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Determinants of remittances in South Africa

by
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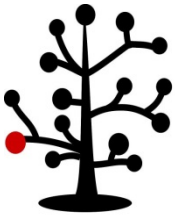

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Abstract

This paper analyses household-level determinants of the probability and level of domestic remittances in South Africa over the period 2008 to 2014-2015. We exploit all four waves of the National Income Dynamics Survey (NIDS) data to analyse the determinants of remittances in a panel setting using random-effects Tobit, Heckman selection, and two-part model approaches. The panel nature of this data allows us to incorporate individuals' unobserved time-constant characteristics (or unobserved heterogeneity) in the models, a step that enriches the analysis and yields more accurate results than if we were to use only cross-sectional analysis. It also allows us to incorporate information about the dynamics of remittance behaviour for the same households. However, data availability restricts the analysis to determinants associated with the recipient households. We find the determinants of the probability of remitting to be non-identical to the determinants of the level of remittances. Determinants of both include the age, race, education level, and employment status of the household head, and the income and the type of area of the household. The gender of the household head and the size of the household are also important determinants, but appear to have a positive effect on the probability of remitting, yet a negative effect on the amount remitted. These results shed light on the factors that affect whether or not families receive remittances and, if they do, how much.

Keywords: remittances, migration, South Africa
JEL codes: D10, O15, R23

1. Introduction

Domestic remittances are an important source of income for poor households in South Africa (see, for example, Posel & Casale 2006). The importance of remittances may derive in part from the Apartheid history of labour migration and "split" households, a situation that has persisted post-Apartheid. This study investigates the determinants of the probability and size of domestic remittances in South Africa. There is currently no clear evidence on this issue, despite its importance both analytically and in terms of policy.

Indeed, the determinants of both domestic and international remittances are subject to debate in the international literature, with a number of studies having investigated how a variety of household and migrant characteristics affect remittances. Contributing to this is the fact that there is no established general theory on which to base an empirical model of the determinants of remittances (Stark 1991). This being so, the numerous regression models that have been tested in order to explain remittances, and to establish which explanatory variables have larger relative effects, have incorporated a wide variety of such factors. The estimated effects are not always robust across different specifications that take account of other alternative determinants. It may also be that there are important differences between countries and types of migrants.

The main aim of this paper thus is to analyse the factors that affect the probability of receiving remittances and the amount of remittances received by South African households. We focus on remittances of migrants who have in recent years been away from these households and who are employed or in search of employment elsewhere in the country. This study utilises the panel data from the National Income Dynamics Study (NIDS) Waves 1 to 4 (biannual, 2008 to 2014-2015). The determinants of remittances investigated in this study are confined to household variables, excluding possible determinants related to the migrants who send the remittances. This is because the NIDS data unfortunately does not allow for matching of migrants and households and the identification of relevant migrant characteristics.[1]

The paper is structured as follows. Section 2 reviews the relevant literature. Section 3 discusses the data and presents descriptive statistics, while section 4 sets out the methodology. Section 5 presents the results, and section 6 concludes.

2. Literature review

In this review, section 2.1 discusses the economic literature on the motives that lie behind the sending of remittances by migrants. Sections 2.2 to 2.4 review the literature on the observable factors that influence remittances. These factors are both microeconomic and macroeconomic in nature. At the microeconomic level, these determinants are further categorised into migrant characteristics (section 2.2) and household characteristics (section 2.3). The macroeconomic determinants are introduced in sub-section 2.4. However, these are dealt with only briefly, because the focus of this study is on domestic migration and remittances, where macroeconomic factors are less important than for international remittances.

2.1 Motives for sending remittances: Theoretical approaches

Why do migrants remit? Previous research has suggested three distinct sets of motives to explain why migrants send money to their households of origin. These sets of motives are: Altruism, self-

[1] Biyase (forthcoming) analyses the determinants of remittances on both the household and migrant sides. This is accomplished through the use of a dataset collected by the author for a locality in KwaZulu-Natal, in which migrants were matched with households and data was collected on both.

interest, and an intermediate range which might be called tempered altruism or enlightened self-interest. In the case of the last category, remittances will be viewed as part of "an intertemporal, mutually beneficial contractual arrangement between migrant and home" (Lucas & Stark 1985:904). Examples of such arrangements are co-insurance, exchange, and loan repayment between the migrant and the household of origin (Hagen-Zanker & Siegel 2007).

According to the altruistic model, migrants send money to their household of origin with the intention of helping because they care about the members left behind. In other words, the migrant derives utility not only from her/his own consumption, but also from the consumption of those left behind (Atamanov & Van den Berg 2010). As Vanwey (2004:740-741) puts it, "altruism is acting to increase the income, consumption, or standard of living of someone else, even to the detriment of one's own standard of living".

Previous studies have identified some important predictions of the altruistic model. First, remittances are expected to be positively related to the migrant's income and negatively related to the household's net income (Cox 1987; Cox, Eser & Jimenez 1998; Hagen-Zanker & Siegel 2007; Lucas & Stark 1985). Secondly, an altruistic migrant is expected to send more money to their household of origin as the number of household members increases (Lucas & Stark 1985; Massey & Basem 1992; Osili 2007). Thirdly, remittances sent by an altruistic migrant are expected to decrease with an increase in the value of economic assets available to the household of origin (such as cars and land), and also with an increase in the number of migrants remitting to it (Agarwal & Horowitz 2002; Funkhouser 1995; Massey & Basem 1992).

If motivated by self-interest, a migrant would send money to the household of origin if they will get something in return. For example, a migrant might send money if they stand to inherit assets, or in order to uphold their reputation in the community. In this case, remittances will increase with an increase in the possibility of inheritance. Cox and Stark (1994) argue that, in a three-generation setting, remittances may be sent to parents to ensure that the remitter's own children also take care of them in their old age – a demonstration effect. This model predicts that remittances should be positively associated with household assets, household income, the probability of inheriting, and the migrant's wealth and income, and negatively associated with risk aversion (Hagen-Zanker & Siegel 2007).

The tempered altruism or enlightened self-interest model of remittances comprises three aspects: Exchange motive, loan repayment, and co-insurance. In an exchange model of remittances, a migrant remits to buy services, or to secure future inheritance from other household members (Cox 1987). There are similarities between this model and the self-interest model. For example, this model predicts that remittances increase with the amount of inheritable assets in the household of origin, with the status of the migrant as a potential heir, and with the presence of other migrants from the same household (De la Brière et al. 2002; Hoddinott 1994; Lucas & Stark 1985; Vanwey 2004).

Remittances may be seen in a co-insurance framework, where both migrant and household of origin attempt to diversify economic risks (Rosenzweig 1988; Stark 1991; Stark & Levhari 1982). In this case, the migrant will send money when the household of origin is experiencing financial difficulties. Likewise, the migrant will receive financial support if confronted with any challenges, such as losing a job (De la Brière et al. 2002; Solimano 2003; Stark 1991).

Finally, the loan repayment view implies that the household of origin initially invests in the education of the potential migrant and may finance the costs of future migration. After finding a job, the migrant knows that they are expected to repay this obligation to their family.

Empirical studies have found evidence to support the predictions from the altruistic, self-interest and tempered or enlightened self-interest models. For example, Lucas and Stark (1985) find support for the co-insurance, education repayment, and inheritance-linked explanations in an empirical application to data from Botswana. Poirine (1997), and Lillard and Willis (1997) also find evidence in support of the co-insurance, education repayment, and inheritance-linked explanations, using data from Nepal and Malaysia. Hoddinott (1994) finds particular support for the argument that migrants remit in anticipation of future inheritance in the case of Kenya. Regmi and Tisdell (2002) find similar support for the remittances-inheritance connection in Nepal.

It is important to point out that, although there may be evidence in support of either altruism or one of the contractual arrangements arising from an enlightened self-interest motive, these motives may operate simultaneously. For example, Chami and Fisher (1996) argue that contractual arrangements may not be as self-interested as they appear from the theory, and show that altruism can lead to risk-sharing arrangements that are self-enforcing.

Table 1 summarises the motive-based models of remittance behaviour and their main predictions. Each column corresponds to a specific model and each row lists an explanatory factor. Each cell displays the expected effect of a factor on the probability (or amount) of remittances.

Table 1: Overview of the empirical predictions of remittance theories

Variables	Altruism	Exchange	Insurance	Loan repayment	Self-interest
Migrant's education		[-]		[+]	
Migrant's income	[+]	[+]		[+]	[+]
Household shock	[+]		[+]		
Migrant's intent to return	[+]				
Number of migrants	[-]	[+]			
Household assets (e.g. land and cattle)	[-]	[+/-]	[-]	[+/-]	[+]
Household income	[-]	[+/-]	[-]	[+/-]	[+]
Household size	[+]	[+]			

Source: based on Hagen-Zanker and Siegel (2007) and adapted by the authors

2.2 Migrant characteristics as determinants of remittances

Studies that analyse the factors influencing the flow of remittances from migrants typically find migrants' income, education, duration of migration, and gender to be important determinants of remittances (see Banerjee 1984; Craciun 2006; Durand et al. 1996; Funkhouser 1995; Germenji, Beka & Sarris 2001; Hoddinott 1994; Lianos & Cavoundis 2006; Lucas & Stark 1985).

A finding that highly educated individuals tend to remit less than less-educated individuals is common in the literature (see Banerjee 1984; Hoddinott 1994; Funkhouser 1995; Durand et al. 1996; Holst & Schrooten 2006). For example, using data from El Salvador and Nicaragua, Funkhouser (1995) examines the determinants of remittances from international migration by applying both Heckman's two-step technique and the Tobit model to account for self-selection in the decision to remit (see sections 2.3 and 3.3 for a discussion of these methods). The study find that for both El Salvador and Nicaragua education is negatively correlated with the probability of remitting.

Applying the Censored Least Absolute Deviation (CLAD) method, in addition to more standard parametric estimators, Gubert (2002) investigates the determinants of remittances from both internal and international migrants in eight villages in the Kayes area, in western Mali. The dependent variable is treated as a mixture of discrete (zero remittances) and continuous (positive remittances) parts, in line with the view that the decision to remit is either a two-stage sequential decision process or a one-stage simultaneous process. The findings of the study suggest that migrants with higher earning potential measured by human capital variables tend to remit more. Those with higher education levels were more likely both to remit and to remit more than migrants who chose internal destinations, or were less educated.

There is evidence to suggest that the longer migrant workers stay away from home, the less money they remit to their family. Using data from a nationwide household survey to investigate the determinants of income transfers in Kenya, Knowles and Anker (1981) employ two different analytical models of the income transfer process. The first model focuses on the decision to make transfers, while the second model attempts to explain the amount of income transferred by households reporting the sending of transfers. Their evidence revealed that the number of years residing away from home had a significant negative effect. More specifically, they found that households with migrant heads who had resided away from their home areas for as long as 10 years were 24.3% less likely to be making transfers.

However, an apparently contrasting finding is contained in the work of Simati and Gibson (2001). These authors collect survey data to analyse the remittance behaviour of Tuvaluan migrants in New Zealand. A Tobit estimation method is used to shed light on both aspects of the remittance decision – whether to remit and, conditional upon that decision, how much to remit. Their results suggest that the remittance behaviour of Tuvaluan migrants in New Zealand does not seem to be consistent with the hypothesis that remittances decrease with the length of time that migrants spend in the host country. In fact, remittances appear to rise for 30 years after a migrant has arrived in New Zealand.

The view that women are better remitters than men has been supported by evidence from various countries. For example, Osaki (1999) looks at gender differentials in economic linkages between migrants and their families, using the National Migration Survey of Thailand, and finds evidence in support of the above view. More specifically, she finds that young females and unmarried daughters of household heads had a greater propensity to support their household of origin via remittances than male migrants. This remittance behaviour by female migrants is usually explained by referring to their caring and altruistic nature and the fact that they either feel, or perhaps have imposed on them, greater responsibility for maintaining family linkages (Nyberg Sørensen 2005; Piper 2005; Ramírez, García & Míguez 2005).

These findings have been challenged, however, by a more recent study carried out by McDonald and Valenzuela (2012), who use a matched survey dataset from the Philippines to directly test remittance models using information from both remittance-sending and remittance-receiving households. Their results show that the amounts remitted by men are markedly higher than those remitted by women. For both men and women, the largest median amount remitted was from degree holders in English-speaking developed countries, namely the United States, the United Kingdom, Canada, and Australia.

One of the variables that is commonly used to explain remittances is the income of the migrant. Many studies show that the level of income of the migrant has a positive effect on the level of remittances (Banerjee 1984; Craciun 2006; Durand et al. 1996; Funkhouser 1995; Germenji et al. 2001; Hoddinott 1994; Lianos & Cavoundis 2006; Lucas & Stark 1985). For example, Bhaskaran,

Resmi and Balwant S. Mehta (2010) study the determinants of remittances from migrants in Delhi to households in Bihar. A multiple regression estimate is obtained, using a sample size of 356 males and 105 females. The individuals or households having higher income (without remittances) are found to send more remittances.

2.3 Household characteristics as determinants of remittances

Many microeconomic studies have shown that the socio-economic characteristics of recipient households, such as household size, household income, sex of the household head, age of the household head, education of the household head, and the marital status of the household head, affect the decision of migrants to remit.

Using Probit and OLS regression models, Samson (2011) examines the factors that contribute to whether or not a household receives remittances, and how these factors affect the value of the remittances received in the Philippines. The results suggest that the income variable here is negative, which shows that, as household income increases, households are -0.038% less likely to receive remittances from the migrant worker. Samson's finding is not surprising, because if a household has higher income it usually is less likely to need a household member to migrate for work, or less likely to receive remittances if there is a migrant, as outside assistance is less needed.

Although household income is considered to be an important determinant of remittances, the results concerning its direction of influence are not unanimous. Sackey (2011) studied the microeconomic determinants of inward remittances of migrants to their respective households in Ghana using the Logit model. He finds that household income has a positive impact on remittances. This is consistent with the balance of the evidence, such as that provided by De la Brière et al. (1997), Germenji et al. (2001), Osaki (2003) and Pleitez-Chavez (2004). Germenji et al. (2001), examined the factors that determine the decision to remit and the amount remitted by Albanian emigrants to their households of origin, using the Heckman selection model and the censored Tobit. As expected, their results suggest that the income variable is negative and highly significant, indicating that the probability of being a recipient of transfer is higher for poorer households.

Many of the studies reviewed here, such as those of Banerjee (1984), Itzigsohn (1995), Lucas and Stark (1985) and Osili (2007), find a positive relationship between remittances and household size. Using data on labour migration by Mexicans to the Northern Mexican border and to the United States, Amuedo-Dorantes and Pozo (2006) find that the migrant's likelihood to remit increases proportionally with the size of the migrant's family in Mexico. This suggests that the needs of the household of origin are important to the migrant and that the migrant is behaving in an altruistic manner.

2.4 Macroeconomic determinants of remittances

The focus of this study is on the microeconomic determinants of remittances at the level of the migrants and of the receiving household. It is nonetheless useful to review the literature on macroeconomic determinants to have a broader view of the determinants of remittances. Important macroeconomic determinants of remittances include variables such as inflation, interest rate differentials, wages in the host countries, exchange rates, and economic conditions in both the home and destination countries. Most of these relate to international rather than domestic remittances, and the findings from this literature are briefly reviewed below.

Some studies have observed a negative relationship between remittances and inflation. However, others report a positive relationship, for example, studies by Aydas, Neyapti and Metin-Ozcan (2005), Elbadawi and Rocha (1992) and Glytsos and Katselli (1986). Using data for Egypt, El-Sakka and McNabb (1999) investigate the macroeconomic determinants of migrant remittances received in

that country. The equations are estimated using OLS, with two exceptions when an autoregressive procedure was used to correct for serial correlation. Domestic inflation is found to have a positive and significant impact on the inflow of remittances. This, according to the authors, was expected and may reflect the need to increase family support when domestic inflation is rising.

It has also been shown that interest rate differentials influence remittances. Aydas et al. (2005) investigate the effect of macroeconomic variables on workers' remittance flows to Turkey. Based on a time series analysis using data for the period 1964 to 1993, they find the interest rate differential to be significant and positive in its effects on remittances.

Many studies have found that other variables, such as real earnings of workers and total number of workers in the host country, consistently have a significant and positive effect on the flow of remittances (see, for example, Elbadawi & Rocha 1992; El-Sakka & McNabb 1999; Straubhaar 1986; Swamy 1981).

2.5 Concluding remarks

In summary, section 2 has reviewed the economic literature that investigates the motives that lie behind the sending of migrants' remittances and the observable factors (migrant and household characteristics) that influence remittances. The findings from the empirical literature are not uniform. One possible explanation for this is the differences between the situations or environments in which the studies are located. As Hagen-Zanker and Siegel (2007:15) put it, "it is clear that different authors find different motivations to remit in different countries and at different times. The lesson we can learn from this is that it is important to assess the remittance situation of each country on its own since there are very specific aspects to the motivations to remit in each country and with different types of migrants". The current study focuses on South Africa, a country in which migration and remittances have specific characteristics that need to be taken into account. These relate in part to the history of domestic migration, linked to the racially discriminatory Apartheid restrictions on labour mobility and spatial restrictions on place of residence.

3. Data and descriptive statistics

3.1 NIDS data

We exploit the panel nature of the NIDS dataset. This is a longitudinal survey of households in South Africa, conducted by the Southern Africa Labour and Development Research Unit (SALDRU) in four waves, for 2008, 2010-2011, 2012 and 2014-2015. The panel survey began in 2008, with a large, nationally representative sample of over 28 000 individuals in 7 300 households across the country. Thereafter, those who were present in the initial sample, as well as their spouses and children, were re-interviewed. The survey is repeated with the same household members every two years.

NIDS was commissioned by the South African government through the Presidency's Policy Coordination and Advisory Service, working with all the relevant government departments, including Statistics South Africa (the official national statistical agency). NIDS focuses on the livelihoods of individuals and households over time. The reason for choosing the NIDS data is that it provides rich data on migration and remittances. This has not been the case with other national surveys, such as the Labour Force Survey, the October Household Survey and the Income and the Expenditure Survey. The NIDS data thus is particularly useful for the current study. The panel nature of the dataset, now expanded to four waves, also provides important benefits for this analysis.

The results for two of the methods employed[2] (the Heckman selection and two-part models) are estimated for the entire sample, while the Tobit estimations are restricted to those households receiving remittances. In all cases, inclusion in the sample is conditional on a set of exogenous variables to determine the probability and the size of remittances that migrants send to their household of origin.[3]

3.2 Variables used in the empirical analysis

3.2.1 Dependent variables

It was noted in the previous section that households and migrant characteristics can affect both the propensity to remit and the level (or intensity) of remittances. Our empirical analysis allows for the possibility that the determinants of each of these – whether or not a household receives remittances and, if so, what amount – should be modelled separately.

To estimate the probability that a migrant will send remittances (and hence that their household of origin will receive remittances), we use a dummy variable (remittances = 1 if remittances are sent/received and 0 if not). To measure the level (or amount) of remittances, we use the natural log of remittances. Remittances are defined as the total value of money, food, or any other kind of contribution received by a household in the 12 months preceding the survey. Remittances (and all other monetary values) are inflated to constant 2014 prices using CPI.

3.2.2 Independent variables

Based on the review of the literature on the determinants of remittances (see section 2) and on the availability of variables in NIDS, the independent variables discussed below are specified to investigate the probability and level of remittances.

Age and age squared: The existing empirical analysis suggests that the age of the household head is an important determinant for participation and for the level of remittances. Although the evidence is mixed, some studies find that remittances initially decrease in value as the age of the household head increases, and then increase after a certain age of the household head, since the probability of death, and consequently inheritance, increases with the head's age.

Gender of household head: Female heads may be more likely to look after the members of the household, and allow other members to migrate to urban areas. We therefore expect female headship to be positively associated with remittances.

Education of household head: The effect of education on the probability of migration and/or remittances may be positive or negative. On the one hand, the educated head of a household might receive more remittances than their counterparts because children from educated households are likely to be educated and remit more (Bollard, McKenzie, Morten and Rapoport (2009)).On the other hand, households with less educated heads may be more dependent on better-off migrant remitters.

Household size: One of the important determinants of the level of remittances is the size of the household of origin. As discussed in section 2.1, the theory predicts that altruistic migrants tend to send more money to the household of origin as the number of household members increases.

[2] The methods used are described in section 4.

[3] Had it been possible from the NIDS data to identify households with migrants, we would have been able to restrict part of the analysis to those households in analysing the determinants of which of those households receive remittances, and then to analyse further the determinants of the level of remittances among households receiving positive remittances.

Location (rural vs. urban area): It is commonly acknowledged in the literature that location can significantly affect remittances, yet the sign of this relationship is indeterminate. For example, Havolli (2009) finds that migrants from rural areas in Kosovo remit more. In contrast, Rodriguez and Horton (1995) find that migrants from urban areas remit more due to the higher living expenses of households in urban areas.

Household income and wealth: The effects of household income and wealth on remittances are *a priori* indeterminate. As discussed in section 2.1, different theoretical explanations for remitting predict different signs on this relationship. Values were inflated to constant 2014 prices.

Race of household head: For various reasons, including historical and cultural, both the extent of migration and the nature of remitting behaviour are uneven across racial groups in South Africa. Some studies find that one in four black South African households is dependent on remittance income (Carter & May 1999). We therefore expect having a black household head to be positively associated with remittances.

Employment status of head: It is expected that households with an unemployed head would receive remittances of higher value than those in which the head of household was employed.

As regards dummy variables, we treat one category of each dummy variable as a reference or omitted category. The following categories were chosen as reference: Male for gender; widowed/divorced/separated/never married for marital status; living in a traditional area for geo-type; no schooling for education; unemployed for employment status; and African for race.

Dummy variables were also included for waves 2, 3, and 4 (namely, “wave2”, “wave3” and “wave4”). These controlled for time-fixed effects and issues specific to a particular wave of the data collection, including macroeconomic variables affecting remittances.

Detailed descriptions of all variables are provided in Table 2.

Table 2: Variables used in the empirical analysis

Variable	Description
Dependent variables	
Remit dummy	probability of remitting (remitting = 1, 0 otherwise)
Remittances	natural log of monthly amount of remittances (in rand)
Independent variables	
HHH_age	age of household head (in years)
HHH_age2	age of household head (in years) squared
HH_wealth/assets	household assets (measured by ownership of car(s))
HH_income	household monthly income (in rand)
HH_size	total number of members in the household
HHH_empl	employment status of the household head (employed = 1, 0 otherwise)
HHH_gender	gender of the household head (female = 1, male = 0)
Coloured	race of the household head (coloured = 1, 0 otherwise)
Indian	race of the household head (Indian = 1, 0 otherwise)
White	race of the household head (white = 1, 0 otherwise)
Primary education	head of household has primary education (1/0)
Secondary education	head of household has secondary education (1/0)
Matric education	head of household has matric education (1/0)
Tertiary education	head of household has tertiary education (1/0)
Farms	household living on a farm (1/0)
Urban	household living in an urban area (1/0)

3.3 Descriptive statistics

Table 3 presents descriptive statistics of the dependent and explanatory variables. It shows some interesting variations across the four waves of the NIDS data. Mean monthly remittances received per household declined dramatically for the period 2008 to 2014, falling from R2 156 in 2008 to R1 432 in 2014. Average household size was relatively stable. The proportion of households headed by females increased from 39% in 2008 to 54% in 2014.

Table 3: Summary statistics of variables used in regressions

	2008		2010		2012		2014	
Variable	Mean	Std dev.	Mean	Std dev.	Mean	Std dev.	Mean	Std dev.
Remit_dummy	0.15	0.36	0.07	0.25	0.13	0.34	0.21	0.41
Amount of remittances	2 156	12 303	1 690	3 706	1 627	4 317	1 432	1 621
HHH_age	45.16	15.11	45.33	15.0	43.46	14.96	44.13	15.38
Wealth/assets	0.17	0.37	0.12	0.32	0.14	0.35	0.17	0.38
HH_income	2 441	5 282	3 095	23 123	2 708	5 551	3 079	12 551
HH_size	5.22	3.31	5.64	3.50	5.20	3.26	5.18	3.37
HHH_empl	0.53	0.50	0.50	0.50	0.53	0.50	0.59	0.49
HHH_gender	0.39	0.49	0.46	0.50	0.53	0.50	0.54	0.50
Coloured	0.09	0.29	0.08	0.28	0.08	0.27	0.078	0.26
Indian	0.03	0.16	0.02	0.15	0.02	0.15	0.02	0.15
White	0.10	0.29	0.12	0.33	0.12	0.32	0.11	0.32
Primary education	0.24	0.423	0.26	0.42	0.20	0.40	0.18	0.39
Secondary education	0.32	0.46	0.33	0.47	0.34	0.48	0.32	0.47
Matric education	0.20	0.40	0.17	0.38	0.22	0.42	0.150	0.36
Tertiary education	0.13	0.34	0.17	0.37	0.15	0.36	0.27	0.45
Farms	0.08	0.27	0.07	0.25	0.06	0.24	0.04	0.20
Urban	0.59	0.49	0.59	0.49	0.60	0.49	0.62	0.49

Source: authors' calculations using NIDS data

4. Methodology

4.1 Overview of empirical strategy

Analysing remittance behaviour of migrants leads to a tricky methodological problem: How to treat individuals who have not sent any remittances. Earlier studies have generally relied on OLS in modelling the determinants of migrant remittances. However, OLS estimates are likely to be biased and inconsistent, for two reasons. Firstly, some migrants do not remit at all, and those who do can be considered to self-select themselves non-randomly into the "state" of remitting. Further, some of the earlier studies failed to distinguish between the determinants of the probability to remit and the determinants of the remitted amount.

Recent studies recognising this problem have attempted to avoid it by making use of the Tobit model, the Heckman selection approach, or the two-part model. Modelling the determinants of remittances with the Tobit model treats the remitting process as a one-stage decision. That is, the decision to remit and the decision on the amount of remittances are made simultaneously, and they are both explained by the same factors. This method has been followed by, for instance, Amuedo-Dorantes and Pozo (2006), Cox et al. (1998) and Gubert (2002).

An alternative to the Tobit model is the Heckman selection approach, in which the decision whether or not to remit is modelled using the Probit model and the decision on how much to remit is modelled by the OLS, which corrects for the potential selection bias. In other words, the Heckman selection model distinguishes the determinants of migrants' decision to send remittances from those influencing the amount transferred. The Heckman selection model – either as an alternative or as a

complement to the Tobit model – has been employed widely in the remittance literature, for example in studies by Agarwal and Horowitz (2002), Funkhouser (1995) and Hoddinott (1992).

Lastly, the two-part model has been used by some studies as a generalisation of the Tobit model. Unlike the Tobit model, it models the decision to remit and the amount of remittances as two separate decisions. This model first estimates the probability that individuals remit positive amounts, and then uses OLS to estimate the level of remittances, based on the subsample of observations for which the remittances are positive.

Despite the advantages of all three methods in overcoming the problems alluded to above, their application in empirical studies has generally been limited to cross-sectional data analysis (Collier, Piracha & Randazzo 2011; Craciun 2006 Kaczmarczyk 2013; Osaki 2003; Osili 2007; Piracha & Saraogi 2011). Scarcity of longitudinal survey data incorporating suitable information on remittances has partly contributed to studies typically restricting analysis to cross-sectional data. The value of panel data versus cross-sectional data is well documented. The consequence of using cross-sectional data is that individuals' unobserved time-constant characteristics (or unobserved heterogeneity) are not considered. Unobserved heterogeneity, if present, results in inefficient econometric model estimates (with high standard errors leading to lack of statistical significance of estimated parameters). The NIDS survey – especially with the availability of four waves – provides a rich source of data for this sort of analysis.

In the methodology used here, remittance behaviour is investigated using econometric models that not only recognise the censored[4] nature of the dependent variable, but also utilise the richness the panel data. We adopt a panel random-effects Tobit model, a panel Heckman selection model, and a panel two-part model.

Before discussing each of these three estimation methods in detail, we provide a less technical overview of the methodology for non-technical readers, who may then wish to skip the rest of the methodology section and proceed to the results. Econometric methods used in this paper allow for the possibility that there might be a significant number of migrants who do not remit at all, and that those who do, can be considered to have self-selected themselves non-randomly into the "state" of remitting. Thus, we use appropriate econometric methods (Tobit, Heckman selection and two part models), which take this restricted nature of the dependent variable, and the sample selection bias linked to it, into consideration. First we used the Tobit model, which treats the remitting process as a one-stage decision. However, this model is restrictive, as it assumes that the decision to remit and the decision on the amount to remit are made simultaneously, and that they are explained by the same factors. That is, that a variable that increases the probability of remitting also increases the amount of remittances. We relax this assumption by employing the Heckman selection model, which recognises the process of remitting to be a two-stage decision: First, whether to remit or not, and second, how much to remit. This allows for separate and potentially different determinants of participation (whether to remit or not) and amount (how much to remit). Finally, we use the two-part model, which estimates whether to remit or not (by Probit) separately from analysing the amount of remittances (by OLS) on the subsample of observations for which the remittances are positive. Although the results point to Heckman selection as our preferred model, we use other methods (Tobit and two part models) for comparison purposes.

As noted earlier, the NIDS data unfortunately does not allow for identification of households with migrants, nor for matching of migrants with their households of origin. We are therefore unable to restrict the sample to households with migrants in order to analyse the determinants of whether or

[4] Remittances are 'censored' in that there are individuals who are migrants but who do not remit.

not remittances are sent (in the first stage), before analysing the determinants of remittances (where non-zero) in the second stage. Thus, the sample includes households that do not have a migrant. In the subsequent discussion, and also in interpretation of results, where we refer to the determinants of the probability of a household receiving remittances, the sample for analysing this includes households with and without migrants. Thus, where we refer to determinants of the decision to remit, this is actually the determinants of households receiving remittances.

4.2 Panel random-effect Tobit

The standard Tobit model may not be appropriate for the modelling of censored panel data in the presence of unobserved heterogeneity. Therefore, the unobserved effects need to be taken into consideration. The random-effects Tobit model is presented as follows:

$$R_{it} = \begin{cases} R_{it}^{*}, if\, x_{it}\beta + \delta_i + \varepsilon_{it} > 0 \\ 0\ if\ R_{it}^{*} \ \leq\ 0 \end{cases} \qquad (1)$$

where R_{it}^{*} is the latent dependent variable observed for values greater than 0, and R_i is the actual value of remittances. x_{it} is the vector of the explanatory variables observed for all cases, β is the vector of coefficients to be estimated, δ_i are individual-specific time-invariant unobservables, and ε_{it} is the error term, which is assumed to be independently and normally distributed.

The maximum likelihood estimator is used to estimate the parameters of the model. However, the main limitation of random-effects Tobit is that it makes a strong assumption that the process that determines the decision to remit is the same as the one that governs the amount of remittances sent. This may not suffice for the current analysis, as we believe that the decision as to whether to remit at all may be partly separate from the decision on how much to remit. While the determinants of these decisions are likely to at least overlap, they may not be identical.

Given this important restrictive assumption underpinning the random-effects Tobit model, the Heckman and two-part models are also used here, as superior alternatives or at least complementary models to the Tobit model. Both models distinguish the determinants of migrants' decisions whether to send remittances from the determinants of the amount remitted.

4.3 Panel Heckman selection model

The Heckman selection model, which is frequently used in studies with cross-sectional data, does not account for individual specific effects that may bias the results in a panel setting. We account for both the selection problem and specific effects in a panel setting by adopting a selection model pioneered by Heckman (1976), with modifications for panel data, as proposed by Wooldridge (1995).

Specifically, we first estimate a cross-sectional Probit model for each period *t*, and compute the value of the inverse Mills ratio[5]. The value of the inverse Mills ratio contains information about the unobserved factors that also affect the individual's decision whether or not to remit in that particular year.

In the second stage, the inverse Mills ratio derived from the cross-sectional Probit model for each period *t* enters the pooled OLS regression as an additional explanatory variable. The inverse Mills ratio is included as an additional explanatory variable in order to control for possible sample selection. Thus, our panel Heckman selection model is:

Selection equation:

[5] The inverse Mills ratio can be described intuitively as the probability of not being selected into the sample.

$$h_{it}^{*} = x_{1it}\beta_1 + \delta_i + \varepsilon_{1it} \quad (2)$$

where

$$h_i = 1 \; if \; h_i^{*} > 0 \quad 0 \; if \; h_i^{*} \leq 0 \quad (2.1)$$

Outcome equation:

$$Y_{it}^{*} = x_{2it}\beta_2 + \delta_i + \varphi_{it} + \varepsilon_{2it} \quad (3)$$

Equations 2 and 3 are the selection and outcome equations respectively, with $\beta_1$and β_2 as the parameter vectors to be estimated. h_{it}^{*} is a dichotomous variable that takes a value of 1 if the migrant remits, and 0 otherwise. ε_{1it} and ε_{2it} follow a normal distribution – N (0,1) and N (0,σε) respectively. δ_i are individual-specific time-invariant unobservables. Y_{it}^{*} is the level of remittances received by the household, and φit are the inverse Mills ratios estimated in the first selection stage, using the Probit model for each year.

The coefficients of the inverse Mills ratios might suggest that the factors that predict whether or not a migrant makes a decision to remit are correlated with the factors determining how much is remitted. If the inverse Mills ratio is significant, we conclude that accounting for sample selection is important. Recall that, in the second stage, we estimate the fixed effect model. As can be seen in the equations specified above, the Heckman procedure applies Probit estimates in the first step, accounting for migrants' decisions to send remittances, and OLS estimates in the second step, to account for the level of remittances.

One of the critical steps in specifying the Heckman selection model is the selection of exclusion restriction variables[6], which are included in the selection equation but excluded from the outcome equation. In other words, the selection equation 2 must contain at least one variable that is not included in equation 3, and thus does not influence the level of remittances (Cameron & Trivedi 2005:551). We estimate the selection model by using one variable as the exclusion restriction in the participation equation, namely, age of the head of household. The selection of this variable for this purpose is based on the existing literature. To use the Heckman selection model we had to find a variable that predicted remittance behaviour but did not influence the level of remittances (see, for example, De Brauw, Mueller & Woldehanna 2011). We first estimate equation (2) using the remit dummy as the dependent variable (using Probit as the estimation technique), and compare the results with results from the OLS regressions from equation (3). We find that age of the household head, which affected the probability of remittances, was not correlated with the level of remittances. Therefore, we use the omitted variable (age of head of household) in the selection equation, but not in the outcome equation of the Heckman procedure.

4.4 Panel two-part model

The two-part model specifies one model for the censoring mechanism and a second, distinct model for the outcome, conditional on the outcome being observed. Thus, it allows for a different data generation process for the two parts. However, it does not account for the possibility that those households with positive levels of remittances are not randomly selected from the population, thereby raising selection issues. The probability of remitting could be estimated by using a random-effects Probit model, and the remitted amount could be estimated by running a linear panel model for only those individuals who participated in the remitting process. A key distinguishing feature

[6] An exclusion restriction is required to generate credible estimates: there must be at least one variable which appears in the selection equation but does not appear in the outcome equation.

between the two-part model and the Heckman selection model is that the second stage OLS regression of the latter is based on a conditional expectation that includes the inverse Mills ratio as an additional regressor to control for sample selectivity.

Random-effect Probit:

$$L_{it}^{*} = x_{1it}\beta_1 + \delta_i + \varepsilon_{1it} \quad (4)$$

where

$$L_i = 1 \; if \; L_i^{*} > 0$$
$$0 \; if \; L_i^{*} \leq 0 \quad (4.1)$$

Truncation equation:

$$Y_{it}^{*} = x_{2it}\beta_2 + \delta_i + \varepsilon_{2it} \quad (5)$$

Equations 4 and 5 are the random-effect Probit and truncation equations respectively, with β_1 and β_2 as the parameter vectors to be estimated. Similar to the Panel Heckman selection model, L_{it}^{*} is a dichotomous variable that takes a value of 1 if the migrant remits, and 0 otherwise. $\varepsilon_{1it} \; and \varepsilon_{2it}$ follow a normal distribution, with N (0,1) and N (0,σε) respectively. δ_i are individual-specific time-invariant unobservables. Y_{it}^{*} is the amount of remittances sent or received.

5. Results

Three sets of results are reported in Table 4, corresponding to the three methods outlined above (Heckman selection, Tobit, and two-part models). The estimates obtained from the three methods are generally consistent, with only a few instances where a variable is statistically significant for one but not for the other model, or where signs differ.

Although the parameter estimates vary depending on the estimation method, it is clear that the best specification corresponds to the Heckman selection model. The reasons for this are twofold. First, some regressors of both equations affect the decision whether to remit slightly differently from the way in which they affect the level of remittances. For example, while the age of the head of household has a significant effect on the decision to remit, it has no impact on the amount remitted. Second, when estimating the Heckman model, the Mills ratio is found to be statistically significant. This implies that there is a significant selection bias and therefore we should use an estimation method that takes this bias into account. These differences in effect point to the correctness of the Heckman model and its superiority in this instance over the Tobit and two-part models. Therefore, in the discussion that follows, we emphasise the results from the Heckman selection model. With the other two methods, our first concern is to analyse the results based on the selection equation (Table 4, column 2) to determine the variables that explain or predict the probability of receiving remittances.

5.1 Selection equation estimates

Overall, we find that most of the specified household, individual, and geographical variables significantly affect the probability of receiving remittances. Household income is found to be significant in the selection equation. While most papers find a negative relationship between household income and remittances (Agarwal & Horowitz 2002; Germenji *et al*. 2001; Osaki 2003), we find that household income significantly increases the likelihood of receiving remittances (by 2%). This result is inconsistent with the predictions of the altruistic model. However, our results are consistent with Lucas and Stark (1985) and Osili (2007). Interestingly, household wealth was also

positively associated with the probability of receiving remittances, although not statistically significant. This suggests that exchange, investment, and inheritance may play a key role in determining remittance flows.

We find that the location of the household influences the probability of receiving remittances. Specifically, households in urban and farm areas were less likely to receive remittances than households in traditional rural areas. The coefficient estimates on urban and farm areas are all negative and significant at the 1% level. This result is not surprising, given that rural areas are characterised by higher poverty and unemployment levels compared to urban and even farm areas.

Households with an employed household head are 7.1% less likely to receive remittances than those in which the head is unemployed. In line with other studies (Gubert *et al*. 2010; Le & Nguyen 1999), we find that female-headed households are 8% more likely to receive remittances than male-headed households. This lends support to the idea that women as heads of households play a crucial role as recipients and managers of remittances. This result may also be explained by situations where the migrant attached to female-headed households is the husband of the head, indicating a closer familial tie and obligation to support than is typical in male-headed households.

Although not significant, the likelihood of receiving remittances is found to be higher for heads of households with some form of education (compared to those with no education). These results are consistent with those of previous studies. For example, Andersson (2014) reports a positive relationship between education and the probability of receiving remittances. She views education as a proxy for household wealth, and thus expects it to be positively correlated with remittances, since it is expensive to send a migrant abroad and the poorest households might not be able to afford this cost.

Probabilities of receiving remittances differ by race, with Indians, coloureds and whites less likely than Africans to receive remittances, as would be expected in the light of the background discussed earlier. Consistent with Agarwal and Howoritz (2002), Gubert (2002) and Osili (2007), household size is positively associated with receiving remittances, and is statistically significant in the selection equation. The positive coefficient of household size is also consistent with the altruism motive.

5.2 Outcome equation estimates

Having discussed the factors that influence the probability of receiving remittances, we now turn to the factors that determine the level of remittances received. With few exceptions, estimates of the outcome equation retain the same direction and magnitude as those discussed above. Most of the parameters (such as household income and wealth, employment status of household head, and geographical variables) that were statistically significant in the selection equation were also significant in the outcome equation of the Heckman selection model.

Regarding the effect of income, we find the results from the outcome equations to be consistent with those from the selection equations. In other words, household income is shown to be important in determining both the probability and the level of remittances. A possible explanation for this is that households with higher income have been able to afford better education for their offspring, and have better educated migrants who have been able to earn higher incomes in their migrant employment. Given this, it is likely that the loan repayments or exchange motive would imply that the household would expect larger remittances and the migrants could afford to pay such higher remittances. Similarly, household wealth is found to be positive in both the outcome and selection equations, although not statistically significant. Part of the explanation for the income variable is relevant here, but there is the additional possibility that migrants are influenced by exchange, investment, and inheritance motives.

Moreover, households which the head was employed were less likely to receive remittances, and received a lower remittances than households with an unemployed head of household. An obvious explanation for this is that the needs of the household are seen as less pressing if the head of household is employed.

We also find that living in an urban area or on a farm is not only likely to reduce the probability of receiving remittances, but also the level of remittances received, relative to rural areas. This is probably because of a pattern where people migrate from rural areas, where there are typically limited income-generating activities (especially since commercial farms are categorised separately), and seek employment in urban areas. These migrants then remit back to the households of origin in rural areas.

The few but noticeable differences between the selection and outcome equation estimates relate to household size, education of the household head, and race of the household head. Education of the household head was not an important determinant of the probability of receiving remittances (not statistically significant in the selection equation). However, education of household head (primary, secondary and matric) does have a significant impact on the amount of remittances received (as seen from the results of the outcome equation). The coefficient estimate on household size, which is positive and not significant in the selection equation, is negative and significant in the outcome equation, indicating that, overall, household size reduces remittances by 8.4%. This finding is consistent with the finding reported by Osaki (2003). A possible reason for such results in the South African context could be that social grants, such as the Child Support Grant, could crowd out remittances. There is evidence from South Africa to suggest that other sources of income of the receiving household, and particularly the receipt of social pensions, crowd out remittance transfers (Jensen 2003; Posel 2001).

As expected, race dummies (comparing other race groups with Africans) are negative for all the other groups, although the degree of statistical significance varies between groups. This indicates not only that remittances are more likely for Africans, but also that the level of remittances is higher for Africans. This is as expected, and is related to the history of migration and spatially separated households among Africans in particular. Finally, having a female head seems to reduce the level of remittances, although it is found to increase the probability of a household receiving remittances.

In conclusion, our results suggest that two types of motives may dominate the remitting behaviour of South Africans: Firstly, altruism may motivate remitters, who send money because of being emotionally attached to family members and the home environment. Secondly, exchange motivations seem to play a role, that is, migrants remit to those people who look after their investments or other material assets that are likely to be part of their preparation for returning.

Table 4: Estimates of the determinants of remittances in South Africa, 2008-2014

	Panel Heckman selection				Tobit model		Two-part model			
	Selection equation		Outcome equation				Random effect Probit		Truncated model	
Variables	**Coef**	**SE**	**Coef**	**SE**	**Coef**	**SE**	**Coef**	**SE**	**Coef**	**SE**
HHH_age	-0.005***	0.001			-0.010*	0.003	-0.005***	0.001	-0.009*	0.004
HHH_age2	0.000***	0.000			0.000	0.000	0.000***	0.000	0.000***	0.000
HH_wealth	0.006	0.004	0.044	0.025	0.056*	0.025	0.006***	0.003	0.056***	0.025
HH_income	0.017***	0.003	0.597***	0.022	0.655***	0.024	0.018***	0.002	0.652***	0.023
HH_size	0.003***	0.001	-0.084***	0.008	-0.076***	0.008	0.002***	0.001	-0.076***	0.008
HHH_empl	-0.071***	0.005	-0.294***	0.036	-0.419***	0.034	-0.063	0.004	-0.425***	0.033
HHH_gender	0.816***	0.046	-0.102*	0.035	-0.207***	0.036	0.780***	28.183	-0.213	0.031
Coloured	-0.036***	0.007	-0.172***	0.058	-0.261***	0.048	-0.031*	0.005	-0.266***	0.052
Indian	-0.044	0.024	-0.004	0.300	-0.055	0.289	-0.039***	0.014	-0.058	0.305
White	-0.098***	0.013	-0.032	0.148	-0.084	0.146	-0.069	0.006	-0.090	0.147
Primary	0.011	0.007	0.109*	0.044	0.045	0.051	0.012	0.007	0.065	0.046
Secondary	0.012	0.008	0.197***	0.046	0.050	0.050	0.012	0.007	0.071	0.050
Matric	0.009	0.009	0.321***	0.059	0.149*	0.061	0.009	0.009	0.167*	0.062
Tertiary	0.017	0.009	0.082	0.062	-0.078	0.060	0.018	0.009	-0.064	0.067
Urban	-0.016***	0.005	-0.231***	0.031	-0.259***	0.029	-0.016***	0.005	-0.258***	0.031
Farms	-0.042***	0.010	-0.322***	0.065	-0.341***	0.058	-0.035***	0.007	-0.345***	0.064
wave2	-0.077***	0.006	0.535***	0.057	0.343***	0.041	-0.063***	0.005	0.357***	0.050
wave3	-0.019***	0.006	0.342***	0.044	0.243***	0.040	-0.019***	0.005	0.262***	0.044
wave4	0.047***	0.005	0.236***	0.045	0.281***	0.038	0.045***	0.006	0.285*	0.042
Mills ratio			-0.524***	0.093						
Observations	4 442		4 441		4 442		4 443		4 442	
Log likelihood	-11 967				-5 708.9		-11 888		-5 783	

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors, adjusted for clustering at the individual level, are given in parentheses.

5.3 A comparison of the results from the different methods

Although our results suggest that the decision to remit or not, and the amount remitted, are related to each other, suggesting the superiority of the Heckman model for this analysis, we also present and compare the results based on the Tobit and two-part models, to check the robustness of our results.

The results of the random-effect Tobit method are similar to those from the Heckman selection method, with some exceptions. More specifically, we find that some of the variable coefficients (such as household income, whether the head of the household is employed, location) that were statistically significant in both the selection and outcome equations of the Heckman selection model are also significant and had the same signs as those in the Tobit model. At the same time, some of the estimates that were not significant in both the selection and outcome equations of the Heckman selection model were now significant. For example, while the wealth of the household has an insignificant impact on the incidence and size of remittances, it is shown to be an important determinant of remittances in the random-effect Tobit model. Having some form of wealth increased the amount of remittances by 5.6%. Along the same lines, household size and gender, which positively and significantly increases the likelihood of receiving remittances in the selection equation, negatively affects the amount of remittances received by the household in the random-effect Tobit model.

The results of the truncation equation in the two-part model presented on the right-hand side of Table 4 are similar to those from the outcome equation in the Heckman selection model. Specifically, the truncated coefficient estimates present a similar pattern in their signs, magnitudes and level of significant as the coefficient estimates in the outcome equation from the Heckman selection model, except for gender of household head and household wealth. Contrary to the outcome equation in the Heckman selection model, gender of the head of household no longer seems to have any significant effect on the level of remittances. Furthermore, household wealth, which has no effect on the amount of remittances received in the outcome equation of the Heckman selection model, is an important determinant of the level of remittances in the truncation equation of the two-part model.

Likewise, the random-effect Probit coefficient estimates displayed a similar pattern in their signs and magnitudes as the coefficient estimates in the selection equation of the Heckman selection model, except for household wealth and employment status of the household head. First, household wealth, which insignificantly increases the propensity to receive remittances in the Heckman selection model's selection equation, has a significant effect in the two-part model's random effect Probit. Moreover, employed head of household, which significantly reduces the likelihood of receiving remittances in the Heckman selection model's selection equation, is not significant in the two-part model's random effect Probit.

6. Conclusion

This paper investigates the determinants of domestic remittance behaviour for South Africa, using panel data from the National Income Dynamic Study for 2008 to 2014-2015. The panel nature of the data – now including four waves – allowed us to utilise information on household behaviour over a seven year period, adding richness to our analysis and enabling us to control for household-level unobservable characteristics. The data sheds light on the factors influencing whether or not migrants remit, as well as the amount of remittances sent.

The determinants of the probability of a household receiving remittances are found to be non-identical to the determinants of the level of remittances. Naturally, these are not entirely separate decisions in practice, but it is important to analyse them separately (as done when using the Heckman selection method), as the determinants are not necessarily the same, and also to take account of the large number of zero remitters in the sample. Common determinants identified are: Age and employment status of the household head, household income, and the type of area in which the household resides. Race is also a determinant in both cases, with Africans more likely to remit, and to remit more (although the dummy on white head of household was not significant in the outcome equation. The non-significance of the Indian dummies may be related to the small sample size for this group. Education has a positive impact in both cases, yet is only significant as a determinant of the amount remitted. Surprisingly, while the size of the household and also the gender of the household head affects both the probability of remitting and the amount remitted, its affect was positive for the former and negative for the latter. These results shed light on the factors that affect whether or not families receive remittances, and if they do, how much they receive.

These findings can also be interpreted in the light of the alternative theoretical explanations behind remittances, as discussed in the literature review. It seems easy to begin with a simple altruistic model of a remitter's motivation and to assume that, as households' needs increase (as their income or assets decrease), so remittances will become more probable and larger. What the findings here suggest is the opposite. Certainly, the sign attached to the coefficient of household income is positive and highly significant across all models. A similar situation seems to hold in relation to household wealth or assets – although here the picture is less uniform. It is positive throughout, but is only significant in the Tobit, random-effect Probit, and truncated models. The findings on income and assets may suggest a strong element of self-interest in the motivations to remit amongst domestic migrants in South Africa. Of course, motivations to remit are difficult to unravel because a single individual can have multiple motivations, and one motivation might actually be complementary to another. Studying motivations within the context of groups of individuals is therefore especially difficult, and the results of this paper reflect mixed motivations to remit.

One limitation of this analysis is that it only models the determinants of remittances on the side of recipient households, excluding determinants on the side of the migrants who are remitting. The international literature, along with our knowledge of the South African situation, leads us to believe that remitter characteristics are also likely to affect both the probability of remitting and the level of remittances sent. Such factors might include demographic variables, such as the gender, age, and race of the migrant, as well as migration-related variables, such as the length of time since the migrant left the household, the distance between the places of residence of the migrant and the household, the frequency of visits home, and the relationship between the migrant and the household. Unfortunately, the NIDS data does not allow us to include such variables when modelling the determinants of remittances. Biyase (forthcoming) models the determinants of remittances on both the migrant and household sides, using a local dataset collected for Hlokozi village in KwaZulu-Natal, which complements this analysis undertaken nationally using the NIDS data.

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southern africa labour and development research unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.

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