Migrant Money Notes 7: Approaches to Evaluating and Estimating Informal Remittance Flows in Developing Economies

Dr. Deepali Fernandes,
Dr. Robin Gravesteijn,
Amil Aneja

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Approaches to evaluating and estimating informal remittance flows in developing economies

Introduction

Remittances are emerging as one of the largest sources of external finance for many least developing countries,[1] yet their exact size often remains unknown to policymakers and the private sector because of the large portion of informal flows. Our previous blog in this series looked at how accurate remittance flow data, especially informal remittances, enable successful policies. However, accurate data on informal remittance flows is often scarce because it is difficult to gather. Methodologies to estimate informal remittance flows exist, but there is substantial room for improvement. This blog first discusses key challenges in measuring informal remittance flows. It then reviews several survey methods and models for measuring informal remittance flow to low- and middle-income countries. We suggest a dual approach consisting of a model-based approach to estimating informal remittance flows and surveys for more accurate data and insights.

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1   United Nations Capital Development Fund (2022). Understanding Informal Remittances. Article on website: https://www.centralbanking.com/central-banks/economics/data/7949526/understanding-informal-remittances.

The Importance and Value of Estimating Informal Remittances

Without accurate data on informal remittances, we tend to underestimate the remittance market's full size. For example, informal remittance flows into developing countries may range between 35–75 percent of official formal remittances.[2] While it is difficult to say how much informal remittances might be, most estimates easily run into billions of US$ of annual flows.[3] The significant size of these flows obscures the actual size of the remittance market. It also impacts a range of economic indicators, including the balance of payments and foreign exchange reserve indicators that feed into broader policymaking and financial product innovation. The Covid-19 pandemic triggered a move from informal to digital remittance transfers in several developing economies during the lockdowns, a shift which may or may not be sustained.[4]

However, this shift has caused policymakers, private sector and some sovereign rating agencies to renew their interest in better estimating informal and formal remittances.

There are two types of neglect in remittance data, one due to imprecise accounting in collecting remittance data and the other due to the choice of informal remittance channels by migrants. The first step to bringing informal remittances into the formal system is to identify the size and channels of transfer by collecting better data. Difficulties in estimating informal remittance flows arise because informal remittances are unregulated and inaccurately recorded by nature, which results in underestimating informal remittance flows. In some cases, regulation and supervision do not require financial service providers to report remittances below a certain threshold amount, making them effectively undocumented and thus informal. In other cases, new entrants such as fintech may not have to report to the supervision authorities. On the demand side, informal channels may be preferred by migrants and recipient families for various reasons, including cost. Furthermore, when it comes to black market exchange rates, informal channels require little or no KYC identification, and access to regular banks or agent networks may be limited or inadequate. Informal channels may be perceived as more user-friendly or convenient, requiring lower financial literacy by customers.[5] Consequently, informal remittance flows remain under-documented in the broader formal economy.

2   Freund, Caroline, and Nikola Spatafora (2005). Remittances: Transaction Costs, Determinants, and Informal Flows. Washington DC. World Bank, Development Research Group.

3   Simple and often outdated estimations on a variety of outdated data sources have been attempting to measure informal remittances, varying as much as $63-80 billion for Sub-Saharan Africa. UNCDF (2016:16-17) estimates $6–17 billion of informal remittances flowing into Myanmar, Cambodia and Lao Pdr using data from 2014-2015 (see UNCDF 2016; UNCDF 2021) (UNCDF 2016, 'Remittances as a Driver of Women's Financial Inclusion', at https://www.uncdf.org/article/2173/remittances-as-a-driver-of-womens-financial-inclusion-in-the-mekong-region). An IOM study (2019:124), comes up with estimates for several Asian countries varying from 20 percent to 90 percent of total flows, see *Study on Remittance Regulatory Frameworks and Accessibility of Regular Remittance Channels of the Colombo Process Member States* (Colombo, 2019), Appendix 5 pp124. Available at https://publications.iom.int/books/study-remittance-regulatory-frameworks-and-accessibility-regular-remittance-channels-colombo (accessed 2 August 2021).

4   United Nations Capital Development Fund (2022). *Shifting from cash to Digital Remittances During the Pandemic: A case study of BRAC Bank in Bangladesh.* (August) Fig. II. Article on website: https://migrantmoney.uncdf.org/case-study-of-brac-bank-in-bangladesh.

5   United Nations Capital Development Fund (2022). *Understanding informal remittances*. Article on website: https://www.centralbanking.com/central-banks/economics/data/7949526/understanding-informal-remittances.

Overview of Select Methodologies to Estimate Informal Remittance Flows

The literature on remittance flow estimation indicates primarily two approaches for estimating remittance flows, the first being direct micro-level procedures such as surveys on firms, individuals and households. This approach has been utilized primarily by central banks, including Ethiopia, Pakistan, Albania, and some international organizations. The other approach involves indirect macro-level procedures, which utilizes indirect and secondary data sources, including balance of payments indicators, macroeconomic data, and demographic data. Table 1 provides an overview of different approaches.

TABLE 1: OVERVIEW OF SELECT METHODOLOGIES USED FOR ASSESSING INFORMAL REMITTANCES		
METHODOLOGY	**MAIN ELEMENT**	**DESCRIPTION**
Direct Micro-Level Procedures		
1. Direct micro-level surveys	**1.1 National Representative Surveys.** These surveys are conducted among remittance-sending or receiving households or firms to measure the amounts received.	These are used primarily by central banks through standalone surveys or national surveys such as household surveys and are also included in national financial inclusion surveys such as FinScope or Intermedia.[6] While representative at the national level at a specific time, these surveys are often costly and conducted only every three to five years.
	1.2 Targeted Surveys. These surveys measure cash imports or exports.	These are used primarily by central banks to conduct high-frequency targeted surveys at airports, ports or border checks to estimate the cash imports and exports for the country. Surveys may be more cost-effective and conducted yearly but are less representative at the national level at a given time. Examples include the central banks of Kosovo and Albania.
Indirect Macro-Level Procedures		
2. Indirect macro-level procedures	**Indirect (secondary) Data Sources.**	These use secondary or macroeconomic data from balance of payments, macroeconomic, and demographic data and are most useful for transactions involving households and individuals where data cannot be measured directly.

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6   Example: The World Bank (2010). *The Future of African remittances: National Surveys, Ethiopia 2010.*

	2.1 Net Errors and Omissions from BoP (NEO).[7] This indirect approach is based on a negative correlation between recorded and informal remittances.	Negative correlation between annual changes in recorded remittances and NEO, i.e., increases in recorded remittances are offset by declines in informal remittances. Other facts, e.g., migration, can also increase recorded remittances. However, in this case recorded, informal remittances will move in the same direction.
	2.2 Distance Variable Model.[8] This indirect approach estimates informal remittances using several variables, especially travel costs.	This estimated the informal remittances to 40 countries from various districts in Italy using variables including migrants' demographic characteristics, political/economic home country conditions, financial development and travel costs. The argument is that more significant travel costs to home countries result in more informal remittances.
	2.3 Cost of Remittances. This model is based on a panel of bilateral remittances for 104 countries.[9] The indirect approach uses several macroeconomic variables to estimate informal remittance flows.	Variables include, among others, the cost of sending remittances, financial development, and bank concentration in the recipient countries. The model simulates total remittances with more positive variables (cost, development etc.) and reduces for recorded remittances to estimate informal remittances.
	2.4 Currency Demand-Based Approach. This approach is generally used in the literature to estimate the underground economy. The main objective is to analyse changes in the demand for local currency caused by factors other than the usual economic fundamentals and to assess the portion of the change and the volume attributable to informal remittances.	This approach uses macroeconomic variables to assess informal remittance flows, including the number of workers and cost of remittances, GDP *per capita* in the host country and improved economic growth in the home country, which leads to more remittances,[10] and inflation,[11] a developed variable for irregular migrant status based on the assumption that irregular migrants use informal channels.[12]

7   Freund, Caroline, and Nikola Spatafora (2008). *Remittances, transaction costs, and informality*, Journal of Development Economics, Volume 86, Issue 2, Pages 356-366.

8   Magnani, Maurizio, and others (2016). *Remittances of foreign workers in Italy: an estimation of invisible flows in the "informal channel"*. No. 332, Questioni di Economia e Finanza. Bank of Italy. Economic Research and International Relations Area.

9   Freund, Caroline, and Nikola Spatafora (2005). *Remittances: Transaction Costs, Determinants, and Informal Flows*. World Bank Policy Research Working Paper, (3704).

10   (1) Malit, Froilan, Mouawiya Al Alawad, and George Naufal (2017). *More than a Criminal Tool: The Hawala System's Role as a Critical Remittance Channel for Low-Income Pakistani Migrants in Dubai.* Remittances Review 2 (2) Faini, Riccardo, 2002. *Migration, Remittances and Growth*. Presented at the Conference on Poverty, International Migration and Asylum, Helsinki, pp: 63–88. (3) F, Ferriani, and G, Oddo (2019). *More Distance, More Remittance? Remitting Behavior, Travel Cost, and the Size of the Informal Channel*. Economic Notes p. 48 (4) Freund, Caroline, and Nikola Spatafora (2005). *Remittances: Transaction Costs, Determinants, and Informal Flows*. World Bank Policy Research Working Paper, (3704). (5) Page, John, and Sonia Plaza (2006). *Migration Remittances and Development: A Review of Global Evidence*. Journal of African Economies 15 (suppl_2): 245–336.

11   Barua, Shubhasish (2007). *Determinants of workers remittances in Bangladesh: An Empirical Study*. Bangladesh Bank Working Paper No. WP, 713.

12   Mughal, Khurram, and others (2021). *Estimates and economic analysis of informal remittances for Pakistan*. Journal of the Asia Pacific Economy.

	2.5. Money Supply Approach. Ghumro and Karim (2017) examined the dynamic relationship between the series of monetary aggregates for M1 and M2 money supply for the period 1972–2014 in Pakistan with the explanatory variables of real income, discount rates, inflation rates, real exchange rates, and remittances.	This approach investigates the long-term and short-term effects of remittances on monetary aggregates. Results show remittances ultimately exert positive effects on narrow money demand, which meant a focus on consumption for Pakistan.
	2.6 Residual Approach. The residual approach relies on estimating remittances from established data sources, such as current accounts or monetary data to fill gaps and explain imbalances.	This approach is utilized in some central banks, e.g., Albania (until 2012) and Ethiopia. See the following section.
	2.7. Residual Approach Adenutsi and Ahortor (2008).[13] This residual indirect approach explores money factors underlying changing levels of remittance inflows and assesses their implications for exchange rates, interest rates, and the domestic price level in Ghana.	A five-variable Vector Autoregressive (VAR) model was estimated using quarterly data between 1983 and 2005. The estimated static long-term model shows that monetary aggregates, exchange rates, and interest rates positively impact remittance inflows but negatively on domestic price levels.
Leveraging alternative (big) data for real-time monitoring	Use of Spatial Patterns and Satellite Imagery. This method estimates Mexico's informal economy and remittances using known relationships between the spatial patterns of nighttime satellite imagery and economic activity in the US.	Regression models were developed between spatial patterns of nighttime imagery and adjusted official gross state product for the United States. Regression parameters were applied to Mexico to estimate the gross state income at the sub-national level and the gross domestic income. A comparison of both suggested that the magnitude of Mexico's informal economy and the inflow of remittances are 150 percent larger than their current official estimates in the GNI.

Another recent approach linked to the indirect approach to estimating informal remittances is the **residual approach**. The residual approach relies on estimating remittances from established data sources such as current accounts or monetary data. It uses them to fill gaps and explain imbalances where data is unavailable. It removes some of the deficiencies of the direct and indirect informal remittance methodologies as it is relatively inexpensive, relies on existing data sources, and is more comprehensive in its approach.

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13   Ahortor, Christian Regobeth Kofi, and Deodat Adenutsi (2009). *The Impact of Remittances on Economic Growth in Small-Open Developing Economies*. Journal of Applied Sciences.

However, the residual approach, though more straightforward, has drawbacks, which can be specific to the country's economic structure, as in the case of Ethiopia or linked to macroeconomic data used in estimations.

ESTIMATING INFORMAL REMITTANCES - ETHIOPIA

The current methodology of estimating informal remittance in Ethiopia is total imports (including Franco-valuta) minus non-cash (Franco Valuta imports), to get total imports excluding non-cash imports and also Total imports based on banking system cashflow. Since there is a gap between total imports excluding non-cash imports and total imports based on banking system cashflow, informal remittance is estimated at 68.7 percent of between total imports excluding non-cash imports and total imports based on banking system cashflow.

The reason behind estimating informal remittance using such a methodology in Ethiopia is that the main source of the informal market is from informal remittance and further importers partly finance their imports from the informal market of foreign currency in order to avoid import tariff and other reasons.

Informal Remittance Data Collection Issues and Deficiencies

General Issues Related to Informal Remittance Flow Data Collection

A primary issue relating to data on informal remittances is the varying conceptual understandings of what are considered informal remittances. Some countries focus on a strict definition comprising hand-carried remittances or those transferred through informal networks. On the other hand, other countries consider informal remittances to include any transaction not covered by the formal remittance system. Secondly, market and technological changes, such as the growth of MTOs and digitization of remittance transfers, have moved the boundaries on what can be considered informal remittances. Consequently, some countries may not capture MTO/digital remittance transfers within the official remittance calculations. Yet, at the same time, they may not have a methodology for accounting for these kinds of remittance transfers elsewhere.

Issues Relating to Informal Remittance Data Generated via Direct Micro-Level Procedures

Direct surveys at the household or individual level may offer the most accurate data, however, conducting surveys is generally expensive, time-consuming and time-bound, and their insights may not always apply directly to policymaking. Secondly, surveys tend to be specific to a region, location, or even a group/community to make surveys more cost-effective. This, however, can make drawing conclusions from the data more difficult. For example, most national surveys do not specifically sample migrants; therefore, if migrants constitute only a small portion (less than 10 percent) of the population, their survey data may not be statistically representative. It's also costly to conduct regular national surveys, which is why they are generally conducted every three to four years. Migrant-targeted surveys may offer more timely and cost-effective data but may fail to represent the entire

economy if not sampled well across time and space. Thirdly, considering the informal characteristics and, at times, the illegal nature of informal remittance transactions, results may be biased as respondents may not be truthful. For example, migrants with an irregular status may be unwilling to respond to surveys or provide ambiguous information on whether and how much remittance is transferred informally. Survey recall methods may not fully estimate the full transaction flow patterns. Finally, informal remittance estimates may be spread across various surveys such as household surveys, remittance data surveys, migration surveys, and national financial inclusion surveys (e.g., FinScope and Intermedia). These surveys are not always harmonized and may be ad hoc instead of routinely conducted over time.

However, at the same time, the survey methodology can provide a degree of accuracy on the users, uses, and channels of informal remittance flows, thereby enabling better remittance policy and financial product development.

Issues Related to Data Generated via Indirect Macro-Level Procedures, such as Model-Based Estimations of Informal Remittances

Using models based on existing remittance data and other macroeconomic variables to calculate informal remittances has drawbacks. The methodologies outlined are estimates and not based on actual flows. Macroeconomic and policy-modelling exercises require reliable data sources relating to remittances and other macroeconomic variables.

Modelling exercises requiring several macroeconomic variables involve compiling data from various sources. The model's estimation, in turn, depends on the accuracy of the macroeconomic or monetary data on which the estimation is based. Any errors or omissions in that data will be reported as remittance flows, and actual errors or omissions remain invisible, making data checks more difficult. In the case of formal remittance data alone, we are aware of shortcomings in accounting, collection and classification of remittance data. Furthermore, data utilized in models may not be consecutively available over time, particularly for all macroeconomic variables intended to be used in the model.

The Potential for Better Approaches to Informal Remittance Data Collection

UNCDF has consistently emphasized the importance of better remittance data, primarily for policymaking and private-sector participation. Given the importance of informal remittance flows in total remittance flows, while recognizing difficulties, it would still be necessary for policymakers and the private sector to understand the size and channels of informal remittance flows.

Combining quantitative and qualitative methods is one means to achieve a more accurate picture of informal remittance flows. Estimates based on models, especially those following the residual approach, seem promising for least-developed countries with a high degree of informal remittance flows. Even if not perfectly accurate, they could provide an indicative direction, especially on the size of informal remittances, and they are relatively inexpensive to run. Despite their drawbacks, surveys are the most direct way of achieving granular data and insight on channels, senders/recipient profiles, and uses.

By combining a direct micro-level survey approach with a macro-level model approach along the lines of the residual approach, national governments can achieve a more accurate and holistic picture of informal remittance flows, channels and uses. This would, however, require that surveys are short, targeted and structured to obtain necessary information, which the estimation model may be unable to provide insight on. A developed model would succeed more if it is based on official data sources and tailored to national economic structures. At a later stage, using transaction-level data collected by RSPs can also play a role in informal remittance estimation.

UNCDF is currently working on an approach that will include these three elements, primarily a combination of the survey-based and estimation model approach, with the possibility of bringing in transaction-level data generated by private sector partners.