Do Social Grants Displace Remittances? Evidence From South Africa

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ABSTRACT

This paper employs a newly-available and representative National Income Dynamics Study (NIDS) data of South African households to investigate whether social grants crowd-out or displace remittances. The estimated results based on full sample reveal that while the social grants have a negative impact on the amount of remittances received, the effect is statistically insignificant – social grants do not crowd out or displace remittances. The coefficient on the social grant is also insignificant in both sub-samples (rural and urban), consistent with the results on the full sample

Keywords: Tobit Model; Rural Households; Urban Households and South Africa

1. INTRODUCTION

*S*ocial grants remain an important source of income for the South African population located at the bottom of the income distribution. These grants have proven to be an effective mitigating factor against the South Africa's triple challenge of poverty, inequality and unemployment. Social grants have grown substantially in recent years, even as the overall growth on spending slows down. South Africa has a well-developed and large social security system by international standards. Social security protection or social grants constitutes 11% of overall government expenditure and 15.6 million South Africans are beneficiaries of social grants (Department of Social Development 2015). Social security protection consists of Old age pension, Disability grant, and Child support grant and Foster care grant. All these grants are subjected to means test mainly based on income and assets of recipients.

In his recent budget speech, the minister of finance Gordhan announced that social grants allocation will increase from R129 billion this year (2016) to R165 billion in 2018/2019. Thus, understanding the impact of these grants and how they compare to other sources of income is fundamental to the development process. Various studies in South Africa (Jensen 2003; Maitra & Ray 2003; Sienaert 2007; Posel 2016) and other countries (Cox & Jimenez 1992; Rosenzweig & Wolpin 1994; Schoeni, 1996; Cutler & Gruber, 1996 Attanasio & RiosRull 2000; Teruel & Davis, 2000; Rasyid, 2013; Schoeni, 2002; Reil-Held, 2006; Dorantes & Juarez, 2013) have analysed whether social assistance programs crowd-out private transfers.

We draw on and extend the limited South African literature in two ways. First, we employ a newly-available large National Income Dynamics Study (balanced panel data) of South African households observed over the period 2008–2014, to examine whether social grants or crowd-out remittances. To our knowledge, none of the above mentioned South African studies have used a nationally representative panel data (such as NIDS) to analyse crowd-out of private transfers. Secondly, our results are presented for the overall sample (South Africa) and specific subsamples (rural and urban) using panel Tobit model.

The remainder of this paper is structured as follows. After a literature overview in section 2, the methodology and dataset are discussed in section 3. Section 4 presents the results obtained using descriptive analysis and the panel Tobit model. Finally, section 5 provides a conclusion.

2. LITERATURE REVIEW

There is a growing body of empirical literature investigating whether public transfers crowd-out private transfers (see for example, Schoeni, 1996; Cutler & Gruber, 1996; Coxa, Eserb & Jimenezc, 1998; Teruel & Davis, 2000; Rasyid, 2013; Schoeni, 2002; Maitra & Ray, 2003; Reil-Held, 2006; Dorantes & Juarez, 2013). However, the empirical results from these studies remain inconclusive. Some studies have found evidence supporting the crowding-out hypothesis (see for example, Dorantes & Juarez, 2013; Jung, Pirog & Lee, 2016; Cox et al., 1998; Reil-Held, 2006; Cutler & Gruber, 1996), while others found no evidence of the crowding-out effect (Oruc, 2011; Verme, 2011; Nielsen & Olinto, 2007). These inconclusive results are mainly due to different dataset and econometric techniques used in the empirical analyses.

In support of crowding-out hypothesis in developing countries, Dorantes and Juarez (2013) used cross-section data from the Mexican Income and Expenditure Survey to examine the crowding-out of old age government grant transfers on private gifts in rural Mexico. Using OLS and a triple difference approach, Dorantes and Juarez (2013) found that a 70 *y Más* – a public assistance program for the rural elderly in Mexico significantly crowds-out private gifts by 37%.

 In a similar study, Jung et al. (2016) used a national representative Korean Welfare Panel Study (KOWEPS) to investigate whether public pensions crowd-out private transfers to elders in South Korea. Using two stage least square technique, they found that recipe of public pension had no impact on the total expenditure of elders because public transfers significantly crowd-out remittances from adult children and siblings. Specifically, they found that the recipe of public pension reduces the probability of receiving remittances by 40%. In support of their results, they argue that private transfers in South Korea are driven by altruism motives − elder children remit because they care about the well-being of their families – they will therefore reduce the amount of money they remit in respond to their families receiving public transfers.

The most cited paper in the literature is a study by Coxa et al. (1998). They tested two motives (Altruism and exchange) for private income transfers in Peru using the data from Peruvian Living Standards Survey. They found that due to the capital market imperfection social security benefits in Peru crowd-out the incidence of private transfers. Consistent with the findings of Jung et al. (2015), their finding support altruism as an important reason for crowding-out effect.

A number of studies have also found support for crowding-out hypothesis in developed countries (Reil-Held, 2006; Cutler & Gruber, 1996). A study by Reil-Held (2006), investigated the relationship between private and public transfers to and from elderly in Germany using 1998 Germany Income and Expenditure survey dataset. Using probit and tobit models as estimation techniques, they found that public transfers significantly replaces the amount of transfers that children give to their elderly. Reil-Held (2006) argued that a failure to not reject the crowding-out hypothesis was as a result that public pensions in Germany are regularly received while remittances are irregular source of income hence remitters are sensitive to non-pension income. In United State of America, Cutler and Gruber (1996) estimated the extent of crowding-out resulting from the expansion of Medicaid to pregnant women and children for the period spanning from 1987 to 1992. The authors found that a 50% increase in Medicaid coverage was associated with a decrease in private insurance coverage. Moreover, the authors further found that employers reduced their contribution for insurance and that employees dropped coverage of dependents.

In contrast to the above studies, there are studies that have found no evidence to support the crowding out hypothesis (Oruc, 2011; Verme, 2011; Nielsen & Olinto, 2007). Using probit, tobit and two stage Heckman selection models, Oruc (2011) investigated whether social transfers crowds-out remittances in Bosnia using the data from wave four of 'Living in DIH' survey dataset. The coefficient of interest (social grants) was positive and insignificant in all the models implying that they found no evidence to support the crowding-out hypothesis. In contrast to the findings of Jung et al. (2015) they found that remittances in Bosnia are mainly driven by exchange motives. .

Similar to the study of Oruc (2011), Verme (2011) investigated the capacity of public and private transfers to reduce poverty in Moldova (poorest country in Europe) using a national representative longitudinal households survey. They found that private and public transfers do not crowd-out each other instead there were complements (crowding-in).

Also, Attis–Donfit and Wolff (2000) found that there was a strong positive relationship (crowd-in) between public transfers and remittances.

In South Africa, many studies that have investigated whether public transfers crowd-out private transfers (see for example, Maitra & Ray, 2003; Sienaert, 2007; Jensen, 2004; Posel, 2016). In their study, Maitra and Ray (2003) investigated the effect of transfers on household expenditure patterns and poverty using 1994 South Africa Integrated Household survey. They found that public transfers crowd-out private transfers for the poor. As for the non-poor, they found that private transfer and public transfers were complements. In another study, Jensen (2004) using Difference-Difference-Difference (DDD) strategy investigated the crowding-out of private transfers by old age pension in Venda. They found that old age pension significantly crowd-out private transfers. Specifically, they found that a rand of old pension reduces private transfers by 0.25 to 0.3 cents.

Sienaert (2007) investigated the relationship between remittance and old age pension in Kwazulu-Natal province using Kwazulu-Natal Income Dynamic (KIDS) data. Contrary to the findings of Jensen (2004), he found that old age pension crowd-in remittances. A recent study by Posel (2016) using National Income Dynamics Study (NIDS) data and finds no evidence of social grants displacing private transfers in South Africa.

Notwithstanding the contribution of the above mentioned studies in South Africa, they have some shortcomings. Firstly, most of them are based on cross-sectional dataset, which has some limitation (such as a failure to account for heterogeneity of cross sectional units) compared to panel data. Secondly, the findings of other studies (with exception to a study by Posel, 2016) are based on one specific area such as a province/homeland (see Sienaert, 2007; Jensen, 2004). It is therefore difficult to generalize their results to South Africa as a whole. Although Posel (2016) used a national representative NIDS panel data, the results are based on descriptive analysis.

Moreover, to the best of our knowledge the above studies are only studies done in South Africa. This is beside the fact that South Africa has a large social security and high level of internal remittance. Therefore, the literature on crowding-out effect of public transfers on private transfers is still under researched in South Africa.

3. METHODOLOGY AND DATA SOURCE

We use data from the National Income Dynamics Study (balanced panel data), a nationally representative survey carried out every two years by the Southern African Labour and Development Research Unit (SALDRU), based at the University of Cape Town's School of Economics. Wave 1 of the NIDS was administered in 2008, while the other waves were administered in 2010, 2012 and 2014. In addition to the dependent variables (amount of remittances received by households), we use several control variables in our econometric analysis. The choice of variables based on the previous empirical studies, and the availability of data (see table 1). Specifically, we control for income from grants (our variable of interest), head of household age, gender of the household head, household income, asset ownership and levels of education, household size, and indicator variables for location of the household—rural or urban.

Table 1. Explanatory variables used in the empirical analysis

Variables	Type	Description
Dependent variable		
Income from remittances	Continuous	Received remittances
Explanatory variables		
Age of HH head	Continuous	Age of HH head (in years)
Age SQ	Continuous	Age squared
Asset ownership	Continuous	Amount of asset ownership
Coloured	Dummy	1 = Coloured HH head,0 = Otherwise
Indian	Dummy	1 = Indian HH head, 0 = Otherwise
White	Dummy	1 = White HH head, 0 = Otherwise
Primary education	Dummy	1 = HHH with primary education, 0 = Otherwise
Secondary education	Dummy	1 = HHH with secondary education, 0 = Otherwise
Tertiary education	Dummy	1 = HHH with tertiary education,0 = Otherwise
Matric	Dummy	1= HHH with matric, 0= Otherwise
Gender of HH head	Dummy	1 = Female, 0 = Otherwise
Employment status of HHH	Dummy	1= Employed 0= Otherwise
Urban	Dummy	HH in urban areas
Farm	Dummy	HH in farm areas
Income from grant	Continuous	Amount received from grants
Wave 2	Continuous	Time specific effects
Wave 3	Continuous	Time specific effects
Wave_4	Continuous	Time specific effects
Size of HH	Continuous	Total number of members in HH

A great barrier to using survey data is the substantial percentage of households that report zero observation (or zero remittances in our case). Such zero remittances should be accommodated to obtain consistent parameter estimates. A more suitable approach to deal with data that has too many zeros, is Tobit model, originally developed by Tobin, a Nobel laureate economist. The model permits incorporation of all observations including those censored at zero. Thus to estimate the effects of social grants on remittances, we used a panel Tobit model where the households with zero remittances are censored. This method has been adopted in many previous studies in this field (see Loschmann & Siegel 2013; Markova & Reilly 2007; Amuedo-Dorantes & Pozo 2006; Liu & Reilly 2004; Cox *et al*. 1998; Brown 1997; Biyase & Tregenna 2016). The Panel Tobit can be shown as follow:

$$P_{it}^* = x_{1it}\beta_1 + \varepsilon_{1it} \tag{1}$$

where

$$P_{it} = \begin{cases} P_{it}^*, if P_{it}^* > 0 \\ 0, otherwise \end{cases} \tag{2}$$

Where P_{it}^* is the latent dependent variable observed for values greater than 0, and P_i is the actual value of remittances. x_{it} is the vector of household characteristics as defined in Table 1, β is the vector of coefficients to be estimated.

The error term in the panel setting is generally expressed as follows:

$$\varepsilon_{1it} = \varphi_i + \mu_{it} \tag{3}$$

where φ_i is the unobservable household specific effects and μ_{it} is the unobservable individual and random effects. While alternative methods (such a two step Heckman selection model), have been used in the remittance literature, there is no theoretical or conceptual underpinnings to suggest that the decision to remit and amount remitted are determined by different factors (Loschmann and Siegel 2013). Moreover, Heckman selection model estimates are likely to be sensitive to specifications of the selection function (Gubert, 2002; Amuedo-Dorantes and Pozo, 2006).

4. RESULTS

4.1. Descriptive Analysis

Summary statistics (mean and standard deviation) of the variables used in the analysis are presented in Table 1. The results show some interesting variations in most of the variables. For instance, the mean household remittances were high in 2008, it remained stable across the remaining panel years. This is in line with previous studies (Posel 2016) which show that remittances are important source of income for the poor households in South Africa especially Black Africans. A study by Posel (2016) shows that remittances compromise about 34 and 41 percentage of household income and almost 40 percent of households are involved in private transfers.

The average age of the head of household was stable within the mean range of 45 years in both 2008 and 2010, for the period 2012 to 2014 it increased from 43.46 to 44.13, respectively. The average household assets remained more or less the same for the period 2008 (0.17) and 2014 (0.17). On the other hand, the average household size was pretty stable in all the four waves – household size was 5.22 in 2008, 5.64 in 2010, 5.20 in 2012 and 5.18 in 2014.

We use the kernel density function to assess the income impact of remittances and social grants on households' income. The use of the Kernel density function is common in the literature, for example Maitra and Ray (2003) use the Kernel density function to assess the income impact of social grants on households' income of blacks and non-black households in South Africa. They found that the public transfers and private transfers positively affect the income of black household while it does not seem to influence the income of their counterpart (i.e. non-black households). Similarly, Posel (2016) used the kernel density function to assess the impact of remittances on income of sending and receiving households in South Africa. She found that the remittances were important in explaining the incomes for both sending and receiving households. Following similar approach (the Kernel density function) we assess whether the remittances are important in explaining income of households for South Africa as a whole as well as households living in urban and rural areas.

Figure 1, 2 and 3 present the Kernel density function of a log (income), log (income & remittances) and log (income & remittances & grants) for the full sample, urban and rural respectively. Stating with figure 1 (full sample), it is clear that remittances shift the entire distribution upward to the right. This implies that remittances have some influence on household income. These results are consistent with those found by Maitra and Ray (2003) and Posel (2016). These results are expected given the South Africa history of labour migration, which is still dominant today. Moreover, social grants further shift the enter distribution to the right, also implying the significant contribution of grants on household income. This shows the importance of social grants in reducing poverty in South Africa. Again, this impact is expected given the level of poverty and intensity of social grants in South Africa.

Perhaps what is more interesting is a comparison of urban and rural (figure 1 and 2), from these figures the impact of remittance and grants in rural is more significant than urban. These results show the dependence of households in rural areas on remittances and grants compared to their urban counterparts.

Table 2. Summary statistics of variables used in regressions

| Variable	2008		2010		2012		2014	
	Mean	**Std dev.**	**Mean**	**Std dev.**	**Mean**	**Std dev.**	**Mean**	**Std dev.**
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
HH_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

Figure 1. Kernel density estimates of total household income with and without transfers and grants
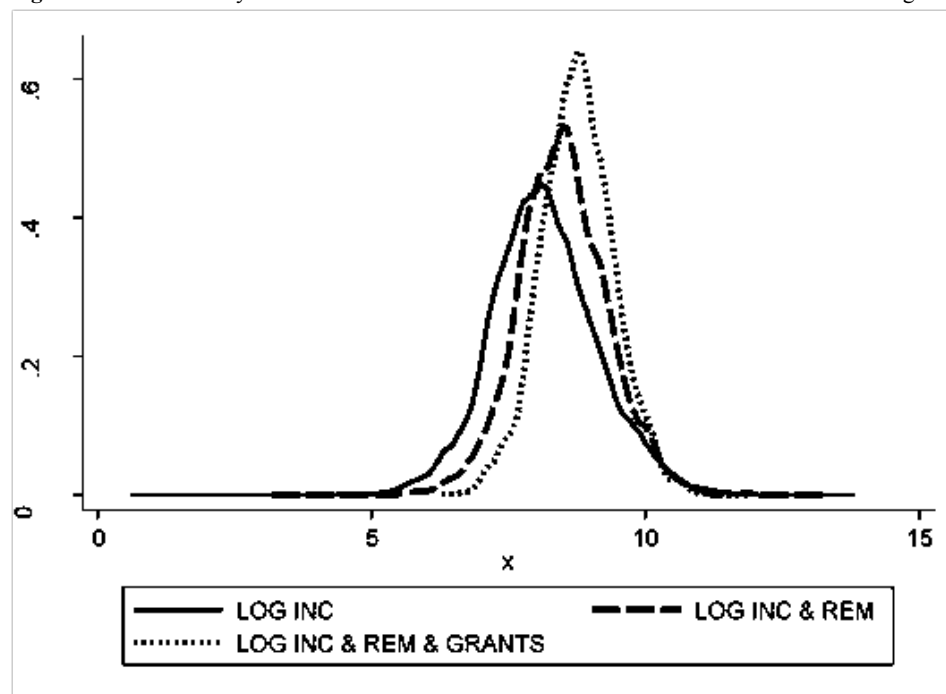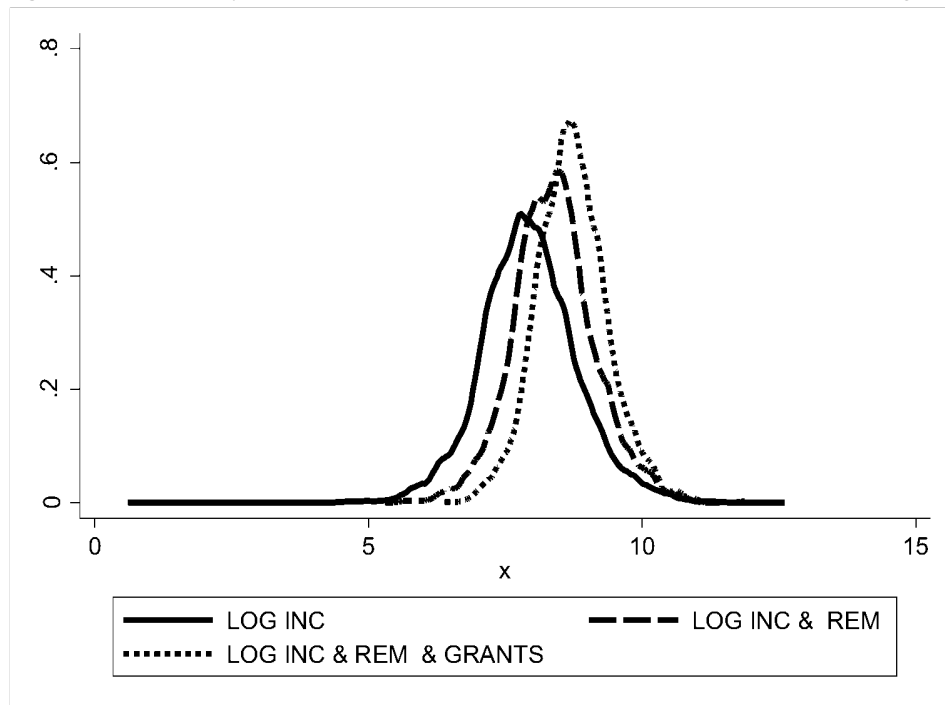

Notes: LOG INC=log income, LOG REM= log remittances and LOG GRANTS= log of social grants

Figure 2. Kernel density estimates of urban household income with and without transfers and grants
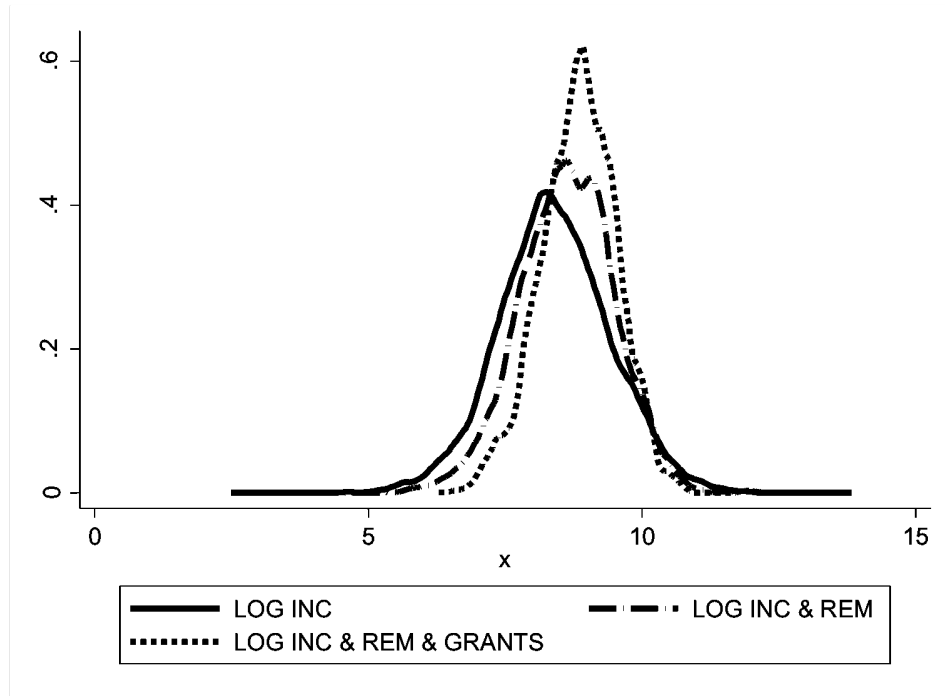
Notes: LOG INC=log income, LOG REM= log remittances and LOG GRANTS= log of social grants

Figure 3. Kernel density estimates of rural household income with and without transfers and grants

Notes: LOG INC=log income, LOG REM= log remittances and LOG GRANTS= log social grants

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4.2 Estimation Results

Tables 3 presents the estimated effects of crowding out effects of public transfers (social grants) on the private transfers (remittances). As already noted in the previous sections, we employ a panel Tobit specification to examine crowding out effects of social grants on the remittances. The analysis was done first for the full sample and then separately for the rural and urban localities. The results for the full sample (column 2 of table 3) show that while the social grants have a negative impact on the amount of remittances received, the effect is statistically insignificant – social grants do not crowd out or displace remittances. These results are consistent with the work of Teruel and Davis (2000) and Nielsen and Olinto (2007) and inconsistent with the findings of Jensen (2004). The differences in the results could be attributed to the fact that Jensen's (2004) work is based on cross-sectional data set while ours utilised the panel data.

The estimation results for the control variables appear to be largely in line with our expectations and with those in the relevant literature. Consistent with our expectations, race dummies (that is, Indian, coloured and white) are considerably less likely than their counterpart (i.e. African group) to receive remittances. This is to be expected given the history of migration and spatially separated households among Africans in particular. Moreover, compared to traditional rural areas (used as reference category), households living in urban and farms are less likely to receive remittances. The coefficients of urban and rural are negative and significant at 1% level. Interestingly, the heads of households with secondary education and matric received more remittances compared to those with primary education and no education.

Having analysed the crowding out effect of public transfers for the full sample, we now examine the effect of social grants in urban and rural localities. Column 4 and 6 of table 3 present the results of effect of social grants in urban and rural localities. These coefficients on social grants are quite similar to one another (rural and urban) and to the one presented in column 2 of table 3 (full sample). Specifically, overall the coefficient of our variable of interest (income from grants) is negative as expected but insignificant across all the samples. While the coefficients on social grants are quite similar for rural and urban, column (6) shows that the social grant effect on the amount of remittances, is larger in absolute value in rural areas. While the magnitude, direction and significant level of control variables change for some variables (education levels, time specific effects – wave 2, wave3 and wave 4, race dummies— Coloured, Indian and Whites, across samples, relationships between control variables (such as employment status of the head of household and households assets) and remittances don't change. Our findings are by and large similar with the work of Teruel and Davis (2000) and Nielsen and Olinto (2007).

Table 3. Panel Tobit estimates of the effects of social grants on remittances, 2008-2014

	Full sample		Urban sample		Rural sample	
	Coef	**SE**	**Coef**	**SE**	**Coef**	**SE**
Income from grants	-0.009506	(0.0000266)	-0.0000177	(0.0000354)	-0.004500	(3.69E-05)
HHHage	0.0060002	(0.0070787)	-0.0005293	(0.008502)	0.0072399	(0.009305)
HHHageSQ	-0.0000596	(0.0000652)	0.0000197	(0.0000885)	-0.0000845	(8.91E-05)
HHsize	-0.0001721	(0.0104022)	0.0195727	(0.0164549)	-0.0068729	(0.009421)
HHemployed	-0.0481092	(0.0454291)	-0.0532855	(0.0496219)	-0.0400538	(0.044421)
HHFemale	-0.0842529	(0.0440522)	0.0968286	(0.0678839)	-0.0725783	(0.05771)
Coloured	-0.1683592[**]	(0.0597786)	-0.1804643[***]	(0.0678073)	-0.0808053	(0.173777)
Indian	-0.8511753[***]	(0.2555517)	-0.9908936[***]	(0.3230698)	-0.5346679[***]	(0.208971)
White	-0.4365639[*]	(0.2243714)	-0.3278106	(0.2509527)	-1.577548[***]	(0.673076)
Urban	-0.197183[***]	(0.0362834)				
Farms	-0.3794083[***]	(0.0698886)				
Primary	0.1027792	(0.0607706)	0.0853689	(0.0994013)	0.09619	(0.052784)
Secondary	0.2274338[***]	(0.0654717)	0.2359961[***]	(0.1186133)	0.2044854[***]	(0.07168)
Matric	0.296982[***]	(0.0880055)	0.4125386[***]	(0.1439094)	0.1580582	(0.114919)
Tertiary	0.2958297[***]	(0.0857324)	0.308936[***]	(0.1474045)	0.3020321[*]	(0.133911)
Wave_2	0.5493846[***]	(0.0797632)	0.5597823[***]	(0.0977641)	0.5367804[***]	(0.082392)
Wave_3	0.5603703[***]	(0.0601559)	0.6796834[***]	(0.0898014)	0.4807652	(0.061497)
Wave_4	0.7608763[***]	(0.0536354)	0.8209987[***]	(0.0886288)	0.7110279	(0.062084)
Households assets	-0.0315335	(0.0315128)	-0.0038345	(0.0691713)	-0.0419392	(0.027674)
R-square	0.76		0.55		0.69	
Observations	8504		3051		4065	

Notes: Clustered standard errors are reported in parentheses, with ***, ** and * denoting significance at the 1%, 5% and 10% levels respectively.

CONCLUSION

Within the literature on the relationship between private financial support and public transfers, the dominant conjecture is that public transfers crowd-out or displace private financial support. The goal of this article has been to contribute and present an important value-added in this field by empirically assessing whether social grants crowd-out or displace remittances in South Africa using the panel Tobit model and a newly-available and representative National Income Dynamics Study data (for the period 2008–2014). Moreover, the analysis was performed for the overall sample and specific subsamples (rural and urban).

The results for the full sample (column 2 of table 3) shows that while the social grants have a negative impact on the amount of remittances received, the effect is statistically insignificant – social grants do not crowd out or displace remittances in South Africa. Interestingly, the coefficient of social grant was also found to be negative and insignificant in both sub-samples (rural and urban), consistent with the results on the full sample. These results are consistent with the work of Teruel and Davis (2000) and Nielsen and Olinto (2007) and Posel (2016). The estimation results for the control variables appear to be largely in line with our expectations and with those in the relevant literature. Consistent with our expectations, race dummies (that is, Indian, coloured and white) are considerably less likely than their counterpart (i.e. African group) to receive remittances. Moreover, compared to traditional rural areas (used as reference category), households living in urban and farms are less likely to receive remittances. The coefficients of urban and rural are negative and significant at 1% level. Although this study focused on the effects of social grants on remittances, a number of additional investigations, clarifying these effects and the appropriate policy responses for governments and remitters, may be answered in further research. Future studies may examine separately the impact of any specific social grants, (such as old age pension, child support grant, disability grants) on private transfers.

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