalization, see Rickard (2006).

[54] Remittance inflows might also alter the political preferences or political advocacy of receiving households; see Bhavnani and Peters (2010) and O'Mahony (2009).

[55] On remittances and balance of payments difficulties during the gold standard period, see Esteves and Khoudour-Castéras (2009).

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