

Social Pensions, Migration and Household Composition: Evidence from South Africa*

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Abstract

Universal availability of social pension is a recent development in South Africa. This paper examines the impact of the aged pension on household size and composition, and on working-age adult migration decisions. Estimation results show that receipt of the aged pension increases household dissolution: on average, a household with more pension recipients will also have more working-age adults migrating away from the household in search of employment. The economic theory in the paper suggests that receipt of the pension gives households a higher income, making them less risk averse, thus making the risky option of migration more attractive.

Key Words: Social Protection, Social Pensions, Migration, Household Composition, South Africa.

JEL Classification: J1, O15, H55, C25.

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1. Introduction

Consider the following description of a household. This household lives in the rural region in a developing country and is dependent on employment in the agricultural sector as the main source of earnings. Now suppose there exists a high wage urban/manufacturing sector in the country and there are no restrictions on migration from one region to another, so one member of this household moves from the village to the city, finds employment and remits a portion of his (typically such a migrant is a male) income back home to support the parent household. The situation where a parent household resides in a village and a member of the household lives and works in the city, remitting cash and/or goods, is fairly common in many developing countries around the world (see Williamson (1988) for a survey), and this has been the case for many years. There are two important issues here. First, in this simple framework the migration decision is made at the household level arrived at by some sort of decision-making process within the household. Second, the outcome of this decision has significant effects on the welfare of the household, primarily because of the fact that there are uncertainties associated with the returns to migration (for example the migrant might find it hard to actually get a job in the city).

Now suppose that a social protection program, that directly benefits the parent household residing in the rural area, is instituted. How will that affect the migration decision within the household? The answer is not very straightforward. Consider a simply stylistic model consisting of a parent and a child (who is the potential migrant). In the standard expected earnings model of migration (Harris and Todaro (1970)) the child migrates if the expected earnings from migration exceeds the (expected) earnings from staying at home, net of direct migration and other (emotional) costs of migration, then the child migrates. In this scenario, introduction of the social protection program should have no effect on the migration decision.

On the other hand suppose both the parent and the child derive considerable utility from co-residence and the child migrates only if co-residence is no longer affordable. Then introduction of the social protection program should result in a reduction in migration. There is a third possibility. In the absence of the social protection program, the child might choose not to migrate since migration is a risky decision (a poor household might be less willing to accept the risk). Now when the social protection program is introduced the same household might be willing to accept the risk and the child might choose to migrate. Therefore the introduction of the social protection program leads to an increase in migration.

In this paper we examine the relationship between migration and social protection program of the sort described above using data from South Africa. The particular social protection program that we consider is the social pension program in South Africa. The relationship between access to social pensions and migration is an important one in the context of South Africa. For many years Black¹ households in rural South Africa have been dependent on income transfers from members of the household living away and working in the mines and plantations.² This dependency began with the hiring of Black South African males to work in diamond and gold mines in the 1860's. For security reasons, these workers were forced to live in closely guarded compounds close to the mines. Their families were not allowed to live with them, and they were only allowed to leave the mines once a year to visit their family. Households of these workers (usually living in the rural areas) relied heavily on remittances from these workers. With industrialization in the early 1900's most factories adopted this "closed-compound system". Over time this system of migratory labour was extended and codified by laws that restructured the legal and residential rights of the Black South Africans. For example the Native

¹ During the apartheid era, all South Africans were categorised into one of the following four categories: Black (or African), Coloured (or Mixed Race), Indian (or Asian) and White (or Caucasian). For sake of consistency with the literature and the data we stick to this categorisation.

² See Wilson (1972) for a history of the migrant labour system in South Africa.

Lands Act of 1913 denied the Blacks residence in non-homeland regions of the country except for work purposes.³ This policy was accompanied by the forced re-location of the Blacks to the homelands, which left them with limited land-based earnings opportunities. Black South Africans thus became even more dependent on the system of migratory labour.

Universal availability of social pension is a relatively recent development in South Africa. A system of public support for elderly and unemployed Whites had been in place for many years, but it is only with the recent eradication of apartheid and the demand for equal coverage and racial parity that the system was extended to include Non-Whites. In 1993 the maximum benefit of R370 per month⁴ was paid to all women above the age of 60 and all men above the age of 65, subject to a “means” test.⁵ By 1999 the monthly pension payment had risen to R520 per month. How important is pension income for Black households? Vorster, Rossouw, Raubenheimer and Muller (1996) find that if we exclude per capita pension income from per capita household income, all households without a wage income drop below the subsistence level and 60% of households with at least one earner drop below the subsistence level.

In recent years there has been quite a large amount of work on the South African social pension program. Different researchers have examined different aspects of the program – for example Lund (1994), Case and Deaton (1998), Maitra and Ray (2003), Duflo (2003), Bertrand, Miller and Mullainathan (2003), Jensen (2004) and Edmonds, Mammen and Miller (2003). In this paper we will examine the potential connection between access to the social pension and

³ The “homelands” were designated residential regions for the Blacks during the apartheid regime. These were autonomous states within South Africa.

⁴ The local currency in South Africa is Rand.

⁵ For a single age-qualified individual the “means” is defined as the sum of income and the imputed value of income-generating assets. In 1993, the pension would be reduced one-for-one when the means exceed R 90 a month until the means reach R 370 a month beyond which pension payment stops. For age-qualified couples, the means is calculated by pooling and splitting equally the income and imputed value of income-generating assets. Note that the means test does not take into account the income of the other members of the household. For the

internal migration. More generally, the issue that we examine in this paper is the effect of social pensions on household composition in post apartheid South Africa.

The benefits of an evaluation of this kind of social pension program extend beyond the borders of South Africa. There is now a rapid aging of the population in many developing countries (it is argued that the aggregate growth rate in the number of elderly in developing countries is more than double that in OECD countries). More and more countries are now in the process of designing new or updating old and antiquated old age pension programs (see Kinsella and Velkoff (2001)). Regardless of which way the introduction of the social pension program affects migration, there is very little doubt that there are likely to be household compositional effects and changes to living arrangements and residency choices. Much of the literature on residency choice by household members has examined whether elderly parents choose to live with their working relatives.⁶ In the South African context it is however more important to examine whether the non-pensioners choose to live with the pensioners, since the generosity of the pension, together with the fact that the pensions are means tested for the pensioner's income only, could act as strong incentives for household augmentation and household formation.

The issue of endogenous household formation is an important one in the development of social policy. The recent South African experience provides an excellent opportunity to examine the effects of various social policies, as the dismantling of apartheid in the early 1990's brought with it a number of drastic changes particularly with respect to legal rights and access to social protection. One particular issue centres on the mobility of working-age adults. There is a

Black South African households the "means" is set at such a high level that it is not binding for most households. See Alderman (1999).

⁶ See, for example Wolf and Soldo (1988), Martin (1989), DaVanzo and Chan (1994) and Cameron (2000).

belief that the changing legal, social and economic circumstances in post apartheid South Africa have resulted in increased child fostering among Black households. During the apartheid era, it was common for Black working-age males to migrate to cities and mines in search of work. Typically they were not allowed to bring their families, so the wives and children would be left behind in the villages. The adult male working in the city would remit a portion of his income back to his family. After the dismantling of apartheid and the repealing of the dreaded “pass laws”, Black women now have the legal freedom to migrate to the cities in search of employment. However because of the poor living conditions in South African cities, adults often prefer not to bring their children with them to the cities, instead leaving them with their grandparents and/or other relatives in the villages. Black Africans also often prefer their children to grow up in the villages so as to maintain historical, social and tribal ties with the land. Maluccio, Thomas and Haddad (2003) provide evidence of a significant increase in the number of children residing away from their mothers in 1998 compared to 1993, when the apartheid system had only just been abandoned. On the other hand, they found no significant change in the proportion of children living away from their fathers in 1998 compared to 1993.

The much greater access to the social pensions scheme may well have encouraged households to have children and other dependents live with the pensioners. Edmonds, Mammen and Miller (2003) use census data from South Africa to show that over the period 1991 – 1996 changes in the household composition of Black households were of this type. They find that households that receive social pension have fewer prime working age adult females but have more resident children below the age of 5 and young women of childbearing age. However Maitra and Ray (2003), using panel data from the Kwazulu-Natal province in South Africa, find no evidence to support the hypothesis that, *ceteris paribus*, an increase in pensions amount or an extension of the pensions program to a wider group of households leads to an increase in

household size (due to more working age adults and children residing in pensioner households). In fact, the evidence points to the contrary, namely, that a *ceteris paribus* increase in pensions amounts and/or in their coverage leads to a reduction in the number of working age adults in the household. Maitra and Ray were however unable to find an explanation for this phenomenon. The possible explanation that we wish to explore in more detail in this paper is whether the expanding social pensions program in South Africa encourages working age adults to leave the villages in search of jobs in the cities, with their elderly parents left to care for the children. It is well documented that pensioners have a propensity towards sharing their pensions with others⁷; it is possible that this extends as far as allowing working-age adults to be mobile in search of employment.

The results reported in this paper confirm that indeed households with pension recipients are more likely to send migrants in search of work. The results shed light on concerns that have been expressed that the provision of the social pension may actually create a moral hazard in reducing the incentive of working-age adults to pursue work (see Bertrand, Miller and Mullainathan (2003)). Our results suggest instead that the social pension has created economic opportunity, in allowing working-age adults to migrate in pursuit of better employment possibilities.

The outline of the paper is as follows. Section 2 describes the data that is used in the empirical analysis, and Section 3 presents a simple model of the household's decision whether to send a working-age migrant. When the model allows the household to be less risk averse for higher income levels, it predicts that the receipt of the social pension would lead to increased migration. The empirical results are presented in Section 4, and the concluding in Section 5.

⁷ Evidence on this is contained in Ardington and Lund (1995), McKendrick and Shingwenyana (1995), Moller and

2. Data and Selected Descriptive Statistics

We use several different data sets for our econometric analysis. The first is the South Africa Integrated Household Survey (SIHS) collected in 1993 as a part of World Bank's Living Standard Measurement Surveys undertaken in a large number of developing countries. This data was collected in the nine months prior to the first democratic elections that brought Nelson Mandela to power. The survey was conducted jointly by the World Bank and the South Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town. This cross-sectional data set is unique because it is the first survey that covers the entire South African population, including those in the predominantly Black "homelands". The sample consists of approximately 9,000 households drawn randomly from 360 clusters. The questionnaire and summary statistics are contained in SALDRU (1994). We will henceforth refer to this data as the SIHS93 data set.

Next we use the October Household Survey (OHS) Data Sets from 1997 – 1999. The OHS is an annual survey, based on a probability sample of a large number of households (30,000 in 1997, 20,000 in 1998, and 30,000 in 1999). The data sets cover a range of development indicators that include demographic factors (such as age, gender, level of education, marital status, migration, use of health services, internal migration), economic variables (such as employment, unemployment, informal sector employment) and social and well being measures (access to health and social services, safety of household, average household size, type of dwelling, level of education, quality of life, health statistics, vital statistics). Though the OHS's have been conducted every year from 1993 onwards, in this paper we will use data only from 1997 to 1999. Our choice of years is dictated primarily by data availability and data

Devey (1995), Moller and Sotshongaye (1996).

comparability across the different surveys.⁸ The OHS's of 1997 and 1998 were independent cross-sectional surveys. The OHS of 1999 was drawn from a master sample, in which households sampled from the same primary sampling units were visited for a variety of surveys in that year.

What we therefore have is a set of cross-sectional data sets – pooled cross sections over time. There are different ways of analysing this kind of data but for the purposes of this paper it is sufficient to pool the independent cross sectional data sets and include time dummies in our regression that will account for aggregate changes over time.

Selected descriptive statistics are presented in Table 1.⁹ Not surprisingly the period 1993 – 1999 has witnessed significant changes in a number of the broad aggregates. In the most striking example, on average there were 0.0244 migrants per household in 1993, while this rose to 0.255 by 1997, and settled at 0.207 in 1999.¹⁰ Average household size has fallen over the period: from 5.38 members in 1993 to 4.20 members in 1999. The other interesting observation worth noting is that there was a drastic increase in the proportion of households where the highest education attained by the household head is more than high school, from 2.60% in 1993 to 27.18% in 1999.

3. Methodology

We start with a simple stylistic model of the migration decision within the household, which builds on an approach developed by Jensen (2004). Migration is modelled as a household

⁸ In particular, the October Household Surveys prior to 1996 did not ask specific questions about people in the household who might have moved away in search of work. Further, the 1996 survey does not identify the number of pension recipients in the household, a key variable for the analysis in this paper.

⁹ The descriptive statistics presented relate to Black households only. The corresponding descriptive statistics for all households are available on request.

¹⁰ These figures are consistent with the trends in internal migration obtained by Posel (2002).

decision. This model allows us to incorporate the notion that members of the household care about each other, like to co-reside (derive utility from co-residence) and also seek to maximise total household resources. Consider a household consisting of an elderly parent (P) and an working age child (C). For simplicity, consider a single period problem, though the model can be viewed as a special case of a two-period overlapping generations model in which there are no capital markets or investment and the actions of the previous and future generations are given. In the context of poor rural households in developing countries, the absence of capital markets is not an unrealistic assumption. Preferences for both individuals are characterised by utility inter-dependence (caring individuals) and the utility function can be written as

$$U_i(X_i, X_j) = U_i(V_i(X_i), V_j(X_j)); \quad i, j = P, C; \quad i \neq j \quad .$$

The sub-utility functions V_i 's are assumed to be increasing and concave in their arguments and the X_i 's denote consumption. The child inelastically supplies one unit of labour, either near home while he co-resides with the parent, or away from home as a migrant. In the home location h the child is assumed to earn an income of Y_c^h with certainty. If the child migrates to an urban area, we assume (in the spirit of Harris and Todaro (1970)) that employment is not guaranteed. The child's income is given by $Y_c^m = Y$ with probability p , and $Y_c^m = 0$ with probability $1-p$, where p represents the probability of finding employment. The parent receives a public transfer (PT) in the form of social pension and earns other income $Y_p \geq 0$, neither of which depend on the labour supply decision of the child. Assume that there is a cost Φ^k associated with migrating, which captures both the actual costs of migrating and the difference in cost of living between living apart and co-residing (for example, there can be economies of scale or public goods produced in home consumption when the parent and the child co-reside). We assume that $\Phi^h = 0$ and $\Phi^m > 0$, and that this cost is borne by the child.

The parent and the child transfer resources within the family unit whether or not they co-reside. This transfer takes the form of direct income sharing when they co-reside, and private remittance when not. The budget constraint for the child, parent and the household can therefore be written as:

$$\begin{aligned}
 X_C^k &= Y_C^k - T^k - \Phi^k \\
 X_P^k &= Y_P + PT + T^k \\
 X_P^k + X_C^k &= Y_P + PT + Y_C^k - \Phi^k \equiv Y^T \\
 k &= h, m
 \end{aligned}$$

Here Y^T denotes total household resources and T^k denotes private transfers from the child to the parent.¹¹ Why should the “household resource” be of importance when we consider the possibility that the child might migrate? The reason follows from the nature of migration in South Africa. In South Africa migrants have typically continued to remain members of the parent household even though they spend a limited amount of time (in a year) in that household. Under apartheid, residency restrictions made residency outside the homelands illegal for Blacks without a work permit, so migrants would typically return to their parent home after working for several years. There were, therefore, incentives for the migrant to care for members of the parent household. While the abolition of these laws has made migration and residency outside the “homelands” easier, Black South Africans continue to regard themselves as members of the parent household primarily because of their desire to maintain cultural and tribal ties to the rural areas (see Jooma (1991)).

The household’s problem is to maximise utility by choosing the labour supply location of the child. We write the household expected utility function as a weighted average of the expected

¹¹ Note that there is nothing in this model that restricts transfers to flow from the child to the parent. Private transfers will be positive if the flow is from the child to the parent and negative if the flow is from the parent to the child.

utility of the two members (this is the Pareto Efficient model of the household – see Chiappori (1988), Bourguignon, Browning, Chiappori and Lechene (1993), Browning and Chiappori (1998)) so that the household maximises

$$\mu U_C(V_C(X_C), V_P(X_P)) + (1 - \mu) U_P(V_C(X_C), V_P(X_P)),$$

subject to the household resource constraint

$$X_C + X_P = Y^k; \quad k = h, m,$$

where μ denotes the weight or relative bargaining power of the two members and $\mu \in [0, 1]$.

Note that μ is assumed to depend on exogenous distribution factors that affect the allocation of resources but does not directly enter the preference or the budget constraint. In particular μ is determined before the migration decision is made.

The household's maximisation decision, given the restrictions on the utility function, can be captured by an indirect utility function for the household $v(\cdot)$, which is a monotonically increasing function of the consumption of both the members. We can therefore write $v(\cdot)$ to be a function of total household resources. The desirability of migration can be expressed as the difference between expected indirect utility when the child migrates and indirect utility when the child stays at home:

$$m = pv(Y_p + PT + Y - \Phi^m) + (1 - p)v(Y_p + PT - \Phi^m) - v(Y_p + PT + Y_C^h). \quad (1)$$

We can define a migration indicator function $m(1)$ that equals one if m is greater than or equal to zero and is zero otherwise. If we assume the household is risk neutral, their indirect utility function will be linear in total household resources, producing the following solution for the indicator function:

$$m(1) = 1 \text{ if } pY - \Phi^m > Y_C^h.$$

What is interesting is that in this simple stylistic model, social pensions received by the parent (PT) should not affect the migration decision $\left(\frac{\partial m(1)}{\partial PT} = 0\right)$ since it is independent of the location choice. However, it is generally considered that public policies of this kind do have an impact on households' migration decisions. What is missing from the analysis thus far is risk, which in our view has an important role to play in the household's migration decision. This is particularly true of very poor households, who have little access to credit or other forms of income insurance or social protection. We assume that the household preferences exhibit diminishing absolute risk aversion. Households whose preferences satisfy diminishing absolute risk aversion take more risks as they become wealthier.¹² Is this a fair assumption to make regarding preferences? We consider this assumption to be quite plausible: the higher the household income, the more able the household is to absorb the downside of taking a risk, and hence the household is less risk averse.

Now consider the implications of this attitude to risk for the relationship between the social pension and the decision to migrate. The migration decision can be viewed as an optimal allocation problem. There are two assets: a safe asset (not migrating, that yields an income $Y_p + Y_C^h$ with certainty) and a risky asset (migrating that yields an income level $Y_p + Y - \Phi^m$ with probability p and an income level $Y_p - \Phi^m$ with probability $1 - p$). Suppose now the household has access to public transfer PT . So in every state of nature, income is higher by this amount: the return to the safe asset now is $Y_p + PT + Y_C^h$ and the return to the risky asset in the two states of nature are $Y_p + PT + Y - \Phi^m$ and $Y_p + PT - \Phi^m$. If households exhibit decreasing absolute risk aversion, the optimal allocation decision results in the household

willing to accept more risk as income increases. This means that the introduction of the social pension program will result in the child migrating.

To be more specific, consider first a household that has no access to the public transfer PT . In this case there is great risk in the child migrating. If they are unable to find employment, then the household has only the parent's non-earned income to rely on (and this may be zero in many cases). The household cannot afford to take this risk, bearing in mind that if the child does not migrate, they have a guaranteed income. Whilst the migration option offers the possibility of higher income, it also offers risk of a decline in income to below survival levels. Now consider the same household with a potentially sizeable public transfer to the parent. The child can now migrate and risk earning no income, knowing that the household will have a basic income of at least PT , which is enough to ensure the household survives economically. In other words, the payment PT moves the household to a much higher income level, in which case they are much less risk averse. Other things being equal, the household is more likely to adopt the risky decision of migrating.

In the econometric analysis that follows, we include a variable to capture the effect of the social pension on the migration decision of the household, and expect a positive relationship between this variable and the working-age adult's decision to migrate.

Let us denote M^* as the desired number of migrants in the household, which responds to variations in a set of explanatory variables X ,

$$M^* = \beta X + \varepsilon,$$

¹² See Mas-Colell, Whinston and Green (1995), pages 192 – 193.

and ε is an unobserved error term capturing the impact of unobservable and random factors on M^* . In practice we do not observe M^* : we observe the following binary variable:

$$M = \begin{cases} 1, & \text{if there is a migrant in the household } (M^* > 0) \\ 0, & \text{otherwise } (M^* \leq 0) \end{cases}$$

In this case we estimate the parameters of the following equation: $M = \beta X + \varepsilon$, utilising a standard probit specification.

Alternatively, we observe the actual number of migrants in the household (which might or might not be equal to the desired number of migrants in the household). Define

$$M_N = \begin{cases} 0, & \text{if there is no migrant in the household } (M^* > 0) \\ 1, & \text{if there is one migrant in the household } (M^* = 1) \\ 2, & \text{if there are two or more migrants in the household } (M^* \geq 2) \end{cases}$$

In this case we estimate the following equation: $M_N = \beta X + \varepsilon$. We will estimate this equation using an ordered probit model.¹³

4. Estimation Results

Probit Estimates of the Presence of Migrant(s) in the Household

We start with the basic regression results – probit estimation of presence of a migrant in the household. The regression results for the sample of Black households are presented in Table 3. The dependent variable here takes the value 1 if a person has left the household in search of work¹⁴, and zero otherwise. The key explanatory variables of interest for this study are those indicating the number of adults who are age-qualified to receive the pension (males aged 65

¹³ We also use a multinomial logit estimator for the model. These results are not presented in the paper, but are available on request. They are very similar to the probit estimates.

¹⁴ The precise wording of the relevant question in the surveys was, “Are there any persons who are usually regarded as members of this household, but who were away for a month or more in the last year because they are migrant workers? (A migrant worker is someone who is absent from home for more than a month each year to work or seek work)”

and over, females aged 60 and over), and those indicating the number of pension recipients in the household. A more appropriate explanatory variable would be the actual amount of pension received by members of the household. However, for several of the surveys, this data seems to contain a number of errors – often the amount of pension received takes quite implausible values. Some evidence of this can be seen in the summary statistics presented in Table 1, particularly for 1997. Consequently, we decided to use the more indirect but more reliably measured variable capturing the number of pension recipients. This variable should actually provide a good indication of amount received: in most cases the pension is a fixed amount per eligible recipient. The means test, which could lead to a reduced pension receipt, applies to very few Black households. We present results where we do not distinguish between male and female pension recipients, and results where we include male and female pension recipients separately.

The estimated model departs from previous papers in this area by including both the number of age qualified elderly and the number of pension recipients in the one equation. The inclusion of both variables will allow us to capture the difference in probability of migration between those households with and without a pension recipient, after controlling for the number of age qualified elderly. One could argue that the number of age qualified elderly and the number of pension recipients in a given Black household would be identical in most cases, since almost every Black age qualified elderly are means tested in. In other words, the correlation between these two variables should be close to one. If this were the case, including them both as explanatory variables would result in collinearity problems. To examine this issue, we computed the correlation coefficient between the number of age-qualified elderly and the number of pensioners in the household overall, and then separately for males and females. The correlations and the bootstrapped 95% confidence intervals (with 1000 replications) are

presented in Table 2. All correlations are significantly less than one, indicating that a significant number of age qualified Black elderly do not receive the pension. To illustrate this point further, in our sample there are 15570 households with at least one age qualified elderly, but of these, 2454 (15.76%) households have no pensioners. There is thus sufficient difference between these two variables for there to be no real problem with multicollinearity.

Each estimated model includes a range of other variables designed to capture household characteristics, demographics, and economic status. These variables are: household size, number of boys and girls aged 0–6, 7–10, 11–16, age, sex, highest level of education attained by the household head¹⁵, a set of year dummies (the reference category is 1993), a dummy for rural residence, a set of province dummies, the household's main source of energy for heating, cooking and lighting, main wall and roof material of the house, and the number of rooms in the house. For all results that follow, robust standard errors are computed to account for arbitrary heteroskedasticity.

The first column of results in Table 3 tells us that the number of age-qualified elderly in the household has a positive and highly significant effect on the probability of migration¹⁶. Households with elderly residents are much more likely to send migrant workers. The estimated marginal effects suggest that one additional age qualified elderly resident in the household increases the probability of the presence of a migrant in the household by 0.0413. The coefficient of the second variable, the number of pension recipients in the household, measures the marginal effect of pension receipt. In other words, it captures the difference in probability of a migrant between two households with identical numbers of elderly residents and other characteristics, where one household does not receive the pension and the other does.

This coefficient is a small positive value, and is clearly not significant, suggesting that pension receipt in itself would have no impact on the migration decision.

The second column of Table 3 presents the probit estimates for the presence of a migrant in the household when age eligibility and pension receipt are classified by the gender of the recipient. The regression results show that the gender of the pension recipient has very different implications for migrant status in the household. An increase in the number of age-qualified males in the household (males aged 65 and higher) significantly increases the probability of the presence of a migrant in the household (a unit increase in the number of age-qualified males in the household increases the probability of the presence of a migrant in the household by 0.0969, and an increase in the number of male pension recipients further increases that probability by 0.0389. In contrast, there is no clear evidence that an increase in the number of age-qualified females in the household increases the probability of the presence of a migrant in the household. In fact, there is weak evidence that an increase in the number of female pension recipients actually reduces the probability of the presence of a migrant in the household. Marginal effects suggest that one extra age-qualified elderly female in the household has a small positive (though not statistically significant) effect on the probability of the household sending a migrant (just below 0.01), while one extra female pension recipient in the household actually reduces the probability of there being a migrant in the household by 0.0132.

Traditionally migrants in South Africa have been males. The restrictions on movement and the pass laws restricted the migration of women to the urban areas and the mines (either in search of jobs or to live with their partners). Following the dismantling of apartheid and the repealing of the pass laws, it has been claimed that Black women are increasingly migrating to the cities

¹⁵ We include 3 categories for the highest education attained by the household head: primary school, high school

in search of employment. To explore this claim, we next classify migrants by gender, and estimate the migration decision for males and females separately. As before, the focus is on the effect of the social pension program on the likelihood of there being a male or female migrant in the household.

Results for Black households, and for the case where pension receipts are classified by the gender of the recipient, are presented in the last two columns of Table 3. In the case of male migrants, we find that a household with one more age-qualified male has a much higher probability of sending a migrant (a probability 0.08 higher), but the presence of an age-qualified female in the household does not have significant impact on the probability of there being a migrant. Male pension receipt has a further positive effect on the probability of a male migrant (increasing the probability by 0.0236), while when there is a female pension recipient, this tends to decrease the probability of a male migrant by a relatively modest 0.015. Turning to the probability of there being a female migrant worker, the presence of age-qualified males or females has a similar positive effect on that probability, with the marginal effect of an increase in the number of age-qualified males being 0.026 and the corresponding effect of an increase in the number of age-qualified females being 0.022. Note that the marginal effect of age-qualified males on the probability of male migration is substantially higher than for female migration. In terms of pension receipt, male pension receipts does not have a significant effect, while if the female receives the pension, there is some evidence that this increases the probability of a working-age adult female migrating (the effect is positive and only just statistically significant, and the marginal effect on the probability is quite small).

and more than high school. The reference category is no formal education.

¹⁶ The third element in each cell is the estimated marginal effects.

These results are indicative of significant gender differences in the effect of pension receipts within the household. This is not a surprising finding. In fact a number of recent papers find that male and female pension receipts have very different effects on household outcomes. Maitra and Ray (2004) use data from the Kwazulu-Natal province in South Africa, and find that while female social pension receipt is generally associated with an improvement in the health status of children aged 0 – 5 in the household, an increase in male pension receipts is associated with a worsening of the health status of children in the same age category. Duflo (2003), using the SIHS 1993 data set, finds that pensions received by women had a large impact on the anthropometric status of girls but not of boys in the household, while male pension receipts did not have any effect on the anthropometric status of children in the household at all. Bertrand, Miller and Mullainathan (2003) also used the same 1993 data set, and find that when members of the household receive social pensions, this results in a significant drop in the labour supply of working age males in the household. The drop is stronger when the pension recipient is a woman, indicative of imperfect pooling of resources within the household.

Our results extend and to some extent conflict with those of Bertrand, Miller and Mullainathan (2003) and Jensen (2004): if we assume that individuals migrate primarily in search of employment in the modern (mostly urban) sector, we find that increasing access to the pension for males leads to an increase in the male labour supply, while increasing female pension receipts results in a small reduction in labour supply of working age males, but it does result in the increase in labour supply of working age females. However bear in mind that we are looking at very different time periods. Bertrand, Miller and Mullainathan (2003) use only the SIHS93 data set and Jensen (2004) uses both the SIHS93 data set and a set of cross sectional data sets from surveys conducted in the former “homeland” of Venda in 1989 and 1992. These

surveys were all conducted when many of the apartheid related rules were still in place (some restrictions on movement and residency were abolished in the late 1980's). We look at a very different time period and the fact that our results contradict those obtained earlier is in many ways a reflection of the change that South Africa has undergone since 1994.

We do not report detailed estimates of the coefficients for other variables in these models. Results are similar for all the various specifications, and are quite revealing. We find that an increase in household size is always associated with a reduction in the probability of a migrant in the household, while an increase in the number of boys and girls aged 0 – 6, 7 – 10 and 11 – 16 all increase the probability of the presence of a migrant in the household. Households in rural areas are also more likely to have migrants. In terms of the head of the household, evidence clearly suggests that households whose head is older, female or less educated are less likely to have a migrant from the household. Interestingly, all of the year dummies are positive and highly significant. This implies that relative to the reference year (1993), there is a much higher probability of the household having a migrant in each of the other survey years. This is consistent with the widely held perception that after the restrictions imposed by apartheid were lifted, internal migration of individual household members became much more common. The descriptive statistics presented in Table 1 also confirm this trend.

The results in Table 3 are based on a sample that includes only Black households. In Table 4 we report results for the specifications where all households are included. A set of race dummies is included as additional regressors (White, Indian and Coloured, with Black as the reference category). All three race dummies are always significant and negative, implying that Black households are much more likely to send a migrant than households in any other ethnic category. It is apparent from Table 4 that pension effects on the migration decision are broadly

similar to those obtained for the Black households only. The main differences seem to be in relation to the impact of pension receipt: the results suggest that the number of pension recipients has a significant positive effect on the decision to migrate. When the sample included only Black households, this variable was not significant. As with the results for Black only Households, the more male pension recipients, the more likely there will be a migrant from the household, although the effect is stronger when all households are considered. The other contrasting result is that with Black households, there was some evidence that female pension receipt actually reduced the number of migrants. With this broader sample, no significant connection is found at all.

Year-specific regression results for the presence of a migrant within the household are presented in Table 5. These suggest some sizeable differences in results over time. Results for 1993 are noticeably different in that they suggest the migration decision is unaffected by the number of age-qualified adults in the household, and by the number of pension recipients. In the later years, there is a consistently strong positive relationship between the number of age-qualified adults and the probability of migration (a unit increase in the number of age-qualified elderly in the household increases the probability of the household sending a migrant by 0.0556 in 1997, 0.078 in 1998 and 0.023 in 1999). For most years, there is no clear evidence that pension receipt has an effect on migration, with a significant relationship only in 1999. For that year, the coefficient estimate implies that households with more pension recipients have a higher probability of migration.

Ordered Probit Estimates of the Number of Migrants in the Household

One problem with the results presented so far is that they do not make full use of information about migrants from the household. The data set tells us not just whether the household has

sent a migrant in search of work, but also how many of these migrants there are. We can make use of this information on the number of migrants by performing estimation using the ordered probit model. In this case, the dependent variable can take one of three values: 0 if there are no migrants in the household, 1 if there is one migrant in the household, and 2 if there are two or more migrants in the household.¹⁷ A positive coefficient on a particular explanatory variable implies that the variable increases the probability of the household having two or more migrants, implying a lower probability of there being zero and / or one migrant. Conversely, a negative coefficient implies that the variable increases the probability of zero migrants in the household, decreasing the probability of one or more migrants. The results of the ordered probit analysis are given in Table 6; in summary, they suggest qualitatively the same conclusions as those from the probit analysis.

The first column of Table 6 presents the baseline ordered probit estimation results for the number of migrants in the household: these results suggest that Black households with more age-qualified individuals will have more migrants, but that receipt of the pension does not have a significant effect on the number of migrants. When the number of age-qualified adults and pension recipients are classified by gender (the second column of Table 6), we find that an increase in the number of age-qualified males leads to a sizeable increase in the number of migrants, while there is no evidence to suggest that an increase in the number of age-qualified females in the household has any effect on the number of migrants. Male pension receipt is a further positive factor in increasing the number of migrants, while there is weak evidence that female pension receipt has a small negative effect on the number of migrants in the household.

¹⁷ There are very few households with more than two migrants, so this simplification seems warranted.

We now consider the results where the number of male and female migrants are modelled separately (the last two columns of Table 6). We find once again that there are notable differences in how males and females making a decision about migration respond to the presence of age-qualified adults and to availability of the pension in the household, and their response can differ according to the gender of the pension recipient. The results show clearly that an increase in the number of age-qualified males in the household increases the number of both male and female migrants in the household, with the effect being much stronger for male migrants. In contrast, increasing the number of age-qualified females tends to have little impact on the number of male migrants, but increases the average number of female migrants. Turning to the incremental impact of receiving the pension, we find that households with more male pension recipients have significantly more male migrants, but male pension receipt has no definite impact on the number of female migrants. In contrast, there is weak evidence that female pension receipt decreases the number of male migrants, and increases the number of female migrants. Overall, these results again are consistent with the probit estimation results, and are indicative of imperfect pooling of resources within the household.

As with the probit model, the ordered probit estimates include a number of covariates. Their effects on the migration decision are generally very similar to those for the probit model. In terms of household composition, smaller households and/or households with more boys and girls aged 0 – 6, 7 – 10 and 11 – 16 are all associated with a higher probability of the presence of two or more migrants in the household. The characteristics of the household head are also important: the probability of no migrant in the household is higher if the household head is female, older, or has a higher educational attainment. The number of migrants is likely to be higher in rural households. All of the year dummies are positive and significant, which implies

that the number of migrants in the household is likely to be higher in all years compared to the base year of 1993.

Finally in Table 7 we present the ordered probit regression results for the number of migrants in the household for all households (as opposed to Black households only, as in Table 6). There are some interesting differences compared to the results presented in Table 6. The first column of Table 7 suggests that, in contrast to the results for Black households, the number of age-qualified elderly in the household does not have a statistically significant effect on the number of migrants in the household. However, increasing the number of pensioners in the household leads to a significant increase in the number of migrants. When the number of age-qualified elderly and the number of pension recipients in the household are separated by gender (see Column 2 of Table 7), we find that both an increase in the number of age-qualified males and of male pension recipients in the household increases the number of migrants in the household. On the other hand, the results suggest that an increase in the number of age-qualified females in the household reduces the number of migrants in the household, while an increase in the number of female pension recipients in the household does not have a significant effect on the number of migrants. While the first set of results (for the number of age-qualified males and number of male pension recipients) are similar to those obtained for the Black households (Table 6), the results for the number of age-qualified females and female pension recipients are quite different to those obtained for the Black households.

When we consider the number of male and female migrants separately (Columns 3 and 4 of Table 7), there are some clear patterns emerging about the impact of pension receipt on migration. The evidence is strong that male pension receipt increases migration of working-age males, while female pension receipt does not appear to have any impact on the decisions of

men to migrate or not. Considering migration by females, pension receipt by either males or females has a significant positive effect on the number of female migrants. The marginal effects implicit in these estimated ordered probit models could be used to calculate the average difference in number of male and female migrants between households with pension recipients and those without pension recipients.¹⁸ For male migrants, the model predicts that the presence of a male pension recipient increases the number of male migrants by 0.02 per household. This effect may not sound very large, but from Table 1 we see that an average household had less than 0.2 male migrants, so this represents an increase of more than 10% in the number of male migrants. Another way of presenting this is that for a group of 100 households without a male pension recipient, around 18 of these households would have a male migrant, while the model predicts that more like 20 of 100 households with a male pension recipient would have a male migrant. Likewise for female migrants, both male and female pension receipt increase the average number of female migrants by around 0.01 per household. This represents an increase of more than 10% for the average household. Put another way, for a group of 100 households without a pension recipient, around 8 of these households would have a female migrant, while the model predicts that this would increase to around 9 of 100 households with a pension recipient.

Household Composition Effects

We next turn to the household composition effects of social pensions. The results presented thus far show that the extension of the social pension program to the Black population of South Africa has generally had significant effects on migration, typically away from households residing in rural areas. It is plausible that the extension of the social pension program would have resulted in other changes in household size and composition. There is evidence that

¹⁸ We assume in this analysis that the category “two or more migrants” for the dependent variable is always only

following the dismantling of the apartheid regime an increasing number of women are migrating to the cities in search of jobs, leaving their children behind (see Maluccio, Thomas and Haddad (2003)). On the other hand, the results reported above suggest that increased pension availability to females has resulted in a reduction in the number of male migrants, and as Bertrand, Miller and Mullainathan (2003) find, a reduction in the labour supply of working age males in the household. We would like to explore more directly what the impact of an increase in pension receipts is on the number of resident children in the household and the number of working-age resident females and males.

Table 8 presents the OLS estimates of the effect of social pension receipt on the number of resident children, where a child is defined as someone aged less than 16. We present results where the relevant explanatory variables are not classified by gender, as well as the case where distinction is made between the number of age-qualified males and females and the number of male and female pension recipients. The first column of Table 8 suggests strongly that households with more age-qualified adults will have more resident children. When these age-qualified adults are classified by gender (column two), we find that it is the presence of age-qualified females that leads to an increased number of children: increasing the number of age-qualified males has no impact on the number of children. The model suggests that there is no difference in the number of children in households where these elderly receive the pension and those where the elderly do not receive the pension. This lack of relevance of the pension persists when pension recipients are classified by gender – neither male nor female pension receipt has any significant impact on the number of resident children.

two migrants. This will provide an underestimate of the effect of the social pension, although there are very few households with more than two migrants, so the bias is small.

These results suggest a clear pattern of families choosing to have their children cared for by elderly grandparents, especially grandmothers, although it is notable that the incidence of this social arrangement is not affected by whether the grandparent receives the pension.

Turning to the effect of social pensions on the number of resident adults (Table 9), the first set of regression results suggest that a household with more age-qualified adults will have fewer working-age adults, but that receipt of the pension does not affect the number of resident adults. However, when the gender of age-qualified adults and pension recipients is taken into account, we find that while households with more age-qualified males have fewer working-age adults, a household with more age-qualified females will have more working-age adults. The magnitude of this effect, while significant, is clearly weaker for age-qualified females than males, with a coefficient of 0.0851 compared to -0.9182 for age-qualified males. The effect of pension receipt also varies according to the gender of the recipient: an extra male pension recipient increases the number of resident working-age adults, while more female pension recipients leads to a decrease in the number of working-age adults.

The final two columns of Table 9 show the results when the number of resident working-age males and females are modelled separately. The evidence suggests that households with age-qualified males and females generally tend to have fewer working age males and fewer working-age females. The effects of pension receipt, however, vary considerably according to the gender of the recipient and the gender of the working-age adult. The results suggest that receipt of the pension has no significant effect on the number of resident working-age males, regardless of the gender of the pension recipient. For females, if the pension recipient is a male, this increases the number of resident working-age females, while female pension receipt actually decreases the number of resident females. This is an interesting finding that may

suggest something about the distribution of household power between genders and generations.¹⁹

5. Conclusion

The primary aim of this paper has been to examine the effect of the social pension program in South Africa on household composition, and particularly on the decision of working age adults to leave the household in search of employment. Our results show that once we control for household composition, including the number of age-qualified elderly, households with members who receive the pension generally have a higher probability of sending a migrant worker. The only set of results that are not consistent with this description is the weak evidence suggesting that when the household has a pension recipient who is female, there is some evidence to suggest that this reduces the chances of there being a male migrant worker.

In contrast with our findings, some existing literature utilising data from the 1980s and early 1990s suggests that pension receipt has led to a reduction in labour supply. The results in this paper suggest that the political changes that have taken place in South Africa through the 1990s have brought about a change in the impact of pension receipt on labour supply and migration decisions of working age adults.

We argue that an explanation for the positive link between pension receipt and migration can be found in the attitudes households take to risk. As the pension lifts households to a higher income level, this allows them to be less risk averse. The less negative attitude to risk in turn

¹⁹ One potential problem with these OLS regressions is that because of the discrete nature of the dependent variables (in Tables 8 and 9) the OLS estimates could be inconsistent. We have estimated the models of the number of resident children and resident adults in the household as ordered probit regressions. The results (available on request) are very similar to those we obtain using the OLS regressions.

means that working-age adults in the household are more likely to take the risk of migrating in search of higher paid but uncertain work opportunities. The economic theory thus provides a sound economic rationale for the empirical findings.

When a social transfer payment such as the age pension is introduced, the motivation is to make provision for members of society who are unable to provide for themselves through other means. Of course, there is always a concern about potential unintended side effects of any such social policy initiative: does the measure reduce the incentive to provide for oneself through other income-generating activities? This concern could be addressed by examining whether the aged pension leads to a reduction in the labour supply of working-age adults who are members of the same household. While there is some evidence that the pension may reduce migration rates for males (particularly if the pension recipients are females), the overall picture found in the empirical results in this paper seems to be that when members of a household receive the pension, this frees up working-age adults, and particularly females, to migrate in search of employment. In other words, it appears that rather than decreasing the incentive to work, the pension actually creates the minimal income level for the household that increases the incentives and capacity of the working-age adult to pursue work.

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Table 1
Selected Descriptive Statistics
Black Households Only

Variable	1993		1997		1998		1999	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Number per household								
Migrant	0.024	0.154	0.255	0.436	0.240	0.427	0.207	0.405
Male Migrant	0.018	0.134	0.196	0.397	0.183	0.386	0.157	0.364
Female Migrant	0.019	0.137	0.091	0.288	0.088	0.284	0.079	0.270
Household Size	5.379	3.556	4.944	2.836	4.545	2.816	4.201	2.854
Boys aged 0 – 5	0.441	0.740	0.415	0.689	0.374	0.658	0.318	0.610
Boys aged 6 – 10	0.302	0.582	0.256	0.516	0.233	0.497	0.210	0.478
Boys aged 11 – 16	0.376	0.668	0.381	0.645	0.345	0.633	0.313	0.604
Girls aged 0 – 5	0.419	0.740	0.428	0.700	0.367	0.657	0.317	0.614
Girls aged 6 – 10	0.293	0.568	0.257	0.515	0.231	0.491	0.207	0.476
Girls aged 11 – 16	0.386	0.668	0.391	0.655	0.364	0.635	0.317	0.605
Males aged 17 – 64	1.384	1.127	1.110	0.991	1.075	0.939	1.074	0.933
Females aged 17 – 59	1.466	1.215	1.371	1.046	1.272	1.034	1.184	1.025
Males aged 65 and Higher	0.094	0.295	0.092	0.292	0.078	0.270	0.076	0.272
Females aged 60 and Higher	0.219	0.429	0.244	0.449	0.205	0.418	0.184	0.403
Age Qualified Elderly	0.313	0.581	0.335	0.586	0.283	0.549	0.260	0.536
Pensioners	0.290	0.554	0.327	0.580	0.234	0.501	0.210	0.477
Amounts per household								
Male Pension Received	400.93	1383.76	629.10	9587.81	347.69	1391.79	-	-
Female Pension Received	877.98	1953.99	1294.88	7100.51	952.61	2214.41	-	-
Total Pension Received	1278.91	2647.28	1923.98	11985.55	1300.30	2867.05	-	-
Characteristics of Household Head								
Age	46.86	17.18	48.18	16.10	46.93	15.76	46.15	15.68
Proportion Female	0.309	0.462	0.458	0.498	0.430	0.495	0.418	0.493
Highest Educational Attainment:								
Primary	0.481	0.500	0.167	0.373	0.1758	0.3807	0.1976	0.3982
High School	0.179	0.384	0.318	0.466	0.316	0.465	0.310	0.462
Post High School	0.026	0.159	0.228	0.420	0.238	0.426	0.272	0.445
Sample Size	6505		22407		14149		19980	

Table 2
Correlation between Number of Age Qualified and Number of Pensioners
Black Households

Panel A: Overall				
Number of Age Qualified	Number of Pensioners			
	0.851			
	(0.845 0.858)			
Panel B: Classified by Gender				
	Number of Age Qualified Males	Number of Age Qualified Females	Number of Male Pensioners	Number of Female Pensioners
Number of Age Qualified Males	.			
Number of Age Qualified Females	0.231	.		
	(0.220 0.242)			
Number of Male Pensioners	0.796	0.203	.	
	(0.786 0.806)	(0.193 0.213)		
Number of Female Pensioners	0.193	0.862	0.211	.
	(0.183 0.204)	(0.857 0.868)	(0.200 0.221)	

The first entry in each cell is the observed correlation. Below this in parentheses is the Bootstrapped 95% confidence interval (using 1000 replications).

Table 3
Probit Results for Presence of a Migrant
Black Households

Selected Explanatory Variables	Dependent Variable		
	Presence of Migrant(s)	Presence of Male Migrant(s)	Presence of Female Migrant(s)
Number of Age Qualified Individuals	0.1870*** (0.0237) 0.0413		
Number of Pension Recipients	0.0101 (0.0236) 0.0022		
Number of Males aged 65 and Higher	0.4424 *** (0.0413) 0.0969	0.4948*** (0.0453) 0.0801	0.2347*** (0.0466) 0.0259
Number of Females aged 60 and Higher	0.0443 (0.0301) 0.0097	-0.0339 (0.0322) -0.0055	0.1997*** (0.0347) 0.0221
Number of Male Pension Recipients	0.1777*** (0.0420) 0.0389	0.1457*** (0.0463) 0.0236	0.0395 (0.0478) 0.0044
Number of Female Pension Recipients	-0.0604** (0.0302) -0.0132	-0.0927*** (0.0322) -0.0150	0.0694** (0.0348) 0.0077

Robust standard errors are in parentheses; the third entry in each cell is the estimated marginal effect.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies.

Table 4
Probit Results for Presence of a Migrant
All Households

Selected Explanatory Variables	Dependent Variable	
	Presence of Migrant(s)	
Number of Age Qualified Individuals	0.1051*** (0.0206)	0.0179
Number of Pension Recipients	0.0666*** (0.0207)	0.0113
Number of Males aged 65 and Higher		0.3685*** (0.0362) 0.0617
Number of Females aged 60 and Higher		-0.0448* (0.0269) -0.0075
Number of Male Pension Recipients		0.2225*** (0.0375) 0.0372
Number of Female Pension Recipients		0.0013 (0.0271) 0.0002

Robust standard errors are in parentheses; the third entry in each cell is the estimated marginal effect.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies. Dummy variables for Race are also included.

Table 5
Probit Estimates for Presence of a Migrant
Black Households - Year Specific Estimates

	1993	1997	1998	1999
Number of	-0.1649	0.2048***	0.3114***	0.1074**
Age Qualified	(0.0893)	(0.0337)	(0.0558)	(0.0492)
Individuals	-0.0072	0.0556	0.0780	0.0234
Number of	0.0678	-0.0105	-0.0809	0.1352***
Pension	(0.0934)	(0.0323)	(0.0579)	(0.0518)
Recipients	0.0030	-0.0029	-0.0203	0.0295
Sample Size	6480	22407	14149	19932

Robust standard errors are in parentheses; the third entry in each cell is the estimated marginal effect.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets.

Table 6
Ordered Probit Estimates for Number of Migrants
Black Households

	Number of Migrants	Number of Male Migrants	Number of Female Migrants
Number of Age Qualified Individuals	0.0985*** (0.0200)		
	-.0222 .0177 .0045		
Number of Pension Recipients	0.0039 (0.0211)		
	-.0009 .0007 .0002		
Number of Males aged 65 and Higher	0.3212*** (0.0356)	0.3827*** (0.0389)	0.1712*** (0.0436)
	-.0719 .0575 .0144	-.0634 .0574 .0059	-.0189 .0158 .0031
Number of Females aged 60 and Higher	-0.0213 (0.0270)	-0.1097 (0.0292)	0.1511*** (0.0334)
	.0048 -.0038 -.0010	.0182 -.0165 -.0017	-.0167 .0140 .0027
Number of Male Pension Recipients	0.1359*** (0.0369)	0.1159*** (0.0406)	0.0460 (0.0454)
	-.0304 .0243 .0061	-.0192 .0174 .0018	-.0051 .0043 .0008
Number of Female Pension Recipients	-0.0490* (0.0279)	-0.0950*** (0.0302)	0.0613* (0.0344)
	.0110 -.0088 -.0022	.0157 -.0143 -.0015	-.0068 .0057 .0011

Robust standard errors are in parentheses. The three values in the bottom row of each cell are the marginal effects of that variable on the probability that Y=0, Y=1 and Y=2 respectively.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies.

Table 7
Ordered Probit Estimates for Number of Migrants
All Households

	Number of Migrants	Number of Male Migrants	Number of Female Migrants
Number of Age Qualified Individuals	0.0197 (0.0191)		
	-0.0034 .0028 .0006		
Number of Pension Recipients	0.0693*** (0.0191)		
	-0.0121 .0100 .0021		
Number of Males aged 65 and Higher	0.2523*** (0.0322)	0.3264*** (0.0355)	0.1106*** (0.0395)
	-0.0436 .0360 .0076	-0.0408 .0376 .0032	-0.0093 .0079 .0013
Number of Females aged 60 and Higher	-0.1087*** (0.0245)	-0.1747*** (0.0268)	0.0627** (0.0306)
	.0188 -.0155 -.0033	.0218 -.0201 -.0017	-.0053 .0045 .0008
Number of Male Pension Recipients	0.1951*** (0.0338)	0.1616*** (0.0375)	0.1099*** (0.0415)
	-0.0337 .0279 .0058	-0.0202 .0186 .0016	-0.0092 .0079 .0013
Number of Female Pension Recipients	0.0195 (0.0257)	-0.0416 (0.0281)	0.1238*** (0.0319)
	-0.0034 .0028 .0006	.0052 -.0048 -.0004	-.0104 .0089 .0015

Robust standard errors are in parentheses. The three values in the bottom row of each cell are the marginal effects of that variable on the probability that Y=0, Y=1 and Y=2 respectively.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies. Dummy variables for Race are also included.

Table 8
Total Number of Resident Children (Aged 0 – 16)
Black Households

Dependent Variable:	
Number of Resident Children	
Number of Age Qualified Individuals	0.1699*** (0.0261)
Number of Pension Recipients	0.0135 (0.0253)
Number of Males aged 65 and Higher	-0.0209 (0.0404)
Number of Females aged 60 and Higher	0.2956*** (0.0355)
Number of Male Pension Recipients	-0.0146 (0.0403)
Number of Female Pension Recipients	0.0161 (0.0347)

Robust standard errors are in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies.

Table 9
Total Number of Resident Adults (Males Aged 17 – 64, Females Aged 17 – 59)
Black Households

Explanatory Variables:	Dependent Variable		
	Number of Adults	Number of Male Adults	Number of Female Adults
Number of Age Qualified Individuals	-0.7550*** (0.0268)		
Number of Pension Recipients	0.0093 (0.0272)		
Number of Males aged 65 and Higher	-0.9182*** (0.0317)	-0.0466* (0.0273)	-0.9647*** (0.0465)
Number of Females aged 60 and Higher	0.0851*** (0.0224)	-0.7004*** (0.0219)	-0.6153*** (0.0346)
Number of Male Pension Recipients	0.1587*** (0.0327)	0.0334 (0.0274)	0.1921*** (0.0474)
Number of Female Pension Recipients	-0.0821*** (0.0228)	-0.0358 (0.0223)	-0.1185*** (0.0351)

Robust standard errors are in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Regressions control for Household Size and Composition, Age, Sex and Educational Attainment of Household Head, Rural/Urban residence, Province of Residence, Household Assets and Year Dummies.