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A mental accounting approach
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On the Fungibility of Public and Private Transfers: a Mental Accounting Approach

Jennifer Waidler*

Abstract

A common assumption in economics is that money is fungible. In other words, spending patterns do not depend on the source of income, only on the total amount. The mental accounting theory, however, rejects this assumption by arguing that people compartmentalise their income into different mental accounts and decide on their consumption within each of these accounts. In this paper I hypothesise that households differently associate a private transfer coming from a migrant than a public transfer received from the government, and that this impacts the way transfers are spent. By analysing the first nationally representative longitudinal survey in South Africa, covering the years 2008, 2010 and 2012, I find evidence that public and private transfers are not spent in the same way.

JEL classifications: D1, D12, F24, J18, I38, E21

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1 Introduction

A common assumption in economic theory is that money is fungible. In other words, spending patterns do not depend on the source of income, only on the total amount. In the last decades, a number of theories like the permanent income hypothesis (PIH) developed by [Friedman \(1957\)](#) or the mental accounting theory initiated by behavioural economists like [Thaler \(1985, 1990\)](#) have challenged this assumption. According to the permanent income hypothesis, consumption is determined by the permanent/anticipated income and should not react to transitory changes in income. The second argues that people compartmentalise their income into different mental accounts and decide on their consumption within each of these accounts. Based on this theory, spending behaviour is associated with the income source and therefore money cannot be treated as fungible.

There are a number of examples why individuals would allocate income transfers into different mental accounts. One is self-control, which stresses that people keep different accounts as means of self-control (e.g. to resist overspending) by allocating usually large windfalls into a separate assets or savings account that is not expected to be used for consumption in the immediate future ([Shefrin and Thaler, 1988](#)). Another example of why people would allocate income into different mental accounts is the flypaper or labelling effect, where consumption is associated with a desire to comply with externally imposed labels, has received particular attention. [Kooreman \(2000\)](#), for example, finds that government provided child grants in the Netherlands are more likely to be spent on child clothing than on other goods. Private transfers such as remittances (money sent by migrants living abroad) can also be analysed in the mental accounting framework. Several studies have shown that households do not use remittances in the same way as income from other sources ([Adams, 1991, 2002](#); [Adams and Cucecuecha, 2010](#)).

Despite the growing literature on mental accounting, and that a few studies have investigated whether government-provided social transfers are spent differently than income from other sources, the question on whether social transfers are spent differently than remittances remains under researched. To the knowledge of the authors, only two studies have tested whether social transfers coming from the government are spent differently than remittances received from migrants who live abroad, and none of them have explicitly tested the mental the mental accounting theory in this context.¹ Comparing public and private transfers can give additional and important insights into policy making as the welfare impacts of transfers not only depend on their value, but also on how they are perceived and therefore, spent.

This paper hypothesises that individuals or households perceive a private transfer coming from a family member differently than a public transfer received from the government, and that this impacts the way transfers are spent. To test this hypothesis, the first nationally representative longitudinal survey conducted in South Africa (the National Income Dynamics Survey), covering the years 2008, 2010, and 2012, is used. South Africa provides an excellent case study to answer the question at hand, as both remittances and social transfers constitute an important source of income in poor households. For more

¹ The other studies comparing how social transfers and remittances are spent are [Maitra and Ray \(2003\)](#) and [Waidler et al. \(2016\)](#)

than 35 percent of rural black households (which are more likely to live in poverty) remittances are the main source of income (Posel and Casale, 2003, 2006). At the same time, the two main social protection programmes aimed at reducing poverty and vulnerability of the most deprived -the child support grant and the old age pension- reach almost 60 percent of children and more than 80 percent of the non-white elderly population (SASSA, 2016).

The next section reviews the literature on the mental accounting theory. Section 3 describes the case of South Africa and the hypothesis on how remittances and social transfers are likely to be spent. Section 4 introduces the demand model and the econometric estimation used to analyse the relationship between the different income sources and expenditure patterns. Section 5 describes the data and section 6 presents the findings and the different robustness tests. Finally, section 7 concludes.

2 Literature review

Social protection transfers provided by the government or remittances sent by migrants working in a different locality or country facilitate consumption smoothing of households and offer immediate alleviation of spending constraints to poor beneficiaries. A relevant policy question when assessing the effects of these transfers is whether the increased consumption or poverty reduction experienced by recipient households is only explained by a pure income effect (i.e. having more money) or also by the fact that different income sources affect expenditure patterns in different ways. The latter would reject standard microeconomic theory as it implies that the composition of income matters and that certain sources of income may have higher welfare effects than others.

Mental accounting theory supports the idea that money is not fungible, but that the source of income influences spending decisions. behavioural economists such as Thaler (1985, 1990), and Shefrin and Thaler (1988) argue that people have different mental accounts for different sources of income. There are different reasons why people would compartmentalise different income transfers into different mental accounts. Shefrin and Thaler (1988) show that some people create mental accounts as a self-control device to resist overspending by, for example, allocating large windfalls into a separate -assets or savings- account where money is less likely to be spent. Christiaensen and Pan (2012) explores the notion of emotional accounting (Levav and McGraw, 2009), which argues that people categorise their incomes based on the feelings they evoke by suggesting that the coding of income is based on the effort involved in obtaining it. The authors test the hypothesis that people are more likely to spend hard earned money on necessities, and unearned money on hedonic (pleasure) goods. In line with their predictions, they find that the marginal propensity to consume from unearned income is higher for clothing, alcohol and tobacco, transportation and communication, and gifts, while earned income is more likely to be spent on staple food and education.

An example of mental accounting that has been recently debated is the flypaper or labeling effect, which is the desire to comply with externally imposed labels. Kooreman

(2000) tests this theory in the context of child benefits in the Netherlands and finds that these benefits are more likely to be spent on child clothing than other sources of income. In the same way [Jacoby \(2002\)](#) and [Islam and Hoddinott \(2009\)](#) prove that benefits from the school feeding and supplementary nutrition programmes, respectively, benefit the child directly. As these studies look at in-kind transfers, the authors test the mental accounting theory by looking at whether there is intra-household reallocation of calories in response to the programme. [Coetzee \(2013\)](#), studying the Child Support Grant in South Africa, finds that child grants have a positive impact on children as they are more often spent on goods that benefit children (for example, food) as opposed to adult goods. [Benhassine et al. \(2013\)](#) show that an unconditional cash transfer programme in Morocco to fathers of school-age children, which is labelled as an educational support programme, increases school participation. Moreover, [Beatty et al. \(2014\)](#) find a robust labelling effect in the case of the winter fuel transfers in the UK: on average, households spend 41 percent of this unconditional transfer on fuel, as compared to 3 percent that would be spent on fuel if the transfer was treated as normal cash.

Remittances can also be analysed in the mental accounting framework. Several studies have shown that households do not use remittances in the same way as income from other sources ([Adams, 1991, 2002](#); [Adams and Cuecuecha, 2010](#)). [Adams \(1991\)](#) proves that remittances are also invested and not only spent on consumption. [Adams \(2002\)](#) states that the marginal propensity to save from those sources of income that are more variable and uncertain -like external remittances- is much higher than from those sources of income that are more predictable. The author finds evidence of the permanent income hypothesis as the marginal propensity to save out of remittances is found to be higher than for any other source of income and suggests that this is due to income volatility and risk aversion, noting that income sources with greater variability exhibit greater marginal propensities to save. [Adams and Cuecuecha \(2010\)](#) show that households receiving either internal or international remittances spent more on education and housing than households not receiving remittances, keeping total income constant.

[Davies et al. \(2009\)](#) argue that remittance income is likely to be allocated to its own mental account for several reasons: remittances may come with specific conditions attached (the remitter may require the receiving household to use their income for specific purposes such as education). Moreover, households may attach specific emotional tags to remittances based on how they perceive the migrant (or the migration experience) and/or the motivation behind the remittances. The authors state that remittances may be considered as either manna from heaven or else the product of someone else's hard work (p. 324). This will determine in which mental account these transfers are allocated to and, as a result, how they are spent. In the first case, remittances are more likely to be spent on consumption, whereas in the second they will be used for productive purposes such as investment in human and physical capital.

Based on the literature described above, there are reasons to believe that social transfers will have different expenditure patterns than remittances. Social transfers can bring a label attached and influence the types of goods recipient households buy based on the aims of the programme and the intended outcomes. In the case of remittances, recipients may feel conditioned to spend the money in a certain way as well as the feelings associated with the migration experience of the relative abroad may influence their spending behaviour.

However, the decision to allocate different transfers into different mental accounts is context specific and will depend on the type of social protection programme and on the migration patterns in the country studied. For instance, whether migration is temporary or long-term, internal or international, low-skilled or highly-skilled, etc. can influence the remittance sender's behaviour and/or the spending behaviour of the recipient household. In the next section I describe the case of South Africa and propose a model where remittances and social transfers are allowed to differ from other income sources in the way they are spent.

3 The case of South Africa: migration, remittances and social protection transfers

3.1 The social protection system

The social protection system in South Africa is well-established, with one of the largest non-contributory pension programmes in the world, and one of the largest social cash transfer programme (the child support grant) in terms of the number of participants ([World Bank, 2015](#)). Both programmes are means-tested and targeted at poor elderly individuals and poor households with children, respectively. Under apartheid, the system was designed and developed to target the white population. In 1992, the Social Assistance Act eliminated all discriminatory provisions and the system expanded to cover all other groups. Nowadays, the majority of the beneficiaries are Black (many of them living in rural areas).² Almost three quarters (3.2 million) of the elderly in South Africa are income eligible and receive the old age pension, and around 60 percent of eligible age children (11.9 million people) receive the child support grant ([SASSA, 2016](#)). Direct spending on social assistance accounted for 3.5 percent of GDP in 2013 ([World Bank, 2016](#)).

Many studies have assessed the impact of the two main social protection programmes in South Africa on different indicators of well-being. [Lund \(1993\)](#), and [Ardington and Lund \(1995\)](#) identify poverty reduction effects of the social pensions as they reach individuals in the lower deciles of income and provide food security and household security. [Barrientos \(2005\)](#) concludes that benefits associated with non-contributory pension programmes like the South African one include poverty reduction among the elderly and their households, facilitation of investment in human and physical capital, strengthening of intergenerational solidarity, and insurance against the adverse effects of agricultural reform. More recent papers ([Duflo, 2000](#); [Niño-Zarazúa et al., 2012](#); [Case and Menendez, 2007](#)) confirm previous findings and stress that elderly pool their income to other members of the household, which translates into significant improvements in well being of the

² In this paper I use the official classification of racial groups defined by Statistics South Africa, which is used by policy makers and researchers to measure inequality, identify the most vulnerable groups, design and evaluate social protection interventions, etc. There are four main ethnic groups in South Africa: Black Africans, Coloured, Indian/Asian, and White, and the first three altogether are denominated more generally as Black

whole household, especially children. The Child Support Grant (CSG) has also played a significant role in reducing the number of poor people ([Woolard and Leibbrandt, 2010](#)). [Aguero et al. \(2006\)](#) find a positive impact of the CSG on child nutrition. A recent impact assessment by [DSD et al. \(2012\)](#) finds a positive developmental impact of the child support grant in promoting nutritional, educational and health outcomes.

Analyzing how social transfers are spent, Cross and Luckins (1993) document the role of social pensions in enabling recipient households to acquire farming inputs, hire tractors, and hire labour for household tasks such as working the land. Social grants also directly support nutrition, access to transportation services, and other short run productivity enhancing expenditures. [Case and Deaton \(1998\)](#) find that pension income is spent as other income, although money received by women is more likely to be spent on children. [Case \(2001\)](#) looks at the impacts of pension on health and conclude that income is pooled in 84 percent of the households, which means that transfers are more likely to benefit the household as a whole and not only the elderly recipients. [Maitra and Ray \(2003\)](#), by analyzing whether remittances, pensions, and other income have different expenditure patterns, also find that pensions do not have much of an impact on household expenditure patterns.

Regarding the child support grant, there does seem to be a direct effect on child expenditure: [Lund \(2002\)](#) finds an impact of child transfers on increased school expenses and trips to health services, while [Coetzee \(2013\)](#) concludes that the CSG has a higher marginal propensity to be spent on food than on adult goods, and a higher expenditure on food is expected to have a higher beneficial impact on children than on other household members. Moreover, a qualitative evaluation done by [DSD et al. \(2011\)](#) shows that the most frequent uses of the grant are school related expenses (including school fees, transportation, clothing and uniforms) and food (mainly general household food but sometimes child specific). Other uses include clothing and beauty. However, households that were struggling to meet their food needs would first use the grant to buy food and only buy child specific goods once basic needs were satisfied.

Based on previous studies as well as on the labelling effect hypothesis described in the previous section, it seems likely that child transfers will benefit the child directly. Moreover, in the case of South Africa there are information campaigns stressing that the grant is child specific and intended for educational support and nutritional improvement ([DSD et al., 2011](#)). This paper therefore hypothesises that the child support grant will have a positive impact on the share spent on food and on human capital goods such as education, which are more likely to benefit children. In the case of the state old age pension and in line with the studies mentioned above, no significant change in expenditure behaviour is expected due to the fact that pension income is essentially income replacement. Despite the fact that elderly individuals usually pool their income to help the whole household, no major expenditure differences are expected between pension income and the income elderly individuals were earning before becoming eligible for the old age pension.

3.2 Migration and remittances

South Africa has a history of internal migrants in its labour force. Under apartheid, there were racial restrictions to urban areas and the permanent settlement of migrants was highly restricted (Posel, 2001). As a result, labour migrants (usually black) were moving from rural to urban areas on a temporary basis and living in homelands (labour reserves built by the government for migrants). Based on South Africa's history, there are good reasons why migrants would remit and retain strong ties with their household of origin: in addition to altruistic motivations, migrants faced insecure employment opportunities and would remit as insurance against unemployment, or for their retirement (as permanent settlement in places of employment was not permitted) (Posel, 2004).

In 1987 racial restrictions on movement and residence were lifted; however, migration patterns did not alter after apartheid as expected and internal migration from rural to urban areas remains temporary for a large number of individuals and households (Posel, 2004). Poor households in South Africa, especially in rural areas, continue to rely on remittances to cover their daily needs (Posel and Casale, 2006). However, analysing the National Income Dynamics Survey of 2008, Posel (2009) points out that many labour migrants are now settling in destination areas and that ties between migrants and households of origin are weakening. This translates into an important decline in the number of households receiving remittances compared to statistics derived from previous household surveys.

There are a limited number of studies analyzing the effects of remittances in post-apartheid South Africa, mainly due to a lack of nationally representative surveys that can explore patterns and trends in migration. However, it is evident that poor households highly rely on these transfers as they are a significant source of income, especially for rural black households (Posel and Casale, 2003, 2006). Lund (1999) points out their income smoothing effects and, while for this author remittances are seen as a wage income that is earned in the market, Haddad and Zeller (1997) treat remittances as an exogenous transfer coming from outside the household. Maitra and Ray (2003) provide evidence supporting the second hypothesis, as they find that remittances are spent differently than the income earned by the household. Remittances are found to have a significant impact on several expenditure shares and, in the case of food and other goods (covering mainly luxury goods), remittances are spent differently than income: remittances increase the share spent on food, whereas income reduces it, and the opposite occurs in the case of luxury goods.

Studies on other countries have found that given the particularities of this income transfer, remittances are sometimes spent differently than other sources of income (Adams, 1991, 2002; Adams and Cuecuecha, 2010; Davies et al., 2009; De and Ratha, 2012). Given the temporary nature of migration in South Africa, where migrants retain strong ties with the household of origin and remit frequently, one can expect migrants to have an influence on how transfers are spent. As labour migration is generally low skilled and sending money represents a big effort to remittance senders, this paper hypothesises that remittance transfers are expected to be spent on basic household needs such as food, health, or household goods.

4 Demand model and empirical analysis

4.1 The model

The relationship between expenditure shares and income is analysed by estimating Engel curves, which linearly relate expenditure shares to the logarithm of income. The demand model chosen for this analysis is the Almost Ideal Demand System (AI) from [Deaton and Muellbauer \(1980\)](#) given that it satisfies several useful properties: it gives a first order approximation to any demand system, it satisfies the axioms of choice exactly, it aggregates perfectly over consumers, it has a functional form consistent with previous household budget data, and it is simple to estimate in its linear approximation choice ([Blanciforti et al., 1983](#)). In other words, the AIDS model provides a good statistical fit to the different goods (including luxuries, necessities and inferior goods) ([Adams and Cuecuecha, 2010](#)), allowing the same commodity to be a necessity for the rich and a luxury for the poor. It also satisfies the adding-up condition (that the sum of all total expenditure elasticities weighted by budget shares must add up to one) and represents consumer behaviour closely. Finally, AIDS is directly non-additive, meaning that consumption of one good can affect the marginal utility of another good. This model, therefore, does not impose severe substitution limitations implied by other demand models ([Blanciforti et al., 1983](#)).

At the household level, the AIDS model can be written as:

$$w_{iht} = \alpha_i + \sum_{j=1}^N \gamma_{ij} \log p_{jt} + \beta_i \log \left(\frac{x_{ht}}{P_t} \right) + \delta_{k_{ht}} \quad (1)$$

where $i=1, \dots, N$ represent the N commodities, $h=1, \dots, H$ index households, $t=1, \dots, T_h$ represent time periods for households h . Here, w_{iht} denotes the budget share on good i for household h at time t ; x_{ht} denotes total income for household h at time t ; p_{it} denotes the price of commodity j at time t ; and k_{ht} are characteristics of household h . P is the Stone's price index, which is chosen to make the system linear in parameters.³ The price index is defined as:

$$\log P_t = \sum_{i=1}^N \bar{w}_{it} + \log p_{it} \quad (2)$$

where \bar{w}_{it} is the mean of the budget shares across households. The AIDS model satisfies the following properties of demand functions:

$$\text{Adding up: } \sum_i \alpha_i = 1, \sum_i \gamma_{ij} = 0, \sum_i \beta_i = 0 \quad (3)$$

$$\text{Homogeneity: } \sum_j \gamma_{ij} = 0 \quad (4)$$

³ also used in [Deaton and Muellbauer \(1980\)](#), [Moschini \(1995\)](#), and [Ghalwash \(2007\)](#)

$$\text{Symmetry : } \gamma_{ij} = \gamma_{ji} \quad (5)$$

The budget share equations have the properties of demand functions, namely that the sum of budget shares add up to one and ensures that total expenditure is equal to the sum of individual expenditure on different commodities and goods (equation 3); that the demand functions are homogeneous of degree 0 in prices and total expenditure (equation 4); and that they satisfy the symmetry of the Slutsky matrix (equation 5), necessary for the integrability of the demand system to well-defined preferences.

4.2 Empirical estimation

The demand model is estimated equation by equation by OLS, and include household fixed effects to control for unobserved variation that can be correlated with the explanatory variables. To test whether remittances and social transfers have an effect on expenditure behaviour other than its effects through total income, I include three variables that express the share of each transfer (child support grant, old age pension, and remittances) out of total income. In this way I test for behavioural changes that can occur after a specific transfer represents a higher proportion of total income (besides their effect through total income). The econometric estimation is expressed as:

$$w_{iht} = \beta_i \log(Y_{ht}) + \gamma_1(ST_{ht}) + \gamma_2(R_{ht}) + \gamma_3(HH_{ht}) + \gamma_4(t_t) + \alpha_{ih} + \epsilon_{iht} \quad (6)$$

where w_{iht} is the share of total household expenditure on good i at time t , Y_{ht} denotes total household income of household h at time t . R and ST are the ratios of remittances and social transfers to total income. In this case coefficients will capture a slope effect, that is the percentage point change in expenditure shares when the ratio of the respective transfer to total income increases by 1 percentage point. HH corresponds to the various household characteristics that influence the spending behaviour of the household and that can have an effect on how income is spent on the different expenditure categories. These are number of children and number of adults in the household (which controls for the effect of a potential change in household composition induced by the receipt of the transfer), province of residence, whether the household lives in a rural, urban, or tribal area, maximum level of education, etc. t_t are year dummies which control for macroeconomic changes and seasonal variation that can affect expenditure. Finally, α_i is the household fixed effect and ϵ_{it} the error term.

Note that prices are not included in this equation. Assuming that prices in each region are the same for all households, regional and year dummies are collinear with prices, which means prices can be excluded from the equations. Region fixed effects had to be dropped from the model as there was not enough within variation, meaning that there were only few households who had changed provinces during these years. Moreover, in this case I do not impose cross-equation restriction. Note, however, that there is no loss in efficiency due to the fact that all equations have identical explanatory variables; in

this case, the FGLS estimation of the full system is identical to the equation by equation OLS estimation (Zellner, 1962).

Fixed effects are used for two reasons. The first is to control for unobserved variation that can be correlated with the explanatory variables included in the model. As long as the unobserved variation is constant over time for a household, then one should not expect to have a problem of endogeneity. For instance, one may expect households to select into migration (and thus to send remittances) based on both observed and unobserved characteristics. If these unobserved characteristics are time invariant (such as ability, motivation, etc.), then the error term will not be correlated with the independent variables and will therefore not generate any bias in the estimation. The second reason to use fixed effects is to analyse how changes in income affect expenditures over time: for instance, one can see if there is a change in expenditure behaviour caused by a change in recipient status or in the amount of transfer received.

There can still be systematic differences between recipients and non-recipients that are not accounted for in fixed effects estimation, however. If there are time varying unobserved characteristics that affect both the outcome and whether a household receives transfers, then results may be biased and not representative. In the absence of a proper instrument for remittances, the child support grant, and the old age pension, estimations are done for different sub-samples in order to compare more homogeneous population groups and see whether results from the main estimation hold. I therefore repeat the estimations restricting the sample to the African population (who are more likely to be poor and receiving transfers), and to households that receive either the old age pension or the child support grant (and can or cannot receive remittances). I restrict the sample to only social grant recipients in order to account for possible selection bias. The reason for this is that only households with certain characteristics are eligible for these grants, while everybody is eligible to receive remittances. In this way a better comparison between the effects of private and public transfers on expenditure is obtained. Finally, I also restrict the sample to households living in KwaZulu-Natal, a poor province with a high percentage of households receiving both social transfers and remittances. This allows for a better comparison of the different transfers on expenditure patterns.

Due to the fact that there are other factors that can influence the spending behaviour of the household, like the gender of the recipient and how regular or unpredictable transfers are, I perform extended models as a robustness check. To capture the effect of who receives the transfer on expenditure shares, binary variables indicating the recipient of the respective transfer (i.e. men or women) are added to the model. To assess whether the regularity/unpredictability of the transfers has an effect on expenditure shares, a variable indicating how many times per year the transfer is received is also tested in the model. This will probably be relevant only for remittances, as social transfers are always received monthly.

5 Data

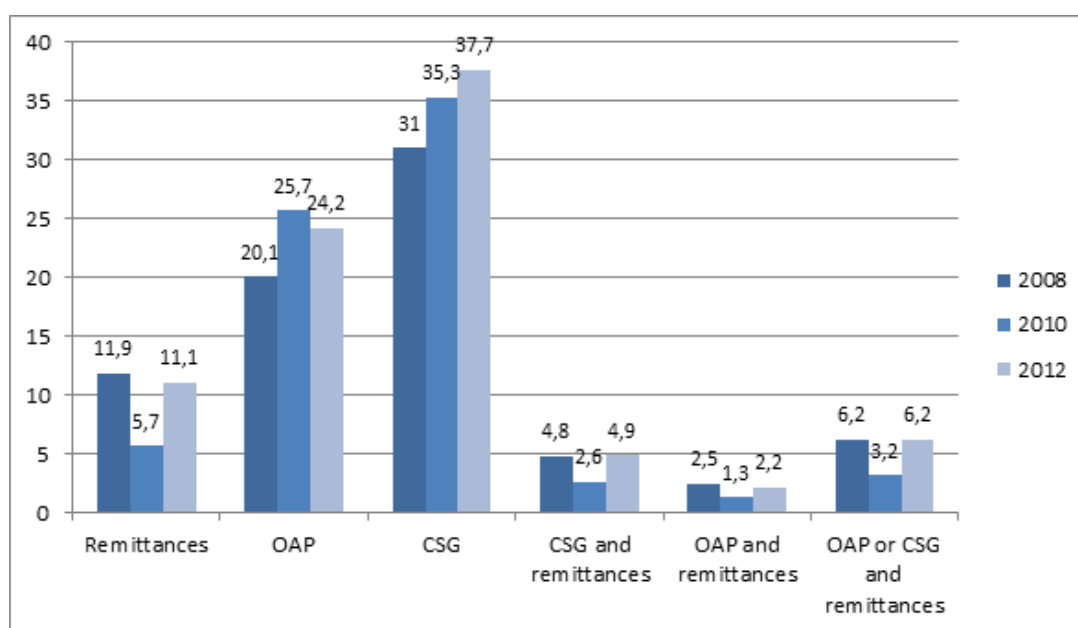
The data used for this study is the National Income Dynamic Survey (NIDS), South Africa first nationally representative panel survey that consists of three waves (2008, 2010, 2012). In the first wave 28,247 individuals (7,296 households) were interviewed, in 2010 28,641 individuals (9,134 households), and in 2012 32,633 individuals (living in 10,236 households). 18,864 individuals were successfully interviewed in all three waves.

Detailed data on expenditure was collected at the household level by asking the amount of money the household spent in the last month on each particular item for each category of expenditure. Expenditure is classified into nine categories: food and beverages, alcohol and tobacco, clothing, health, transport, education, leisure, housing, utilities and insurance, and miscellaneous. Household income was collected at an individual level, by asking each adult household member how much they received per month from different income sources (labour wage, agricultural income, government transfers, loan interest, remittances, etc.).

As this paper looks at how social transfers (specifically old age pension and child support grant) and remittances affect expenditure patterns, a variable for each of these income sources was created at the household level. Moreover, the income data was deflated to January 2012 as the base period. Deflators were computed from CPI data taken from the South African statistical office (Stats SA).

Figure 1 shows the percentage of households receiving remittances, the old age pension, and the child support grant in each wave. In 2008, slightly less than 12 percent of the households were receiving remittances. In 2010, the percentage of remittance recipient households declined by more than 6 percentage points, and increased again in 2012 to approximately 11 percent. The low percentage of households receiving remittances confirms the findings from [Posel and Casale \(2006\)](#) and [Posel \(2009\)](#), who state that remittances in South Africa have been decreasing in the last decades. The percentage of households receiving the old age pension, on the other hand, increased between 2008 and 2010 (from 20.1 percent to 25.7 percent) and slightly decreased in 2012. The decline in remittances after the year 2008 and the increase in the old age pension can reflect the effects of the economic crisis, where migrants have more difficulties to remit and the government needs to reach a higher percentage of the population due to increased poverty rates. The child support grant has the highest coverage, with 31.1 percent of the households in the year 2008 and 37.7 percent in the year 2012 receiving the grant. This increase is due to the changes in age eligibility, which increased from 14 years old in 2008, to 16 years old in 2010, and to 18 years old in 2012. The percentage of households receiving both remittances and the child support grant, remittances and old age pension, and remittances and either the old age pension or the child support grant does not exceed 6.2. This means that these transfers reach different population targets, mainly due to the fact that remittances have a lower coverage than social transfers.

Figure 1: Percentage of households receiving transfers



Source: NIDS 2008, 2010, 2012.

While the old age pension is quite generous in comparison to other social transfers (R940 in 2008, R1080 in 2010, and R1200 in 2012), the child support grant is the least generous one, despite its large coverage (R100 in 2008, R250 in 2010, and R280 in 2012 per eligible person). Table 1 shows the average amount of transfers received in recipient households. The average amount received from the child support grant is around half the amount received from the old age pension; this is due to the fact that, on average, there are more children than elderly living in a household. The average amount of remittances is similar to that of the child support grant in the years 2008 and 2010. However, in 2012 the average amount of remittances almost doubled and reached 1007 rands. When accounting for the size of the household and looking at the value of the transfers per adult equivalent, one can see that the maximum average amount of the child support grant does not exceed 200 rands, while remittances are, on average, similar in value than the old age pension (and even higher in the year 2012). Finally, in this dataset, it is possible to get information on the individual recipient of the transfers. What one can see in the table is that both child grants and remittances are usually received by women, although to a larger extent in the case of child grants, where more than 94 percent of recipients were women in 2008 and 2010 (in 2012 this percentage decreased to 88 percent). In the case of remittances, around 80 percent of remittance recipients are female.

Table 1: Average value (in Rands) of transfers received and gender of recipients

	2008	2010	2012
Mean remittances (per hh)	584	625	1007
Mean Child Support Grant (per hh)	409	548	630
Mean Old Age Pension (per hh)	1018	1259	1411
Mean remittances (per ae)	383	408	625
Mean Child Support Grant (per ae)	132	164	194
Mean Old Age Pension (per ae)	416	481	537
Percentage of females receiving Child grant	97.4	94.9	88.0
Percentage of females receiving remittances	78.2	80.6	80.0

Source: Author's calculations; NIDS 2008, 2010, and 2012.

Table 2 shows the distribution of household expenditure according to recipient status. Transfer recipients have a higher share of expenditure on food, as compared to non-recipients. Non-recipients, which are more likely to be richer, spend a slightly larger share of their total budget on housing and utilities, leisure and transport. Recipients of the child support grant spend a slightly larger share of their expenditure on education (0.06), as compared to the other groups (0.05). However, one need to keep in mind that for richer households, expenditure on education in absolute terms is very high, mainly as a result of high school fees for those children who attend private schools.

Table 2: Expenditure shares according to recipient status in 2008

Variable	Receive CSG	Receive OAP	Receive remittances	Non recipients
Share food	0.56	0.58	0.54	0.46
Share alcohol and tobacco	0.03	0.03	0.02	0.04
Share clothes	0.03	0.02	0.03	0.03
Share health	0.03	0.03	0.03	0.05
Share housing and utilities	0.15	0.16	0.16	0.17
Share education	0.06	0.05	0.05	0.05
Share transport	0.04	0.03	0.05	0.08
Share leisure	0.08	0.08	0.09	0.1
Other	0.05	0.05	0.05	0.05

Source: Author's calculations; NIDS 2008.

Table 3 shows some basic household characteristics according to recipient status. Households receiving social transfers are, on average, larger in size (5.6/4.8) compared to households receiving remittances (4.6) and no transfers (3.0). Regarding the province where the household lives, both remittances and social transfers go disproportionately to households in KwaZulu-Natal. Gauteng and Limpopo are two other provinces receiving a high percentage of total remittances, whereas households living in provinces like Western Cape or Northern Cape receive a smaller share of remittances on average. The fact that transfers target poor households can be seen by looking at the average income and

expenditure per capita in the different households: households receiving no transfers are by far the richest, followed by households receiving remittances, the old age pension and the child support grant. These transfers also go disproportionately to the Africans who are also more likely to live in poverty. Finally, table 4 shows the summary statistics of all the variables used in the regression analysis.

Table 3: Main descriptive statistics according to recipient status (2008)

Variable	Receive remittances	Receive CSG	Receive OAP	Non recipients	Total
Household size	4.6	5.6	4.8	3.0	3.9
Province					
Western Cape	8.7	7.1	8.5	19.2	13.8
Eastern Cape	13.8	14.0	17.5	10.7	12.7
Northern Cape	6.4	7.2	7.0	8.5	7.8
Free State	5.3	5.7	5.6	6.2	6.1
KwaZulu-Natal	29.3	34.1	31.6	17.7	24.3
North West	6.0	7.1	7.6	6.4	6.7
Gauteng	8.1	7.7	4.7	17.7	12.8
Mpumalanga	7.1	8.0	6.2	8.0	7.6
Limpopo	15.4	9.3	11.3	5.9	8.3
Race					
African	85.7	88.4	84.7	68.6	77.1
Coloured	10.2	10.8	11.9	15.7	13.8
Asian/Indian	0.9	0.4	1.5	2.1	1.5
White	3.2	0.4	1.9	13.6	7.6
Income per capita	842.5	385.8	552.9	2175.9	1269.3
Expenditure per capita	912.4	456.4	578.1	2230.8	1438.0

Source: Author's calculations; NIDS 2008.

Table 4: Summary statistics

Variable	Mean	SD	Minimum	Maximum
Share food	0.53	0.24	0.001	.99
Share alcohol and tobacco	0.03	0.07	0	0.68
Share clothes	0.02	.07	0	0.76
Share health	.05	0.10	0	0.97
Share housing and utilities	0.16	0.14	0	0.98
Share education	0.07	0.15	0	0.96
Share transport	0.05	0.11	0	0.86
Share leisure	0.07	0.09	0	0.94
Share other	0.05	0.05	0	0.72
Logarithm of total income (pae)	6.5	1.2	0	11.2
Share of OAP out of total income	0.16	0.31	0	1
Share of CSG out of total income	0.18	0.30	0	1
Share of remittances out of total income	0.07	0.20	0	1
Number of adults	3.1	1.7	0	16
Number of children	1.8	1.7	0	12
Urban formal	0.39	0.49	0	1
Urban informal	0.07	0.25	0	1
Rural	0.54	0.50	0	1

Source: Author's calculations; NIDS 2008.

6 Results

Table 5 shows the results of the fixed effects model for the nine budget shares. The model shows how the share of remittances, the child support grant, and the old age pension to total income affect expenditure shares (controlling for household and residential characteristics). One can observe some behavioural changes in the case of remittance transfers. An increase in ratio of remittances to total income is associated with an increase in the share spent on food. This means that the more important this transfer becomes as a source of income, the higher is the share of total expenditure on food, which is in line with the findings from [Maitra and Ray \(2003\)](#). An increase in the ratio of remittances to total income is also associated with a decrease in expenditure on alcohol and tobacco,

clothing, and transport, and with an increased expenditure on education (although in the latter case the coefficient is only significant at a 10 percent level). This is an interesting finding, as it shows that remittances are not spent on conspicuous consumption and that they are spent differently than other sources of income. These results also support the hypothesis that remittances are likely to be spent on basic household needs.

When the share of income from the old age pension out of total income increases by one percentage point, expenditure on food increases by 0.03 percentage points. Expenditure on education and on housing and utilities both increase by 0.01 percentage points, although coefficients are only significant at a 10 percent level. The positive relationship between income from the old age pension and certain expenditure categories contradicts the hypothesis that pension income will not affect expenditure behaviour as these transfers are essentially income replacement. Households seem to be changing their consumption patterns by increasing the share spent on goods that benefit the household as a whole (like food and utilities) as well as goods that benefit children in particular (education and food). At the same time, increased income from the old age pension is associated with a decrease in expenditure on transportation, clothing, leisure, and alcohol and tobacco.

With regards to the child support grant, a one percentage point increase in the share of this source of income is associated with a 0.02 percentage points increase in the share spent on education, and a decrease in 0.02 and 0.01 in the shares spent on alcohol and tobacco and leisure, respectively. This finding supports the hypothesis that child grants are likely be spent on goods that benefit the children (like education) due to a labelling effect. The findings also support the theory of change hypothesis which says that caregivers (grant recipients) will spend the grant on goods that benefits the beneficiary, in this case children.

This analysis shows that social transfers and remittances are not always spent in the same way as other sources of income, and some difference between them are observed. There is a positive effect of the child grant, remittances and the old age pension on education, although in the case of the child support grant the relationship is stronger as the coefficient is more significant and larger in magnitude. This can be due to the fact that the child support grant is explicitly targeted at children and it is the aim of the programme to improve children's educational outcomes and school attendance. At the same time, both remittances and the old age pension increase the share spent on food, but this is not the case for the child support grant. While remittances and the old age pension are both negatively associated with clothing and transportation, all three grants are negatively associated with expenditure on alcohol and tobacco. In addition, both the child support grant and the old age pension are associated with a decreased expenditure on leisure, but this does not apply to remittances. Finally, an increase in the share of the old age pension to total income increases the share spent on utilities and household goods, while in the case of remittances and child grants no significant results are found. This can be due to the high value of the old age pension in comparison to the other two, as child grants are worth approximately four times less the old age pension and are less likely to be pooled, whereas remittances received by poor households are very low in value.

Table 5: Effects of income and transfer amounts on expenditure patterns

	Food	clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	Utilities	Other
Log of total income	-0.02** (0.00)	0.00** (0.00)	0.00 ⁺ (0.00)	0.00 (0.00)	0.01** (0.00)	-0.00 ⁺ (0.00)	0.01** (0.00)	0.00 (0.00)	-0.00 (0.00)
Share of OAP out of total income	0.03** (0.01)	-0.01* (0.00)	0.00 (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01 ⁺ (0.01)	-0.02** (0.01)	0.01 ⁺ (0.01)	-0.00 (0.00)
Share of CSG out of total income	0.02 (0.01)	-0.01 (0.00)	0.00 (0.00)	-0.02** (0.00)	-0.01 (0.01)	0.02* (0.01)	-0.01* (0.01)	0.01 (0.01)	-0.00 (0.00)
Share of remittances out of total income	0.05** (0.02)	-0.01* (0.01)	-0.01 (0.01)	-0.02** (0.00)	-0.02** (0.01)	0.02 ⁺ (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)
Number of adults	-0.01** (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	0.00** (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00* (0.00)
Number of children	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)
Urban formal	-0.07** (0.01)	0.01 (0.00)	0.01 ⁺ (0.01)	0.00 (0.00)	0.02** (0.01)	0.01* (0.01)	0.02** (0.01)	0.02* (0.01)	-0.00 (0.00)
Urban informal	-0.07** (0.02)	0.00 (0.01)	0.00 (0.01)	-0.01 ⁺ (0.01)	0.05** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)
year 2008	0.04** (0.01)	-0.00* (0.00)	0.01** (0.00)	-0.01** (0.00)	0.01* (0.00)	0.03** (0.00)	-0.04** (0.00)	-0.02** (0.00)	-0.01** (0.00)
year 2010	0.09** (0.00)	-0.00* (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01** (0.00)	-0.01** (0.00)	-0.04** (0.00)	-0.02** (0.00)
Constant	0.70** (0.02)	-0.00 (0.01)	0.00 (0.01)	0.05** (0.01)	-0.04** (0.01)	0.02 (0.01)	0.06** (0.01)	0.15** (0.02)	0.06** (0.01)
Observations	18940	18940	18940	18940	18940	18940	18940	18940	18940

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Given that there are systematic differences between social transfers recipients and remittance recipients, the model can still suffer from endogeneity if there are omitted variables that are time variant and affect both the treatment and the outcome. For instance, if there is a shock in the household (or in the community) that causes a change in expenditure and, at the same time, generates a response in the person sending remittances or the government by increasing or decreasing transfers sent, our coefficients may be subject to bias. In absence of a proper instrument for child grants, old age pension, and remittances, the estimations are performed separately for different population groups to test for heterogeneity in effects. I re-estimate the model (1) restricting the sample to the African population in order to compare public and private transfer within a more homogeneous group, (2) restricting the sample to households that receive social transfers (and that can or cannot receive remittances), and (3) restricting the sample to households living in KwaZulu-Natal, a province with a high share of households receiving both social transfers and remittances.

When the sample is restricted to the African population -households who are likely to be poor and receive transfers- (Table 6) results from the previous estimation hold, although now one can see some slightly positive impact of the child support grant on food. By excluding other population groups who are less likely to receive grants and therefore have little or no variation in the amount of transfers received (like the white or Indian population), one can see that the child support grant is, in fact, increasing recipients' expenditure on food more than on other goods. This is also in line with the labelling effect hypothesis that the child support grant is meant to be spent on goods that benefit the child (in this case increased food consumption is expected to lead to better nutritional outcomes).

In table 7 the sample is restricted to households receiving the old age pension or the child support grant. In this case the effects of transfers on expenditure shares is slightly different. The positive effect of the ratio of remittances to total income on food is no longer significant. The reason for this is that the number of households receiving both social transfers and remittances is not very high, and households that receive both social transfers and remittances are very poor, which means remittances received are usually low in value as well as lower in value compared to social transfers. In the case of educational expenditure, we do not longer observe significant effects of transfers on this category. One reason could be that there is not much variation in educational expenditure among social transfer recipients across the 3 waves. Results may also imply that the relationship between the child support grant and educational expenditure is not very robust, among other reasons because of data limitations regarding educational expenditure which will be discussed in the limitations section.

Finally, table 8 reports the regressions when the sample is restricted to households living in KwaZulu-Natal. This province is characterised by high levels of poverty and a big percentage of households that are recipients of both social transfers and remittances. What one can see now is a positive impact (and stronger impact as compared to the other models) of the three transfers on food expenditure: a 1 percent increase in the ratio of the old age pension, child support grant, and remittances to total income increases the share spent on food by 0.08, 0.03, and 0.07 percentage points, respectively. This means that when one compare more homogeneous groups and allow for a better comparison

between social transfers and remittances by taking a sub-sample of households that are likely to receive all three transfers, one can see that both social transfers and remittances have a positive and significant effect on the share spent on food. The positive effects of social transfers on education are not significant in this specification though.

Table 6: Effects of income and transfer amounts on expenditure patterns- African sample

	Food	Clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	Utilities	Other
Log of total income	-0.02** (0.00)	0.01** (0.00)	0.00* (0.00)	0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	0.01** (0.00)	0.00 (0.00)	-0.00 (0.00)
Share of OAP out of total income	0.03* (0.01)	-0.01 ⁺ (0.00)	0.00 (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01 ⁺ (0.01)	-0.01* (0.01)	0.01 (0.01)	-0.00 (0.00)
Share of CSG out of total income	0.02 ⁺ (0.01)	-0.01 (0.01)	0.00 (0.01)	-0.02** (0.00)	-0.00 (0.01)	0.02* (0.01)	-0.01* (0.01)	0.00 (0.01)	-0.00 (0.00)
Share of remittances out of total income	0.05** (0.02)	-0.02* (0.01)	-0.00 (0.01)	-0.02** (0.00)	-0.03** (0.01)	0.02 ⁺ (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)
Number of adults	-0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	0.00** (0.00)	0.00* (0.00)	-0.00 ⁺ (0.00)	0.00 ⁺ (0.00)	0.00** (0.00)
Number of children	-0.01 ⁺ (0.00)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)
Urban formal	-0.07** (0.01)	0.01 (0.01)	0.01 ⁺ (0.01)	0.00 (0.00)	0.02** (0.01)	0.02* (0.01)	0.02** (0.01)	0.01 (0.01)	-0.01 (0.00)
Urban informal	-0.07** (0.02)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.06** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)
Year 2008	0.03** (0.01)	-0.00 ⁺ (0.00)	0.02** (0.00)	-0.01** (0.00)	0.01** (0.00)	0.03** (0.00)	-0.04** (0.00)	-0.02** (0.00)	-0.01** (0.00)
Year 2010	0.09** (0.01)	-0.00 ⁺ (0.00)	-0.00* (0.00)	-0.00** (0.00)	-0.02** (0.00)	0.01** (0.00)	-0.01** (0.00)	-0.04** (0.00)	-0.02** (0.00)
Constant	0.70** (0.03)	-0.00 (0.01)	-0.00 (0.01)	0.04** (0.01)	-0.04** (0.01)	0.02 (0.02)	0.06** (0.01)	0.16** (0.02)	0.06** (0.01)
Observations	15767	15767	15767	15767	15767	15767	15767	15767	15767

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Table 7: Effects of income and transfer amounts on expenditure patterns- Social transfer recipients

	Food	Clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	utilities	Other
Log of total income	-0.01 (0.01)	0.01* (0.00)	-0.01* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.02** (0.01)	0.00 (0.00)	0.01+ (0.01)	0.00 (0.00)
Share of OAP out of total income	0.06** (0.02)	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.03** (0.01)	-0.01 (0.01)	-0.02* (0.01)	0.01 (0.01)	-0.01 (0.01)
Share of CSG out of total income	0.07** (0.03)	-0.00 (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.03** (0.01)	-0.02 (0.02)	-0.02+ (0.01)	0.01 (0.02)	0.01 (0.01)
share of remittances out of total income	0.04 (0.04)	-0.02 (0.01)	-0.02 (0.01)	-0.03** (0.01)	-0.04** (0.01)	0.03 (0.03)	0.01 (0.02)	0.02 (0.02)	-0.01 (0.01)
Number of adults	-0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00+ (0.00)
Number of children	-0.01 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00** (0.00)	-0.00* (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.01* (0.00)	-0.00+ (0.00)
Urban formal	-0.07** (0.03)	0.02 (0.01)	0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.04** (0.01)	0.04** (0.01)	-0.01 (0.02)	0.00 (0.01)
Urban informal	-0.10 (0.06)	0.02 (0.01)	0.03 (0.02)	0.00 (0.01)	0.05 (0.04)	0.06** (0.02)	0.04 (0.03)	-0.06+ (0.04)	-0.02 (0.01)
Year 2008	0.05** (0.01)	-0.01* (0.00)	0.01* (0.00)	-0.00 (0.00)	0.01* (0.00)	0.03** (0.01)	-0.04** (0.00)	-0.03** (0.01)	-0.01** (0.00)
Year 2010	0.11** (0.01)	-0.01* (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.01** (0.00)	0.01** (0.00)	-0.02** (0.00)	-0.04** (0.01)	-0.03** (0.00)
Constant	0.59** (0.07)	-0.03 (0.03)	0.08** (0.03)	0.01 (0.02)	0.05+ (0.03)	0.11* (0.05)	0.08* (0.03)	0.14** (0.05)	0.05* (0.02)
Observations	10632	10632	10632	10632	10632	10632	10632	10632	10632

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Table 8: Effects of income and transfer amounts on expenditure patterns- KwaZulu-Natal

	Food	Clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	utilities	Other
Log of total income	-0.05** (0.00)	0.01** (0.00)	0.01** (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	0.01** (0.00)	0.01** (0.00)	0.00** (0.00)
Share of OAP out of total income	0.08** (0.01)	-0.01** (0.00)	-0.01* (0.00)	-0.02** (0.00)	-0.03** (0.00)	-0.00 (0.01)	-0.03** (0.00)	0.01 (0.01)	0.00 (0.00)
Share of CSG out of total income	0.03** (0.01)	0.01 (0.00)	-0.00 (0.00)	-0.02** (0.00)	-0.00 (0.01)	0.01 (0.01)	-0.01* (0.01)	-0.01+ (0.01)	0.00 (0.00)
Share of remittances out of total income	0.07** (0.02)	-0.01 (0.01)	-0.01 (0.01)	-0.03** (0.01)	-0.02** (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.00)
Number of adults	-0.00** (0.00)	-0.00 (0.00)	0.00* (0.00)	-0.00+ (0.00)	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Number of children	-0.01** (0.00)	0.00** (0.00)	0.00** (0.00)	-0.00** (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.00+ (0.00)	0.00 (0.00)
Urban formal	-0.13** (0.01)	0.00 (0.00)	0.03** (0.00)	-0.01* (0.00)	0.02** (0.00)	0.02** (0.00)	0.01** (0.00)	0.06** (0.00)	0.01** (0.00)
Urban informal	-0.06** (0.01)	-0.00 (0.00)	0.02** (0.00)	-0.01+ (0.00)	0.02** (0.01)	0.04** (0.01)	0.00 (0.01)	0.02** (0.01)	-0.00 (0.00)
Year 2008	0.03** (0.01)	-0.01** (0.00)	0.02** (0.00)	0.00 (0.00)	0.02** (0.00)	0.02** (0.00)	-0.02** (0.00)	-0.03** (0.00)	-0.02** (0.00)
Year 2010	0.06** (0.01)	0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.02** (0.00)	0.03** (0.00)	-0.01** (0.00)	-0.04** (0.00)	-0.02** (0.00)
Constant	0.91** (0.02)	-0.02** (0.01)	-0.06** (0.01)	0.05** (0.01)	-0.05** (0.01)	0.01 (0.01)	0.05** (0.01)	0.09** (0.01)	0.02** (0.01)
Observations	5000	5000	5000	5000	5000	5000	5000	5000	5000

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

6.1 Robustness tests

In order to check the robustness of the results, as well as to look at other possible effects of the transfers on expenditure patterns, a series of additional estimations are performed. As in the data there is information on who receives the transfer, two binary variables (one for remittances, one for the child support grant) were added to the model to test whether the effect of the transfers on expenditure patterns is influenced by the sex of the recipient (table 9). Neither of these variables were significant in the regressions, meaning that the change in expenditure patterns is not driven by the recipient of the transfer, but by the transfer itself. In this case, however, there is not much variation in recipient status, as both remittances and child grants are mainly received by women, although to a larger extent in the latter than in the former.

Another factor that can influence the effect of social transfers and remittances on expenditure patterns is the volatility of the transfer, which has to do with how often households receive the specific transfer. In the case of the old age pension and the child support grant, these transfers are regular as they are received every month. Remittances, however, can vary in their volatility, as certain households receive them almost every month, whereas others receive them only a few times per year. To test that this difference in regularity does not affect the way remittances are spent, the variable *number of times per year the household receives remittances* was added to the regression (table 10). This variable does not turn out to be significant, which makes us conclude that the effect of remittances on expenditure is due to the transfer themselves, and not to the fact that remittances are more irregular transfers than social protection benefits.

Table 9: Effects of income and transfer amounts on expenditure patterns- controlling for recipient's gender

	Food	clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	Utilities	Other
Log of total income	-0.02** (0.00)	0.00** (0.00)	0.00 ⁺ (0.00)	0.00 (0.00)	0.01** (0.00)	-0.00 ⁺ (0.00)	0.01** (0.00)	0.00 (0.00)	-0.00 (0.00)
Share of OAP out of total income	0.03** (0.01)	-0.01* (0.00)	0.00 (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01 ⁺ (0.01)	-0.02** (0.01)	0.01 ⁺ (0.01)	-0.00 (0.00)
Share of CG out of total income	0.02 (0.01)	-0.01 (0.00)	0.00 (0.00)	-0.02** (0.00)	-0.01 (0.01)	0.02* (0.01)	-0.01* (0.01)	0.01 (0.01)	-0.00 (0.00)
Share of remittances out of total income	0.05** (0.02)	-0.01* (0.01)	-0.01 (0.01)	-0.02** (0.00)	-0.02** (0.01)	0.02 (0.01)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.00)
Gender of remittance recipient	0.00 (0.02)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)
Gender of CSG recipient	0.00 (0.02)	0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)
Number of adults	-0.01** (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	0.00** (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00* (0.00)
Number of children	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)
Urban formal	-0.07** (0.01)	0.01 (0.00)	0.01 ⁺ (0.01)	0.00 (0.00)	0.02** (0.01)	0.01* (0.01)	0.02** (0.01)	0.02* (0.01)	-0.00 (0.00)
Urban informal	-0.07** (0.02)	0.00 (0.01)	0.00 (0.01)	-0.01 ⁺ (0.01)	0.05** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)
Year 2008	0.04** (0.01)	-0.00* (0.00)	0.01** (0.00)	-0.01** (0.00)	0.01* (0.00)	0.03** (0.00)	-0.04** (0.00)	-0.02** (0.00)	-0.01** (0.00)
Year 2010	0.09** (0.00)	-0.00* (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01** (0.00)	-0.01** (0.00)	-0.04** (0.00)	-0.02** (0.00)
Constant	0.70** (0.02)	-0.00 (0.01)	0.01 (0.01)	0.05** (0.01)	-0.03** (0.01)	0.02 (0.01)	0.06** (0.01)	0.15** (0.02)	0.06** (0.01)
Observations	18940	18940	18940	18940	18940	18940	18940	18940	18940

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Table 10: Effects of income and transfer amounts on expenditure patterns- controlling for frequency of payments

	Food	clothes	Health	Alcohol and tobacco	Transport	Education	Leisure	Utilities	Other
Log of total income	-0.02** (0.00)	0.00** (0.00)	0.00+ (0.00)	0.00 (0.00)	0.01** (0.00)	-0.00+ (0.00)	0.01** (0.00)	0.00 (0.00)	-0.00 (0.00)
Share of OAP out of total income	0.03** (0.01)	-0.01* (0.00)	0.00 (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01+ (0.01)	-0.02** (0.01)	0.01+ (0.01)	-0.00 (0.00)
Share of CSG out of total income	0.02 (0.01)	-0.01 (0.00)	0.00 (0.00)	-0.02** (0.00)	-0.01 (0.01)	0.02* (0.01)	-0.01* (0.01)	0.01 (0.01)	-0.00 (0.00)
Share of remittances out of total income	0.05** (0.02)	-0.01* (0.01)	-0.01 (0.01)	-0.02** (0.00)	-0.02** (0.01)	0.02 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)
Frequency of remittances	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Number of adults	-0.01** (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	0.00** (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00* (0.00)
Number of children	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)
Urban formal	-0.07** (0.01)	0.01 (0.00)	0.01+ (0.01)	0.00 (0.00)	0.02** (0.01)	0.01* (0.01)	0.02** (0.01)	0.02* (0.01)	-0.00 (0.00)
Urban informal	-0.07** (0.02)	0.00 (0.01)	0.00 (0.01)	-0.01+ (0.01)	0.05** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)
Year 2008	0.04** (0.01)	-0.00* (0.00)	0.01** (0.00)	-0.01** (0.00)	0.01* (0.00)	0.03** (0.00)	-0.04** (0.00)	-0.02** (0.00)	-0.01** (0.00)
Year 2010	0.09** (0.00)	-0.00* (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.02** (0.00)	0.01** (0.00)	-0.01** (0.00)	-0.04** (0.00)	-0.02** (0.00)
Constant	0.70** (0.02)	-0.00 (0.01)	0.00 (0.01)	0.05** (0.01)	-0.04** (0.01)	0.02 (0.01)	0.06** (0.01)	0.15** (0.02)	0.06** (0.01)
Observations	18940	18940	18940	18940	18940	18940	18940	18940	18940

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

6.2 Limitations

Despite the richness of the National Income Dynamics Survey, some data limitations are present in this study. The NIDS dataset is a longitudinal survey that follows individuals -and not households- over time. For this reason, even if each individual interviewed in the survey has a unique identifier for the three years, households have different identifiers in each wave because individuals can move and change households from one year to the other. As this paper looks at expenditure patterns (which are defined at a household level), this study has been done at the household level, which means a unique household identifier had to be created based on the individuals who had the same household identifier in all three waves. The drawback of defining a household level unique identifier is that, due to the fact that this is a panel study, individuals who moved from one household to another in any of the years studied were assigned a new household identifier. This implies that for a specific year, one household may appear in the data as 2 different households when they are actually the same. To account for this, I restricted the sample to those households that stayed the same in all three waves, that is households where nobody has moved in between waves. When running the regressions with this sub-sample, the main findings hold. The fact that this analysis had to be done at the household level also implied that weights could not be used, as panel weights are defined at the individual level and there are no household panel weights available.

It is also important to point out that in this survey remittances are defined as *any contribution from non-resident members or non-household members* and, even though these transfers are associated typically with remittances sent by migrant workers (Posel, 2016), this definition can include other contributions such as child maintenance payments. Given the history of temporary migration in South Africa, however, and the fact that migration has continued in the post-apartheid period and many families remain geographically divided (Posel, 2016), one can expect a big percentage of these remittances to come from migrant workers.

Another limitation that is present in most studies that look at expenditure is the possible measurement error. I try to account for this by excluding potential outliers and unreliable information (i.e. households who spend less than 1 percent of their budget on food, or more than 90 percent of their budget on leisure). After re-running the regressions, results from the main estimation hold.

Finally, an additional reason why one should be careful with drawing strong conclusions regarding expenditure on education is that data on education was collected at the household level and households were asked the amount spent on different educational categories during the month preceding the interview. This is problematic as educational expenditure is seasonal and not smooth over the calendar year, and the months in which interviews took place differ by wave (Branson et al., 2013). This means that, for some households, part of the increase or decrease in educational expenditure may be due to the fact that they were interviewed in different months and not that there was an actual change in expenditure. Moreover, there is a big difference in educational expenditure by income quintiles, not only in terms of the total amount spent but also in terms of allocation of expenditure across different categories. While the richest households spend

most of their educational budget on school fees, for poor households the highest burden are uniforms, as poor households are exempted from paying school fees. Furthermore, in the year 2006 the government announced the abolition of compulsory school fees based on the National Norms and Standards for School Funding (NNSSF) (Branson et al., 2013). Considering that education has become more accessible for poor household, there could have been an improvement in educational outcomes even if households did not increase their expenditure on education.

7 Discussion

A common assumption in economics is that money is fungible. In other words, spending patterns are determined by the total amount of income, and not by its source. In line with the mental accounting theory, this paper hypothesised that households associate private transfers coming from a migrant differently than a public transfer received from the government, and that this can influence the way transfers are spent. By analyzing the first nationally representative longitudinal survey in South Africa- covering the years 2008, 2010 and 2012- some evidence is found that supports the mental accounting theory, as public and private transfers are not spent in the same way.

Following the labelling effect hypothesis, it was anticipated that the child support grant would benefit the child directly through an increase in household expenditure on child goods relative to other expenditure categories. Results show, with some caveats, that an increase in the child support grant increases the share of expenditure on education, which means the government is effectively targeting and delivering the message that the child support grant is meant to be spent on children and especially on child's education. Moreover, after controlling for possible selection bias through a series of additional estimations, I also find that the child support grant increases the share of expenditure on food, which is also expected to translate into nutritional benefits for the beneficiaries. This finding is important to highlight, as it demonstrates the programme is achieving its intended outcomes even if the grant is unconditional.

In the case of the state old age pension, it was hypothesised that pensions would not cause significant behavioural changes as pensions are mainly income replacement. Results seem to contradict expectations, as an increase in pension income leads to an increase in the share spent on food, education, and utility bills, therefore improving child well-being as well as the well-being of the household as a whole. In South Africa there is a structural unemployment problem as well as a high wage inequality, and in many poor households the old age pension is the main source of income. This may be the reason the hypothesis of this paper does not hold, as pensions may not be an income replacement but a new source of income when the pensioner reaches the retirement age.

Regarding the expenditure behaviour of remittances and given the nature of migration in South Africa (mainly internal, low skilled, and temporary), it was expected that remittances would be used to cover basic households needs. Results support this hypothesis, as remittances increase expenditure on food and decrease the share of

expenditure on other non-basic goods such as alcohol and tobacco and clothing.

To conclude, this paper has shown that expenditure behaviour can depend on the source of income, and not only on the total income a household earns. This finding has important implications for public policy design, as the expected welfare impacts in a specific country may not only depend on the type of programme or amount of a transfer, but also on the potential behavioural effect that this transfer can generate. As a result, it seems important to take into consideration how people perceive different sources of income as well as the explicit or implicit conditions attached to them when estimating the effects of private and public transfers on well-being.

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