What explains the cost of remittances?*

An examination across 119 country corridors

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PRELIMINARY DRAFT

Abstract:

Remittances to developing countries are a sizeable source of foreign financing and have been shown to have a significant development impact. Using newly gathered data across 119 country corridors, this paper explores the factors that determine the cost of remittances. Considering average costs across all types of institutions, we find that corridors with larger numbers of migrants and more competition among remittances service providers exhibit lower costs. On the other hand, remittance costs are higher in richer corridors and in corridors with greater bank participation in the remittances market. Comparing the determinants of costs across all banks and all money transfer operators separately, we find few significant differences. However, estimations for Western Union, a leading player in the remittances business, show that this firm's prices are insensitive to competition.

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I- Introduction

In 2007, remittances to developing countries reached $281 billion dollars, more than twice the amount of official aid and over half of foreign direct investment flows (World Bank, 2009).[1] Numerous studies have shown that remittances can have a positive and significant impact on economic development along a number of dimensions including: poverty alleviation, education, entrepreneurship, infant mortality, and financial development to mention a few.[2]

But remittance transactions are known to be expensive, with estimates averaging 10 percent of the amount sent (World Bank, 2008).[3] At the same time, there is a wide variation in these costs across corridors, ranging from 2.5 percent to 26 percent of the amount sent. Furthermore, case studies have shown that remittances flows are very sensitive to costs and are likely to increase significantly as costs go down (see Gibson, McKenzie and Rohorua, 2006). Yet, little is known about what drives the cost of remittances.[4] Is the problem of high costs mostly due to sending country or recipient country factors? Are high costs related to socio-economic factors, industry market structure, or government policies and regulations? Should the emphasis of policy makers be on increasing competition, improving financial literacy, or broadening the scope of regulation? Are there significant differences between banks and money

[1] http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21122856~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html

[2] For example, see Adams and Page (2003), Adams (2005), IMF (2005), Lopez-Córdova (2005), Maimbo and Ratha (2005), and Taylor, Mora, and Adams (2005) for studies on the impact of remittances on poverty. Studies such as Cox-Edwards and Ureta (2003), Hanson and Woodruff (2003), López-Córdova (2005), and Yang (2005) find that by helping to relax household constraints, remittances are associated with improved schooling outcomes for children. Remittances have also been shown to promote entrepreneurship (see Massey and Parrado, 1998; Maimbo and Ratha, 2005, Yang, 2005; Woodruff and Zenteno, 2006). Furthermore, a number of studies on infant mortality and birth weight have documented that, at least in the Mexican case, migration and remittances help lower infant mortality and are associated with higher birth weight among children in households that receive remittances (see Kanaiaupuni and Donato, 1999; Hildebrandt and McKenzie, 2005; Duryea et al., 2005; and López-Córdova, 2005). Aggarwal, Demirguc-Kunt, and Martinez Peria (2006) show that remittances can have a positive impact on financial development.

[3] See the World Bank Remittance Prices website at www.remittanceprices.org.

[4] Orozco (2006) and Freund and Spatafora (2008) are the exception, but their data is limited to few countries or few providers. While Orozco's work focuses exclusively on Latin America, the second study analyzes only the costs of remittances sent from the US and the UK exclusively via MoneyGram or Western Union to 66 countries.

transfer operators (MTO)? Given the importance of remittances for many developing countries, explaining the variation in costs is of interest for academics and policy makers alike.

Using a new dataset assembled by the World Bank Payment Systems Group on the cost of remittances across 119 country corridors, this paper explores the factors that drive remittance costs.[5] The corridors studied include 13 major remittance sending countries and 60 receiving countries, representing approximately 60 percent of total remittances to developing countries. Because our data is by corridor, we are able to conduct a bilateral analysis of costs, as opposed to simply looking at costs aggregated at the recipient or sending country level. Furthermore, contrary to previous studies that have only focused on a certain type of remittance service providers (in particular the largest international money transfer operators), the data used here pertain to the largest providers in each corridor, be they money transfer operators, banks, post offices, etc.[6] At the same time, we are able to conduct our analysis both averaging across all types of providers and separately for banks and money transfer operators, thus allowing us to compare the determinants of the costs of remittances across different institutions. Finally, by analyzing the costs charged by Western Union across 98 corridors (80 percent of the sample), we are able to abstract from concerns of bias due to differences across firms (since we are looking at the same provider across corridors) and we are able to shed light on what drives the costs charged by a leading remittance service provider with worldwide operations.

We distinguish between three groups of factors as potential drivers of the cost of remittances. First, we consider the role of socio-economic characteristics of sending and receiving countries that might influence fees through their impact on transaction costs incurred

[5] The original World Bank database contains information on134,. We lose 13 corridors -those where Russia is the sending country- due to missing exchange rate spread data plus 2 other corridors where there is missing information for some explanatory variables.

[6] On average, in each corridor between 8 to 10 providers are included In some corridors, primarily those including the US and Spain as sending countries, the number of providers surveyed exceeds 10.

by remittance service providers, including the number (stock) of migrants, the level of economic and financial development, and the share of rural population within each corridor. Second, we examine the role of factors that might affect the ability of remittance service providers to set prices like the extent of competition and the level of education of the migrant population. Third, we assess the impact of government policies in different areas including exchange rate policies, capital controls, and regulation of remittance service providers.

Estimations of the cost of remittances across all types of remittance service providers show that corridors with a larger number of migrants and more competition exhibit consistently lower costs. On the other hand, remittance costs are higher in richer corridors and in corridors with a higher share of banks among survey respondents. Bank and MTO costs are associated with similar factors. In particular, across both types of institutions costs are higher in corridors with a smaller number of migrants, higher levels of incomes and a higher participation of banks. As before, competition lowers costs charged by banks and MTOs at large. On the other hand, in the case of Western Union, costs appear to be insensitive to competition, perhaps a symptom of this firm's role as a leader in the remittance market.

This paper is a first exploration of corridor variation in the cost of remittances and, therefore, is subject to certain caveats. First, this is a pure cross-sectional analysis, and we can only make limited, if any, inference on causality. Second, our analysis is also limited in scope since it includes only data from formal providers of remittance services. According to estimates, at least a third of remittances is sent through informal channels (Freund and Spatafora, 2008; Celent, 2002). Notwithstanding these limitations, we believe the paper offers some interesting evidence that we hope will stimulate further data collection efforts and analysis.

The rest of the paper is organized as follows. Section II describes the data on the cost of remittances. Section III explains the empirical approach. Section IV presents the results, and Section V concludes.

II- Data on the cost of remittances

The data we use on the cost of remittances come from a recent survey of remittance service providers conducted by Payment System Unit of The World Bank. The cost of remittances is made up by a fee component and by an exchange rate spread component. The original World Bank data covers 14 sending and 72 receiving countries. However, because spread information is missing for remittances sent from Russia and due to missing data for some explanatory variables we focus on 119 corridors, including 13 sending countries and 60 receiving countries (see Table 1).[7] In most cases, data covers the costs from the main sending location/area for the corridor in question to the capital city or most populous city in the receiving market. Data were collected by interviewers posing as customers and by contacting individual firms. Within each corridor, the data were gathered on the same day to control for exchange rate fluctuations and other changes in fee structures. In general, cost data were collected for 8 to10 major service providers in each corridor, including both the main money transfer operators (MTO) and banks active in the market.[8] Companies surveyed within each segment were selected to cover the maximum remittance market share possible.[9]

[7] The full data is available at www.remittanceprices.org. Data on exchange rate spreads is also missing for some institutions in Germany, France and Japan. These institutions are excluded from the calculations of the average remittances costs from those countries.

[8] The actual number of respondents by corridors varies depending on the number of firms active in the corridor. In some cases (like the Spain-China corridor) only 2 firms are included, while in others, like the US-Mexico corridor, the number of respondents climbs to 18.

[9] Unfortunately, information on the market share covered by each provider is not available.

Costs based on two amounts were surveyed per corridor: the local equivalent of US$200, and the local equivalent of US$500. Because previous studies have found that a typical remittance transaction involves sending close to US$200, we conduct our analysis based on the costs associated with this amount.[10] Furthermore, the costs of sending US$200 and US$500 (expressed as a percentage of the amount sent) are highly correlated (the correlation is 0.91), so we do not expect results to vary if we use costs based on the higher amount.

Table 1 shows the average and median costs (based on transferring US$200) in each of the 119 corridors, calculated across surveyed remittance service providers in each corridor.[11] Average and median costs are highly correlated (96 percent). The average remittance costs are lowest in the Saudia Arabia-Pakistan corridor (2.5 percent) and highest in the Germany-Croatia (25.8 percent) corridor. Across all corridors the average mean cost is 10.2 percent. The median costs are lowest in the Singapore-Bangladesh corridor (2.3 percent), highest in the Germany-Croatia corridor (25.9 percent), and average 9.8 percent across all countries. Averaging costs for each sending country, we observe that costs are lower for transfers initiated from Saudia Arabia (3.9 percent) and highest for transactions originating in Japan (17.8 percent).

There is a lot of heterogeneity in costs even when we consider the same sending or the same remittance-receiving country. For example, Figure 1 shows the costs associated with sending remittances from the US to 22 receiving countries, while Figure 2 shows the costs associated with remittances received by India from 8 sending countries. Figure 1 shows that the costs of remittances sent from the US vary between 3.7 percent to Ecuador and 14.1 percent to Thailand. Figure 2 shows that remittances' costs to India vary between 3.1 percent from Saudi Arabia and 13.3 percent from Germany. This variation underlines the importance of conducting

[10] Freund and Spatafora (2008) use the same amount in their study.
[11] Note that the averages reported are not weighed. That is, the costs from each remittance provider are averaged without taking into account their relative market shares, which we do have not available.

the analysis of cost of sending remittances at the corridor rather than at the sending or recipient country-level.

There is also variation in remittance costs across different types of providers. Table 1 shows the average costs across corridors, limiting the sample to all banks, all money transfer operators (MTOs), and Western Union, respectively. On average, we find that banks charge significantly higher fees than MTOs (12.4% vs. 8.8%). This, however, does not control for the fact that banks and MTOs are not active in all corridors and that different banks and different MTOs are active in different corridors. When we focus on the corridors where both types of institutions are present, we find that in 43 out of these 63 corridors, average costs for banks exceed those for MTOs. Furthermore, when we regress costs at the provider level on a set of corridor dummies and a bank dummy, we find that bank costs are, on average, three percentage points higher than MTO fees. At the same time, relative to the average costs charged by other MTOs, Western Union exhibits slightly higher costs. The average cost for this institution is 10.8 percent relative to 8.8 percent for all MTOs.

III – Empirical Methodology

To examine the determinants of remittance costs, we regress the average cost of sending remittances on a set of sending and receiving country characteristics, as well as on some corridor-specific variables captured by the matrix X in equation (1) below:

$$C_{ij} = \alpha_0 + \alpha_2 \textit{Sending country factors}_i + \alpha_3 \textit{Receiving country factors}_j + X_{ij} + u_{ij} \qquad (1)$$

where C_{ij} is the cost of sending $200 US dollars from country i to country j (expressed as a percentage of the amount sent). Table 2A provides the summary statistics and data sources for

each of the variables included in the estimations, while Table 2B reports correlations across all variables.

In estimating equation (1), we try to capture an array of factors that might influence remittance costs. First, we include a proxy for the volume of remittance services within corridors. In particular, we include the number (bilateral stock) of migrants residing in country i originally from country j. This data comes from The World Bank.[12] Unlike the flow of actual remittances sent, this variable is less likely to be endogenous to the cost variable. We conjecture a negative relationship between migration and the cost of remittances, as a higher volume might imply scale economies and more competition among service providers. The number of migrants is negligible in the South Africa-Zambia corridor and exceeds 10 million people in the case of the US-Mexico corridor. The average for this variable is 379,199 migrants.

Second, we include several socio-economic variables that might influence remittance prices through their impact on transaction costs incurred by remittance service providers. Specifically, we include GDP per capita, proxying for the level of economic development and standard of living in a country. This variable comes from the World Bank World Development Indicators Database. In countries with higher standards of living the cost of good and services will be higher, so we expect remittance costs to be higher as a result. On the other hand, economic development may be associated with greater efficiencies and lower cost of financial intermediation (Harrison, Sussman and Zeira, 1999) and, hence, lower remittance costs. In our sample, GDP per capita for receiving countries varies from US$148 in Malawi to close to US$14,000 in Korea. Among remittance sending countries, GDP per capita varies between US$3640 for South Africa and US$40,200 in Japan. In some estimations, we separately control

[12] See Dilip and Shaw (2007).
http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21154867~pagePK:64165401~piPK:64165026~theSitePK:476883~isCURL:Y,00.html

for the level of financial development by including a measure of liquid liabilities to GDP. This variable comes from the World Bank Financial Structure Database (Beck, Demirguc-Kunt and Levine, 2009). A priori it is unclear whether financial development should have a positive or negative impact on costs. On the one hand, more financially developed systems are likely to be more sophisticated and to offer better services, which might be more expensive. On the other hand, more financially developed systems may be more efficient and might be able to deliver services at lower prices to consumers (Beck, 2008). The ratio of liquid liabilities to GDP in receiving countries varies from 15 percent for Algeria to 126 percent for Jordan and the average is 48 percent. Among sending countries, the ratio of liquid liabilities to GDP varies from 44 percent in South Africa to 199 in Japan. The average ratio of liquid liabilities to GDP among sending countries is 99 percent.

The geographic distribution of the population in both sending and receiving countries might be an important driver of the cost of sending remittances, as a more sparsely distributed population might imply higher transaction costs. We use the share of rural population in both sending and receiving countries to proxy for the disparity in geographic distribution.[13] This data comes from the World Bank World Development Indicators. We expect remittance costs to rise with the share of the population that is rural, since it is likely to be harder and more expensive for financial institutions to serve rural areas. Among receiving countries, the percentage of rural population varies from 13 percent in Lebanon to 87 percent in Uganda. On average, 48 percent of the population in receiving countries lives in rural areas. In contrast, on average, only 21 percent of the population in the sending countries is considered rural. This variable ranges from 0 for Singapore to 40 percent for South Africa.

[13] We consider the share of rural population a better proxy to capture the effect of service delivery than population density, which is an average within a country and does not take into account, which share of the population actually lives in more remote areas. However, we also tried the population density variable, with similar findings.

To measure access to financial services more directly, in some estimations, we also control for the number of *bank branches per capita* in sending and receiving countries[14] We expect that this variable will have a negative association with the costs of sending remittances, as higher branch penetration will reduce transaction costs and increase scale. Among receiving countries, the ratio of branches per capita averages close to 6 per 100,000 inhabitants, while it averages close to 34 per 100,000 inhabitants in sending countries.

Third, we include proxies for factors that might influence the degree to which remittance service providers can determine prices. We posit that providers will be better able to influence prices if there is little competition in the remittance market and if costumers are not well informed. Because we do not have a direct measure of competition among remittance service providers, we use two different indirect measures. For each corridor, we include the number of remittance service providers in the database. We speculate that since the World Bank survey tries to cover the most important providers in a corridor, corridors where more providers are included have more active firms and, hence, other things equal, we would expect these corridors to be more competitive. On average, across all corridors, the number of respondents is 8 and it varies between 2 in the Spain-China corridor and 18 in the US-Mexico corridor.

We also include a direct measure of competition among banks in both receiving and sending countries. The rationale for including this variable is that more competitive banking sectors are going to offer cheaper services, including remittances. This will create pressure for other providers to lower costs as well. Of course, this implicitly assumes that banks are significant players in the remittance business.

[14] These data come from Beck, Demirguc-Kunt and Martinez Peria (2007) and can be found at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20652043~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html. Because these data is available for a reduced number of corridors we do not include this variable in all estimations.

Following Panzar and Rosse (1982, 1987), we compute the *H-statistic*, which measures the degree of competition by calculating the elasticity of the total interest revenue of banks with respect to input prices.[15] Under perfect competition, an increase in input prices raises both marginal costs and total revenues by the same amount and, hence, the H-statistic will equal 1. In a monopoly, an increase in input prices results in a rise in marginal costs, a fall in output and a decline in revenues leading to an H-statistic less than or equal to 0. Panzar and Rosse (1987) show that when H is between 0 and 1 the system operates under monopolistic competition. We expect a negative relationship between the H-statistic in sending and receiving countries and the cost of sending remittances. We use data for the period 1994-2006 from Bankscope to compute the H-statistic. Among both remittance receiving and sending countries, the H-statistic averages close to 0.53. But as expected the standard deviation is larger for the latter.

As an alternative measure of market structure in the remittances industry, we include the share of bank respondents among all remittance service providers included in the database. To the extent that as some have argued banks view remittances as a marginal product and are less likely to offer competitive prices for this product (Ratha and Riedberg, 2005), we expect to find a positive correlation between the share of bank respondents and the average cost of remittances. Across the 119 corridors the share of bank respondents varies from 0 in the Italy-Sri Lanka corridor to 100 in the South Africa-Swaziland corridor. On average, the ratio of bank respondents across corridors is 31 percent.

Another factor that can affect the extent to which providers can influence prices is the level of financial literacy of remittance senders. Since we cannot capture this directly, we include a measure of the level of education of migrants in each corridor. In particular, we include the

[15] Other studies using this methodology to estimate competition include: Bikker and Haaf (2002), Gelos and Roldos (2002), Claessens and Laeven, (2004), and Levy-Yeyati and Micco (2007).

ratio of migrants with a secondary and/or tertiary education over the total number of migrants from the receiving country, residing in the sending country. This variable comes from the OECD Database on Immigrants and Expatriates. We expect this variable to be correlated with financial literacy and, to the degree that financial literacy enables consumers to make better informed choices, costs should be lower. The ratio of secondary and tertiary educated migrants varies from 21 percent for Chinese migrants in Italy to 91 percent for Nigerians residing in the US. Because this variable is only available for 88 out of the 119 corridors for which we have cost data, we do not include it in the baseline regressions but only show it as an additional variable.

Fourth, we control for different government policies relating to the exchange rate, the capital account and the regulation of the remittance market. We include a dummy variable for receiving countries with pegged exchanged rates (including cases of no separate legal tender, currency boards or de-facto *pegged regimes).* Lower exchange rate volatility should reduce costs, by lowering the exchange rate spreads and we, therefore, expect this dummy to be negatively associated with the cost of sending remittances. At the same time, we expect the cost of sending remittances to be higher in countries that impose controls on remittance transactions, since these operate like a tax that is likely to be passed onto recipients. Both the dummy for pegged exchange rate regimes as well as the capital controls dummy come from the IMF Annual Report on Exchange Arrangement and Restrictions. In 39 corridors (close to 33 percent of the sample) there is no exchange rate variability (since the exchange rate is pegged or the economy is fully dollarized) and in 22 corridors (18 percent of the sample) there are controls on gifts from abroad.

Finally, we control for the breadth of regulation of remittance service providers in sending and in receiving countries by creating an index of regulation which can take values from

0 to 5 depending on whether providers must be: (a) registered, (b) licensed, (c) are subject to specific safety and efficiency requirements, (d) need to comply with AML regulations, and/or (e) need to comply with laws and regulations of general applicability. Data to create the indexes come from Global Payment Systems Survey 2008, conducted by The World Bank.[16] While a broader regulatory framework might make the remittance market more transparent and more competitive, greater exposure to regulations can also increase the costs on the regulated institutions, so that the impact is a-priori ambiguous.[17] Among remittance receiving country the index averages 2.2, while it averages 2.3 among remittance sending countries.

The correlations in Table 2B indicate that the average costs are lower in corridors with a higher number of migrants, lower GDP per capita, smaller share of rural population, no exchange rate variability, and lower level of financial development. Also, costs are lower in corridors where there is a higher degree of competition and a lower share of bank participation in the remittance industry. Finally, costs are lower in corridors where sending countries have a broader regulatory framework for remittance service operators. We also note that some of the explanatory variables are highly correlated with each other. For instance, GDP per capita levels in receiving and sending countries are significantly correlated with the levels of financial development, competition among providers, the share of rural population, branch penetration and the breadth of regulations for remittance service providers.

[16] The report can be found at: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTFINANCIALSECTOR/EXTPAYMENTREMMITTANCE/0,,contentMDK:21813290~noSURL:Y~pagePK:210058~piPK:210062~theSitePK:1943138,00.html

[17] Note that the index does not measure the severity of regulations but only the scope of the regulatory framework.

IV - Empirical results

Table 3 shows results for average remittance costs across all providers in 119 corridors. We find that remittance costs are significantly associated with a number of factors, most notably the number of migrants in the corridor, the level of income in remittance sending and receiving countries, the extent of competition among providers (measured either by the number of respondents or the H-statistic for the banking sector in receiving countries) and the extent of bank participation in the remittance market. Specifically, corridors with higher income levels in both sending and receiving country and a higher share of bank participation exhibit significantly higher average remittance costs, while corridors with a higher number of migrants, a higher number of market players and greater bank competition in the receiving country exhibit significantly lower average costs. There is also some evidence that receiving countries with a higher share of rural population (where presumably access to financial institutions is more limited) face higher costs. On the other hand, we find no robust association between costs and measures of exchange rate stability, the presence of capital controls on remittances or the breadth of regulation of remittance service providers. Finally our measure of migrants' education level does not enter significantly, suggesting that the educational attainment of the principal clients does not affect the pricing behavior of remittance service providers.

These results are not only statistically, but also economically significant. Take the example of migrant stock. ; the difference between the corridor at the 25^{th} percentile in migration stock (United Kingdom-China with 56,774) to the corridor at the 75^{th} percentile (Spain-Colombia with 384,621) can explain a difference in average fees per transaction of approximately 1.9 percentage points. Note that the average fee across corridors is close to 10 percent so the effect of bilateral migration is quite large. Similarly, one standard deviation in the

number respondents (2.9) can explain between 0.6 and 1.5 percentage points of cross-corridor variation in remittance fees. Even stronger, a one standard deviation in the percentage of banks among survey respondents (32) can explain between 2.3 and 3.1 percentage points in cross-corridor variation.

Table 4 shows results for median remittance costs, as opposed to average costs, across all types of providers. In general, the results found for average costs are confirmed when we focus on median costs. In particular, remittance costs are lower in corridors with larger number of migrants, lower levels of income, and greater competition. However, some results like the association between costs and receiving country GDP per capita weaken and others like the correlation between the share of rural population and costs disappear.

Next, we examine the factors that influence the cost of remittances across different types of providers. Table 5 and 6 show separate estimations for the average costs among bank and MTOs, separately. In Table 5, the dependent variable is the average cost across all respondent banks in a corridor. Since there are corridors where banks do not play a significant role in the remittance market (and hence were not included in the database), the sample size drops in Table 5 compared to Table 3. Most of the results discussed so far hold when we restrict our sample to banks only. In particular, we continue to find that a larger number of migrants and lower levels of income in sending and receiving country are associated with lower costs. Also, as before a higher share of banks among respondents is positively correlated with costs. On the other hand, the measures of competition do not enter significantly anymore, a result that appears to be due to the lower number of observations.[18] We also find that broader regulation in the sending country is associated with lower remittance fees of banks.

[18] We establish this by re-running the regression for the average fee across all providers for the same sample as used in Table 5.

Table 6 shows that most of our findings are confirmed when restricting the sample to money transfer operators exclusively. A larger number of migrants and greater competition is associated with lower costs, while corridors with higher levels of income and bank participation exhibit larger costs. Unlike the regressions of Table 5 for banks, limiting the sample to MTOs only, confirms all the findings of our baseline regressions in Table 3.

Table 7 shows results for Western Union, one of the largest MTOs in the world, active in 98 corridors of our sample. Focusing on one specific financial institution allows us to control for any bias that might arise from having different institutions across different corridors (composition bias), even within the group of banks and MTOs. Considering the cost data from Western Union, we verify that a larger number of migrants and lower GDP per capita in the receiving and sending country seem to lead to lower costs. In addition, we find that no exchange rate variability (through either peg or dollarization) is also correlated with lower costs. On the other hand, contrary to previous estimations, none of the competition related indicators enters significantly, which could be due to the fact that Western Union has a dominating position in the remittance business across most corridors.

V – Conclusions

This paper investigates the characteristics of sending and receiving countries that explain the large variation across corridors in the cost of remittance transactions. We find three important factors. First, the number of migrants always enters negatively and significantly. This seems to suggest an important volume effect that works either through scale economies and/or higher competition in a larger market. Second, corridors with both higher income per capita in sending and receiving country exhibit, on average, higher costs, which could reflect higher costs of non-

tradable goods, such as services, in general. Third, competition and market structure matters, except in the case of Western Union. Corridors with a larger number of providers exhibit lower fees and bank competition in the receiving country seems to be negatively associated with the cost of sending remittances. On the other hand, corridors with a higher share of banks among providers exhibit higher average costs.

While we think this paper offers some interesting findings regarding a very important topic, it is only a first exploration into what drives remittance costs. We hope that future research will be able to exploit panel variation to get deeper at the issues, while at the same time addressing some of the limitations of the existing analysis.

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Table 1: Remittances costs per $200 dollars sent

Table shows the average costs for all providers, median costs for all providers, average costs among banks, average costs among money transfer operators (MTOs), and average costs for Western Union (WU).

Sending country	Receiving country	Average cost - all providers (%)	Median cost – all providers (%)	Banks' average cost (%)	MTOs' average cost (%)	WU's average cost (%)
Canada	Haiti	15.14	13.75	16.90	10.75	11.50
Canada	India	11.90	9.29	15.66	8.14	9.22
Canada	Jamaica	14.02	9.18	22.54	8.91	11.19
Canada	Vietnam	12.31	12.50	15.50	7.00	7.00
France	Algeria	14.16	14.24		15.39	16.54
France	China	13.03	12.16	16.01	10.22	11.11
France	Côte d'Ivoire	7.99	7.41		7.71	8.52
France	Haiti	9.66	8.72		9.74	13.78
France	India	11.98	12.90	13.58	10.63	13.95
France	Mali	7.87	7.78		7.56	6.67
France	Morocco	11.45	11.63	12.44	10.77	11.25
France	Senegal	7.87	7.41		7.56	8.52
France	Tunisia	11.53	12.53	16.00	9.83	10.09
France	Vietnam	11.82	12.47		12.43	14.27
Germany	Bosnia and Herzegovina	10.70	10.74	9.45	11.32	10.74
Germany	China	22.11	17.96	26.65	15.32	17.96
Germany	Croatia	25.86	25.86	37.95	13.76	13.76
Germany	India	13.32	13.83	14.89	11.76	14.84
Germany	Lebanon	10.58	10.58		10.58	
Germany	Morocco	16.82	14.35	23.59	12.30	15.51
Germany	Romania	20.95	20.89	31.60	15.63	20.89
Germany	Serbia	12.09	10.37	17.46	8.51	10.74
Germany	Turkey	11.07	6.72	11.76	8.99	6.05
Italy	Albania	6.76	6.12	4.34	8.52	14.07
Italy	China	11.42	11.11		12.64	17.02
Italy	India	5.49	5.26	4.44	6.74	8.97
Italy	Morocco	8.55	8.17	3.04	11.55	13.55
Italy	Nigeria	7.55	7.85		7.55	8.97
Italy	Philippines	6.47	6.40	5.55	7.08	9.01
Italy	Romania	7.02	6.86	4.45	8.95	10.00
Italy	Serbia	7.11	5.26	4.71	11.67	10.00
Italy	Sri Lanka	7.69	8.15		7.69	8.52
Japan	Brazil	19.71	20.11	21.57	10.45	
Japan	China	17.98	20.08	20.58	7.58	
Japan	Korea, Rep.	19.19	20.23	20.78	11.19	
Japan	Peru	19.92	20.32	21.16	12.50	
Japan	Philippines	12.01	12.70	13.12	8.68	
Malaysia	Indonesia	7.78	7.13	10.29	5.46	4.67

Table 1: Remittances costs per $200 dollars sent (continued)

Table shows the average costs for all providers, median costs for all providers, average costs among banks, average costs among money transfer operators (MTOs), and average costs for Western Union (WU).

Sending country	Receiving country	Average cost - all providers (%)	Median cost – all providers (%)	Banks' average cost (%)	MTOs' average cost (%)	WU's average cost (%)
Netherlands	Dominican Republic	17.14	14.13	26.31	12.56	10.98
Netherlands	Ghana	16.38	16.54	12.59	17.33	20.59
Netherlands	Indonesia	12.01	11.45	10.57	13.44	16.51
Netherlands	Morocco	9.97	10.40	9.68	10.32	12.33
Netherlands	Nigeria	11.27	11.27		11.27	14.96
Netherlands	Suriname	11.23	10.53		11.23	10.53
Netherlands	Turkey	11.48	10.56	9.31	14.37	15.72
Saudi Arabia	Bangladesh	2.84	2.77	2.47	3.21	3.54
Saudi Arabia	Egypt, Arab Rep.	5.40	5.07	6.62	4.17	4.91
Saudi Arabia	India	3.08	3.01	2.90	3.26	3.59
Saudi Arabia	Jordan	5.84	5.54	5.27	6.41	6.82
Saudi Arabia	Pakistan	2.50	2.38	1.70	3.29	3.72
Saudi Arabia	Philippines	5.07	5.12	4.08	6.06	4.69
Saudi Arabia	Yemen, Rep.	2.70	2.67	2.68	2.71	2.67
Singapore	Bangladesh	2.92	2.27	1.99	3.06	3.84
Singapore	China	5.90	6.06	2.89	6.91	8.13
Singapore	India	4.45	4.43	4.22	4.54	4.66
Singapore	Indonesia	6.59	6.49	9.39	5.96	6.57
Singapore	Malaysia	5.23	4.71	6.53	4.95	6.81
Singapore	Pakistan	13.10	13.90		13.10	16.95
South Africa	Angola	14.39	14.10	14.39		
South Africa	Botswana	18.99	18.66	18.99		
South Africa	Lesotho	12.23	12.17	12.23		
South Africa	Malawi	20.58	21.57	20.58		
South Africa	Mozambique	19.88	22.41	19.88		
South Africa	Swaziland	11.81	11.33	11.81		
South Africa	Zambia	24.90	21.48	24.90		
Spain	Brazil	6.35	4.78		6.30	16.02
Spain	Bulgaria	9.00	7.52		7.63	
Spain	China	14.20	14.20		14.20	
Spain	Colombia	5.98	5.91		6.02	
Spain	Dominican Republic	5.44	5.28		5.75	
Spain	Ecuador	6.71	6.03		6.39	
Spain	Morocco	8.10	7.56		8.00	
Spain	Peru	6.13	6.67		6.02	
Spain	Philippines	7.63	7.42		7.64	10.42
Spain	Romania	6.41	5.93		6.90	

Table 1: Remittances costs per $200 dollars sent

Table shows the average costs for all providers, median costs for all providers, average costs among banks, average costs among money transfer operators (MTOs), and average costs for Western Union (WU).

Sending country	Receiving country	Average cost - all providers (%)	Median cost – all providers (%)	Banks' average cost (%)	MTOs' average cost (%)	WU's average cost (%)
United Kingdom	Albania	14.64	13.99		14.64	24.91
United Kingdom	Bangladesh	7.11	5.71	5.87	7.22	10.10
United Kingdom	Brazil	6.70	6.81		6.70	13.33
United Kingdom	Bulgaria	11.71	10.07		11.71	17.89
United Kingdom	China	18.23	20.06	23.78	15.45	22.25
United Kingdom	Ghana	10.45	9.12		10.45	13.42
United Kingdom	India	9.06	8.99	10.02	8.85	10.39
United Kingdom	Jamaica	12.88	12.79	15.80	12.55	12.74
United Kingdom	Kenya	13.32	9.81		13.32	15.51
United Kingdom	Lithuania	10.55	8.17		10.55	19.59
United Kingdom	Nepal	7.97	8.89		7.97	10.28
United Kingdom	Nigeria	9.92	9.73		9.92	14.70
United Kingdom	Pakistan	6.83	7.24	2.47	7.26	8.47
United Kingdom	Philippines	8.55	5.41	4.69	8.93	16.82
United Kingdom	Poland	6.84	7.03		6.84	6.96
United Kingdom	Romania	11.51	9.51		11.51	18.02
United Kingdom	Rwanda	15.23	14.98		15.23	16.00
United Kingdom	Sierra Leone	9.15	8.86		9.15	14.43
United Kingdom	South Africa	12.42	12.47		12.42	13.48
United Kingdom	Sri Lanka	8.14	9.11		8.14	10.14
United Kingdom	Uganda	10.59	9.42		10.59	14.57
United Kingdom	Zambia	14.65	15.83		14.65	13.48
United States	Brazil	9.47	6.81	16.78	6.55	6.72
United States	China	12.56	10.58	15.01	4.61	7.42
United States	Colombia	6.10	4.91	10.00	5.40	10.44
United States	Dominican Republic	7.44	6.75	7.46	7.43	13.01
United States	Ecuador	3.68	3.00		3.68	5.50
United States	El Salvador	4.14	4.50		4.28	5.50
United States	Ghana	5.41	5.46		5.41	5.66
United States	Guatemala	5.82	5.34		5.82	6.46
United States	Guyana	7.57	7.19		7.57	8.02
United States	Haiti	7.23	7.50		7.23	9.00
United States	Honduras	5.98	6.12	5.01	6.08	7.43
United States	India	4.61	4.63	1.93	5.28	6.38
United States	Indonesia	8.51	7.97		8.51	14.25
United States	Jamaica	6.74	6.74		6.74	7.79
United States	Lebanon	12.82	15.00	19.17	5.19	6.00
United States	Mexico	6.76	6.70	5.77	7.01	8.62
United States	Nigeria	5.34	5.28		5.34	5.36
United States	Pakistan	10.21	7.09	11.95	8.97	6.65
United States	Peru	4.28	4.00	5.25	4.12	4.97
United States	Philippines	6.95	7.15	6.27	7.03	8.44
United States	Thailand	14.12	9.42	22.57	7.37	14.19
United States	Vietnam	3.79	3.53		3.79	3.05

Table 2A: Variable summary statistics and data sources

Description	Obs.	Mean	Median	Date	Source
Average fee – all providers (% of US$200)	119	10.24	9.47	2009	World Bank. Remittance Prices website (remittanceprices.org)
Banks' average fee (% of US$200)	70	12.40	11.78	2009	World Bank. Remittance Prices website (remittanceprices.org)
Money transfer operators' average fee (% of US$200)	112	8.78	8.07	2009	World Bank. Remittance Prices website (remittanceprices.org)
Western Union average fee (% of US$200)	98	10.84	10.33	2009	World Bank. Remittance Prices website (remittanceprices.org)
Log of number of migrants in the corridor	119	11.61	11.88	2006	World Bank
Log of GDP per capita in recipient country	119	7.15	7.40	Average for 2006-07	World Development Indicators
Log of GDP per capita in sending country	119	10.02	10.17	Average for 2006-07	World Development Indicators
Dummy for peg	119	0.33	0.00	2008	IMF Annual Report on Exchange Arrangement and Restrictions
Number of respondents per corridor	119	7.97	8.00	2009	World Bank. Remittance Prices website (remittanceprices.org)
Percentage of banks per corridor	119	31.35	20.00	2009	World Bank. Remittance Prices website (remittanceprices.org)
Percentage rural population in recipient country	119	49.48	50.22	Average for 2006-07	World Development Indicators
Percentage rural population in sending country	119	20.56	18.99	Average for 2006-07	World Development Indicators
Dummy for controls on remittances in recipient country	105	0.21	0.00	2007	IMF Annual Report on Exchange Arrangement and Restrictions
Percentage of migrants with high or medium education	88	54.14	53.47	2000	OECD Database on Immigrants and Expatriates
Branches per 100,000 people in recipient country	89	6.62	6.30	2008	World Bank Regulador Survey
Branches per 100,000 people in sending country	119	33.64	30.86	2008	World Bank Regulador Suvery
Index of regulations for remittance providers in recipient country	91	2.20	2.00	2008	World Bank Payment Systems Survey
Index of regulations for remittance providers in sending country	119	2.25	2.00	2008	World Bank Payment Systems Survey
H-statistic for banking sector in recipient country	111	0.54	0.52	1994-2006	Bankscope
H-statistic for banking sector in sending country	119	0.52	0.50	1994-2006	Bankscope
Banks' Liquid Liabilities to GDP in recipient country (%)	107	47.67	43.53	Average for 2006-07	World Bank Financial Structure Database
Banks' Liquid Liabilities to GDP in sending country (%)	119	99.22	107.25	Average for 2006-07	World Bank Financial Structure Database

Table 2B: Correlation Matrix

	Avg cost	Banks avg cost	MTO savg cost	WU avg cost	Log bil mig	Log GDP rec	Log GDP send	Peg rec	Resp per corr	% of banks	Rural pop rec	Rural pop send	Remit ctrl rec	Mig educ	Brchs per capita rec	Brchs per capita send	Index reg rec	Index reg send	H-Stat rec	H-Stat send	Liab to GDP rec
Avg cost	1.00																				
Banks' avg cost	0.93*	1.00																			
MTOs' avg cost	0.80*	0.61*	1.00																		
WU's avg cost	0.70*	0.55*	0.85*	1.00																	
Log bil migrants	-0.38*	-0.29*	-0.44*	-0.54*	1.00																
Log GDPpc rec	0.09	0.27*	0.05	0.09	0.26*	1.00															
LogGDPpc send	-0.14	0.01	0.15	0.16	0.32*	0.18*	1.00														
Peg receiving	-0.08	-0.03	-0.10	-0.16	-0.10	-0.12	-0.14	1.00													
Resp per corridor	-0.33*	-0.21	-0.33*	-0.15	0.35*	0.26*	0.18	0.00	1.00												
% of banks	0.55*	0.55*	0.15	-0.08	-0.08	0.05	-0.46*	0.07	-0.17	1.00											
Rural pop rec	0.03	-0.14	0.03	-0.04	-0.12	-0.75*	-0.19*	0.07	-0.22*	0.09	1.00										
Rural pop send	0.36*	0.36*	0.08	-0.04	-0.10	0.09	-0.51*	0.06	-0.20*	0.60*	-0.09	1.00									
Remit control rec	0.10	0.03	0.06	0.00	-0.11	-0.19	-0.11	0.08	-0.23*	0.12	0.30*	0.06	1.00								
Migrant educ	0.04	0.20	-0.13	-0.09	-0.08	-0.13	0.54*	-0.26*	-0.15	-0.04	-0.03	-0.32*	-0.09	1.00							
Branches pc rec	0.05	0.30*	-0.07	-0.04	0.16	0.58*	0.04	0.20	0.20	0.17	-0.59*	0.12	-0.48*	0.10	1.00						
Branches pc send	-0.11	0.18	0.07	0.20*	0.12	0.21*	0.09	0.01	0.30*	-0.26*	-0.26*	0.22*	-0.08	-0.42*	0.19	1.00					
Index reg rec	0.04	0.13	-0.07	0.03	0.08	0.18	0.10	0.01	0.13	0.01	-0.25*	0.11	0.39*	-0.14	-0.17	0.14	1.00				
Index reg send	-0.51*	-0.59*	-0.15	0.02	0.03	-0.14	0.12	0.03	0.22*	-0.63*	0.06	-0.66*	-0.02	-0.14	-0.15	0.07	-0.04	1.00			
H-Stat receiving	-0.21*	-0.20	-0.23*	-0.09	0.02	0.20*	0.13	-0.02	0.12	-0.16	-0.03	-0.12	-0.07	0.09	0.05	-0.02	0.00	0.06	1.00		
H-Stat sending	-0.27*	-0.06	-0.09	-0.05	0.35*	0.28*	0.56*	-0.14	0.19*	-0.46*	-0.33*	0.05	-0.15	-0.03	0.16	0.55*	0.22*	-0.11	0.16	1.00	
Liab to GDP rec	-0.09	-0.13	-0.06	-0.06	0.27*	0.19*	0.14	0.24*	0.00	0.03	0.04	-0.15	-0.19	-0.21	0.22	0.00	0.04	0.11	-0.08	0.01	1.00
Liab to GDPsend	0.29*	0.30*	0.39*	0.51*	-0.05	0.18*	0.42*	-0.16	0.01	-0.16	-0.19*	-0.30*	-0.06	0.04	0.09	0.05	0.04	0.06	0.04	0.01	0.00

* Significant at least at 5 percent

Table 3: Regressions including all remittance service providers
Dependent variable: average costs for US$ 200

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)	(3.7)
Log number of migrants	-0.971	-0.934	-0.395	-1.362	-1.04	-1.206	-0.739
	[3.84]***	[3.56]***	[1.58]	[10.16]***	[4.17]***	[5.50]***	[3.01]***
Log GDP per capita receiving	1.375	1.603	1.917	1.813	1.707	2.081	1.006
	[2.20]**	[2.39]**	[3.47]***	[2.75]***	[2.29]**	[3.42]***	[1.58]
Log GDP per capita sending	2.501	2.413	-1.88	3.258	3.094	2.72	1.49
	[3.30]***	[3.07]***	[1.37]	[4.45]***	[3.62]***	[3.37]***	[2.03]**
Pegged or dollarized	-1.135	-1.606	-0.752	-1.457	-0.554	-0.793	-0.365
	[1.62]	[2.09]**	[1.17]	[1.75]*	[0.61]	[1.15]	[0.50]
Number of respondents per corridor	-0.24	-0.209	-0.522	-0.217	-0.238	-0.133	-0.164
	[2.16]**	[1.74]*	[5.52]***	[1.97]*	[1.78]*	[1.15]	[1.55]
Percentage of banks per corridor	0.084	0.084	0.117	0.096	0.075	0.071	0.087
	[6.62]***	[6.42]***	[8.48]***	[5.24]***	[4.51]***	[4.03]***	[6.22]***
% Rural population receiving	0.045	0.068	0.032	0.051	0.067	0.071	0.038
	[1.70]*	[2.24]**	[1.24]	[1.35]	[2.27]**	[2.50]**	[1.52]
% Rural population sending	0.059	0.063	-0.247	0.018	0.016	0.116	0.082
	[1.24]	[1.29]	[4.30]***	[0.30]	[0.24]	[1.89]*	[1.58]
Controls on remittances		-0.271					
		[0.27]					
% Migrants high or medium education			-0.007				
			[0.36]				
Bank branches per capita receiving				-0.029			
				[0.20]			
Bank branches per capita sending				0.025			
				[1.41]			
Index of regulation receiving					0.216		
					[0.69]		
Index of regulation sending					-0.544		
					[0.72]		
H-statistic receiving						-4.442	
						[2.50]**	
H-statistic sending						-4.904	
						[1.30]	
Liq Liabilities to GDP receiving							-0.01
							[0.78]
Liq Liabilities to GDP sending							0.043
							[4.29]***
Constant	-17.144	-19.425	25.889	-24.124	-24.028	-19.492	-12.022
	[1.67]*	[1.80]*	[2.17]**	[2.72]***	[1.92]*	[2.20]**	[1.22]
Observations	119	105	88	89	91	111	107
R-squared	0.55	0.57	0.66	0.65	0.57	0.63	0.63

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Regressions including all remittance service providers
Dependent variable: median costs for US$ 200

	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)	(4.6)	(4.7)
Log number of migrants	-0.826	-0.744	-0.326	-1.203	-0.955	-0.961	-0.579
	[3.39]***	[2.90]***	[1.12]	[7.09]***	[4.23]***	[3.70]***	[2.63]***
Log GDP per capita receiving	0.903	1.037	1.445	1.492	1.274	1.632	0.44
	[1.30]	[1.37]	[2.13]**	[1.99]*	[1.54]	[2.39]**	[0.64]
Log GDP per capita sending	2.357	2.168	-1.42	3.339	3.547	2.985	1.188
	[2.78]***	[2.47]**	[0.88]	[4.27]***	[3.66]***	[3.27]***	[1.44]
Pegged or dollarized	-0.75	-1.232	-0.439	-1.086	-0.015	-0.462	-0.047
	[1.03]	[1.53]	[0.62]	[1.25]	[0.02]	[0.62]	[0.06]
Number respondents per corridor	-0.282	-0.268	-0.559	-0.274	-0.279	-0.195	-0.181
	[2.42]**	[2.17]**	[4.77]***	[2.14]**	[2.01]**	[1.51]	[1.62]
Percentage of banks per corridor	0.085	0.085	0.118	0.092	0.085	0.063	0.085
	[6.27]***	[5.98]***	[7.86]***	[4.88]***	[4.89]***	[3.27]***	[5.68]***
% Rural population receiving	0.026	0.036	0.009	0.035	0.051	0.05	0.019
	[0.91]	[1.06]	[0.33]	[0.87]	[1.59]	[1.66]	[0.79]
% Rural population sending	0.062	0.066	-0.227	0.035	0.051	0.154	0.095
	[1.25]	[1.24]	[3.32]***	[0.55]	[0.78]	[2.29]**	[1.82]*
Controls on remittances		0.295					
		[0.27]					
% Migrants high or medium education			-0.017				
			[0.75]				
Bank branches per capita receiving				-0.028			
				[0.18]			
Bank branches per capita sending				0.02			
				[1.05]			
Index of regulation receiving					0.327		
					[0.98]		
Index of regulation sending					0.322		
					[0.43]		
H-statistic receiving						-4.317	
						[2.20]**	
H-statistic sending						-7.939	
						[1.93]*	
Liq Liabilities to GDP receiving							-0.009
							[0.74]
Liq Liabilities to GDP sending							0.046
							[5.08]***
Constant	-13.435	-13.967	24.642	-23.88	-29.24	-19.853	-6.991
	[1.16]	[1.14]	[1.66]	[2.39]**	[2.08]**	[1.92]*	[0.64]
Observations	119	105	88	89	91	111	107
R-squared	0.5	0.51	0.6	0.6	0.52	0.58	0.59

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Regressions for bank respondents
Dependent variable: average fee for US$ 200 among banks

	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)	(5.6)	(5.7)
Log number of migrants	-1.053	-1.101	-1.079	-1.849	-1.061	-1.597	-0.923
	[2.50]**	[2.74]***	[1.63]	[5.11]***	[2.38]**	[3.60]***	[2.16]**
Log GDP per capita receiving	3.013	3.177	7.585	4.339	4.513	3.914	2.907
	[1.86]*	[1.94]*	[5.30]***	[2.30]**	[2.66]**	[2.51]**	[1.60]
Log GDP per capita sending	4.737	5.116	-0.944	4.238	4.095	3.439	4.338
	[4.03]***	[4.06]***	[0.30]	[3.13]***	[2.65]**	[2.40]**	[2.26]**
Pegged or dollarized	-1.283	-1.623	-0.581	-2.175	-0.106	-0.458	-0.389
	[0.75]	[0.84]	[0.29]	[1.11]	[0.05]	[0.25]	[0.22]
Number of respondents per corridor	-0.076	-0.006	-0.426	-0.102	-0.071	0.049	0.108
	[0.25]	[0.02]	[1.03]	[0.30]	[0.24]	[0.17]	[0.27]
Percentage of banks per corridor	0.189	0.195	0.225	0.157	0.144	0.189	0.196
	[5.55]***	[5.21]***	[6.13]***	[2.80]***	[4.06]***	[3.93]***	[4.29]***
% Rural population receiving	0.071	0.13	0.128	0.128	0.135	0.09	0.072
	[1.16]	[1.83]*	[2.07]**	[1.49]	[2.18]**	[1.44]	[1.07]
% Rural population sending	0.004	-0.006	-0.438	-0.047	-0.19	-0.025	0.009
	[0.04]	[0.07]	[3.52]***	[0.33]	[1.54]	[0.20]	[0.09]
Controls on remittances		-2.212					
		[0.88]					
% Migrants high or medium education			0.052				
			[0.90]				
Bank branches per capita receiving				0.417			
				[1.48]			
Bank branches per capita sending				0.046			
				[0.69]			
Index of regulation receiving					0.462		
					[0.67]		
Index of regulation sending					-3.58		
					[2.53]**		
H-statistic receiving						-4.65	
						[1.18]	
H-statistic sending						3.006	
						[0.39]	
Liq Liabilities to GDP receiving							-0.008
							[0.24]
Liq Liabilities to GDP sending							0.015
							[0.62]
Constant	-55.648	-62.594	-24.476	-55.256	-51.349	-42.951	-55.636
	[2.84]***	[3.01]***	[0.88]	[2.73]***	[2.07]**	[2.29]**	[2.23]**
Observations	70	62	43	53	58	66	62
R-squared	0.54	0.55	0.74	0.69	0.64	0.6	0.57

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6: Regressions for MTO respondents
Dependent variable: average fee for US$ 200 among MTOs

	(6.1)	(6.2)	(6.3)	(6.4)	(6.5)	(6.6)	(6.7)
Log number of migrants	-1.135	-1.22	-0.236	-1.141	-1.134	-1.14	-0.791
	[6.11]***	[5.93]***	[0.99]	[5.83]***	[4.64]***	[5.17]***	[3.81]***
Log GDP per capita receiving	1.118	1.399	0.863	0.979	0.853	1.563	0.713
	[2.27]**	[2.69]***	[2.25]**	[1.58]	[1.26]	[3.25]***	[1.38]
Log GDP per capita sending	1.352	1.211	-3.438	1.579	1.636	1.279	1.571
	[2.33]**	[1.99]**	[3.17]***	[2.62]**	[1.45]	[2.01]**	[2.96]***
Pegged or dollarized	-0.787	-0.869	-1.027	-1.434	-0.584	-0.756	-0.417
	[1.40]	[1.43]	[1.92]*	[2.36]**	[0.81]	[1.51]	[0.76]
Number of respondents per corridor	-0.159	-0.125	-0.493	-0.205	-0.213	-0.105	-0.159
	[1.75]*	[1.25]	[5.56]***	[1.76]*	[1.76]*	[1.11]	[1.68]*
Percentage of banks per corridor	0.024	0.02	0.053	0.038	0.024	0.015	0.03
	[2.22]**	[1.89]*	[4.47]***	[2.47]**	[1.28]	[0.97]	[2.34]**
% Rural population receiving	0.037	0.062	0.018	0.029	0.037	0.06	0.02
	[1.54]	[2.29]**	[0.79]	[1.06]	[1.31]	[2.55]**	[0.84]
% Rural population sending	0.039	0.046	-0.233	-0.028	0.044	0.064	0.035
	[1.00]	[1.18]	[4.36]***	[0.54]	[0.76]	[1.07]	[0.77]
Controls on remittances receiving		-0.289					
		[0.35]					
% Migrants high or medium education			-0.034				
			[1.89]*				
Bank branches per capita receiving				-0.066			
				[0.75]			
Bank branches per capita sending				0.029			
				[1.85]*			
Index of regulation receiving					-0.053		
					[0.20]		
Index of regulation sending					0.181		
					[0.17]		
H-statistic receiving						-4.531	
						[3.51]***	
H-statistic sending						-2.458	
						[0.69]	
Liq Liabilities to GDP receiving							-0.003
							[0.29]
Liq Liabilities to GDP sending							0.02
							[2.15]**
Constant	-1.177	-2.086	49.599	-1.462	-1.98	-1.547	-5.833
	[0.17]	[0.27]	[4.65]***	[0.18]	[0.12]	[0.19]	[0.90]
Observations	112	98	88	87	86	106	100
R-squared	0.37	0.4	0.52	0.46	0.38	0.43	0.41

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7: Regressions for Western Union
Dependent variable: average fee for US$ 200 among Western Union operators

	(7.1)	(7.2)	(7.3)	(7.4)	(7.5)	(7.6)	(7.7)
Log stock of migrants	-2.068	-2.299	-0.988	-2.149	-2.226	-1.979	-1.454
	[7.62]***	[7.64]***	[2.76]***	[5.73]***	[6.50]***	[6.33]***	[4.33]***
Log GDP per capita receiving	1.757	2.453	2.176	2.136	1.625	2.153	0.784
	[2.46]**	[3.66]***	[4.17]***	[2.14]**	[1.89]*	[2.80]***	[1.07]
Log GDP per capita sending	1.965	1.462	-6.864	1.352	2.89	2.908	2.597
	[2.28]**	[1.68]*	[2.83]***	[1.27]	[1.70]*	[2.41]**	[2.75]***
Pegged or dollarized	-2.032	-2.07	-2.154	-2.731	-2.093	-1.988	-1.705
	[2.66]***	[2.42]**	[2.72]***	[2.78]***	[2.16]**	[2.48]**	[2.49]**
Number of respondents per corridor	0.065	0.165	-0.22	0.064	-0.156	0.112	-0.01
	[0.43]	[1.00]	[1.38]	[0.34]	[0.75]	[0.68]	[0.07]
Percentage of banks per corridor	0.018	0.005	0.029	0.015	0.032	-0.004	0.021
	[0.96]	[0.29]	[1.74]*	[0.60]	[1.07]	[0.17]	[1.02]
% Rural population receiving	0.041	0.089	0.04	0.054	0.039	0.056	-0.004
	[1.18]	[2.55]**	[1.39]	[1.32]	[0.92]	[1.54]	[0.13]
% Rural population sending	0.065	0.071	-0.306	0.01	0.076	0.171	0.161
	[1.13]	[1.19]	[3.80]***	[0.11]	[0.82]	[1.73]*	[2.41]**
Controls on remittances		-0.281					
		[0.25]					
% Migrants high or medium education			-0.026				
			[0.84]				
Bank branches per capita receiving				-0.093			
				[0.69]			
Bank branches per capita sending				0.026			
				[0.73]			
Index of regulation receiving					0.446		
					[1.12]		
Index of regulation sending					0.349		
					[0.26]		
H-statistic receiving						-2.809	
						[1.31]	
H-statistic sending						-8.23	
						[1.51]	
Liq Liabilities to GDP receiving							0.023
							[1.42]
Liq Liabilities to GDP sending							0.06
							[4.08]***
Constant	-0.718	-0.592	85.167	3.849	-7.43	-10.681	-13.574
	[0.08]	[0.06]	[3.88]***	[0.35]	[0.35]	[0.83]	[1.44]
Observations	98	84	76	74	75	92	89
R-squared	0.44	0.5	0.57	0.5	0.51	0.45	0.54

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1: Cost of remittances from U.S. to 22 receiving countries (% of US$200)

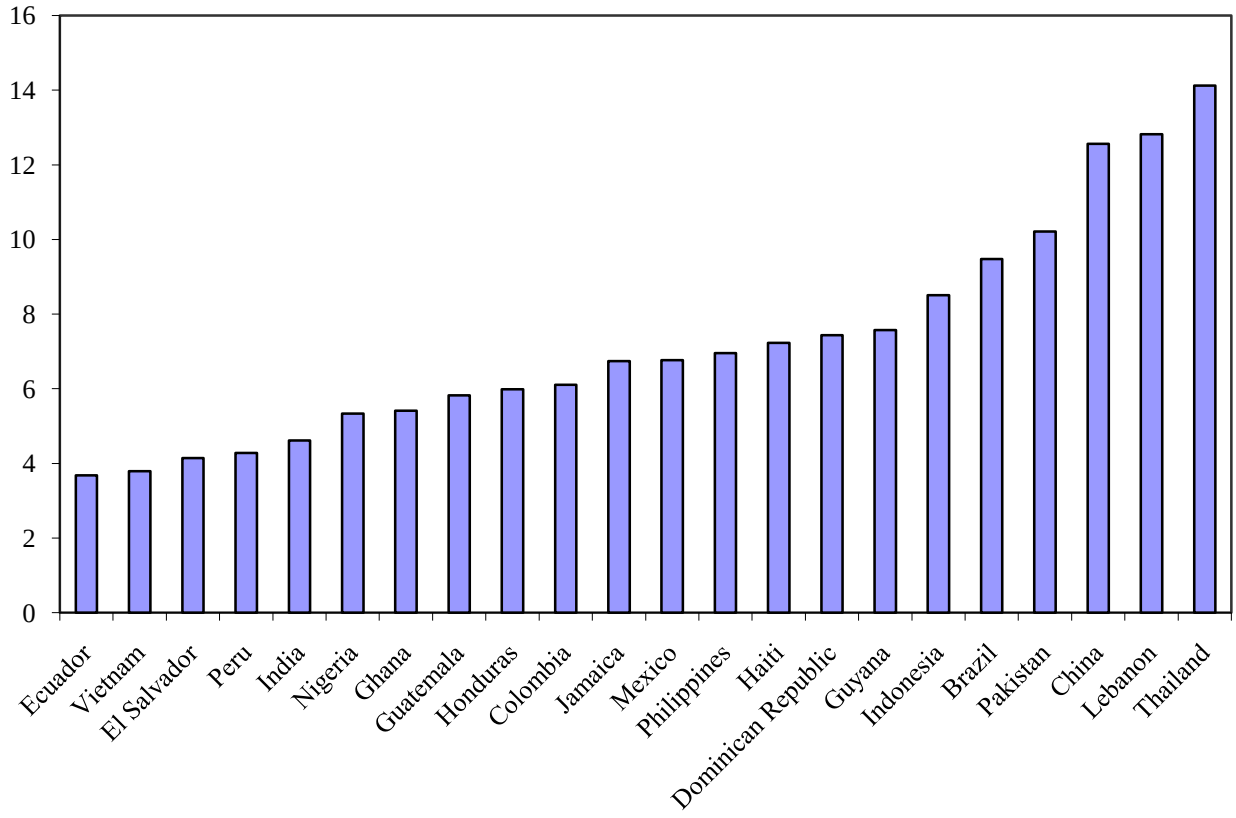

Figure 2: Cost of remittances to India from 8 sending countries (% of US$200)