Intra-household bargaining in a Democratic South Africa[1]

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Abstract

Adding to the literature on intra-household bargaining in South Africa, this paper builds on the results obtained by Maitra and Ray (2003). They find that it matters who receives the income within the household as to how it is spent. This conclusion leads to a rejection of the unitary household model punted by Case and Deaton (1998). This paper is in essence a replication study of Maitra and Ray's (2003) model and seeks to examine whether post-democracy 2006 data holds the same model of the household found in 1993. Thereafter, some sensible extensions are made to further analyse if differences can be found in spending behaviour of members of the same household. We find that the unitary household model can be rejected on the basis of different spending preferences between the sexes for conditional private transfers as well as unconditional grants such as the social pension. Additionally, and in contrast to Jensen (2003), Maitra and Ray hold that the crowding out of pensions is evident only amongst the poor and that pension income, in fact, complements transfers to wealthier elderly recipients. We do not find evidence of this disparity in transfer incentives in 2006. We do find that, as poorer households are more likely to have poorer benefactors, the decision on whether to send remittances is influenced by the level of income that the household receives – transfer income decreasing for pension and other income whilst remittances rise for households that are considered poor.

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Contents

1. Introduction

A Rand is a Rand or so Case and Deaton found in their 1998 study on how pensions are spent. This means that a Rand of pension income is spent in the same manner as a rand of other income: income is pooled before it is spent. If Case and Deaton are correct then the government need not spend resources on identifying specific groups who require social support but rather grant a general public transfer to vulnerable households where these funds would lead to general improvement of living standards. More urgently, these targeted grants would only weakly support government policies at which they were aimed. In this model a grant aimed at providing resources to children specifically would be diluted by the use by other family members.

If income pooling, and thus the unitary household model, held for South African households - targeting grants would be unsuccessful. The child-support grant, for example, would be diluted by the size of the household (where in general household sizes increase as the incidence of poverty increases). Only a fraction of this income would therefore be spent on child goods and services and this fraction would decrease for poorer households. A cash grant on this basis, although theoretically speaking the most economically efficient (Case and Deaton, 1998), would require larger and larger amounts of money to realise the outcome of improved child welfare.

But there are many ways to skin a cat – or in this case a buck.

Other authors, such as Maitra and Ray, have found evidence which suggest that different types of income are spent on different goods and services in South African households. The targeted grants would therefore be achieving narrower goals than general household poverty alleviation if the money was to be spent on specific items of services which enabled the achievement of specific policy goals such as increased school attendance. These divergent views cause some trouble for policy analysis.

Although it could well be argued that in poorer households general poverty alleviation is necessary to support specific goals such as improved school attendance we seek evidence that targeting of grants has a specific – not general – effect. This evidence could then be used to formulate policies on how decisions within a household are truly made.

South Africa does not offer a basic income grant to the poor but has adopted a number of grants that are *targeted* at vulnerable groups in order to achieve public policy goals such as the improvement of child nutrition.

Do these targeted cash transfers produce the desired effect?

This method of targeted transfers has come under scrutiny by organizations such as the World Bank because of the lack of reinforcement of social structures and supportive social spending (van de Walle, 1998). For example, policies to reduce poverty would have to be multi-faceted in that free basic services would be coupled with these targeted grants. There is as yet no one-size-fits-all approach to how best to structure these grants. Broadly targeted social sector spending coupled with narrowly targeted in-kind grants has been suggested on the one hand (van de Walle, 1998) whilst broad cash transfers have been punted on the other (Case and Deaton, 1998). Conditional public transfers have been lauded as achieving the desired social outcomes where public grants are paid on the basis that certain actions are taken or criteria met in programs such as PROGRESSA, Mexico (González-Robledo and Nigenda, 2005). The concern of the multinational and public institutions is how to ensure that these grants are spent on items which contribute to the improvement of specific development goals such as child morbidity or literacy rates. It would be generally accepted that any rise in income would lead to an increase in living standards.

The first step in achieving efficient and effectively targeted grants is to gain a greater understanding of how households spend their grants. In this study we will be able to distinguish between how households spend unconditional, indexed grants such as the social pension and how they spend conditional private transfers[2].

Rejecting the unitary household model would give support to the belief that these grants would reach the targeted groups in a manner which increased their welfare. We do not just look for different patterns of spending between income flows but also the types of goods that public and private transfers are spent on.

[2] See Cox's 1987 paper "Motives for private income transfers" for the exchange theorem where the transfer sender is dominant as well as Cox and Jimenez (1990) on "Achieving social objectives through private transfers"; Willis and Lillard (1997) on "Motives for intergenerational transfers" and Guth et al (2002) on the crowding out of private transfers for discussions on conditional intergenerational transfers. In these transfers are given in expectation of the return of services. They also give descriptions of why these transfers occur, for child education and child are elderly support for example.

In this short paper one would be hard pressed to rigorously examine every angle of the relationship between income and expenditure. We anchor our analysis on the replication of Maitra and Ray's system of equations to see whether the key intra-household bargaining results still hold.

We attempt to answer the following questions:

i. Are the expenditure patterns discovered by Maitra and Ray in the SALDRU 1993 data apparent in the 2005 IES data?
ii. Do pensions crowd out transfers for the poor but compliment transfers to the wealthy as Maitra and Ray find?
iii. Do these results vary when the variables and processes the authors used are altered?

Thereafter we make some sensible extensions to their model to allow a more in-depth look at expenditure decisions within the household. This is accomplished through the disaggregation of pension and transfer income by gender following a later paper by Maitra and Ray (2000). We would be able to identify with this analysis not only differences between spending of the three income sources but also within each source by males versus females. This is refined even further by dividing transfer incomes into age categories as well as genders. We can thus differentiate between how transfers to children are spent in comparison to adults and the elderly. This last breakdown can also help us to pinpoint if pension incomes crowd out transfers to the elderly or rather to all household members. Lastly we check the sensitivity of results to the race and poverty as well as testing the appropriateness of the adult equivalence scale that Maitra and Ray derived. It is important for us to know how robust our findings are to variable inclusions and different definitions of variables.

Thus, we are able to ascertain whether there have been changes in household decision-making over the last fifteen years and also how sensitive the conclusions are to the specifics of the chosen methodology.

We find that the unitary household model with income pooling can be rejected not only on the basis of different expenditure patterns for transfer recipients – whose choice of spending we feel may be limited by the probable conditionality of the remittance – but also between male and female pension recipients. The findings by Duflo (2000) that female pensioners spend on child items whilst male pensions do not is upheld in our analysis.

Our results concerning the crowding out of private transfers by pensions holds in general as in Jensen (2003) and diverges from Maitra and Ray's conclusion that pension income crowds out transfers for the poor but complements transfers for the well off.

Additionally, we find that the strength of our results are sensitive to the definitions of our explanatory variables which leads us to caution policy makers not to attach particular significance to a specific outcome but rather to use the overall picture of our analysis to indicate that conditional grants induce changes in behaviour (Hoddinott, 2008) and that blanket cash grants that disproportionately reach women alleviate the poverty of children as well as Case and Deaton (1998) found.

2. A short theoretical introduction to the unitary household model

In order to make a decision on the presence of a unitary household structure in the data we should briefly outline the theoretical constitution of the null model.

From Maitra and Ray (2003) the welfare function takes the form of:

$$W = W\left[\{U^s(x;\theta;\varepsilon)\}_{s=1}^{S}\right] \qquad subject\ to \quad p'X = \sum_{s=1}^{S} I_s \qquad \text{(i)}$$

Where the utility of each household member U^s depends on the consumption on the whole household $x = x_{is}$ and s represents the individual and i the commodity. This welfare is constrained by the ratio of household income I_s to the number of goods X by price vector p. The demand function portraying the unitary household model where incomes are pooled is given as

$$x_i = x_i\left(\sum_{s=1}^{S} I_s\ ; p\ ;\ \theta\ ;\ \varepsilon\right) \qquad where\ (\delta x_i/\ \delta I_m) = (\delta x_i/\ \delta I_n) \qquad \text{(ii)}$$

When optimised either through the bargaining models (see Manser and Brown, 1980; McElroy and Horney, 1981) or the collective approach to optimisation of welfare (See Chiappori) the distribution of income matters in the optimisation of welfare.

$$x_i = \sum_{s=1}^{S} x_{is} = x_i(I_1, \ldots I_s; p\ ;\ \theta\ ;\ \varepsilon) \qquad where\ (\delta x_i/\ \delta I_m) \neq (\delta x_i/\ \delta I_n) \qquad \text{(iii)}$$

This theoretical basis shows us what we are looking for in our results. In order to reject the unitary household model we must find that it matters whether household member *n* or member *m* receives

the income I in terms of how this income is spent (as in equation iii). If we find a pattern where earned income and pension income are spent on significantly different items we would conclude that as these incomes generally accrue to different members of the household – income to adults and pensions to the elderly – income is not pooled within the household. Rather, it matters who receives the income as to how it will be spent.

If income pooling is found then one can conclude that the household makes unified expenditure decisions. The household therefore acts as a single demand unit in the view of an economist. If rejected then economists would consider the intra-household bargaining behaviour concerning how resources are spent.

3. Our Model

Maitra and Ray disprove the existence of income pooling behaviour in apartheid South Africa – using the same data that Case and Deaton used although their model deviates from Case and Deaton's (1998) considerably. The Maitra and Ray model disaggregates transfers further than Case and Deaton did in their study (1998) into social pensions and private transfers. Maitra and Ray do not provide reasoning for this change but this paper shall interpret the effects of social pensions as unconditional grants and private transfers as conditional grants. Income flows now include social pensions (P), private transfers (T) and other income (Y). Maitra and Ray present all their data at the household level as well as including dependence between these variables.

That Maitra and Ray come to different conclusions to Case and Deaton is worrying. As outlined before, South Africa has an extensive grant system and inefficient targeting implies that social moneys may not make their way to needy citizens for specific items. Further empirical investigation of the unitary household model is therefore important. This is especially so because of the drawbacks of the Maitra and Ray analysis outlined below.

Maitra and Ray's approach shows improvements on Case and Deaton's in that the authors can make a more precise argument in favour or against income pooling by allowing for the different effects of conditional and unconditional grants. Unlike public transfers in South Africa which are awarded on

an indicator basis – such as pensions being awarded to those who qualify in terms of age and income eligibility – private transfers are very likely to be sent conditionally. Transfers to the caregiver of children are likely to be conditional on their being spent on child items such as education. If spent on, for example alcohol, the remittances would most likely cease[3]. We should therefore be very careful in examining the *expenditure decisions* surrounding private transfers as these could already have "been made" either through the conditionality mentioned above or else through transfers in kind. It is useful, therefore to separate between these transfers.

We go further in disaggregating our data to see whether transfers received by men and women are spent differently – as is the general finding in previous studies (Duflo, 2000). Also, we look at whether different age groups indicate different patterns of spending. This disaggregation forms the core of our analysis. We seek to obtain as intricate a picture of household spending patterns as possible with the data and model at hand.

On the other hand, Maitra and Ray's *reasoning* behind making the income flows endogenous is flawed as their argument describes a time dependent process. This study is run in a static environment where the amount of income received is not a sequential decision by the household itself.

Maitra and Ray justify the inclusion of this endogenous string of equations by an income decision argument. They hold that a household, with the full knowledge that state pension income is means tested, makes a decision as to how much income it should be earned in order to maximize utility, that is, maximize household income whilst minimizing household work effort. The more income a household member earns (over a certain threshold) the lower their social pension income. Thereafter pension income is received on the basis of this household income. Further, household members then make a decision to remain or migrate dependent on the income hitherto determined – if household income and social pension incomes are high enough to sustain the household then migration for work might not be necessary. If not, these members may migrate for work and the household is sometimes further supported in the form of private transfers from these members.

This argument does not seem convincing in a static environment. This outcome seems more likely in a time series or panel study where individuals chose income knowing the effect on pension

[3] Although there may well be an expectation on the side of a poorer family member to receive transfers from wealthier members in this study we assume that private transfers are sent for a specific purpose by benefactors in a similar social strata as described previously.

and transfers later in life or a migration decision can be made in time t+1. We can adapt this argument in order to maintain the structure of the flow variable being absorbed into the model. We can say that pension income is dependent on lifetime income of that individual – a good proxy for which is the income levels of the entire household. The amount sent in private transfers is likely to depend on the level of non-transfer income because the sender would have a similar income structure to that of the receiving household (especially if the transfers are familial). An extended family member would more likely send money to poorer family members than to those better off.

In general, however, this endogenous income flow model can be justified through this more intuitive argument and the model rigorously checked for interdependence so assure the reader that the results of this study are not biased.

Maitra and Ray leave their work open to criticism by analysing the model over all races and comparing the outcomes to Case and Deaton's work (1998) which considered only black and white households – and these separately. They do attempt to take into account race effects by including race dummy variables. This manner of inclusion assumes that the preference of different races differ only by a shift factor. This is difficult to justify, especially in 1993 when incomes as well as expenditure options were restricted by race. In our study we internalise this drawback by running the model separately for each race to check for large disparities in results to check the sensitivity of the results to this decision.

Additionally, we establish whether the results are sensitive to Maitra and Ray's choice of adult equivalence scales and poverty line. The choice equivalence scales seem counter intuitive with weights for children being calculated as greater than those for adults. We check whether our results are robust for a more generally accepted scale. In the same way the poverty line chosen by Maitra and Ray seems quite arbitrary and therefore checking to what extent our results change when this poverty line changes would make the interpretation of the model more certain.

Lastly, and most importantly, it must be noted that the Maitra and Ray conclusion that private transfers to a household are spent differently to other incomes and public grants such as the social pension is a shaky basis for policy decisions. As Case and Deaton note, public pensions in South

Africa are indicator based and as such are (as they find) spent in much the same manner as other incomes. Private transfers on the other hand would most likely be conditional or at least partially so. The individuals sending these transfers would generally have a specific end in mind for these funds (an issue which Maitra and Ray touch upon but do not take further). These flows are therefore much more likely in general to have "predetermined outcomes" than a public indicator based grant as are transfers sent in kind which are included in this data.

We note that Maitra and Ray find that pension income crowds out private transfers for poor households but complements transfers for wealthier households. An outcome not too unexpected for 1993 data when one considers that poor households receiving pensions would most likely have had poor benefactors and wealthier recipients, wealthier benefactors[4]. If transfers were sent by a migrant worker to the caregiver of their children then this amount would almost certainly be based on the difference in income between the giver and receiver. The private transfer is therefore based on a remittance decision where pension income arrives – the extended household re-optimises and the transfers thereafter continue or stop. There is ample literature on the crowding out effects of the social pension (see for example Rosenzweig and Wolpin, 1994). Jensen (2003) examines this question in much detail, for South Africa in particular, and finds that crowding out is a robust outcome over all levels of income. Noticeably, whereas Maitra and Ray draw the conclusion that social pensions therefore entrench poverty, we claim that the redistributive qualities of the pension extend to the remittance senders as well. If the state can support the poor and vulnerable, then the pressure of familial support would lift off the shoulders of possibly equally poor transfer senders.

In our analysis we examine the relationship between instrumental variables and endogenous income flows which would tell the researcher whether increases in pension income leads to decreases in transfers, that is to crowding out. And secondly, we examine the patterns of expenditure produced by each income flow variable. We look to see if earned income, for example, is spent on the same items as pension income which would indicate income pooling.

[4]See for example Schoenei's 1993 paper ""Private interhousehold transfers of money and time: new empirical evidence". Wealthier households would likely have more disposable income to transfer. The marginal cost of private transfers for poorer households would be higher as their disposable income is likely to be low (autonomous consumption would be a higher proportion of their income than the marginal consumption portion of item consumption).

We divide our study into three parts: the replication of the Maitra and Ray model on 2006 IES data, the further disaggregation of income flows into gender and age categories and lastly the sensitivity checks described above.

Maitra and Ray's endogenous income flow equations are constructed as follows:

$$Y^h = f_1\left(z_1^h, e_1^h, c_1^h, \theta_1^h\right) + u_1^h \quad \text{(iv)}$$

$$P^h = f_2\left(Y^h, z_2^h, e_2^h, c_2^h, \theta_2^h\right) + u_2^h \quad \text{(v)}$$

$$R^h = f_3\left(Y^h, P^h, z_3^h, e_3^h, c_3^h, \theta_3^h\right) + u_3^h \quad \text{(vi)}$$

$$w_i^h = f_4\left(Y^h, P^h, R^h, z_4^h, e_4^h, c_4^h, \theta_4^h\right) + u_4^h \quad i=1, \ldots,n \quad \text{(vii)}$$

For comparability we maintain Maitra and Ray format where w_i^h indicates the budget share of item i in household h such that the sum of budget shares for each household adds up to 1. The left hand-side variables comprise demographic and educational (z), asset (c) and regional (e) characteristics respectively. The parameters $\theta_{1\text{-}4}$ were estimated by Maitra and Ray through the maximum likelihood estimation of the equations iv-vii and used to create an adult equivalence scale to weight the variables entering this system of equations. The total adult equivalent monthly expenditures of each household are divided into 11 budget shares of which 10 or n-1 are estimated by 3SLS. These share categories are food; alcohol and tobacco; entertainment; health; education; fuel; clothing; childcare; food eaten outside the home; remittances sent; and other goods. The right hand-side variables include household levels of social pension income (P), private transfer income (R) and all other income (Y).

Other household income (Y^h) is therefore dependent on household characteristics, household pension income (P^h) is dependent on these characteristics as well as household income and finally the private transfers households receive (R^h) is dependent on household characteristics, household income as well as the level of social pension income.

The budget shares are functions of the above three equations as well as the characteristics of the household in question.

After the replication of this basic model of household dynamics we follow Maitra and Ray (2000) by digging deeper into the income flow equations by dividing pension and transfer income into gender categories. The model is thus adapted to:

$$Y^h = f_1\left(z_1^h, e_1^h, c_1^h, \theta_1^h\right) + u_1^h \quad \text{(viii)}$$

$$P^h = f_2\left(Y^h, z_2^h, e_2^h, c_2^h, \theta_2^h\right) + u_2^h \quad \text{(ix)}$$

$$R_g^h = f_3\left(Y^h, P^h, z_3^h, e_3^h, c_3^h, \theta_3^h\right) + u_3^h \quad \text{(x)}$$

$$w_i^h = f_4\left(Y_g^h, P_g^h, R_g^h, z_4^h, e_4^h, c_4^h, \theta_4^h\right) + u_4^h \quad \text{i=1, ...,n} \quad \text{(xi)}$$

Where the index g indicates the disaggregation of pension and transfer income into male and female income flows. We do not extend this disaggregation to other kinds of income – which would create bias in the results if there is an unobserved selection decision into the workforce, such as an educated mother's decision to remain at home to look after her children instead of working for a competitive salary.

We extend this framework to child, adult and elderly transfer income where these age categories are more likely to impact on significantly different expenditure shares such as transfers to children being spent on child items. This additional model is configured as:

$$Y^h = f_1\left(z_1^h, e_1^h, c_1^h, \theta_1^h\right) + u_1^h \quad \text{(xii)}$$

$$P^h = f_2\left(Y^h, z_2^h, e_2^h, c_2^h, \theta_2^h\right) + u_2^h \quad \text{(xiii)}$$

$$R_{ga}^h = f_3\left(Y^h, P^h, z_3^h, e_3^h, c_3^h, \theta_3^h\right) + u_3^h \quad \text{(xiv)}$$

$$w_i^h = f_4\left(Y_{ga}^h, P_{ga}^h, R_{ga}^h, z_4^h, e_4^h, c_4^h, \theta_4^h\right) + u_4^h \quad \text{i=1, ...,n} \quad \text{(xv)}$$

where *a* indexes the age category of the transfer beneficiary. These categories include children between 0 and 19 years; adults over 20 years and up to the elderly cohort which ranges from 60 for females and 65 for males upwards.

4. Data

The Income and Expenditure Survey (IES) 2005/06 data comprise 24 000 dwelling units with 22617 household surveys realised over twelve months between September 2005 and August 2006. All dwelling units were eligible for data collection except institutions such as old-age homes, hospitals and dormitories for scholars. The interview was split and conducted in five separate visits over a month. Two instruments were used for collection of household data; the one being a general household questionnaire and the other being a diary in which households were required to record all acquisitions for the survey month.

Following Maitra and Ray we omit all households that are headed by a child (where children are members of up to 19 years of age in contrast to Maitra and Ray's 17 years) or that have zero household income. Further, for quality purposes, we omit all households with zero food expenditure (which includes food in-kind), households which do not fall into the four prescribed race categories, households with missing weights or missing age information for the household head. The subsample on which this analysis is run includes 18 126 households.

It would be interesting to note in what areas of the data the 1993 SALDRU and 1996 IES data sets have marked differences, such as large changes in household composition and incomes by race, for instance. A collection of sample statistics have been put together to facilitate this comparison. There are some differences across the years: the differences between households which receive transfers and those who do not are more pronounced, the differences being statistically significant across all relevant variables in 2006.

Statistical differences between pension recipient households and non-recipients are statistically weaker and therefore less pronounced than in the 1993 data.

In order to define the variables as closely as possible to those used by Maitra and Ray it was necessary to refer to the SALDRU 1993 dataset as well as to keep in mind the purpose of variables. Areas where it was necessary for the researcher to use her discretion in creating variables which matched those in the Maitra and Ray analysis are discussed below.

The expenditure values in particular were grouped from items recorded in different instruments in the survey. For example, the childcare expenditure category included such items as "nanny employment" and "baby food". The former is an expense recorded in the main questionnaire as an estimate of the annual expenditure on nanny services employed. The latter is recorded in the diary that the households were expected to fill in concerning daily expenditures. The researcher judged that for expenditures such as food items, for which there was no record in the main questionnaire, the inflated[5] annual sum of these items should be included in the expenditure share category – these included food and alcohol and tobacco.

For categories where there was no record in the diary the inflated annual sum of the main questionnaire value should be included in the expenditure category. Lastly, where the category was made up of a mix of items – items with values in both the main questionnaire and diary would reflect the sum of the inflated annualized values for the main questionnaire would be used whilst single value items would be treated as above. The justification for this decision lies in the irregularity of the make-up of baskets of goods purchased. Items such as detergent might be purchased 3 or 4 times a year but be present in the diary in which case the annual estimated expenditure for this item would better reflect expenditure patterns. Each expenditure category included cash as well as in-kind goods as did the income categories.

Although they did not explicitly define how they categorised unemployment, Maitra and Ray interpreted the dummy for having an unemployed adult in the household as a leakage of resources caused by a member who was not contributing to the household expenses. Also, an unemployed person was more likely to draw in remittances from members outside the household. In this case, because we had to use our discretion when defining the unemployment category, we constructed a variable which indicated that an adult was present in the household which drew on resources but did not contribute to resources (through such funds as the disability or unemployment insurance) except through moneys received as remittances.

[5] Inflated to September 2006 (the last month that the IES was gathered). These values are an option in the data compared to actual monthly values.

Selected descriptive statistics

	All	Blacks	Non-blacks	Difference[a]	Receive Transfers	Don't Receive Transfers	Difference[b]	Receive Pensions	Don't Receive Pensions	Difference[c]
Budget share of:										
Food	0.226636	0.254276	0.1311443	26.84***	0.2461543	0.1929712	33.4b***	0.2073521	0.2104544	28.32**
Alcohol and tobacco	0.016187	0.016538	0.0149733	-7.02***	0.0136822	0.0186896	-18.04***	0.0139000	0.0167122	3.63***
Entertainment	0.022917	0.021677	0.0272107	-9.36***	0.0233830	0.0241594	-4.05***	0.0188524	0.0230538	-9.04***
Education	0.023006	0.024523	0.0177553	9.73***	0.0236751	0.0170731	21.22***	0.0244839	0.0226667	0.84
Health	0.010164	0.010565	0.0091645	-10.50***	0.0108253	0.0207362	-8.38***	0.0204262	0.0180742	0.77
Fuel	0.018678	0.02329	0.0027071	26.44***	0.0275632	0.0144771	16.41***	0.0303458	0.015009	17.29***
Clothing	0.05565	0.063196	0.0285197	24.03***	0.0592619	0.0492289	19.20***	0.0537405	0.0560967	-2.40**
Childcare	0.005245	0.006078	0.0023593	8.13***	0.0038889	0.0035257	14.52***	0.0050903	0.0052783	-0.07
Eating out	0.016577	0.018195	0.0109765	5.26***	0.0135412	0.0194246	-10.12***	0.0094994	0.0182052	-8.08***
Remittances	0.044453	0.053854	0.0118951	21.55***	0.025032	0.0536139	-18.73***	0.0212766	0.0497759	-16.01***
Other	0.551369	0.501807	0.7223889	-40.69***	0.4796585	0.5851974	-26.18***	0.5046577	0.5620977	-14.88***
Total Monthly Income per adult equivalent	1573.572	843.9568	4133.91	-33.02***	2012365	2178.646	-29.15***	432.6007	1835.524	18.30***
Demographics:										
Number small[1] girls	0.199296	0.218338	0.1333004		0.3040602	0.1116014		0.2407491	0.1097619	
Number small[1] boys	0.221396	0.240436	0.1554651		0.4211167	0.1271707		0.2596521	0.2126093	
Number big[2] girls	0.574005	0.620681	0.3612055		1.051784	0.3486163		0.533042	0.5142996	
Number big[2] boys	0.616934	0.666558	0.4423634		1.077472	0.3987812		0.5892240	0.5582340	
Number adult females	0.950851	0.957785	0.9268384		1.307579	0.782567		0.9257338	0.9566199	
Number adult males	0.937456	0.931629	0.9576839		0.8371921	0.9847542		0.9520935	0.9573626	
Number elderly females	0.195889	0.169064	0.213525		0.2514848	0.1696626		0.8198595	0.0520687	
Number elderly males	0.085449	0.077635	0.1125074		0.0945059	0.0811758		0.3324111	0.0287233	
Number children	1.612561	1.756360	1.114573		2.038079	0.9872585		2.237441	1.475923	
Number adults	1.888305	1.889414	1.884471		2.144771	1.767321		1.777827	1.913692	
Number elderly	0.281338	0.266608	0.3320324		0.3450006	0.2508384		1.152271	0.081292	
Adult equivalent HHsize (theta = 0.65)	2.370735	2.431921	2.190019	11.55***	3.110257	2.030871	72.77***	2.042353	2.250506	30.17***
Adult equivalent HHsize (theta = 1)	4.360399	4.216924	3.518375	13.10***	5.933021	3.177005	75.41***	5.536134	3.721436	30.52***
Household Size	3.786015	3.916493	3.3341AB	12.12***	5.435872	3.007708	69.10***	5.143203	3.474291	31.75***
Number of households	18126	13865	4261		6396	11730		4191	13935	

Note: [a]t-statistic for the difference between black and non-black households *** p<0.01, ** p<0.05, * p<0.1

[b]t-statistic for the difference between transfer recipient and non-recipient households

[c]t-statistic for the difference between pension recipient and non-recipient households [1] small ages 0-4 ; [2] ages 5-17

Selected descriptive statistics

Variable	Household categories									
Budget share of:	A	B	C	Difference[a]	D	E	Difference[b]	F	G	Difference[c]
Share 1: Food	0.247	0.272	0.177	22.01*	0.29	0.236	11.70*	0.321	0.23	19.00*
Share 2: Alcohol and tobacco	0.039	0.044	0.025	11.21*	0.029	0.042	−7.34*	0.035	0.04	−2.34*
Share 3: Entertainment	0.004	0.003	0.007	−13.96*	0.002	0.004	−6.60*	0.002	0.004	−5.78*
Share 4: Health	0.082	0.067	0.126	−18.86*	0.083	0.082	0.19	0.085	0.082	0.90
Share 5: Education	0.166	0.178	0.132	9.13*	0.223	0.15	13.60*	0.194	0.159	6.28*
Share 6: Fuel	0.072	0.07	0.077	−3.55*	0.081	0.069	6.28*	0.09	0.067	10.96*
Share 7: Clothing	0.048	0.052	0.036	13.33*	0.049	0.047	1.57	0.043	0.049	−4.60*
Share 8: Child-care	0.005	0.006	0.004	2.93*	0.005	0.006	−1.62	0.003	0.006	−4.34*
Share 9: Food eaten outside home	0.011	0.011	0.009	2.48*	0.011	0.011	−0.17	0.009	0.011	−2.28*
Share 10: Private transfer sent	0.035	0.044	0.007	13.68*	0.009	0.042	−11.44*	0.007	0.041	−11.42*
Share 11: Other items	0.291	0.253	0.4	−32.96*	0.218	0.311	−18.84*	0.211	0.311	−19.47*
No of Girls Aged 0–4	0.25	0.29	0.14		0.37	0.22		0.35	0.23	
No. of girls aged 5–17	0.75	0.85	0.48		1.16	0.64		0.98	0.7	
No. of boys aged 0–4	0.25	0.3	0.13		0.4	0.21		0.33	0.24	
No. of boys aged 5–17	0.76	0.84	0.5		1.13	0.65		1.03	0.69	
No. of adult females[d]	1.35	1.41	1.16		1.84	1.21		1.52	1.3	
No. of adult males[e]	1.28	1.34	1.12		1.52	1.22		1.38	1.26	
No. of elderly females[f]	0.21	0.23	0.17		0.27	0.19		0.81	0.06	
No. of elderly males[g]	0.09	0.1	0.09		0.1	0.09		0.33	0.04	
No. of children[h]	2.01	2.28	1.26		3.06	1.72		2.69	1.85	
No. of elderly[i]	0.3	0.32	0.26		0.37	0.28		1.14	0.1	
No. of adults[j]	2.63	2.75	2.28		3.36	2.43		2.9	2.57	
Adult equivalent household size[k]	2.83	2.98	2.41	18.06*	3.57	2.63	28.45*	3.51	2.67	24.33*
Adult equivalent household size[l]	4.14	4.44	3.29	18.05*	5.57	3.75	27.60*	5.76	3.77	27.48*
Household size	4.95	5.36	3.79	19.38*	6.79	4.44	28.27*	6.73	4.52	25.44*
Monthly income (Rand) per equivalent adult[m]	910.89	422.05	2282.51	−42.43*	292.66	1082.32	−15.52*	413.34	1031.61	11.57*
No. of households	8398	6212	2186		1835	6563		1639	6759	

Source: Maitra and Ray (2003) p. 32

Household Category: (A) All Households, (B) Black Households, (C) Non-Black Households, (D) Households Receiving Private Transfer, (E) Households Not Receiving Private Transfer, (F) Households Receiving Public Pension, (G) Households Not Receiving Public Pension.

[a] *t*-test for difference between Black and Non-Black households.

[b] *t*-test for difference between households that receive private transfers and households that do not.

[c] *t*-test for difference between households that receive public pensions and households that do not.

This was further made necessary by the lack of indication of unemployment in the IES 2005/6 data. Here, reasons for having missing income data were not provided which made it difficult to make a judgment call on whether to label the adult individual as unemployed or to impute earnings. We compared a number of unemployment variables in order to choose the most balanced definition and, as it happened, the unemployment dummy constructed by the labour definition perfectly matched that of our variable of "unemployment leakages"[6].

The age variable was presented in 5-year age brackets in the IES data to further ensure the anonymity of respondents. These brackets could be included in different ways, for example as a linear ordinal variable or dummies for each bracket. Another method – which creates a trade-off between bias in the variable and the retention of the quadratic nature of the age variable in Maitra and Ray's analysis – is to set the age at the median of the bracket. Although the ordinal and bracket median ages would be interpreted similarly for the linear age variable, the quadratic would require this last definition of median age and median age squared. This is how the researcher chose to include the age of the household head in the replication study. Sensitivity checks were performed in order to evaluate how robust the results were to the different methods of incorporating this variable into the model.

The adult equivalence scales are described below. This is a different method to the commonly used per capita scales. Children are generally given a lower weighting to adult consumption and income as children can be assumed, for example, to consume less food than adults. Maitra and Ray find child weights to be generally greater than adult weights. This type of weighting allows the results to be interpreted free of economies of scale in the household. Economies of scale assume that costs increase at a decreasing rate for larger households. For example, a single person would need to rent a house with a kitchen, bathroom and bedroom whilst two people would need just one extra bedroom and could share the rest of the house. The marginal cost of having an extra person in the house decreases as the household gets bigger. Maitra and Ray estimate the weights of the different members of the household with the maximum likelihood method on equations iv-vii (see Maitra & Ray, 2003 p. 31). The equation for the adult equivalence scale is:

$$PAE = (n_a + n_o + \sum_{d=1}^{2} . \sum_{s=1}^{2} . \theta_{ds} n_{ds})^{\alpha} \qquad \text{(xvi)}$$

[6] This variable is only present in the right hand-side of the R or private transfers equation. This Maitra and Ray find significant as private transfers to an unemployed family member or dependent.

where for n_a is the number of adults and for n_o the number of elderly in a household. The weights θ_{ds} of children aged d with gender s are presented as n_{ds}. These brackets are divided as 0-4 years and 5-19 years (this last term sums the respective child weights times the number of children in each group). The household economies of scale "α" were estimated through the above mentioned MLE as 0.656. The weights of adults are one whilst the weights found by Maitra and Ray are:

Weights by age and gender

	Age Group			
Gender	0 to 4 years	5 to 19 years	adult	elderly
female	1.091	1.344	1	1
male	0.939	1.126	1	1

For the poverty line Maitra and Ray use the per adult equivalence scale to weight the line using the same parameters as above but with the ***average*** number of children and adults per household in the data set (the average number of each group in the dataset appearing with the additionl subscript "ave_".

$$PAE = (n_{ave\_a} + n_{ave\_o} + \sum_{d=1}^{2}.\sum_{s=1}^{2}. \theta_{ave\_ds}\, n_{ave\_ds})^{\alpha}$$

These results are not in line with other literature. It is generally assumed that children are weighted under adults. Maitra and Ray's weights for children thus suggest that in general consumption and income for children is higher than for adults. We feel it necessary to test the sensitivity of any results we find to a more traditional version of this scale.

Maitra and Ray used Carter and May's (1999) poverty line of R237 for 1993. As we inflated out expenditures to September 2006 we made use of the Statistics South Africa data (available at www.statssa.gov.za) for inflation between September 1993 and 2006 which resulted in an inflation rate of 1.424649. The Poverty line is thus set at R574.64 per adult equivalent per month. The adult equivalent weighted household income y* is then compared to the average adult equivalent weighted poverty line.

The household is considered poor if y*≤poverty line.

Here we attach a description of the variables we use in our analysis.

5. Replication results

Maitra and Ray draw some interesting and intuitive conclusions from their analysis. The more general of these are the confirmation of Engel's law which says that the proportion of income spent on basic items such as food and fuel decreases as income increases. They also find that increases in household size decrease adult equivalent weighted income – there being negative signs of the coefficients for numbers of household members for the income equation which are found to be significant at the 95% significance level as the p-value is lower than 0.05. There is a positive impact of education on earnings where higher levels of education are associated with higher levels of earnings. This relationship is weaker for black households which can be seen by the negative sign on the interaction term between the maximum level of education attained in the household and the dummy for black households. This Maitra and Ray ascribe to the legacy of apartheid.

Other regular outcomes are the gender income gap – males on average receiving less the females whilst controlling for education and other characteristics. This gap is only seen in the gender of the household head variable owing to the household level of analysis. In agreement with Case and Deaton (1998) are Maitra and Ray's findings that the variables most influencing pension receipt are demographic rather than income effects.

More interesting are Maitra and Ray's findings that crowding out of private transfers by pension income is apparent for the poor but that pension income complements transfer income for the non-poor. This is evident in the negative sign of the interaction term between poverty and transfers as well as the impact of race on private transfers. They claim that the poor could be left even worse off if the size of transfers were greater than those of the public pension. This is disputable in that transfers to poor families from other family members most likely have their sources in other relatively poor households. These funds would necessarily have reduced the living standards of the giving household (possibly moving that household into poverty) and almost certainly been an inconsistent grant. Pension payments on the other hand would not be subject to household shocks (such as the giving member becoming unemployed) and is a sustainable, exogenous and consistent injection into the poor communities. They also conclusively find that an increase in private transfers is significantly and positively related to household specific shocks such as unemployment.

With regards to the budget share equations Maitra and Ray find that private transfers and not pensions act on certain budget shares such as food, education and childcare. This is consistent with the theory that transfers flow to poorer members of the household or to the caregivers of children, often from migrant labour (Jensen, 2003). Income and transfers also act in opposite directions, that is – the coefficients have opposite signs, on some shares such as food with income reducing and transfers increasing the proportion of the budget spent on this category. They claim that this is evidence that transfer and non-transfer income are not spent in the same way because expenditure patterns differ for these three income sources. They conclude that the most apparent reason for these patterns is that it matters who receives the transfer. They claim there is a bearing as to who has control over the money. It is difficult to see how this could work in the traditional households of the pre-apartheid era. A transfer sent by a working mother to her children would be controlled by their guardian or the head of the household where they live. Also, the patriarchal make-up of the African household in particular would indicate the control of resources by men if present (Edmonds et al., 2003). They do caution that this could be partly owing to the inclusion of "in-kind" income and expense in the analysis (as this would severely limit the chosen spending behaviour of the subjects). We doubly caution the reader that when transfers are sent for a specific purpose recipients are constrained in their spending as discussed in previous sections. An effective means of examining this would be to further break down the categories of income flows into gender and age specific brackets.

Our own replication was performed using variables as closely aligned to Maitra and Ray's as possible to ensure maximum comparability. These variables and their definitions are presented in the data section. These results can be found in appendix 1. We ran the three staged least squares (3SLS) procedure on equations iv-vii and found that the Kleibergen and Paap (K-P) statistic[7] for the three endogenous flow variables was significant for their instruments. We can thus reject the null hypothesis of weak instruments. Additionally, a Wu-Hausman test was performed on the model and the null of efficient estimates under ordinary least squares (OLS) was rejected leading us to conclude that the 3SLS procedure produces unbiased and more efficient results.

[7] The Cragg-Donald statistic is suggested by Stock and Yogo (2002) to test the strength of multiple instruments on multiple equations in a homoscedastic environment. In order to make our result more robust we prefer the Kleibergen and Paap statistic as this controls for heteroscedastisity where the C-D statistic is a special case of the K-P statistic under the homoscedasticity assumption. This conclusion follows from a discussion on the statistic by Prof. Mark E. Schaffer available at: http://www.stata.com/statalist/archive/2008-02/msg01125.html.

Description of the variables used

Variable	Description
POV	dummy=1 if the total household income falls below the adult equivalent poverty line and zero otherwise
R	per adult equivalent monthly private transfer income which includes only money and the market value of goods sent in-kind to the household as unconditional remittances so no legal binding such as alimony or disability grants
P	per adult equivalent monthly public social pension income for the age eligible with a five-year error interval for age heaping (females aged 55 and males aged 60 and above)
Y	per adult equivalent monthly income other than social pensions and private transfers cash or in-kind
RSQ	$(R)^2$
PSQ	$(P)^2$
YSQ	$(Y)^2$
Number of children	Number of household members aged between 0 and 19 years
Number of adults	Number of household members aged between 20 and 59 years for women and 20 to 64 for men
Number of elderly	Number of household members aged 60 and over for females and 65 and over for males
PENS_H	dummy=1 if the head of the household is a pensioner who receives a social pension and is age eligible with the five-year error interval and zero otherwise
AGEHEAD	The age of the household head pegged at the median of the age bracket
AGE2HEAD	$(AGEHEAD)^2$
SEXHEAD	dummy=1 if the head of the household is male and zero otherwise
NOEDUC	dummy=1 if the household head has no education and zero otherwise
PRIMSCH	dummy=1 if the household head has some primary school education and zero otherwise
PRIMPLUS	dummy=1 if the household head has completed primary school and zero otherwise
SECONDAR	dummy=1 if the household head has completed high school and zero otherwise
MAXED	The highest level of education attained by a member of the household
RURAL	dummy=1 if the household lives in a rural area and zero otherwise
BLACK	dummy=1 if the household head is Black and zero otherwise
COLOURED	dummy=1 if the household head is Coloured and zero otherwise
INDIAN	dummy=1 if the household head is Indian and zero otherwise
WHITE	dummy=1 if the household head is White and zero otherwise
DUNEMP	dummy=1 if there is an unemployed adults in the household and zero otherwise
TOILET	Type of toilet available (more formal types are assigned lower numbers - ordinal)
CAR	dummy=1 if the household owns a car and zero otherwise
RADIO	dummy=1 if the household owns a radio and zero otherwise
FRIDGE	dummy=1 if the household owns a fridge and zero otherwise
STOVE	dummy=1 if the household owns a stove and zero otherwise
INT1	R*BLACK
INT2	P*BLACK
INT3	Y*BLACK
INT4	R*POV
INT5	P*POV
INT6	Y*POV
INT7	MAXED*BLACK
Pa	Social pension income by gender *g*
Rg	Private transfer income by gender *g*
Rag	Private transfer income by gender *g* and age group *a*

Let us first examine the areas in which our model supports the finding of Maitra and Ray. The impact of the household composition on income and pension flows adheres to our a priori expectations that households with more members tend to have lower levels of income on average (Edmonds et al., 2003). The age variables perform quite well in giving significant coefficients with the expected signs. These suggest that household income increases at a decreasing rate for the age of the household head – a common finding. Pension incomes react by increasing for higher household head ages which relates the age eligibility criterion for social pension receipt. The education dummies generally follow the signs of their Maitra and Ray associates although the logic of these signs may be questioned: income decreasing on average when education is gained by the household head (over the base category of no education) whilst pension and transfer income increases over the same variables. This result is augmented for black households in that the interaction term between the maximum level of education and poverty in a household decreases income for this subsample. The race dummies agree with Maitra and Ray in that income for black households is on average higher than their white counterparts whilst for Indian and coloured households these coefficients are negative. White households also receive more transfers than other households which is consistent with the base results. Lastly, the asset variables generally indicate that higher levels of income afford these non-durables[8]. As Maitra and Ray found, transfers decrease significantly for poor households receiving pensions and other income.

A generally different pattern emerges with regard to transfers in our data. The marked differences are that transfers increase for the number of children and decrease for the number of adults in a household which is contrary to Maitra and Ray's findings. Also, there is a reversal for the sign on the unemployment dummy – transfers now decrease for the presence of an unemployed adult in the household. These two outcomes point towards a different set of incentives for remittance sending. In the SALDRU 1993 data higher numbers of adults or unemployed drew in more transfers whilst in 2006 children seems to draw in transfers. We could surmise that transfers for unemployment could

[8] The inclusion of an asset index on the right hand side of income can be argued to be counter-intuitive as there is certainly a relationship between these but it is rather the level of income which impacts on the ownership of non-durables rather than the other way around. Also, the choice of these specific assets is up to debate as the ownership is a result of location as well as income, rural areas being restricted even in 2006 to little or no electricity for fridges. Their choice seems somewhat arbitrary.

be crowded out by public unemployment grants while the support of children by their working family members has increased. The make-up of the African household offers a suggestion to why this might be. Migrant labour and traditional household dynamics indicate that migrant parents would send remittances home to the child-minder to cover the costs of this exercise (Duflo, 2000; Edmonds et al., 2003). The Pension still seems to hinder transfers – even more so because of the direct negative effect of pensions as well as the number of elderly in the household, neither of which was significant in Maitra and Ray analysis. Maitra and Ray conclusion of crowding out of transfers by pensions was based on the interaction between poverty and pension income. They conclude that pensions crowd out transfers for poor households but are complements for wealthier households. In 2006 we can see that this has changes track and that any other incomes crowd out transfers (pension and other income result in decreases of transfer income) – but more especially for the poor (negative impact of the interaction between poverty and pension on transfer income). This is in line with Jensen's (2003) findings that the crowding out of transfers by pensions holds generally. Our results do not corroborate Maitra and Rays' findings that for the non-poor, pension income compliments private transfers. We find that social pension income crowds out private transfers.

In accordance with Maitra and Ray, the budget share equations indicate that Engel's law of decreasing basic goods shares in total expenditure as income (Y) increases does indeed hold in the South African data, although not as clearly as Maitra and Ray find. Here expenditures on food decreases and expenditures on non-basic items such as entertainment and clothing increases as income increases. A greater number of adults in the household increases expenditure on adult goods such as alcohol and tobacco. Expenditures on basic items also increases for lower levels of education attained by the households head and is higher for male headed and rural households. The expenditure patterns for the different races also mimic those found by Maitra and Ray.

The impacts of household size are different to those that are found by Maitra and Ray. They find that increases in household size generally decrease expenditure on basics whereas our analysis shows the opposite. This is a more expected outcome considering that poorer households are generally larger than wealthier ones and as the poor are expected to spend a greater proportion of their budget on basic items such as food (Edmonds et al, 2003).

The similarity of the impact of the other variables on the budget share equations convinces us that if differences are found in our results these are almost entirely to do with the income pooling outcome and not the change of preferences and societal structure on expenditure shares. The signs

of the coefficients show that income and transfers act in the opposite direction for food expenditures. This is not a surprising outcome poor households are almost twice as likely to receive transfers as non-poor households and, by Engel's law, this would naturally increase basic expenditures. This is further supported by the negative sign of the interaction term between poverty and transfers on basic expenditure shares. Also, as mentioned at the beginning of this discussion, private transfers could be generally assumed to be conditional on the ongoing consumption of goods for which the transfer is intended. Interestingly, and in support of our earlier claim that transfers are seen to be more directed at the upbringing of children than at poorer or unemployed family member support, transfer expenditure on education is positive and significant. The food and alcohol and tobacco shares work in opposite directions for transfers and income whereas the entertainment shares move together.

This is not as clear cut a result as Maitra and Ray find. Their analysis holds that the three budget shares move in opposing directions whilst no shares move together significantly for the different income flows. They can therefore reject the hypothesis that different incomes are spent the same way. Although this author is not convinced that three shares are sufficient to reject the hypothesis of income pooling, our results we find do not provide the proof needed to make this claim. Apart from food and alcohol and tobacco expenditures the income and pension flows seem to be spent in the same manner in both our analyses as well as Maitra and Ray's.

We again alert the reader to the possible impact of conditionality of funds on how they are spent. If conditional transfers are spent differently to earned and unconditional transfer income this should point towards the conclusion that if the household were allowed to choose how their money is spent then a rand of grant income would be spent the same way as any other income. At this point we do not find sufficient evidence to reject the unitary household model of income pooling. We are also cautious in accepting this model as much literature describes the differences in spending behaviour between men and women of unconditional public grants such as the pension (see Duflo, 2000 for a discussion on the impact of female pension income). If we found that men and women spent their income differently without a conditionality clause then we would be able to reject the hypothesis of income pooling. It would matter who (in terms of gender) received the income as to how it was spent.

6. Extension Results

6.1 Disaggregation by gender

A sensible extension to our model would be to separate our income flow variables by gender based on the evidence of different spending preferences gathered by Duflo (2000). In order to reveal these relationships in our framework it would be useful to follow Maitra and Ray's 2000 paper "Intra Household Resource Allocation And Their Impact On Expenditure Patterns: Comparative Evidence From South Africa And Pakistan" which perform this exact disaggregation by gender, except for the division of earned income. This division is reliant on subtle, and often unobserved, decisions such as the election of a woman to work when she has small children that there is a real possibility of introducing selection bias into our estimation. We therefore run a 3SLS analysis on equations viii-xi, or results are available in appendix 2. Again we reject the null of weak instruments by the robust K-P statistic as well as rejecting the efficient use of OLS by the Wu-Hausman test.

Our gender disaggregation results both agree and disagree with those obtained by Maitra and Ray in much the same way as our replication analysis. The instrumental impact on the flow variables are consistent with our earlier findings except in a few important aspects. The transfer income for the household decreased for an additional elderly person in both our replication as well as Maitra and Ray's study. In these results, however, there is a reversal of signs for the presence of female elderly persons in the household – an outcome consistent with the literature that elderly female household heads often care for children (see for example Case and Deaton, 1998; Duflo, 2000; Edmonds et al., 2003). This is also consistent with our own observation that transfers in 2006 are largely directed at children. We can see that transfers that flow to the elderly are also captured by the sex of the household head variables with signs conflicting on these variables for transfer income. Again it can be seen that transfers are crowded out by pension income for all incomes but most especially for the poor. In general the differences in the size of income between females of each race are smaller than the differences for males between races.

In terms of the impact of these disaggregated flows on budget shares we find that, as is consistent with the family model of a female child-carer, transfer income to females have a positive significant impact on education expenditure where as this is reversed for males (where the number

of transfers received by each household head gender is almost evenly divided). Transfers to men increase spending on clothing and fuel whereas spending on these items decreases for women receiving transfers. We can also see that there is a suggestion that pension income is spent differently by men and women as opposite signs are found for males and females on clothing, childcare and food eaten outside the home budget shares. The significant coefficients still generally hold Engel's law of increasing basic spending of lower income groups.

The expenditure on child items by women receiving transfers is consistent with the literature and there is also evidence here to support the argument that pension income alleviates child poverty (Case & Deaton, 1998; Duflo, 2000) in that pension income for females increases expenditure on childcare relative to the shares received by men.

We are interested in the divergence of spending between genders within the transfer flows which would give us a better understanding of intra-household bargaining. We again caution that transfer spending may well be conditional and as such all conclusions surrounding this flow should be met with caution. The divergence of spending patterns in the pension income – and especially the increase in child-item expenditure owing to higher female pension income does indeed point towards a non-unitary model. We can conclude that conditional as well as unconditional transfers are spent differently by women and men. This means that the household does not seem to function as a single unit, men and women making statistically significant different expenditure choices. Therefore, the unitary household model with income pooling can be rejected at this stage of analysis.

6.2 Disaggregation by gender and age

We do note that our analysis points to a distinction between adult and child expenditures as well as expenditures separated by gender. We pursue our course and divide our transfer income further into child, adult and elderly groups, our results are available in appendix 3. We encounter a problem in this analysis owing to the small amount of money sent as transfers – these small amounts do not impact on the budget shares because of their size. The fineness of the transfer flow variables inflates the standard errors and makes us unable to explain any significant results.

We continue with our analysis of this model for the single reason that the impact of the instruments on the flow variables are so interesting to interpret. We find that our coefficients on the variables for the income and pension equations are largely the same as before with our coefficients varying towards the Maitra and Ray results as our replication study does. The interpretation of our transfer equation, however, indicates that whilst male pensions crowd out transfers this is not necessarily the case for female pensions. This is consistent with our understanding of, particularly, African households where migrant workers would leave their children in the care of a grandmother and still send transfers home to help with the expenses of upbringing (Duflo, 2000; Edmonds et al., 2003). This outcome undermines the conclusion in Maitra and Ray's study that the pension transfers might do more damage than good in alleviating poverty. The interaction term between poverty and transfers is negative and significant which indicates that the giver to the poor household might also be poor and that the substantial pension income might alleviate the burden of sending home remittances – an idea that pensions might assist with the poverty alleviation of remittance senders as well.

The presence of adults in the household impacting negatively on the transfers to children further supports this argument as does the increase in transfers for children with a female household head. The large positive relationship between the female household head dummy and adult female transfer receipt indicates to us a more specific outcome than the general remittance support of the unemployed and again indicates that these transfers are linked to the nuclear family and the upbringing of children. Additionally, transfers to children increase when there is an unemployed adult in the household (perhaps the mother) whereas transfers to adults with unemployed adults in the household decrease significantly, another sign of public grants crowding out private ones.

Another significant finding is that black and coloured children receive higher transfer income than do white children whilst these same races receive lower transfers for the elderly. An indication of the crowding out of pensions by race as well as income.

We can see that pension and transfer income received by women in the household, regardless of the sex of the household head, is spent on items related to the welfare of children which is the opposite effect of the spending behaviour of male income receivers. From the last set of equations we see a picture of the types of household members who receive transfers and why these transfers might be sent. That these transfers are indicated by the presence of children in the household as

well as unemployed caregivers to children shows that these remittances would be targeted; be received from a household with similar socioeconomic status and therefore most likely be conditional. Conditional transfers are held to change behaviour that "leads to desirable outcomes" (Hoddinott, 2008). From our 3SLS results we can say that transfers, both public and private, are spent differently according to who receives the income. We can therefore reject the hypothesis of income pooling on the basis that it matters who receives these incomes as to how they will be spent.

7. Sensitivity checks

We check the sensitivity of our results to the make-up of variables in our analysis to see if the conclusions we arrive at are robust for decisions on variable definitions.

In the section on data we find that, in the original Maitra and Ray study a number of the parameters and definitions were contentious in the sense that they might have been imperfectly included or contained bias. Our results for all these checks are presented in appendix 4 except for the race 3SLS as they add little.

Poverty

These included the poverty variable which seemed fairly high (in both 1993 and 2006 it was pegged by Maitra and Ray just under the level of the pension grants). We keep in mind that South African poverty is generally held to be above the two-dollar a day line. As poverty lines as such are fairly arbitrary we see if our results bear up under different more traditionally used poverty lines[9].

We find with the dollar-a-day poverty line (dPOV) that 8 out of the 11 budget share equations have conflicting signs for male and female transfer income – a more poignant result by far. This result does well to impress on us the large impact on conditional grants on behaviour. The signs of the pension variables are roughly constant however and only the standard errors have increased in some cases. The overall impression of households divided by different spending decisions still holds. The 2-dollar a day line (d2POV) decreases our conviction over the spending patterns of transfer

[9] The POV dPOV d2POV NTPOV poverty lines are per adult equivalent and correspond to approximately R574; R82; R165 respectively.

recipients but not so far as to negate it. 5 out of the 11 budget shares still have conflicting signs but notably childcare does not although it can be seen that education expenditures still increase for female transfer income. The pension patterns are much the same and support our rejection of the unitary household model.

The percentage of households in poverty by race

	Race				
	Black	Coloured	Indian	White	Total
POV	51.38	31.35	10.51	2.9	43.73
dPOV	19.94	8.5	3.3	0.49	16.42
d2POV	38.29	22.7	6.31	1.09	32.38

Adult Equivalence Scales

Without engaging in a debate regarding the appropriate equivalence scales it would be well to check the sensitivity of our results to a more orthodox weighting. Maitra and Ray, as shown in the "Data" section of this paper, apply weights to children which are greater than those accorded to adults. We choose, in order to ensure that our results are insensitive to changes in our parameter choices, to adopt an equivalence scale that is closer to those used for developing countries and suggested in Deaton (1997)

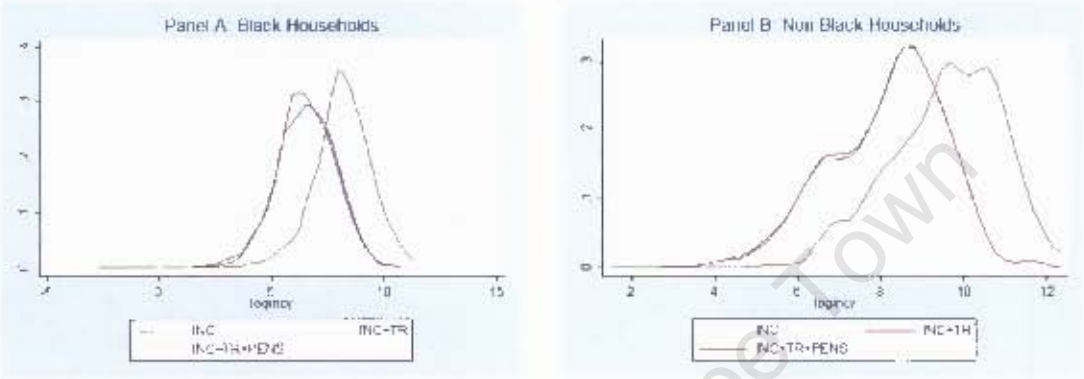
$$PAE = (n_a + n_o + 0.5 * n_c)^{0.9}$$

where n_c is the symbol for the total number of children, n_a the number of adults and n_o the number of elderly present in a household. The economies of scale are set at 0.9. The Again our results are subject to increases in the standard errors of the coefficients which render many of them insignificant. Our general conclusions hold, however, in that for a few key items we have signs that are reversed – for example pension income increases food shares whereas other income decreases basic item shares. We find that although the standard errors of our variables are sensitive to these weights, our overall picture of different spending behaviour between men and women still hold.

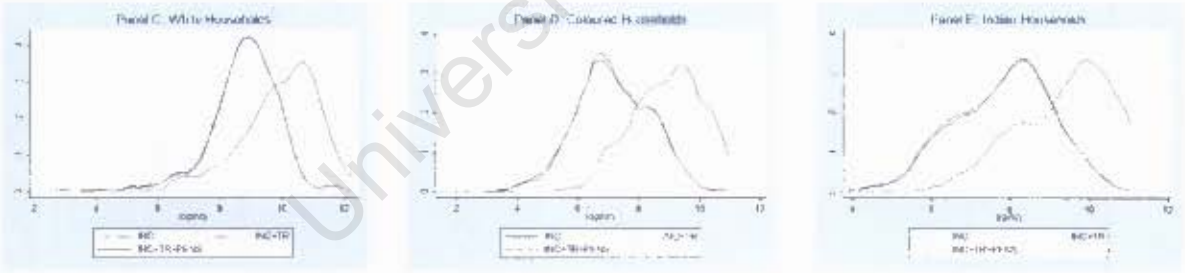
Races

We have seriously questioned the inclusion of race dummy variables in the 1993 analysis because of the divergent income and expenditure options open to non-whites in comparison to whites. The options with reference to education and healthcare spending, for instance, were limited to non-

whites in the apartheid years as were income options as occupation choices were limited too[10]. The differences in income distributions can be seen in Maitra and Ray's kernel density plot of black and non-black income sources and should have convinced the authors of the systematic differences between races. Our own kernel density plots by race (shown below) indicate that the differences in income between races may well be explained by dummy variables for each races as our analysis has done.



Unlike Maitra and Ray we find that there is a distributional difference between income with and income without pensions for black households. In fact, these differences are similar to non-black households. We can see that the kernel density plot for non-black households seems bimodal, at least in total income, and therefore examine each race more closely.



All races now show the same shift for the inclusion of pension income. This result lays to rest some of our concern about including race dummies in our analysis.

In 2006 we would most likely find that income levels, rather than race per say, have a greater impact on income expenditure options available to households as 1993 levels of education and healthcare expenditure would have been set to some extent. This would have categorized groups of spenders not only by the level of their incomes but also by their races. In 2006, however, one would believe that, greater expenditure and income options being open to non-whites, income levels would

[10] See Parashar (2006) for more information on occupational segregation during Apartheid.

have played a greater role in spending patterns and levels. This observation should be checked so as to convince ourselves that our results are robust. We therefore divide our data into race subsamples and run the gender disaggregation regression on each of these. We should note the frequency of transfer flows between these races to make sure that we do not encounter a small sample problem.

Private Transfers by Race

	Black	Coloured	Indian	White
Transfers to males	3608	398	19	26
Transfers to females	3980	473	25	42
Total	13865	2334	293	1631

When separating our analysis by race we find that we cannot decipher much about the spending behaviour of transfer recipients. Pensions, however, produce more stark contrasts between male and female receivers than before. We can see that the female headed household spend more on basic and child-items than male pension recipients. This outcome points towards different recipients spending differently even with unconditional income such as pensions. Coloured and Indian households do not have clear-cut behavioural patterns in this data and we cannot generalise to a unitary household model nor confirm that their patterns are different from other races. The regression analysis for white households indicates that Engel's laws hold however there is no convincing evidence of different spending behaviour between the sexes. There are so few cases of transfers in non-black households that we make our analysis vulnerable to small sample issues when we divide up our analysis (especially for Indian households). We therefore conclude that there is non-unitary intra-household bargaining behaviour present in our data.

8. Conclusion

Working from Maitra and Ray's 2003 income and expenditure model for intra-household bargaining we replicate their system of equations in order to establish whether the results of income pooling rejection and the crowding out of private transfers by pension income for the poor only – hold in 2006. We find that private transfers generally differ in how they are spent depending on who they are received by. Although this is most likely owing to the conditionality of these transfers on the ways they are spent there is enough evidence in the data that expenditure patterns between men and women of pension income (an unconditional grant) differ significantly. We caution policy makers in this field about basing decisions on results sensitive to the make-up of the model. We can be confident about the general picture shown us by this analysis; namely that it matters who receives income as to how it is spent. We have enough evidence to reject the unitary household model on the basis of pension as well as private transfer spending patterns. Grants to women significantly favour poverty alleviation of children and are focused on improving access to basic consumption groups such as food. This offers an awkward criticism of the recent extension of the pension to males aged between 60 and 65 years old. Although gender equitable, the social pension has been held up as not only an effective means of poverty alleviation for the elderly but also as an effective means of combating poverty in other vulnerable groups such as children.

Additionally, we find that – contrary to Maitra and Ray – the crowding out of transfer income by state pensions exists across the board. We offer a rather more positive outcome that could result from this substitution of private by public funds. Firstly, it is redistribution to the poor and vulnerable. Private funds would most likely flow from poorer individuals to their equally as poor extended family. Public grants, on the other hand, are funded through a progressive tax system. Secondly, these pension flows are constant so long as the pensioner remains alive allowing household to plan on virtually guaranteed income (Case & Deaton, 1998). Lastly, rather than entrenching poverty as Maitra and Ray claim, the benefits of poverty alleviation may exist not only for pensioners and children as found in Case and Deaton (1998) but also for households sending these remittances which may have been threatened by poverty by having to provide for their children or extended family.

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Appendix - 1 -

Replication Results

Panel A: Income, pension and transfer equations (n = 0.65)

Income		Pension		Transfer	
Variable	Coefficient	Variable	Coefficient	Variable	Coefficient
Number of children	-327.1***	Y	0.00305***	Y	-0.00118***
	-24.46		-0.000582		0.000343
Number of adults	-174.5***	PENS_H	392.4***	P	0.0353***
	-37.76		-12.28		-0.0044
Number of elderly	-1074***	Number of children	-13.30***	Number of children	11.50***
	-113.1		-1.794		-1.092
AGEHEAD	90.88***	Number of adults	-19.52***	Number of adults	-9.536***
	-17.44		-2.666		-1.783
AGE2HEAD	-0.891***	Number of elderly	121.7***	Number of elderly	14.93***
	-0.191		-8.795		-4.993
SEXHEAD	682.4***	AGEHEAD	9.190***	AGEHEAD	-9.332***
	-82.52		-1.294		-0.743
PRIMSCH	-475.2***	AGE2HEAD	-0.115***	AGE2HEAD	0.121***
	-138.3		-0.0144		-0.00816
PRIMPLUS	-747.0***	SEXHEAD	30.09***	SEXHEAD	-15.45***
	-184.2		-6.089		-3.573
SECONDAR	-757.3***	PRIMSCH	17.51*	PRIMSCH	19.29***
	-145.9		-10.13		-5.809
BLACK	1998***	PRIMPLUS	24.50*	PRIMPLUS	27.70***
	-360.3		-13.43		-7.809
COLOURED	-2885***	SECONDAR	30.75***	SECONDAR	32.67***
	-207.6		-9.985		-5.855
INDIAN	-2878***	BLACK	-89.12***	BLACK	-30.74***
	-291.3		-10.53		-6.169
RURAL	-3.837	COLOURED	-71.88***	COLOURED	39.15***
	-93.09		-13.79		-7.993
CAR	2998***	INDIAN	-63.55***	INDIAN	-37.45***
	157.4		-20.34		11.78
RADIO	-31.99	RURAL	0.887	RURAL	7.919*
	-96.15		-6.686		-4.648
FRIDGE	540.7***	CONSTANT	79.33**	DUNTMP	-4.864
	-96.71		-32.65		-3.975
STOVE	111.1			TOILET	0.0464
	-102.2				-0.101
MAKHD	582.9***			POV	57.59***
	-18.67				-6.117
INT7	-416.2***			INT5	-0.333***
	-20.97				-0.0251
CONSTANT	-3879***			INT6	-0.192***
	-532.8				-0.0178
				CONSTANT	223.6***
					-19.28

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65) , Panel B : budget share equations

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
POV	0.337***	0.0146***	-0.0215***	-0.00473	0.0395***
	-0.0257	-0.00136	-0.00565	-4.38E-03	-6.55E-03
R	0.00592***	0.000734***	0.000960***	-0.000555**	0.000988***
	-0.00131	-0.000222	-0.000288	-0.000224	-0.000334
P	0.000513***	6.21e-05**	7.57e-05**	-8.30e-05***	3.73E-05
	-0.000144	-2.45E-05	-3.17E-05	-2.46E-05	-3.68E-05
Y	1.76e-05**	-3.90e-06***	3.21e-06**	-1.78E-06	2.94E-06
	-7.20E-06	-1.22E-06	-1.59E-06	-1.23E-06	-1.84E-06
INT1	-0.00402***	-0.000501***	-0.000644***	0.000368**	0.000601**
	-0.000972	-1.65E-04	-2.14E-04	0.000166	-2.49E-04
INT2	-0.000187*	-2.22E-05	-2.57E-05	-4.15e-05**	4.28E-06
	-9.76E-05	-1.66E-05	2.16E-05	-1.07E-05	-2.50E-05
INT3	-1.28e-05**	4.16E-07	-3.10e-06**	3.43e-06***	-1.74E-06
	-5.58E-06	-9.49E-07	1.23E-06	-9.55E-07	-1.43E-06
INT4	-0.00120***	0.000214***	-0.000167**	9.10e-05*	-0.000342***
	-3.21E-04	-5.46E-05	-7.07E-05	-5.49E-05	-8.21E-05
INT5	-9.97E-07	1.76E-05	6.78e-05***	-4.52e-05***	-4.23E-06
	-7.14E-05	-1.21E-05	-1.56E-05	-1.21E-05	-1.81E-05
INT6	0.000251***	3.25E-06	6.58e-05***	-2.93e-05***	-4.74e-05***
	-4.90E-05	-8.28E-06	-1.07E-05	-8.30E-06	-1.24E-05
RSQ	-7.40e-07***	4.73e-08***	-1.29e-07***	7.36e-08**	-1.34e-07***
	-1.92E-07	-3.26E-08	-4.23E-08	-3.28E-08	-4.90E-08
PSQ	2.00e-08***	-2.46e-09**	-3.12e-09**	3.26e-09***	1.43E-09
	-6.52E-09	-1.11E-09	-1.44E-09	-1.12E-09	-1.67E-09
YSQ	9.03e-11*	0**	0	0	0
	0	0	0	0	0
Number of children	0.111***	-0.00295***	0.00549***	0.0100***	0.0260***
	-0.00306	-0.000517	0.000668	-0.000517	-0.000774
Number of adults	0.107***	0.0104***	0.0147***	0.0184**	0.0158***
	-5.17E-03	-8.76E-04	-1.13E-03	8.77E-04	-1.31E-03
Number of elderly	0.0872***	-0.00430*	0.00392	0.0196***	0.00771**
	-0.0152	-2.57E-03	-3.33E-03	-2.57E-03	-3.85E-03
AGEHEAD	0.00779***	0.000780*	0.00111**	-1.39E-04	0.00193***
	-2.39E-03	-4.04E-04	-5.22E-04	-4.04E-04	-6.05E-04
AGE2HEAD	-0.000130***	-1.50e-05***	-2.01e-05***	8.20E-06	-2.56e-05***
	-3.00E-05	-5.09E-06	6.58E-06	-5.10E-06	-7.63E-06
SEXHEAD	0.0193*	0.0254***	0.00837***	-0.00639***	-2.57E-03
	-1.11E-02	-1.87E-03	-2.42E-03	-1.88E-03	-2.81E-03
PRIMSCH	-0.123***	-0.00585**	0.00101	0.00892***	[illegible]
	-1.52E-02	-2.57E-03	-3.32E-03	-2.57E-03	-3.84E-03
PRIMPLUS	-0.150***	-0.0133***	0.00185	0.00705**	0.00662
	-0.02	-3.37E-03	-4.35E-03	-3.37E-03	-5.04E-03
SECONDAR	0.198***	-0.0228***	0.00526	0.0149***	0.0128***
	-1.51E-02	-2.54E-03	-3.28E-03	-2.54E-03	-3.80E-03
RURAL	0.0621***	0.00418**	-0.00613***	0.00767***	-0.00326
	-1.00E-02	-1.69E-03	-2.18E-03	-1.68E-03	-2.52E-03

Standard errors displayed underneath coefficients

** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel A: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
POV	0.0154***	0.0243***	0.0109***	0.0174***	-0.0942***
	-5.22E-03	-8.24E-03	-3.69E-03	-4.61E-03	-8.63E-03
R	-7.23E-07	-4.37E-07	-5.75E-07	1.43E-06	6.69E-07
	-1.47E-06	-2.31E-06	8.14E-07	-1.29E-06	-2.42E-06
P	4.21E-05	0.000132***	8.73E-06	6.03e-05**	7.97e-05*
	-2.94E-05	-4.63E-05	-1.63E-05	-2.59E-05	-4.84E-05
Y	-0.000118	0.00159***	9.98E-06	0.000876***	0.00153***
	-2.67E-04	-0.00042	-1.48E-04	-0.000235	-0.00044
INT1	8.28E-05	-0.00106***	7.53E-06	-0.000506***	-0.00110***
	-1.99E-04	-0.000312	-1.10E-04	-0.000175	-0.000327
INT2	-1.75E-05	-9.19e-05***	-4.86E-06	-2.61E-05	-0.000125***
	-2.00E-05	3.14E-05	1.11E-05	-1.76E-05	-3.29E-05
INT3	-1.64E-06	-6.26e-06***	-5.20E-07	-2.13e-06**	-2.74E-06
	-1.14E-06	-1.79E-06	-6.32E-07	-1.00E-06	-1.88E-06
INT4	7.11E-06	-0.000300***	-3.73E-05	-0.000214***	-0.000158
	-6.56E-05	-0.000103	-3.63E-05	-5.76E-05	-0.000108
INT5	-3.26e-05**	5.44e-05**	-2.10e-05***	1.95E-06	0.000249***
	-1.44E-05	-2.20E-05	-7.97E-06	-1.28E-05	-2.39E-05
INT6	0.44e-05***	1.32E-05	-1.48e-05***	-8.81E-06	0.000148***
	-9.87E-06	1.57E-05	5.47E-06	-8.76E-06	-1.64E-05
RSQ	1.64E-08	-2.14e-07***	1.37E-09	-1.16e-07***	-2.02e-07***
	-3.97E-08	-6.16E-08	-2.17E-08	-3.44E-08	-6.45E-08
PSQ	-1.72E-09	-5.26e-09**	-3.56E-10	-2.65e-09**	-3.10E-09
	-1.33E-09	2.11E-09	-7.39E-10	-1.17E-09	-2.19E-09
YSQ	0	0	0	0	0
	0	0	0	0	0
Number of children	0.00998***	0.0159***	0.00735***	-0.00261***	0.00439***
	0.000615	-0.000977	-0.000341	-0.000546	-0.00102
Number of adults	0.00377***	0.0331***	0.00245***	0.00263***	0.00404**
	-1.04E-03	-1.65E-03	-5.78E-04	9.24E-04	-1.73E-03
Number of elderly	1.52E-03	0.0232***	1.80E-03	-0.00690**	-0.00741
	3.06E-03	4.85E-03	1.70E-03	2.71E-03	-5.08E-03
AGEHEAD	1.32E-04	-0.000198	-0.000871***	0.000194	0.00336***
	-4.81E-04	-7.63E-04	-2.66E-04	-4.26E-04	-7.97E-04
AGE2HEAD	1.20E-06	-1.80e-05*	7.17e-06**	-1.01e-05*	-4.89e-05***
	-6.07E-06	-9.63E-06	-3.36E-06	-5.37E-06	-1.01E-05
SEXHEAD	-1.90E-03	-0.000655	-1.09E-03	0.0160***	0.0205***
	-2.23E-03	-3.54E-03	-1.24E-03	-1.98E-03	-3.70E-03
PRIMSCH	-0.0183***	-0.00631	0.00315*	-0.00616**	3.21E-03
	-3.05E-03	-4.83E-03	-1.69E-03	-2.71E-03	-5.07E-03
PRIMPLUS	-0.0235***	-0.0157**	0.00652***	-0.0107***	0.00763
	-4.00E-03	-0.00637	-2.22E-03	-3.56E-03	-0.00666
SECONDAR	-0.0325***	-0.00379	0.00342**	-0.0122***	-0.0114**
	3.07E-03	-4.81E-03	-1.67E-03	-2.68E-03	-5.02E-03
RURAL	0.0266***	1.64E-03	-0.00603***	-0.00807***	0.0241***
	-2.00E-03	-3.13E-03	-1.11E-03	-1.78E-03	-3.33E-03

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65) , Panel B: budget share equations *(continued)*

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
BLACK	0.205***	-0.00205	0.0459***	-0.0593***	0.0377*
	-7.76E-02	-1.32E-02	-1.71E-02	-1.33E-02	-1.90E-02
COLOURED	0.108***	0.0236***	0.0239***	-0.0403***	-1.54E-04
	-3.69E-02	-6.25E-03	-8.09E-03	-6.20E-03	-9.38E-03
INDIAN	0.0737*	-0.00772	0.0201**	-0.0170**	-0.00251
	0.0394	-0.00667	-0.00862	-0.00668	-0.00999
Constant	0.097	0.0103	0.0652**	0.0638***	-0.105***
	-0.123	-0.0209	-0.027	-0.0209	-0.0313

3SLS Estimates (α=0.65) , Panel B: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
BLACK	7.49E-03	0.118***	4.39E-03	0.0476***	0.135***
	-1.58E-02	-2.49E-02	-6.77E-03	-1.39E-02	-2.61E-02
COLOURED	-0.0180**	0.0433***	-4.07E-03	0.0229***	1.98E-02
	-7.48E-03	-1.18E-02	-4.14E-03	-6.60E-03	-1.24E-02
INDIAN	-0.013	0.0221*	-0.00401	0.0271***	0.0124
	-0.00795	-0.0126	-0.0044	-0.00704	-0.0132
Constant	0.0289	-0.0463	0.0104	-0.0139	-0.0834**
	0.025	-0.0394	-0.0138	-0.022	-0.0412

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

Panel A: income, pension and transfer equations (α=0.65)

Income

Variable	Coefficient
Number of children	-322.0***
	-24.46
Number of adults	-158.3***
	-37.77
Number of elderly	-1058***
	-113.1
AGEHEAD	94.24***
	-17.44
AGE2HEAD	-0.914***
	-0.191
SEXHEAD	666.4***
	-82.52
PRIMSCH	460.7***
	-168.3
PRIMPLUS	707.8***
	-184.2
SECONDAR	677.1***
	-146
BLACK	2112***
	-360.6
COLOURED	-2867***
	207.6
INDIAN	-2858***
	-281.3
RURAL	48.25
	-73.1
CAR	3026***
	-157.6
RADIO	10.06
	-86.77
FRIDGE	347.2***
	-97.04
STOVE	57.9
	-102.6
MAXED	587.8***
	-13.69
INT7	-426.9***
	-21
CONSTANT	-3982***
	512.9

Pension

Variable	Male Coefficient	Female
Y	-0.00297***	-0.000777***
	-0.000332	-0.000157
PENS_H	177.4***	213.4***
	-11.61	3.305
Number of children	-3.682**	-9.784***
	1.703	-0.483
Number of adults	-10.75***	-8.721***
	-2.531	-0.719
Number of elderly	66.27***	55.18***
	-8.348	-2.37
AGEHEAD	5.260***	3.966***
	-1.229	-0.349
AGE2HEAD	-0.0675***	-0.0484***
	-0.0137	0.00369
SEXHEAD	71.27***	-40.69***
	5.78	1.641
PRIMSCH	24.32**	-7.340***
	9.615	-2.73
PRIMPLUS	29.15**	-4.917
	-12.75	-3.618
SECONDAR	36.02***	-4.924*
	9.478	2.691
BLACK	-73.93***	-20.57***
	9.995	-2.837
COLOURED	71.68***	-5.001
	-13.09	-3.715
INDIAN	-72.02***	4.764
	-19.21	-5.482
RURAL	-0.968	1.665
	-6.346	-1.802
CONSTANT	-79.94***	5.191
	[illegible]	-8.397

Transfer

Variable	Male Coefficient	Female
Y	-0.000522*	-0.000857***
	0.000286	-0.000189
Pen	-0.131***	-0.116***
	-0.0142	-0.0094
PF	-0.00696*	0.00257
	-0.00395	-0.00261
Number of children	4.884***	4.296***
	-0.914	-0.604
Number of adults	-6.727***	4.528***
	-1.497	-0.988
Number of elderly	11.40***	13.15***
	-4.01	-2.846
AGEHEAD	-8.225***	-1.120***
	-0.615	-0.409
AGE2HEAD	0.109***	0.0156***
	0.0048	-0.00419
SEXHEAD	8.781***	-37.25***
	-3.138	-2.074
PRIMSCH	15.59***	2.808
	-4.912	-3.247
PRIMPLUS	19.51***	4.717
	6.509	4.302
SECONDAR	23.11***	4.419
	-4.83	-3.232
BLACK	-19.60***	9.641***
	-5.139	-3.395
COLOURED	-22.37***	-12.97***
	-6.662	-4.404
INDIAN	-25.15**	-4.94
	-9.827	-6.497
RURAL	5.15	5.386**
	3.889	-2.546
DUNEMP	0.201	-5.019**
	3.385	2.215
TOILET	-0.0469	0.0239
	-0.0853	-0.0547
POV	29.40***	22.34***
	-5.131	-3.386
INT14	-0.134***	-0.138***
	-0.0249	0.0165
INT15	-0.214***	-0.0868***
	-0.0340	0.0226
INT6	-0.0819***	-0.108***
	-0.0148	-0.00981
CONSTANT	344.7***	77.9***
	-16.11	-10.65

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (n=0.65), Panel B: budget share equations

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
POV	0.382***	0.0279*	-0.0270***	-0.000998	0.0187
	-6.41E-02	-1.67E-02	9.35E-03	-5.04E-03	-1.88E-02
Km	0.0293**	0.00780***	-0.00284*	0.000266	-0.00706**
	-0.0115	-0.00301	-0.00169	-0.00108	-0.0034
Kf	-0.0135	-0.00344	0.00286**	-0.00193**	0.00833***
	-0.0096	-0.0025	-0.00114	-0.000908	0.00279
Pm	-0.000348	0.000376	-0.000513	-0.000579*	0.000979
	-0.00313	-0.000815	-0.000456	-0.000297	-0.000911
Pf	0.00277	0.000261	0.000358	0.000339	-0.00115
	-0.00317	-0.000823	-0.000461	-0.0003	-0.000918
Y	-1.93E-05	-1.66E-06	5.23E-07	3.58e-06*	5.63E-06
	-1.98E-05	-5.16E-06	-2.89E-06	-1.87E-06	5.80E-06
INT8	0.00928	0.00271	-0.00196*	0.00137*	-0.00581***
	-0.00771	-0.002	-0.00112	-0.000729	-0.00224
INT9	-0.0193**	-0.00516**	0.0019	-0.000214	0.00483**
	-0.00804	-0.00209	-0.00117	-7.55E-04	-0.00237
INT10	-0.00161	-0.000145	-0.000115	-0.000241	0.000805
	-0.00218	-0.000566	-0.000317	-0.000207	-0.000632
INT11	0.000524	-0.000233	0.000387	0.00442*	-0.000756
	-2.76E-03	-7.17E-04	-4.01E-04	-0.000261	-8.01E-04
INT3	-1.01E-05	-6.89E-07	-1.45E-06	4.87e-06***	-4.54E-06
	-1.52E-05	3.07E-06	2.22E-06	1.44E-06	-4.45E-06
INT12	0.00734	0.000605	-0.000386	0.000274*	-0.00143***
	-0.00173	-0.00045	-0.00025	-0.000164	-0.000504
INT13	-0.00848**	-0.00236**	0.000861	-0.00013	0.00194**
	-0.00361	-9.40E-04	-5.27E-04	-0.000339	-0.00106
INT14	-0.000489	2.51E-05	-2.44E-05	-0.000146**	0.000268
	-0.000666	1.73E-04	9.70E-05	6.31E-05	0.000194
INT15	0.000418	8.40E-05	1.61E-05	-1.01E-05	-0.000193
	-0.000505	-1.31E-04	-7.36E-05	-4.78E-05	-1.47E-04
INT6	-0.000423***	-3.41E-05	8.27e-05***	-4.71e-05***	3.04E-05
	-0.000178	-3.07E-05	-1.72E-05	-1.11E-05	-3.47E-05
KmSQ	-4.15e-06**	-1.10e-06**	4.03E-07	-4.54E-08	1.07e-06**
	1.73E-06	-4.49E-07	-2.52E-07	-1.62E-07	5.08E-07
KfSQ	1.69E-06	4.94E-07	-3.57e-07*	2.41e-07*	-1.04e-06***
	-1.37E-06	-3.55E-07	-1.99E-07	-1.29E-07	-3.97E-07
PmSQ	1.23E-08	-1.82E-08	2.36E-08	2.60e-08*	4.20E-08
	-1.51E-07	-3.93E-08	-2.20E-08	-1.43E-08	-4.40E-08
PfSQ	-8.77E-07	-7.60E-08	-1.14E-07	-1.22E-07	3.79E-07
	-1.33E-06	-3.45E-07	-1.93E-07	-1.26E-07	-3.86E-07
YSQ	1.02E-10	0	0	0	0
	-1.33E-10	0	0	0	0
Number of children	0.109***	-0.00524**	0.00786***	0.0112***	0.0249***
	-0.00944	-0.0026	-0.00146	-0.000941	-0.00296
Number of adults	0.0945***	0.0114**	0.0126***	-0.000596	0.0212***
	-0.0185	-0.0048	-0.00269	-0.00174	-0.00541
Number of elderly	0.133**	0.0156	-0.0147*	0.0193***	-0.00894
	-0.0598	-0.0156	-0.00872	-0.00567	-0.0175
AGEHEAD	0.0260**	0.00751***	-0.00347**	-0.000389	-0.00419
	-0.0108	-0.00281	-0.00158	-0.00101	-3.18E-03
AGE2HEAD	-0.000378**	-0.000107***	4.29e-05**	1.24E-05	4.35E-05
	-0.000149	-3.87E-05	-2.17E-05	-1.40E-05	-4.39E-05

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
POV	0.0942**	0.0484**	0.0135***	-0.013	-0.0826***
	(3.84E-02)	(2.15E-02)	(3.77E-03)	(0.00915)	(1.82E-02)
Rm	0.0186***	0.00970**	0.000413	0.00119	0.00823**
	(0.00695)	(0.00387)	(0.000674)	(0.00164)	(0.00327)
Rf	-0.0147**	-0.00733**	-0.000898	0.00226	-0.00283
	(0.00572)	(0.00321)	(0.000569)	(0.00138)	(0.00273)
Rm	-0.000464	-0.00182*	-0.000348*	0.00118***	0.000427
	(0.00186)	(0.00105)	(0.000186)	(0.00045)	(0.00089)
Rf	0.00153	0.00221**	0.000313*	-0.000771*	0.000242
	(0.00188)	(0.00106)	(0.000188)	(0.000455)	(0.0009)
Y	-5.58E-07	-6.94E-06	-2.33e-06*	5.63e-06**	3.03E-06
	(1.18E-05)	(6.64E-06)	(1.17E-06)	(2.83E-06)	(5.62E-06)
INT8	0.0103**	0.00527**	0.000652	-0.00165	0.00187
	(0.00459)	(0.00258)	(0.000457)	(0.00111)	(0.00219)
INT9	-0.0124**	-0.00650**	-0.000292	-0.000747	-0.00543**
	(0.00484)	(0.00269)	(0.000469)	(0.00114)	(0.00227)
INT10	-0.0011	-0.00136*	-0.000188	0.000484	-0.000257
	(0.00129)	(0.00073)	(0.00013)	(0.000313)	(0.00062)
INT11	0.00046	0.00144	0.000273*	-0.000389**	-0.000378
	(1.64E-03)	(9.23E-04)	(1.64E-04)	(0.000396)	(0.000783)
INT3	2.63E-07	7.34E-07	6.03E-07	-5.31e-06**	4.35E-06
	(9.10E-06)	(5.11E-06)	(9.00E-07)	(2.18E-06)	(4.33E-06)
INT12	0.00238**	0.00147**	0.000107	-0.000352	0.000659
	(0.00103)	(0.000579)	(0.000102)	(0.000248)	(0.000491)
INT13	-0.00555**	-0.00288**	-0.000179	-0.000374	-0.00223**
	(2.17E-03)	(0.00121)	(0.00021)	(0.000513)	(0.00102)
INT14	0.000298	0.000427*	-9.32e-05**	0.000221**	0.000276
	(0.000397)	(0.000223)	(3.95E-05)	(9.56E-05)	(0.000189)
INT15	0.000265	0.000248	-1.61E-05	-4.55E-05	0.000282**
	(0.000301)	(0.000169)	(2.95E-05)	(7.24E-05)	(0.000143)
INT6	-0.000215***	-7.51e-05*	2.62e-05***	1.53E-05	0.000118***
	(7.09E-05)	(3.95E-05)	(6.87E-06)	(1.68E-05)	(3.33E-05)
RmSQ	-2.65e-06**	-1.39e-06**	-6.18E-08	-1.57E-07	-1.16e-06**
	(1.04E-06)	(5.78E-07)	(1.01E-07)	(2.45E-07)	(4.88E-07)
RfSQ	1.85e-06**	9.31e-07**	1.13E-07	-2.84E-07	3.60E-07
	(8.13E-07)	(4.57E-07)	(8.09E-08)	(1.96E-07)	(3.88E-07)
RmSQ	1.79E-08	8.10E-08	1.57e-08*	-5.36e-08**	-2.03E-08
	(9.00E-08)	(5.07E-08)	(8.97E-09)	(2.17E-08)	(4.30E-08)
RfSQ	-4.77E-07	-6.98E-07	-1.01E-07	2.57E-07	-6.00E-08
	(7.89E-07)	(4.45E-07)	(7.91E-08)	(1.91E-07)	(3.78E-07)
YSQ	0.00E+00	0	0	-0*	0
	(7.89E-11)	0	0	0	0
Number of children	0.00774	0.0297***	0.00831***	-0.00574***	-0.00673**
	(0.00602)	(0.00336)	(0.000585)	(0.00143)	(0.00282)
Number of adults	-0.000558	0.0238***	0.000724	0.00772***	0.00554
	(0.011)	(0.0062)	(0.00109)	(0.00265)	(0.00523)
Number of elderly	0.045	0.024	1.77E-05	0.00133	0.0102
	(0.0357)	(0.0201)	(0.00354)	(0.00862)	(0.017)
AGEHEAD	0.0143**	0.00268	-0.00124**	0.00261*	0.00974***
	(0.0065)	(3.62E-03)	(6.31E-04)	(0.00154)	(0.00305)
AGE2HEAD	0.000202**	-5.55E-05	1.24E-05	-4.40e-05**	-0.000137***
	(8.94E-05)	(4.98E-05)	(8.68E-06)	(2.12E-05)	(4.20E-05)

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
SEXHEAD	-0.164**	-0.0378*	0.0557***	-0.00508	0.0483**
	0.0765	0.0199	-0.0112	-0.00721	-0.0225
PRIMSCH	-0.124***	-0.0131	0.0109*	0.0133***	0.00143
	-0.0424	-0.011	-0.0062	-0.00401	-0.0125
PRIMPLUS	-0.196***	-0.0343**	0.0193**	0.0104*	0.0161
	0.0563	0.0152	-0.00854	-0.0055	-0.0173
SECONDAR	-0.230***	-0.0421***	0.0239***	0.0201***	0.0164
	-0.0523	-0.0136	-0.00765	-0.00494	-0.0154
RURAL	0.0822***	0.000946	-0.00912**	0.00981***	-0.0131*
	-0.0251	-0.00655	-0.00368	-0.00237	-0.00744
BLACK	0.0013	0.00586	0.0171	-0.0901***	0.108
	-0.249	-0.0648	-0.0363	-0.0235	-0.0726
COLOURED	-0.0273	0.0102	0.0183	-0.0636***	0.0694*
	-0.144	-0.0375	-0.021	-0.0137	-0.042
INDIAN	-0.152	-0.00053	0.00146	-0.0376**	0.0448
	-0.156	-0.0405	-0.0227	-0.0147	-0.0455
CONSTANT	-0.121	-0.0546	0.00726	-0.0991***	-0.137
	-0.377	-0.098	-0.0549	-0.0355	-0.11

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
SEXHEAD	0.149***	-0.0251	0.00263	-0.00774	-0.0376*
	-0.0459	-0.0257	-0.00449	-0.0109	-0.0217
PRIMSCH	-0.0242	0.0111	0.00698***	0.0179***	-0.00342
	-0.0255	-0.0143	-0.0025	-0.00611	-0.012
PRIMPLUS	-0.0641*	-0.0119	0.00984***	-0.0242***	-0.0122
	-0.0352	-0.0197	-0.00342	-0.00838	-0.0165
SECONDAR	-0.0645**	0.0107	0.00826***	-0.0293***	-0.0296**
	-0.0314	-0.0176	-0.00308	-0.00751	-0.0148
RURAL	0.0444***	0.0116	-0.00580***	-0.0106***	0.0283***
	-0.0151	-0.0085	-0.00148	-0.00362	-0.0071
BLACK	-0.0584	-0.0144	-0.0192	0.111***	0.145**
	-0.149	-0.0834	0.0147	-0.0357	-0.0707
COLOURED	-0.111	-0.0698	-0.0212**	0.0667***	0.00933
	-0.086	-0.0484	-0.00856	-0.0207	-0.041
INDIAN	-0.0575	-0.0709	-0.0198**	0.0708***	0.0179
	-0.093	-0.0523	-0.00922	-0.0224	-0.0442
CONSTANT	-0.0217	0.0599	0.0453**	-0.0977*	-0.151
	-0.225	-0.126	-0.0222	-0.0539	-0.107

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

Appendix -3-

Gender and Age Disaggregation

Panel A: Income, pension and transfer equations (α=0.05)

Income		Pension		
Variable	Coefficient	Variable	Male	Female
Number of children	-321.3***	Y	-0.00297***	-0.000779***
	-24.46		0.000552	-0.000157
Number of adults	-155.5***	PENS_H	177.4***	214.3***
	-37.78		-11.65	-3.303
Number of elderly	-1055***	Number of children	-3.680**	-9.786***
	-113.1		-1.703	-0.483
AGEHEAD	94.27***	Number of adults	-10.75***	-8.715***
	-17.44		-2.531	-0.719
AGE2HEAD	-0.914***	Number of elderly	66.28***	54.96***
	-0.191		-8.348	-2.369
SEXHEAD	665.3***	AGEHEAD	5.289***	3.984***
	-82.52		1.229	-0.349
PRIMSCH	-456.4***	AGE2HEAD	-0.0675***	-0.0487***
	-138.3		-0.0137	-0.00389
PRIMPLUS	-700.1***	SEXHEAD	71.27***	-40.63***
	-184.2		-5.78	-1.641
SECONDAR	-640.2***	PRIMSCH	24.32**	-7.044***
	-146		-9.615	-2.73
BLACK	2201***	PRIMPLUS	29.15**	-4.856
	-361		-12.75	-3.618
COLOURED	-2857***	SECONDAR	36.02***	-4.039*
	-207.6		-9.478	-2.691
INDIAN	2854***	BLACK	-73.90***	-20.68***
	-281.3		-9.994	-2.837
RURAL	-51.1	COLOURED	-71.65***	-5.099
	-93.11		-17.09	-3.715
CAR	3010***	INDIAN	-72.00***	4.642
	-157.6		-19.31	-5.482
RADIO	2.306	RURAL	-0.967	1.656
	-86.77		-6.046	1.802
FRIDGE	352.5***	CONSTANT	-79.96***	4.893
	-97.4		-30.99	-8.797
STOVE	49.31			
	-103			
MAXID	591.0***			
	-18.7			
INT7	-433.4***			
	-21.01			
CONSTANT	-4041***			
	-533			

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

Panel A: income, pension and transfer equations (α=0.65)

Transfer						
Variable	Male Child	Female Child	Male Adult	Female Adult	Male Elderly	Female Elderly
Y	-5.36E-05	-0.000131	-0.000207	0.000271**	-0.000219	0.000501***
	-6.54E-05	-8.43E-05	-0.000144	-0.000116	-0.000239	-0.000126
Pm	0.00878***	-0.000300	-0.00413	-0.0264***	-0.134***	-0.0894***
	-0.00325	-0.00419	-0.00717	-0.00578	-0.0119	-0.00623
Pf	0.000304	0.000375	-0.00136	0.00171	-0.00598*	-0.00192
	-0.000904	-0.00117	-0.00199	-0.00161	-0.00331	-0.00173
Number of children	6.367***	6.795***	-1.802***	-0.24	0.355	-1.564***
	-0.209	-0.269	-0.461	-0.372	-0.765	-0.401
Number of adults	-3.461***	-3.142***	1.431*	2.890***	-4.456***	-4.188***
	-0.343	-0.442	-0.756	-0.61	-1.254	-0.658
Number of elderly	-0.135	0.468	0.282	0.331	-11.55***	12.66***
	-0.984	-1.268	-2.17	-1.75	-3.601	-1.89
AGEHEAD	-0.215	-0.0341	-0.838***	-0.590**	-7.175***	-0.492*
	-0.142	-0.182	-0.312	-0.252	-0.518	-0.272
AGE2HEAD	0.00111	-0.00065	0.00840**	0.00444	0.0961***	0.0117***
	-0.00155	-0.002	-0.00343	-0.00276	-0.00569	-0.00298
SEXHEAD	-4.787***	-3.564***	7.850***	-20.30***	5.821**	-13.35***
	-0.717	-0.924	-1.582	-1.276	-2.625	-1.378
PRIMSCH	1.695	0.413	-1.894	1.297	13.44***	1.108
	-1.123	-1.447	-2.476	-1.997	-4.11	-2.157
PRIMPLUS	3.787**	0.954	-1.386	-1.508	16.89***	5.164*
	-1.488	-1.917	-3.282	-2.646	-5.446	-2.858
SECONDAR	1.847*	0.777	0.617	2.456	20.36***	2.652
	1.118	1.441	2.466	1.988	4.092	2.147
BLACK	4.513***	0.539	1.057	1.774	-24.28***	-12.07***
	-1.175	-1.514	-2.592	-2.09	-4.302	-2.258
COLOURED	2.987**	-2.286	-2.986	0.703	-21.99***	-11.65***
	-1.523	-1.962	3.358	2.708	-5.573	-2.925
INDIAN	1.739	0.272	-4.093	1.014	-22.51***	-7.207*
	-2.246	-2.894	4.954	3.992	8.222	4.315
RURAL	2.488***	1.167	2.915	4.778***	1.037	-0.0915
	-0.895	-1.153	-1.973	-1.591	-3.273	-1.717
DUNEVF	6.723***	5.679***	-4.939***	-12.77***	-2.807	1.6
	-0.779	-1.004	-1.719	-1.386	-2.85	-1.496
TOILET	0.0771***	0.0686***	-0.138***	-0.0389	-0.0387	-0.023
	-0.0199	-0.0257	-0.0439	-0.0354	-0.0728	-0.0382
POV	13.13***	8.949***	15.18***	14.00***	1.904	-0.461
	-1.175	-1.514	-2.591	-2.089	-4.296	-2.253
INT14	-0.0578***	-0.0394***	-0.0251**	-0.0513***	-0.0426**	-0.0469***
	0.0057	0.00735	-0.0126	-0.0101	-0.0209	-0.0109
INT15	-0.0378***	-0.0383***	-0.0495***	0.00437	0.127***	-0.0442***
	-0.00784	-0.0101	-0.0173	-0.0139	-0.0287	-0.015
INT6	-0.0376***	-0.0315***	-0.0445***	-0.0667***	-0.000613	-0.0104
	-0.0034	-0.00438	-0.00749	-0.00604	-0.0124	-0.00651
CONSTANT	8.757**	8.836*	23.80***	37.27***	132.9***	31.80***
	-3.684	-4.747	-8.125	-6.542	13.48	7.076

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (n=0.65) , Panel B: budget share equations

Variable	FOOD	ALCATOB	ENTERTAIN	HEALTH	EDUCATION
POV	-1.654	0.308	-0.731	-0.760	0.369
	-2.86	-0.974	-1.607	-1.090	-0.932
Rmk	-0.558	0.182	-0.365	-0.361	-0.197
	0.973	-0.332	-0.575	0.475	-0.317
Rfc	0.136	-0.125	0.233	0.222	0.126
	0.532	-0.182	-0.315	0.26	-0.174
Rma	0.296	0.0246	-0.0265	0.0334	0.0350
	0.309	-0.105	-0.182	-0.151	-0.101
Rfa	0.674	-0.195	0.413	0.397	0.217
	0.926	-0.315	-0.546	-0.45	-0.301
Rmo	-1.233	0.362	-0.765	0.742	-0.397
	-1.58	-0.537	-0.901	0.768	-0.514
Rfo	0.269	0.0559	-0.14	-0.131	-0.0457
	-0.524	-0.178	-0.309	-0.254	-0.17
Pm	-0.00577	0.000872	-0.00101	-0.00269	-0.00129
	-0.028	0.00959	0.0166	0.0138	-0.00918
Pf	-0.106	0.0293	-0.0635	-0.0607	0.0018
	-0.155	0.0526	-0.0912	-0.0752	-0.0503
Y	-0.00229	0.000467	-0.00106	-0.00106	-0.000552
	0.00283	0.000963	-0.00167	-0.00138	-0.000921
INT16	-0.139	0.104	-0.197	-0.109	-0.106
	0.457	-0.156	-0.27	-0.224	-0.144
INT17	0.471	-0.147	0.297	0.294	0.161
	-0.804	0.274	0.475	0.392	0.262
INT18	-0.474	0.133	-0.283	-0.273	-0.149
	-0.647	-0.22	-0.382	-0.315	-0.211
INT19	0.222	0.0178	0.0188	0.0254	-0.0268
	-0.238	-0.0812	-0.141	-0.116	-0.0777
INT20	0.247	-0.0449	0.111	0.11	0.044
	-0.439	-0.149	-0.259	-0.213	-0.143
INT21	0.694	-0.203	0.429	0.416	0.222
	-0.891	-0.303	-0.525	-0.433	-0.29
INT10	0.0531	0.0132	0.0285	0.0279	0.0156
	-0.0746	-0.0254	-0.044	-0.0363	-0.0243
INT11	-0.0201	0.00512	0.0118	0.0106	0.0058
	0.0407	-0.0149	0.0258	0.0213	0.0142
INT14	0.00173	-0.0000624	0.000217	0.000354	0.000657
	0.00608	0.00208	-0.00359	0.00297	-0.00199
INT15	-0.0242	0.00702	-0.0151	-0.0144	-0.0075
	0.033	0.0112	-0.0195	0.016	0.0107
INT22	-0.0161	0.0169	-0.0311	-0.0298	-0.0171
	-0.0754	0.0258	0.0446	-0.0369	-0.0247
INT23	0.129	-0.0398	0.0805	0.0798	0.0435
	-0.216	-0.0735	-0.127	-0.105	-0.0703
INT24	-0.159	0.0447	-0.0953	0.092	-0.0503
	-0.218	-0.0742	-0.129	-0.106	-0.071
INT25	-0.0699	-0.00507	0.00484	-0.00892	-0.00904
	0.0754	-0.0257	-0.0445	-0.0368	-0.0246
INT26	-0.00564	0.00701	-0.0116	-0.0109	-0.00859
	-0.0421	-0.0144	-0.0249	-0.0207	-0.0138
INT27	0.454	-0.134	0.282	0.274	0.147
	0.58	0.197	0.342	0.282	0.189
INT3	0.00163	0.000346	0.000776	0.000717	0.00041
	-0.00215	-0.00073	-0.00127	-0.00104	-0.000698
INTo	0.000494	0.000214	0.000422	0.000535	0.000425
	0.00135	-0.00046	-0.000798	-0.000658	-0.00044

Standard errors displayed underneath coefficients
*** p<0.01, ** p<0.05, *
p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
RfcSQ	-0.0000172	0.000013	-0.0000245	-0.0000235	-0.0000132
	-0.0000571	-0.0000195	-0.0000338	-0.0000279	-0.0000187
RmcSQ	0.0000137	-0.0000195	0.0000495	0.0000303	0.0000216
	-0.000109	-0.0000371	-0.0000642	-0.0000531	-0.0000355
RfaSQ	-0.000144	0.0000404	-0.000086	-0.000083	-0.0000453
	-0.000197	-0.0000669	-0.000116	-0.0000957	-0.000064
RmaSQ	-0.0000345	2.71E-06	0.0000031	-1.04E-06	-4.21E-06
	-0.0000369	-0.0000126	-0.0000218	-0.000018	-0.000012
RfnSQ	0.0000433	-7.59E-06	0.000019	0.0000128	0.0000074
	-0.0000784	-0.0000266	-0.0000462	-0.0000381	-0.0000255
RmnSQ	0.000197	-0.0000575	0.000122	0.000118	0.000063
	0.000252	-0.0000859	-0.000149	-0.000123	-0.0000821
PfSQ	0.0000443	-0.0000107	0.0000233	0.0000123	0.0000125
	-0.0000616	-0.000021	-0.0000363	-0.00003	-0.00002
PmSQ	2.89E-07	-6.3E-08	9.26E-08	1.61E-07	7.64E-08
	-1.35E-06	-4.64E-07	-8.01E-07	-6.65E-07	-4.44E-07
YSQ	1.56E-08	-3.09E-09	6.98E-09	7.1E-09	3.75E-09
	1.94E-08	-6.61E-09	-1.13E-08	-9.45E-09	-6.32E-09
Number of children	-0.141	0.16	-0.333	-0.29	-0.112
	-0.708	-0.241	-0.417	-0.344	-0.23
Number of adults	-1.012	0.328	-0.688	-0.663	-0.301
	-1.546	-0.525	-0.911	-0.751	-0.502
Number of elderly	7.644	1.99	4.304	4.256	2.146
	-10.32	-3.508	-6.081	-5.013	-3.355
AGEHEAD	-0.192	0.0885	-0.179	-0.163	-0.082
	0.267	-0.0909	-0.158	-0.13	-0.0869
AGE2HEAD	0.00452	-0.00185	0.00381	0.00352	0.00174
	-0.00654	-0.00222	-0.00385	-0.00318	-0.00213
STDHEAD	2.04	-0.617	1.198	1.257	0.82
	-2.33	-0.796	-1.377	-1.14	-0.762
PRIMSCH	0.797	-0.262	0.583	0.595	0.311
	-1.283	-0.436	-0.756	-0.624	-0.417
PRIMPLUS	2.405	-0.853	1.761	1.703	0.887
	-3.672	-1.249	-2.164	-1.786	-1.194
SECONDAR	2.736	-0.965	1.981	1.94	1.019
	-4.175	1.42	-2.461	-2.03	-1.358
RURAL	0.778	-0.139	0.302	0.337	0.168
	-0.862	0.299	-0.519	-0.428	-0.286
BLACK	-18.75	4.12	-9.31	-9.178	-4.512
	-24.44	-8.307	-14.4	-11.87	-7.944
COLOURED	-11.23	2.725	-6.099	-5.973	-2.914
	-14.43	-4.898	-8.494	-6.997	-4.684
INDIAN	-7.24	1.762	-3.948	-3.807	-1.884
	-9.167	-3.113	-5.398	-4.447	-2.977
Constant	18.51	-4.22	9.654	9.23	4.261
	-24.2	-8.224	-14.26	-11.75	-7.865

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (n=0.65), Panel B: budget share equations

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
PCV	-1.342	-0.833	0.0312	0.414	1.208
	-1.684	-1.051	0.0475	-1.127	-2.961
Rmc	-0.52	-0.353	0.0116	0.222	0.664
	-0.574	-0.358	-0.0162	-0.384	-1.009
Rfc	0.256	0.193	-0.00609	-0.154	-0.436
	-0.315	0.196	-0.00885	-0.21	-0.563
Rma	0.168	0.0596	-0.000328	0.0121	0.0258
	-0.102	0.114	-0.00512	-0.122	-0.32
Rfa	0.581	0.392	-0.00959	-0.238	-0.746
	-0.545	-0.34	-0.0154	-0.364	-0.958
Rmm	-1.086	-0.723	0.0155	0.447	1.367
	-0.929	0.579	-0.0262	-0.622	-1.634
Rfo	-0.213	-0.15	0.00175	0.083	0.247
	-0.308	-0.192	-0.00868	-0.206	-0.541
Pm	-0.0054	-0.00365	-0.000139	0.0017	0.00268
	-0.0166	-0.0104	-0.000466	-0.0111	-0.0291
Pf	-0.09	-0.06	0.00149	0.0362	0.115
	-0.0909	-0.0567	-0.00257	-0.0609	-0.16
Y	-0.00173	-0.00113	0.0000239	0.000604	0.00192
	-0.00166	-0.00104	-0.000047	-0.00111	-0.00293
INT16	-0.224	-0.166	0.00502	0.129	0.367
	-0.27	-0.169	-0.0076	-0.18	-0.474
INT17	0.429	0.29	-0.00924	-0.18	-0.505
	-0.475	-0.296	0.0134	-0.317	-0.833
INT18	-0.404	-0.271	0.00661	0.163	0.511
	-0.331	-0.238	-0.0107	-0.255	-0.67
INT19	0.126	0.0449	0.000281	-0.00865	0.0177
	-0.141	-0.0877	-0.00396	-0.0939	-0.247
INT20	0.188	0.126	-0.00179	-0.0657	-0.2
	-0.258	-0.161	-0.00728	-0.173	-0.454
INT21	0.61	0.409	-0.00872	-0.25	-0.777
	-0.524	-0.327	-0.0148	-0.351	-0.921
INT10	0.0428	0.0276	-0.000794	-0.0159	-0.052
	-0.0439	0.0273	0.00124	-0.0293	0.0771
INT11	0.0158	0.0102	0.000306	0.00602	0.0208
	-0.0258	-0.0161	-0.000726	-0.0172	-0.0453
INT14	0.000956	0.000192	-7.82E-05	0.0000845	-0.000215
	-0.0036	-0.00224	-0.000101	-0.0024	-0.00631
INT15	-0.0209	-0.0142	0.000278	0.00868	0.0273
	-0.0194	-0.0121	0.000548	0.013	0.0341
INT22	-0.0339	-0.0256	0.000847	0.0207	0.0589
	-0.0446	-0.0279	-0.00125	-0.0298	-0.0783
INT23	0.117	0.0785	-0.00247	-0.0488	-0.15
	-0.127	-0.0794	-0.00358	-0.085	-0.223
INT24	-0.136	-0.0912	0.00219	0.0549	0.173
	-0.128	-0.0801	-0.00362	-0.0859	-0.226
INT25	-0.0402	-0.0147	0.0000241	-0.00212	-0.00369
	-0.0445	-0.0273	-0.00125	-0.0297	-0.0782
INT26	-0.0107	-0.00745	0.000254	0.00675	0.0217
	-0.025	-0.0156	-0.000701	-0.0167	-0.0438
IN127	0.4	0.268	0.00578	0.165	0.512
	-0.341	-0.213	-0.00962	-0.228	-0.6
INT3	0.00128	0.000824	0.000019	-0.000444	-0.00142
	-0.00126	-0.000787	-3.56E-05	-0.000845	-0.00222
INT6	0.000845	0.000483	2.65E-05	-0.000286	-0.000634
	-0.000795	-0.000496	-2.24E-05	0.000533	0.0014

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
RfcSQ	-2.79E-05	-2.07E-05	6.26E-07	0.0000161	0.0000458
	-3.38E-05	-2.11E-05	-9.44E-07	-2.25E-05	-5.93E-05
RmcSQ	0.0000577	0.0000387	-1.24E-06	-0.000024	-0.000074
	-6.42E-05	-4.01E-05	-1.81E-06	-4.29E-05	-0.000113
RfaSQ	-0.000123	-8.24E-05	2.01E-06	0.0000495	0.000155
	-0.000116	-7.22E-05	-3.26E-06	-7.74E-05	-0.000203
RmaSQ	-1.96E-05	-7.06E-06	4.67E-08	1.27E-06	-2.51E-06
	-2.18E-05	-1.36E-05	-6.13E-07	-1.46E-05	-3.83E-05
RfoSQ	0.0000326	0.0000218	-3.06E-07	-1.13E-05	-3.41E-05
	-4.61E-05	-2.87E-05	1.3E-06	3.08E-05	-0.000081
RmoSQ	0.000173	0.000116	-2.47E-06	-0.000071	-0.00022
	-0.000148	-9.26E-05	-4.19E-06	-9.93E-05	-0.000261
PfSQ	0.0000358	0.0000232	-5.92E-07	-1.32E-05	-4.24E-05
	-3.62E-05	-2.26E-05	-1.02E-06	-2.43E-05	-6.37E-05
PmSQ	2.86E-07	1.99E-07	5.59E-09	-1.05E-07	-2.04E-07
	-3.04E-07	-5.03E-07	-2.25E-08	5.35E-07	-1.41E-06
YSQ	1.17E-08	7.52E-09	-1.66E-10	-3.98E-09	-1.27E-08
	-1.14E-08	-7.13E-09	-3.22E-10	-7.65E-09	-2.01E-08
Number of children	0.247	-0.249	0.0104	0.207	0.595
	-0.416	-0.259	-0.0117	-0.278	-0.731
Number of adults	-0.977	-0.649	0.014	0.416	1.258
	-0.908	-0.566	-0.0256	-0.608	-1.597
Number of elderly	6.412	4.32	-0.0841	-2.553	-7.896
	-6.061	3.78	0.171	-4.06	-10.67
AGEHEAD	-0.21	-0.155	0.00131	0.107	0.321
	-0.157	-0.098	-0.00443	-0.105	-0.276
AGE2HEAD	0.00466	0.00337	-4.67E-05	-0.00228	-0.00685
	-0.00384	-0.0024	-0.000108	-0.00257	-0.00676
SCHEAD	1.828	1.166	-0.0306	-0.699	-2.218
	-1.379	-0.861	-0.0387	-0.92	-2.419
PRIMSCH	0.85	0.589	-0.00568	-0.37	-1.059
	-0.754	-0.47	-0.0213	-0.505	-1.327
PRIMPLUS	2.389	1.659	-0.0263	-1.072	-3.181
	-2.159	-1.347	-0.0609	-1.445	-3.797
SECONDAR	2.733	1.902	-0.0322	-1.21	-3.598
	-2.454	-1.531	-0.0692	-1.643	-4.317
RURAL	0.587	0.353	-0.0141	-0.191	-0.547
	-0.517	-0.323	-0.0146	-0.347	-0.911
BLACK	-14.59	-9.589	0.194	5.352	16.9
	14.35	-8.954	-0.405	-9.613	-25.26
COLOURED	-9.25	-6.167	0.0911	3.557	10.93
	-8.46	-5.276	-0.239	-5.671	-14.89
INDIAN	-5.951	-4.006	0.0561	2.35	7.101
	-5.377	-3.353	-0.152	-3.603	-9.465
CONSTANT	14.4	9.75	-0.154	5.469	-17.25
	-14.21	-8.864	-0.401	-9.518	-25.01

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

Panel A: income, pension and transfer equations (α=0.65)

Income		Pension			Transfer		
			Male	Female		Male	Female
Variable	Coefficient	Variable	Coefficient		Variable	Coefficient	
Number of children	-322.0***	Y	-0.00296***	-0.000783***	Y	-0.000702**	-0.00107***
	-24.46		-0.000552	-0.000157		-0.000286	-0.000169
Number of adults	-158.2***	PENS_II	177.5***	210.5***	Pm	-0.144***	-0.130***
	-37.77		-11.65	-3.305		-0.0142	-0.00935
Number of elderly	1058***	Number of children	-3.630**	-9.736***	Pf	-0.00634	0.000966
	113.1		1.703	0.483		-0.00396	-0.00261
AGEHEAD	94.09***	Number of adults	-10.75***	3.720***	Number of children	6.500***	7.411***
	-17.44		-2.521	-0.719		-0.957	-0.633
AGE2HEAD	0.913***	Number of elderly	66.25***	55.14***	Number of adults	-8.056***	-5.390***
	-0.191		-8.348	-2.37		-1.431	-0.973
SEXHEAD	666.6***	AGEHEAD	5.292***	0.970***	Number of elderly	-12.55***	12.53***
	-82.52		-1.229	-0.349		4.303	2.843
PRIMSCH	-460.9***	AGE2HEAD	-0.0676***	-0.0485***	AGEHEAD	-8.415***	-1.023***
	-138.3		-0.0137	-0.00389		-0.619	-0.409
PRIMPLUS	708.1***	SEXHEAD	71.28***	-40.68***	AGE2HEAD	0.109***	0.0171***
	-184.2		-5.78	-1.641		-0.0060	-0.00449
SECONDAR	677.5***	PRIMSCH	24.33**	-7.085***	SEXHEAD	4.823	-41.32***
	146		9.615	-2.73		-3.094	-7.045
BLACK	2106***	PRIMPLUS	29.10**	-4.91	PRIMSCH	12.99***	2.245
	-360.6		-12.75	-3.618		4.918	-3.25
COLOURED	-2866***	SECONDAR	36.03***	-4.907*	PRIMPLUS	18.82***	3.648
	-207.6		-9.478	2.691		-6.517	-4.306
INDIAN	-2857***	BLACK	-73.90***	-20.63***	SECONDAR	20.43***	0.992
	281.3		-9.995	-2.837		-4.097	3.235
RURAL	-47.53	COLOURED	71.65***	-5.058	BLACK	-20.31***	-10.61***
	-93.1		13.09	3.715		-5.145	-3.398
CAR	3035***	INDIAN	72.00***	4.712	COLOURED	-24.05***	-15.63***
	-157.5		19.31	5.482		-5.672	-4.409
RADIO	12.95	RURAL	-0.962	1.662	INDIAN	25.91***	-6.211
	86.76		-6.346	-1.802		9.839	6.502
FRIDGE	948.6***	CONSTANT	60.02***	5.104	RURAL	6.574*	6.896***
	97		-30.99	-8.797		3.89	2.548
STOVE	60.45				DUNEMP	3.574	1.429
	102.5					3.367	-2.205
MARRIED	586.8***				TOILET	0.00044	0.0816
	-18.69					0.0849	-0.0545
INT7	-426.1***				dPOV	-3.362	-17.83***
	20.99					4.748	-3.135
CONSTANT	-3974***				INT14	-0.0528***	0.0924***
	-532.9					-0.0226	-0.0149
					INT15	-0.154***	-0.0409*
						-0.0327	-0.0216
					INT6	-0.0229**	0.0665***
						-0.0106	-0.00702
					CONSTANT	176.6***	91.76***
						16.01	-10.57

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
POV	0.305***	0.0151	-0.0172**	-0.0136***	0.0026**
	-0.0572	0.0148	0.00818	-0.00472	-0.0143
Rm	0.0334**	0.00822**	-0.00341*	7.62E-05	-0.00646*
	-0.0134	0.00324	0.00192	-0.00111	-0.00034
Rf	-0.0194*	-0.00450*	0.00347**	-0.00200**	0.00514***
	-0.0111	0.00266	0.00158	0.000923	0.00274
Pm	-0.00052	0.000332	-0.000467	-0.000642**	0.00107
	-0.00361	-0.000868	-0.000515	-0.000301	-0.000891
Pf	0.00296	0.0001	0.000295	0.000365	-0.00119
	0.00364	0.000876	-0.000519	-0.000305	-0.000898
Y	-2.59E-05	-2.52E-05	1.05E-06	-4.28e-06**	6.50E-06
	-2.22E-05	-5.35E-06	-3.17E-06	-1.85E-06	-5.52E-06
INTR	0.0134	0.00316	-0.00240*	0.00144*	-0.00568***
	-0.00899	0.00214	0.00127	-0.000742	-0.0022
INT9	-0.0221**	-0.00543**	0.00226*	-8.76E-05	0.00441*
	-0.00943	-0.00225	0.00133	0.00077	-0.00233
INT10	-0.00188	-0.000736	-6.10E-05	-0.000262	0.000828
	0.00251	0.000601	0.000357	0.00021	-0.000618
INT11	0.000647	-0.000198	0.000345	0.000491*	-0.00084
	-0.00318	-0.000764	-0.000454	-0.000265	-0.000784
INT3	-9.90E-06	-4.30E-07	-1.66E-06	5.04e-06***	-5.67E-06
	1.70E-05	4.27E-06	2.53E-06	1.43E-06	4.40E-06
INT12	0.00406**	0.000766	-0.000529*	0.000269	-0.00131***
	-0.00199	-0.000479	-0.000284	-0.000166	-0.000492
INT13	-0.00889**	-0.00242**	0.00982*	-8.55E-05	0.00186*
	-0.00413	0.000993	0.00059	-0.000341	0.00103
INT14	0.00171	6.76E-05	-6.83E-05	-0.000161**	0.000325*
	-0.00077	-0.000186	-0.00011	-6.41E-05	-0.000191
INT15	0.00124**	0.000143	-5.41E-05	-1.11E-05	-0.000157
	-0.0006	0.000144	-8.53E-05	-4.98E-05	-0.000148
INT6	0.000308**	1.76E-05	2.80E-05	5.43e-05***	7.32e-05**
	-0.00014	-3.28E-05	-1.95E-05	-1.14E-05	-3.40E-05
KmSQ	-4.73e-06**	-1.16e-06**	4.82e-07*	1.78E-08	9.29e-07*
	-2.10E-06	-4.82E-07	-2.86E-07	-1.65E-07	-4.99E-07
RfSQ	2.42E-06	5.74E-07	-4.28e-07*	2.51e-07*	-1.02e-06***
	-1.57E-06	-3.79E-07	-2.26E-07	-1.31E-07	-3.89E-07
PmSQ	1.95E-08	1.61E-09	2.15E-08	2.89e-08**	-4.77E-08
	1.74E-07	-4.19E-08	-2.48E-08	-1.46E-08	-4.30E-08
PfSQ	-9.64E-07	-9.24E-08	-0.02E-08	1.35E-07	3.97E-07
	1.51E-06	-3.68E-07	-2.18E-07	-1.28E-07	-3.77E-07
YSQ	1.41E-10	0	0	0**	0
	1.48E-10	0	0	0	0
Number of children	0.0961***	-0.00698*	0.00839***	0.0126***	0.0222***
	-0.0131	-0.00315	-0.00187	-0.00108	0.00427
Number of adults	0.0811***	0.00994**	0.0139***	-0.000749	0.0207***
	-0.0207	-0.00499	-0.00296	-0.00173	-0.00515
Number of elderly	0.145**	0.017	0.0154	0.0190***	-0.00716
	-0.0692	-0.0167	0.00988	-0.00578	-0.0172
AGE-HEAD	0.0281**	0.00679**	-0.00385**	-0.00080	0.0026
	-0.0125	-0.00301	-0.00179	-0.00103	-0.00312
AGE2HEAD	-0.00407**	-0.000110***	4.82e-05**	1.64E-05	3.56E-05
	-0.00017	-4.14E-05	-2.48E-05	-1.42E-05	-4.29E-05

Standard errors displayed under each coefficients

*** p<0.01, ** p<0.05, * p<0.1

Two Dollar-a-day poverty line: d2POV

Panel A: income, pension and transfer equations (α=0.65)

Income		Pension			Transfer		
			Male	Female		Male	Female
Variable	Coefficient	Variable	Coefficient		Variable	Coefficient	
Number of children	322.4***	Y	0.00095***	-0.000785***	Y	0.000598**	-0.00102***
	24.46		0.000552	0.000157		0.000286	-0.000139
Number of adults	-159.0***	PENS_H	177.5***	212.4***	Pm	-0.141***	0.126***
	-37.77		-11.65	-2.306		-0.0142	0.00938
Number of elderly	-1059***	Number of children	3.680**	-5.796***	Pf	-0.141***	-0.126***
	-113.1		-1.700	-0.483		0.0142	-0.00938
AGEHEAD	93.49***	Number of adults	-10.75***	8.720***	Number of children	5.638***	6.121***
	-17.44		-2.531	-0.719		-0.973	-0.647
AGE2HEAD	-0.909***	Number of elderly	66.24***	55.16***	Number of adults	-8.057***	-5.490***
	-0.191		-8.348	-2.37		-1.481	-0.579
SEXHEAD	666.9***	AGEHEAD	5.293***	3.967***	Number of elderly	-12.79***	12.63***
	-52.52		-1.229	-0.349		-4.305	-2.847
PRIMSCH	-451.3***	AGE2HEAD	0.0676***	-0.0454***	AGEHEAD	-8.366***	-1.262***
	135.3		-0.0137	0.00389		0.62	-0.41
PRIMPLUS	-720.5***	SEXHEAD	71.20***	-40.68***	AGE2HEAD	3.109***	0.0166***
	-154.2		-5.78	1.641		0.2068	-0.0045
SECONDAR	-581.8***	PRIMSCH	24.35**	-7.091***	SEXHEAD	5.774*	40.18***
	-146		9.615	-2.73		-3.111	2.058
BLACK	2110***	PRIMPLUS	29.16**	-4.917	PRIMSCH	13.19***	2.571
	360.6		12.75	-3.618		-4.917	-3.252
COLOURED	-2565***	SECONDAR	35.03***	-4.914*	PRIMPLUS	19.10***	1.169
	-207.6		-9.478	-2.601		-6.516	-4.309
INDIAN	2857***	BLACK	43.80***	-20.64***	SECONDAR	21.51***	2.412
	-281.3		9.995	-2.537		-4.904	3.242
RURAL	47.36	COLOURED	73.64***	-5.062	BLACK	20.06***	9.965***
	93.1		10.29	-5.715		5.144	-3.4
CAR	5039***	INDIAN	-72.00***	4.713	COLOURED	-20.60***	-14.26***
	-157.5		-19.31	-5.482		6.669	-4.411
RADIO	15.69	RURAL	-2.958	1.652	INDIAN	-25.32**	-5.435
	-76.76		-6.346	-1.802		-9.84	-6.508
FRIDGE	372.7***	CONSTANT	-82.05***	5.224	RURAL	6.166	6.740***
	-56.99		-30.99	-6.797		-3.892	-2.552
STOVE	70.63				UNEMP	6.166	6.740***
	-102.5					-3.892	-2.552
MAXED	585.5***				TOILET	-0.00262	0.0552
	-13.59					-0.006	-0.0545
INT7	-425.8***				d2POV	5.237	0.83
	-70.59					-4.127	-2.726
CONSTANT	-3970***				INT14	0.0652***	-0.0900***
	-532.9					0.0226	-0.0115
					INT15	-0.137***	0.0402*
						0.0226	-0.0217
					INT16	-0.0245**	0.0126***
						0.0107	-0.00707
					CONSTANT	175.0***	87.94***
						-16.10	10.6

Standard errors displayed under each coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (η=0.65), Panel B: budget share equations

Variable	FOOD	ALCOHOB	ENTERTAIN	HEALTH	EDUCATION
d2POV	0.245***	0.0117	-0.00948*	-0.00842**	0.0112
	-0.0394	-0.00975	0.00550	-0.00357	-0.0109
Rm	0.0290**	0.00756**	0.00261	1.62E-05	-0.00702**
	-0.0122	-0.00302	-0.00173	-0.00111	-0.0034
Rf	-0.0192*	-0.00444*	0.00327**	-0.00192**	0.00814***
	-0.0102	-0.00261	-0.00144	-0.000931	-0.00281
Pm	0.00104	0.000262	0.000403	0.000640**	0.000395
	0.00327	-0.000807	-0.000461	-0.000299	-0.0009
Pf	0.00291	0.000297	0.000317	0.000365	-0.00118
	-0.00332	-0.00082	-0.000468	-0.000305	-0.000913
Y	-3.33e-05*	-3.41E-06	2.08E-06	-4.19e-05**	5.33E-06
	-1.99E-05	-4.92E-06	-2.81E-06	-1.81E-06	-5.51E-06
INT8	0.0132	0.00306	-0.00225*	0.00137*	-0.00569**
	-0.00817	-0.00202	-0.00115	-0.000748	-0.00225
INT9	-0.0192**	-0.00500**	0.00174	-5.04E-05	0.00478**
	0.00851	0.0021	0.0012	0.00077	0.00236
INT10	-0.00187	-0.000233	-7.52E-05	-0.00026	0.000815
	0.00228	0.000564	0.000322	0.00021	0.000628
INT11	0.00102	0.000149	0.000305	0.000489*	0.000779
	-0.00208	-0.000711	-0.000408	-0.000264	-0.000793
INT3	-4.73E-06	9.78E-08	-2.17E-06	5.24e-06***	-5.00E-06
	-1.61E-05	-3.97E-06	-2.27E-06	-1.47E-06	-4.44E-06
INT12	0.00373**	0.000721	-0.000480*	0.000266	-0.00133***
	-0.00102	-0.000451	0.000258	-0.000167	-0.000503
INT13	-0.00701**	-0.00224**	0.000754	-6.26E-05	0.00292*
	-0.00377	-0.000931	0.000533	0.000341	-0.00105
INT14	-6.37E-05	4.42E-05	-4.68E-05	-0.000156***	0.00298
	-0.000702	-0.000173	-9.90E-05	-6.42E-05	-0.000193
INT15	0.0010**	0.000127	-8.01E-05	-8.21E-06	-0.000171
	-0.000639	0.000133	7.60E-05	-4.93E-05	-0.000149
INTE	0.000143	5.44E-06	4.16e-05***	4.79e-05***	5.72e-05*
	-0.000114	-2.82E-05	-1.61E-05	-1.03E-05	-3.17E-05
RmSQ	-4.11e-06**	-1.07e-06**	3.89E-07	-9.66E-09	1.01e-06**
	-1.83E-06	-4.51E-07	-2.58E-07	-1.65E-07	-5.07E-07
RfSQ	2.39e-06*	5.55E-07	-4.02e-07**	2.41e-07*	-1.02e-06**
	-1.45E-06	-3.58E-07	-2.04E-07	-1.30E-07	-3.99E-07
PmSQ	4.36E-08	-1.29E-08	1.85E-08	2.89e-08**	-4.39E-08
	-1.58E-07	-3.90E-08	-2.23E-08	-1.44E-08	-4.36E-08
PfSQ	-9.58E-07	-9.21E-08	-9.52E-08	-1.34E-07	3.09E-07
	-1.39E-06	-3.44E-07	-1.96E-07	-1.28E-07	-3.03E-07
YSQ	1.82E-10	0	0	0**	0
	-1.33E-10	0	0	0	0
Number of children	0.101***	-0.00496*	0.00742***	0.0123***	0.0241***
	-0.0112	-0.00276	-0.00158	-0.00101	-0.00311
Number of adults	0.0729***	0.00974*	0.0146***	-0.000703	0.0203***
	0.019	0.0047	0.00269	0.00174	0.00526
Number of elderly	0.13***	0.0156	-0.0142	0.0189***	-0.00805
	-0.0634	-0.0157	-0.00895	-0.00581	-0.0175
AGEHEAD	0.0228**	0.00691**	-0.00293*	-0.00075	-0.0033
	-0.0113	-0.00278	-0.00159	-0.00102	0.00313
AGESQHEAD	-0.000231**	-9.91e-05***	3.53E-05	1.72E-05	4.53E-05
	0.000155	-3.82E-05	-2.19E-05	-1.40E-05	-4.30E-05

Standard errors displayed underneath coefficients *** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (u=0.65), Panel B: budget share equations

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
d2POV	0.0436*	0.0302***	0.00513**	0.00546	-0.0280**
	-0.0234	-0.0131	-0.00226	-0.00474	-0.0109
Rm	0.0179**	0.00979**	0.000313	0.00107	0.00858**
	-0.00727	-0.00405	-0.000648	-0.00147	-0.00338
Rf	-0.0154***	-0.00798**	-0.00101*	0.00183	-0.00325
	-0.006	-0.00338	-0.000541	-0.00124	-0.00284
Rm	-0.000861	-0.00188*	-0.000377**	0.00110***	0.00032
	-0.00192	-0.00109	-0.00019	-0.000399	-0.000912
Pf	0.00168	0.00222**	0.000317	-0.000744*	0.000379
	-0.00195	-0.0011	-0.000194	-0.000406	0.000926
Y	-6.30E-06	-8.26E-06	-2.55e-05**	4.36e-06*	3.15E-06
	-1.18E-05	-6.61E-06	-1.15E-06	-2.41E-06	-5.53E-06
INT8	0.0115**	0.00572**	0.000731	-0.00136	0.00218
	-0.00482	-0.00271	-0.000475	-0.000996	-0.00228
INT9	-0.0119**	0.00655**	-0.000226	-0.000678	-0.00577**
	-0.00506	-0.00282	-0.000486	-0.00102	-0.00235
INT10	-0.00124	0.00138*	0.000196	0.000155	-0.000371
	-0.00134	-0.000759	-0.000133	-0.000279	0.000637
INT11	0.00076	0.00149	0.000293*	-0.000891**	-0.000283
	-0.00159	-0.000957	-0.000168	-0.000351	-0.000803
INT3	2.77E-06	-5.79E-06	7.70E-07	-4.87e-06**	-2.58E-06
	-9.49E-06	-5.34E-06	-9.30E-07	-1.95E-06	-4.47E-06
INT12	0.00273**	0.00141**	0.000142	-0.000245	0.000461
	0.00108	0.000606	0.000106	-0.000222	-0.000508
INT13	0.00523**	-0.00286**	0.000129	-0.000296	-0.00254**
	0.00224	-0.00125	-0.000215	0.000452	-0.00104
INT14	0.000233	-0.000366	-7.54e-05*	0.000219**	9.47E-05
	-0.000413	0.000233	-4.07E-05	-8.54E-05	-0.000195
INT15	0.00342	0.000824*	6.16E-06	-3.03E-05	0.000144
	-0.000318	0.000179	3.12E-05	5.56E-05	-0.00015
INT6	0.23E-05	-1.48E-05	-4.42E-06	2.88e-05**	-3.53E-05
	-6.77E-05	3.78E-05	6.53E-06	-1.37E-05	-3.16E-05
RmSQ	-2.55e-06**	-1.41e-06**	-4.74E-08	-1.41E-07	-1.23e-06**
	-1.08E-05	-6.05E-07	-1.04E-07	-2.19E-07	-5.05E-07
RfSQ	2.06e-06**	1.01e-06**	1.27E-07	-2.32E-07	4.12E-07
	-8.53E-07	-4.81E-07	8.41E-08	1.76E-07	-4.03E-07
PmSQ	3.62E-08	8.35E-08	1.70e-08*	-4.98e-08***	-1.56E-08
	-9.29E-08	-5.24E-08	-9.17E-09	-1.92E-08	-4.40E-08
PfSQ	-5.45E-07	-7.07E-07	-1.04E-07	2.48E-07	-1.03E-07
	-8.18E-07	-4.63E-07	-8.12E-08	1.70E-07	3.89E-07
YSQ	0	5.11E-11	0**	-0*	0
	-7.84E-11	0	0	0	0
Number of children	0.00867	0.0282***	0.00837***	-0.00560***	0.00556*
	-0.00565	-0.00372	-0.00064	0.00135	-0.00309
Number of adults	-0.00431	0.0205***	-5.25E-05	0.00627***	0.00727
	-0.0112	-0.00633	-0.0011	0.00231	0.00528
Number of elderly	0.0477	0.0234	-0.000265	0.00202	0.0127
	0.0374	-0.0211	-0.00358	-0.00775	-0.0175
AGEHEAD	0.0129*	0.00256	0.00143**	0.00215	0.0130***
	-0.0067	-0.00374	-0.000641	-0.00135	-0.00311
AGEHEAD	-0.000176*	5.45E-05	1.51e-05*	-3.74e-05**	-0.000140***
	-9.20E-05	-5.14E-05	-8.85E-06	-1.86E-05	-4.28E-05

Standard errors displayed underneath coefficients *** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
SEXHEAD	-0.212***	-0.0406**	0.0580***	-0.00382	0.0466**
	-0.0812	-0.0201	0.0115	-0.00738	-0.0225
PRIMSCH	-0.113**	-0.0116	0.00958	0.0138***	0.00165
	-0.0449	-0.0111	0.00636	-0.00409	-0.0125
PRIMPLUS	0.187***	-0.0327**	0.0180**	0.0112**	0.0162
	-0.0619	-0.0153	0.00876	-0.00562	-0.0172
SECONDAR	-0.217***	-0.0404***	0.0220***	0.0204***	0.017
	-0.0557	-0.0138	-0.00789	-0.00507	-0.0155
RURAL	0.0938***	0.00228	0.0106***	0.0105***	-0.0131*
	-0.0264	-0.00653	-0.00375	-0.0024	0.00737
BLACK	-0.0719	-0.014	0.0143	-0.0963***	0.106
	0.256	-0.0632	-0.0361	-0.0234	0.0736
COLOURED	-0.0095	0.000796	0.0268	-0.0671***	0.0686*
	-0.15	0.037	-0.0211	-0.0137	-0.0413
INDIAN	-0.206	-0.0118	0.00596	-0.0413***	0.0443
	-0.162	0.04	-0.0229	-0.0148	-0.0447
CONSTANT	0.23	-0.0139	-0.029	0.112***	-0.127
	0.376	-0.0926	-0.0531	-0.0342	-0.104

Standard errors displayed underneath coefficients
*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
SEXHEAD	-0.159***	-0.032	0.00163	-0.00928	0.0345
	-0.0482	-0.027	-0.00486	-0.00981	-0.0225
PRIMSCH	-0.0191	0.0121	0.00732***	-0.0165***	-0.00166
	-0.0267	-0.015	-0.00259	-0.00546	0.0124
PRIMPLUS	-0.0501	-0.0114	0.0102***	-0.0228***	-0.0104
	-0.0368	-0.0206	0.00355	-0.0075	-0.0171
SECONDAR	0.0594*	0.0118	0.00848***	-0.0275***	-0.0263*
	-0.0331	0.0186	-0.00321	-0.00676	0.0154
RURAL	0.0496***	0.0129	-0.00520***	-0.00991***	0.0264***
	-0.0157	-0.00884	-0.00152	-0.00322	-0.0073
BLACK	-0.125	-0.0306	-0.0244*	0.0961***	0.135*
	-0.151	-0.0849	-0.0148	-0.0311	-0.0712
COLOURED	-0.143	-0.0764	-0.0237***	0.0594***	0.00319
	-0.0883	-0.0498	0.0087	-0.0183	-0.0417
INDIAN	-0.0947	-0.0749	-0.0218**	0.0641***	0.0117
	-0.0956	-0.0539	0.00938	-0.0197	-0.045
CONSTANT	0.112	0.0943	0.0581***	-0.0586	-0.165
	0.222	-0.125	-0.0216	-0.0455	-0.104

Standard errors displayed underneath coefficients
*** p<0.01, ** p<0.05, * p<0.1

Using the default or Deaton (1997) adult equivalence scales

Income		Pension			Transfer		
			Male	Female		Male	Female
Variable	Coefficient	Variable	Coefficient		Variable	Coefficient	
Number of children	326.4***	Y	0.00293***	-0.00103***	Y	-0.00138***	0.00075***
	-24.46		-0.000494	-0.00014		-0.000165	-0.00026
Number of adults	-172.3***	PENSH	177.9***	213.4***	Pm	-0.00557*	-0.0114**
	-37.78		-11.68	3.307		0.00296	-0.00445
Number of elderly	-1366***	Number of children	-3.671**	-9.050***	Pf	-0.0717***	-0.111***
	-113.1		-1.701	0.483		0.00886	-0.0135
AGEHEAD	90.08***	Number of adults	-10.75***	8.697***	Number of children	5.819***	5.695***
	-17.44		-2.531	-0.710		-0.557	-0.904
AGE2HEAD	0.802***	Number of elderly	66.21***	54.51***	Number of adults	-5.624***	-7.872***
	-0.191		0.311	-2.359		-0.995	1.5
SEXHEAD	559.6***	AGEHEAD	5.795***	4.000***	Number of elderly	6.466**	-16.87***
	-82.52		-1.228	0.349		2.776	-4.202
PRIMSCH	-470.2***	AGE2HEAD	-0.0676***	0.0487***	AGEHEAD	1.021**	-0.145***
	-138.3		0.0137	-0.00389		-0.409	0.619
PRIMPLUS	-737.5***	SEXHEAD	71.27***	-40.49***	AGE2HEAD	0.0147***	0.107***
	-184.2		5.777	-1.64		-0.00449	0.00679
SECONDAR	-748.8***	PRIMSCH	24.36**	7.172**	SEXHEAD	39.46***	10.31***
	-146		-9.815	-2.729		-2.058	-3.115
BLACK	2324***	PRIMPLUS	29.20**	4.306	PRIMSCH	2.507	13.70***
	-360.5		12.75	-3.518		-5.244	-4.911
COLOURED	-2753***	SECONDAR	36.04***	-4.765*	PRIMPLUS	5.311	19.69***
	207.5		-9.476	2.69		-4.3	-6.509
INDIAN	2790***	BLACK	73.64***	-22.56***	SECONDAR	5.642*	23.59***
	-261.2		-9.804	-2.783		-3.229	-4.888
RURAL	-11.63	COLOURED	-71.41***	-6.775*	BLACK	-12.16***	20.12***
	-93.11		-17.97	-3.682		-3.376	-5.094
CAR	3147***	INDIAN	-71.83***	0.366	COLOURED	-16.16***	-23.74***
	157.3		-19.26	-5.468		1.354	-6.591
RADIO	-2.481	RURAL	-3.96	1.593	INDIAN	-7.852	-26.41***
	-65.61		6.346	-1.801		-6.472	-9.797
FRIDGE	495.9***	CONSTANT	-80.35***	6.377	RURAL	5.807**	6.449*
	-97.27		-30.96	-8.787		-2.505	-3.913
STOVE	98.52				DUNEMP	-6.904***	2.216
	-107.8					-2.255	-3.413
MARRIED	594.4***				TOILET	-0.70587	-0.107
	-186.7					0.0575	-0.0871
INT7	-430.3***				defPOV	23.59***	24.46***
	-21					-2.333	-5.044
CONSTANT	-4153***				INT14	-0.157***	-0.128***
	-532.8					-0.0168	-0.0254
					INT15	-0.0985***	-0.237***
						-0.0252	-0.0381
					INT9	-0.117***	-0.0944***
						0.0101	-0.0152
					CONSTANT	78.34***	163.8***
						-10.62	-16.08

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations

Variable	FOOD	ALC&TOB	ENTERTAIN	HEALTH	EDUCATION
defPOv	0.315***	0.0126***	-0.0300***	-0.00258	0.0245***
	-0.0122	-0.00253	-3.48E-03	-0.00237	-0.0042
Pm	3.97E-05	7.50E-08	1.02E-05	-4.00e-05**	1.79E-05
	-7.50E-05	-1.56E-05	-2.15E-05	-1.77E-05	-2.59E-05
Pf	3.44E-05	2.40E-06	3.98E-06	4.64e-05***	1.41E-05
	-5.40E-05	-1.13E-05	-1.55E-05	-1.28E-05	-1.86E-05
Pm	2.49E-05	-1.33e-05*	-7.60E-06	-2.41e-05***	-9.06E-06
	-3.38E-05	-7.00E-06	-9.61E-06	-7.94E-06	-1.16E-05
Pf	0.000257***	-1.30E-06	3.19e-05*	-1.83E-05	-2.19E-05
	-6.06E-05	-1.26E-05	-1.73E-05	-1.43E-05	-2.09E-05
Y	-1.20e-05***	-2.76e-06***	-4.52E-07	-8.35e-07***	-1.56e-06***
	-1.19E-06	-2.48E-07	-3.41E-07	-2.82E-07	-4.11E-07
INT8	-9.79e-05*	-7.54E-06	-2.41E-06	2.90e-05**	4.95e-05**
	-5.84E-05	1.22E-05	-1.67E-05	-1.38E-05	-2.02E-05
INT9	9.93E-05	1.34E-05	1.25E-05	1.78E-05	7.52e-05***
	-6.41E-05	-1.34E-05	-1.84E-05	-1.52E-05	-2.21E-05
INT10	-0.000121**	3.11E-06	-9.46E-06	5.62E-06	-1.42E-05
	-6.28E-05	-1.10E-05	-1.51E-05	-1.25E-05	-1.82E-05
INT11	2.68E-05	1.47E-05	1.50E-06	2.16e-05*	3.30e-05*
	-5.44E-05	-1.13E-05	-1.56E-05	-1.29E-05	-1.88E-05
INT3	1.78e-05***	-3.43E-07	-1.04e-06***	3.08e-06***	7.49E-07
	-1.35E-06	-3.85E-07	-5.29E-07	-4.37E-07	-6.37E-07
INT12	5.92E-05	5.99e-05***	6.61e-05***	1.04E-05	7.25e-05***
	-7.36E-05	-1.64E-05	-2.25E-05	-1.86E-05	-2.71E-05
INT13	6.98E-05	-6.92e-05***	2.75E-05	-2.21E-05	-0.000144***
	-9.58E-05	-2.00E-05	-2.74E-05	-2.27E-05	-3.31E-05
INT14	-0.000406***	-1.74E-05	3.82e-05**	-1.73E-05	-1.15E-05
	-5.69E-05	-1.19E-05	-1.63E-05	-1.35E-05	-1.97E-05
INT15	0.000227***	4.71e-05***	3.07E-05	2.38E-05	-4.81e-05*
	-3.44E-05	-1.76E-05	-2.42E-05	-1.99E-05	-2.91E-05
INT6	-0.000962***	-1.01E-05	6.06e-05***	-1.39e-05**	-4.17e-05***
	-3.31E-05	-6.90E-06	-9.43E-06	-7.83E-06	-1.14E-05
RmSQ	-2.03E-08	2.64E-10	2.35E-09	5.64e-09*	-4.25E-09
	-1.31E-08	-2.73E-09	-3.75E-09	-3.10E-09	-4.52E-09
PfSQ	4.81E-09	6.02E-11	4.66E-10	5.11e-09**	-1.72E-09
	-8.49E-09	-1.77E-09	-2.43E-09	-2.01E-09	-2.93E-09
PmSQ	7.25E-10	7.73e-10*	2.52E-10	1.13e-09**	5.02E-10
	-2.05E-09	-4.26E-10	-5.86E-10	-4.84E-10	-7.06E-10
PfSQ	-9.61e-08***	1.43E-09	1.38E-08	-5.96E-09	4.52E-09
	3.05E-08	-6.36E-09	-8.73E-09	-7.21E-09	-1.05E-08
YSQ	6.06e-11***	0***	0	0*	0***
	0	0	0	0	0
Number of children	0.126***	-0.00101***	0.00694***	0.00920***	0.0273***
	-0.00136	-0.000387	-0.000532	-0.000439	-0.000641
Number of adults	0.0771***	0.00664***	0.0123***	0.00352***	0.0126***
	-0.0027	-0.000562	-0.000772	-0.000637	-0.00093
Number of elderly	0.115***	0.00114	0.00611**	0.0149***	0.00704**
	-0.00878	-0.00183	-0.00251	0.00207	0.00303
AGEHEAD	-0.00646***	-0.000342***	-0.000637*	0.000932***	0.000215
	-0.00125	-0.00026	-3.57E-04	-0.000295	-4.30E-04
AGE2HEAD	4.76e-05***	8.00e-06***	4.51E-06	-6.41e-06**	-1.76E-06
	1.38E-05	-2.87E-06	-3.94E-06	-3.25E-06	-4.75E-06

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (n=0.65), Panel B: budget share equations

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
defPOV	0.0577***	0.0174***	0.0101***	0.0123***	-0.0973***
	-3.66E-03	-0.00471	-2.08E-03	-0.00269	-0.00513
Rm	1.14E-05	1.94E-05	-2.72E-06	1.51E-05	-4.42E-05
	-2.26E-05	-2.90E-05	-1.25E-05	1.66E-05	-3.16E-05
Rf	-1.73E-06	2.72E-05	4.87E-07	3.51E-06	-4.07E-06
	1.63E-05	2.09E-05	9.03E-06	1.20E-05	2.20E-05
Rm	3.13E-06	7.05E-06	1.88E-06	4.21E-06	-7.59E-06
	-1.01E-05	-1.30E-05	-5.61E-06	-7.44E-06	-1.42E-05
Rf	2.05E-05	1.15E-05	3.06E-06	-1.98E-05	-2.92E-05
	-1.82E-05	-2.34E-05	-1.01E-05	-1.34E-05	-2.56E-05
Y	-1.60E-07	-2.00e-06***	-1.17E-07	-1.20e-06***	-1.67e-06***
	-3.59E-07	-4.61E-07	-1.99E-07	-2.64E-07	-5.03E-07
INT8	-6.63E-06	1.55E-05	5.07E-06	-1.42E-05	-6.96e-05***
	-1.76E-05	-2.26E-05	-9.77E-06	-1.29E-05	-2.46E-05
INT9	-2.54E-06	-1.48E-05	-3.13E-06	-2.94e-05**	-3.60E-05
	-1.93E-05	-2.48E-05	-1.07E-05	-1.42E-05	-2.71E-05
INT10	7.68E-06	-5.11e-05**	-2.60E-06	1.08E-05	-9.28e-05***
	-1.59E-05	-2.04E-05	-8.83E-06	-1.17E-05	-2.23E-05
INT11	2.73E-06	-4.19e-05**	-7.00E-07	4.63E-06	-9.000116***
	-1.64E-05	-2.10E-05	-9.09E-06	-1.20E-05	-2.29E-05
INT3	-2.23e-06***	-5.80e-06**	-8.54e-07***	-7.02e-07*	-1.52e-06*
	-5.56E-07	-7.15E-07	-3.09E-07	-4.09E-07	-7.79E-07
INT12	-2.02E-05	1.97E-05	-4.18e-05***	-1.55E-05	0.000122***
	-2.37E-05	-3.04E-05	-1.31E-05	-1.74E-05	-3.32E-05
INT13	-3.06E-05	5.64E-06	5.56e-05***	6.10e-05***	0.000106***
	-2.89E-05	-3.71E-05	-1.60E-05	-2.12E-05	-4.04E-05
INT14	-4.60e-05***	-2.44E-05	-2.36e-05**	-3.55e-05***	0.000198***
	-1.71E-05	-2.20E-05	-9.52E-06	-1.26E-05	-2.40E-05
INT15	-3.89E-05	-1.91E-05	-4.75e-05***	-4.57e-05**	0.000138***
	-2.54E-05	-3.27E-05	-1.41E-05	-1.87E-05	-3.56E-05
INT6	-9.30e-05***	-1.24E-05	-2.07e-05***	2.52e-05***	0.000117***
	-9.97E-06	-1.28E-05	-5.54E-06	-7.34E-06	-1.40E-05
RmSQ	2.33E-09	-3.90E-09	4.76E-10	-2.99E-09	1.29e-08**
	-3.95E-09	-5.07E-09	-2.19E-09	-2.90E-09	-5.53E-09
RfSQ	1.32E-10	-4.39E-09	2.10E-10	-6.10E-10	1.47E-09
	-2.56E-09	-3.29E-09	-1.42E-09	-1.88E-09	-3.58E-09
PmSQ	1.39E-10	-3.86E-10	-9.89E-11	-2.23E-10	4.60E-10
	6.16E-10	-7.92E-10	-3.42E-10	-4.53E-10	-8.63E-10
PfSQ	-3.73E-09	9.45E-10	6.00E-10	6.16E-09	1.10E-08
	-9.18E-09	-1.18E-08	-5.10E-09	-6.76E-09	-1.29E-08
YSQ	0	0***	0	0***	0
	0	0	0	0	0
Number of children	0.00990***	0.0295***	0.00746***	-0.000873**	0.00130*
	-0.000559	-0.000719	-0.00031	-0.000412	-0.000784
Number of adults	0.00273***	0.0264***	0.00191***	-0.00104*	-0.000529
	-0.000011	-0.00104	-0.00045	-0.000597	-0.00114
Number of elderly	0.00475*	0.0297***	0.00263*	-0.00419**	-0.0025
	-2.64E-03	-0.0034	-0.00147	-0.00194	-0.0037
AGEHEAD	-2.04E-05	0.00947***	-0.000913***	-0.00145***	0.000416
	-3.75E-04	-0.000483	-0.00208	-0.000276	-5.26E-04
AGE2HEAD	-1.92E-09	2.67e-05***	7.73e-06***	1.28e-05***	-8.28E-06
	4.14E-06	-5.32E-06	-2.30E-06	-3.05E-06	5.80E-06

Standard errors displayed underneath coefficients *** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FOOD	ALCOHOB	ENTERTAIN	HEALTH	EDUCATION
SEXHEAD	-0.0258***	0.0203***	0.00461**	-0.00358**	-0.00850***
	-0.0064	-0.00133	-0.00183	-0.00151	-0.00221
PRIMSCH	-0.0923***	-0.00157	0.00476*	0.00634***	0.00907***
	-0.00987	-0.00206	-0.00282	-0.00233	-0.0034
PRIMPLUS	-0.114***	-0.00839***	0.00617*	0.00392	0.0110**
	-0.0131	-0.00272	-0.00374	-0.00309	-0.00451
SECONDAR	-0.172***	-0.0193***	0.00975***	0.0122***	0.0167***
	-0.00985	-0.00205	-0.00282	-0.00233	-0.00339
RURAL	0.00693***	-0.00347**	0.00514***	0.00714***	-0.00212
	-0.00662	-0.00138	-0.00189	-0.00156	-0.00228
BLACK	0.148***	-0.00542*	0.00591	-0.0416***	-0.0122***
	-0.0133	-0.00277	-0.0038	-0.00314	-0.00458
COLOURED	0.176***	0.0361***	0.0121***	-0.0377***	-0.0208***
	-0.0142	0.00295	-0.00405	-0.00335	-0.00488
INDIAN	-0.0513**	-0.00152	0.00229	-0.0133***	-0.0229***
	-0.02	-0.00417	-0.00572	-0.00473	-0.0069
CONSTANT	0.276***	0.0533***	0.0310***	0.0223***	-0.00911
	0.0329	-0.00684	-0.00938	-0.00776	-0.0113

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1

3SLS Estimates (α=0.65), Panel B: budget share equations *(continued)*

Variable	FUEL	CLOTHING	CHILDCARE	EATOUT	REMM
SEXHEAD	-0.00135	-0.0111***	-0.00079	0.0101***	0.0118***
	-0.00192	-0.00247	-0.00107	-0.00142	-0.0027
PRIMSCH	-0.0179***	0.000921	0.00343**	-0.00264	0.00999**
	-0.00297	-0.00382	-0.00165	-0.00219	-0.00416
PRIMPLUS	-0.0228***	0.00717	0.00683***	-0.00646**	0.0154***
	-0.00393	-0.00506	-0.00218	0.00289	-0.00551
SECONDAR	-0.0322***	0.00321	0.00361**	-0.00816***	-0.00481
	-0.00296	-0.00381	-0.00164	-0.00218	-0.00415
RURAL	0.00264***	0.00339	-0.00694***	-0.00724***	0.0256***
	-0.00199	-0.00256	-0.0011	-0.00146	-0.00279
BLACK	0.0149***	0.0776***	0.00807***	0.0122***	0.0904***
	-0.004	0.00514	-0.00222	-0.00294	-0.0056
COLOURED	0.00130***	0.0436***	-0.00103	0.00131***	0.0158***
	-0.00426	-0.00548	0.00236	-0.00314	-0.00597
INDIAN	-0.00718	0.0153**	-0.00135	0.00163***	0.00141
	-0.00602	-0.00774	-0.00334	-0.00443	-0.00843
CONSTANT	0.0190*	0.0723***	0.0156***	0.00638***	0.0291**
	-0.00989	-0.0127	-0.00549	-0.00727	0.0139

Standard errors displayed underneath coefficients

*** p<0.01, ** p<0.05, * p<0.1