# Labour Migration and Households: A Reconsideration of the Effects of the Social Pension on Labour Supply in South Africa

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**African Development and Poverty Reduction: The Macro-Micro Linkage**

Forum Paper 2004

13 - 15 October 2004
Lord Charles Hotel, Somerset West, South Africa

Development Policy Research Unit
Trade and Industrial Policy Strategies
Cornell University

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# Labour Migration and Households: A Reconsideration of the Effects of the Social Pension on Labour Supply in South Africa[1]

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September 2004

**Abstract**

This paper re-examines the effect of the South African social pension on the labour supply of working-age adults using data from 1993. We take account of the fact that households may include non-resident members, and therefore that the pension may play a role in facilitating migration to work or look for work. We find that rural African women are significantly more likely to be migrant workers when they are members of a household in receipt of a pension, and that it is female pension income that drives this result. We explore a number of possible reasons why pension income might have this effect.

[1] The authors thank Samuel Bowles, Rosa Dias, Vicky Hosegood, Murray Leibbrandt, Duncan Thomas, Servaas van der Berg, Martin Wittenberg, as well as participants at the Conference on 75 Years of Development Research, Cornell University, the Ninth African Econometrics Society Conference, University of Cape Town, and the National Academy of Sciences Workshop on Aging, University of Witwatersrand, for their valuable comments and suggestions.

## Introduction

In developing countries, households are often complex formations. Not only are they likely to contain more diverse groupings of kin than a two-generation (nuclear) household but also, what is associated with membership in a household may be more varied. Household members may be physically living, or resident, in the household. However, people identified as members of a household may also be 'non-resident' for a large part of the year.

Studies of the ways in which public transfers affect economic behaviour within the household may be sensitive to how the household is defined, and specifically to who is included as a member of the household. In this paper, we illustrate this argument with a study of African households in South Africa. By now, considerable research has been conducted on the effects of the social pension paid to elderly people on extended families in African households (see, for example, Ardington and Lund, 1995; Case and Deaton, 1998; Jensen, 1998; Bertrand, Mullainathan and Miller, 2003; Duflo, 2003; Edmonds, Mammen and Miller, 2004). We revisit one part of this literature – that which explores the effects of the social pension on labour supply.

Pensions have been found to have a negative effect on labour supply (and particularly male labour supply) in South Africa (Bertrand et al, 2003). However, this effect was investigated only for the labour supply of working-age adults who are resident in a pension-receiving household. The labour supply of individuals who are members of the household, but who physically leave the household to find work, was not explored.

We use the same data set and econometric procedures as those used by Bertrand et al, but we show that when the household is extended to include non-resident household members, then the negative relationship between the social pension and labour force participation is challenged. The social pension appears to facilitate the migration of household members, and specifically of women, to places of employment, either to work or to look for work.

Temporary labour migration has been an integral feature of the South African economy for more than a century. A series of restrictions on African migration and urbanisation gave rise to a system of circular migration – migrants frequently retained membership in the household of origin, migrating to urban areas for a period of time and

then back to rural areas (Wilson, 1972; Beinart, 1980). In other words, people supplied labour out of a household in which they consequently became non-resident members.

With the lifting of these restrictions in the late 1980s, it might have been expected that patterns of temporary labour migration would have been replaced by permanent migration, particularly from rural areas to urban places of employment. Rather than people being forced to migrate alone, and temporarily, they could choose to settle permanently, with their families, at places of employment. Accordingly, we would expect fewer households to report migrant workers as household members. However, this does not appear to be the case.

In 1993, a larger number of rural African adults were labour migrants than were resident household members in employment. Furthermore, temporary labour migration in South Africa subsequently increased during the 1990s: in 1993, approximately 1.3 million African households reported migrant workers as household members; in 1999 this had increased to more than 1.7 million households (Posel and Casale, 2003).

Historically, the large majority of individuals migrating to urban places of employment have been men. Although most migrants in South Africa remain men, the increase in labour migration during the 1990s has been driven particularly by a rise in the number and proportion of rural African women of economically active age who are migrating to find work (Posel and Casale, 2003).

In this paper we show that rural African women were significantly more likely to be labour migrants when they were members of a household of origin in which a pensioner was resident. Furthermore, the effect of social pension income on female labour migration appears to be sharply differentiated by the gender of the pensioner. It is female pension income specifically that is significantly related to whether or not women migrate to work. In contrast, pension eligibility or pension income does not seem to have a significant effect on male labour migrant behaviour. Although there is some suggestion that male migration is reduced in pension-eligible households, the evidence is neither robust nor convincing.

Our paper therefore illustrates that empirical findings about labour and resource allocations within households may be sensitive to how the household is conceptualised and incorporated into the analysis. How households are defined and who shares in household resources is particularly important in a country such as South Africa, where household membership and resource sharing amongst household members often

transcend the physical boundaries of the 'house'. It is not only families, but also households, that can be 'extended'.

The remainder of the paper is structured as follows. We first look at possible definitions of the household and their relevance particularly in the South African context. We then present a brief review of pensions in the country, and the literature that has previously examined the effects of the pension on labour supply. In section 3 we present and describe the data used in the study, and section 4 contains the econometric analysis. A final section summarises our key findings.

## 1. Defining and Measuring Households in South Africa

Surveys or censuses that seek to gather information on individuals in a country regularly do so by locating individuals in households. Who can be counted as a member of a household is not simply self-identified by respondents; it is standard survey practice that criteria are given to establish household membership. One criterion may reflect resource sharing – individuals are members of the same household if they 'eat from a common pot'. Another criterion may concern residency in the household – individuals must be physically resident in the household for a certain period of time if they are to be included as a household member.

It is useful to distinguish between two kinds of residency requirements for household membership. A 'strict' residency rule would require that an individual be resident in the household for 'most of the year' in order to be identified as a member of the household. A 'broad' residency rule would allow for household membership of individuals even if they had been living elsewhere for most of the year.

A strict residency requirement has the advantage of avoiding double counting – if individuals can be members of more than one household, then they may be counted twice in a survey. Furthermore, it may reduce the problem of reporting errors – respondents are likely to provide more reliable information about themselves or about other people who are physically living in the household than they are about people who are not resident in the household for a large part of the year. However, a broader residency requirement may better capture the reality of fluid households. Individuals may view themselves, and be viewed by others, as members of a household even if they are absent from that household

for most the year. The migrant labour system in South Africa, and the implications this had for the living arrangements of Africans, provides a good illustration of this argument.

Since the beginning of the twentieth century, and then into the apartheid years after 1948, labour migration in South Africa was closely regulated. Restrictions were placed on African labour migrants concerning their destination, the duration of their stay, and any accompanying family members. African labour migrants mostly were not permitted to settle permanently at places of employment nor could they migrate with spouses and family members. These restrictions, together with the contractual nature of urban employment, gave rise to patterns of circular or oscillating migration: labour migrants would retain a base in the household from which they had migrated, to which they would return each year and which was their 'permanent' home (Beinart, 1980; Spiegel, 1980; Murray, 1981).

The migrant's membership in the household of origin would be sustained by remittances sent (Wilson, 1972; Baber 1996) and male migrants may have remained key decision makers in the household, with important decisions about homestead production (and reproduction) being made only with the migrant's prior consultation or presence (Mayer and Mayer, 1974).

Although labour migrants therefore would be living as part of another household for a large part of the year, they would also identify themselves with their household of origin and be identified by respondents as household members (cf. Sharp and Spiegel, 1990; Townsend, 1997; Hosegood and Timaeus, 2001). A strict residency requirement, which requires that domestic groups are co-resident, would exclude labour migrants from their households of origin and it would make invisible the process of labour migration from these households. Rather, a broader residency requirement would be needed to identify labour migrants in, and to analyse labour migration from, the household of origin.

In 1993, the first comprehensive nationally representative household survey was conducted in South Africa, known as the Project for Statistics on Living Standards and Development (PSLSD). This survey was modelled on a World Bank Living Standards and Development Survey (Grosh and Glewwe, 2000), and adopted a broader residency requirement for household membership. The household roster (Section 1 of the survey) collects information on individuals who meet all three of the following criteria. They must:

i) "live under this 'roof' or within the same compound/homestead/stand **at least 15 days** out of the past year";

ii) "share food from a common source" when they are together;

iii) "contribute to or share in a common resource pool" (Survey Questionnaire, 1993:4; emphasis in original).

In the household roster, comprehensive demographic information is gathered on all people in the household, including the number of months each person was absent and the reasons for this absence (e.g. "working" or "looking for work"). With this information, it is possible to identify labour migrants in the households of origin, the characteristics of these migrants, the extent of migration and the types of households from which migration occurs.

The household roster in the PSLSD also identifies whether the household member "lived under this roof for more than 15 days out of the last 30 days". If yes, then the household member is coded as "resident". All questions in subsequent sections of the survey (such as those on employment and earnings) are asked only of such resident household members.

The PSLSD data have been extensively analysed. One area of empirical analysis that has received considerable attention is the social pension – who shares in the social pension and with what effect? In the remainder of the paper, we show how an analysis of the social pension is sensitive to the definition of the household – whether the household is restricted to include only resident members, or whether it is extended to include 'absent' or non-resident household members.

## 2. Pensions and Labour Supply in South Africa

The social pension, or old age pension, is one of a number of social assistance grants in South Africa (other significant grants being those for people with disabilities and those for poor children). Most social assistance programmes were introduced in the first half of the twentieth century to support poor white people, and they gradually extended in scope and coverage, but with racially discriminatory amounts paid and procedures applied to the four official 'race groups' designated by the South Africa government – African, Indian, coloured and white. From the early 1980s, the apartheid government moved towards equalising the level of the benefit, harmonising administrative procedures, and improving delivery systems. Uniformity of most aspects of the system was reached by 1993, as part of the transition to democracy.

The social pension is non-contributory, paid out of general revenue, means tested on individual income, and is payable to women on reaching age 60, and men at 65. In 1993, when the PSLSD was carried out, the monthly amount was R370, which was more than twice the median African per capita income at that time (Case and Deaton, 1998: 1335; Case and Deaton also point out the stark racial inequality between incomes of whites and blacks, which differed by a factor of ten). In 1993, approximately 1.6 million elderly African people received the social pension, a take-up rate of approximately 80 percent of those in the eligible cohorts.

Although the elderly apply for the pension as individuals, many pensioners live with other family members (spanning two, three and four generations) who may share in this income. A study of the effects of social pension income on economic behaviour and outcomes within the household therefore provides a unique empirical opportunity to explore intra-household resource transfers and allocations.

The pension system is also receiving attention because internationally, it is unusual to find substantially increasing social spending in the era of global macro-economic restraint; because in the specific context of South Africa's own otherwise austere macro-economic policy, the commitment to this form of social assistance has endured and indeed increased; and because of the worldwide interest in South Africa in and since the political transition.

The PSLSD is used as a benchmark study for much of this research because the date of collection, 1993, so nearly coincides with the date of transition to democracy, 1994. Furthermore, 1993 was the year in which the final residues of racial discrimination in the pension system were formally removed. It is therefore being used as an attractive 'laboratory situation'.

Ardington and Lund (1995) demonstrated that the pension system was achieving some broad development goals: it was penetrating rural areas, targeting women effectively, and keeping numbers of households out of poverty. Case and Deaton (1998) drew attention to the large size of the pension, that it was effective in reaching very poor households, and those with children; and the findings were "consistent with the view that pension income is spent much the same way as other income" (Case and Deaton, 1998: 1360).

Bertrand et al (2003) use the PSLSD data to explore the relationship between the pension and the labour supply of "prime-age individuals" (age 16 to 50 years). A labour supply response, "among family members not originally targeted by policymakers", would be consistent with intra-household allocations from pension income (Bertrand et al, 2003: 30). They control for family composition by comparing labour supply across three-generation households that are distinguished by whether or not they contain pensioners. Two measures of labour supply are used – labour force participation and hours worked.

Bertrand et al anticipate that pension income could produce a "reduced willingness to participate in the labour force" (ibid) among prime-age individuals in a pension-receiving household. Their results confirm this – they find that the "the pension dramatically reduces the labour supply of the prime-age members of the household. Both hours worked and the work not-work margin are affected" (Bertrand et al, 2003:29). These effects are found particularly among men and are differentiated by the gender of the pensioner, where the marginal rand of pension income received by a female pensioner reduces labour supply more than the marginal rand received by a male pensioner (*ibid*).

Bertrand et al do not spell out the policy implications of their research, and provide rather a general recommendation to policy makers that they "would do well to consider how different living arrangements could interfere with their social objectives" (2003:48).

However, their findings could be used to sustain a more general critique of social assistance grants as fostering a culture of 'economic dependency'.[2]

In our study, we show that there is an important part of labour supply that is not considered by Bertrand et al, and which in fact exhibits a positive supply response to the receipt of the social pension. Bertrand et al examine the supply of labour among *resident* household members. Specifically, their sample includes only individuals who have been co-resident for more than half of the month prior to the survey. The study therefore does not investigate how the social pension may affect the labour supply of household members who move to find work.[3]

Most labour migration in South Africa has originated from rural areas, where there have been few employment and income-generating opportunities. By 1993, when the PSLSD survey was conducted, all restrictions on African urbanisation had been lifted. Africans could move, together with their families, and settle permanently at places of employment. Nonetheless, the data from this survey suggest that historical patterns of 'circular' labour migration continued in post-apartheid South Africa. In 1993, approximately 30 percent of all rural households contained at least one prime-age labour migrant – individuals who were members of the household but who were away for a month or more during the year to "work or to look for work".

Because the migrant is identified as non-resident, only demographic information on the migrant has been collected in the household roster. No more specific employment data – such as hours worked by migrants – are collected, and we can only identify whether migrants are participating in the labour market or not.[4]

In their examination of pensions and labour supply, Bertrand et al (2003:30) note that there are no direct incentives in the design of the pension programme for migration. The means testing of the elderly is not based on household income. However, migration from rural areas to places of employment is not frictionless and there are a number of reasons why the social pension could facilitate this migration.

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[2] This argument has resonance particularly in recent debates in South Africa concerning the state provision of a Basic Income Grant as a means to alleviate high levels of poverty in the country.

[3] Edmonds et al (2004) look at the effect of pension eligibility on household composition and, like Bertrand et al, they focus on resident household members. Using 1996 Census data for South Africa they show that in African households, when a woman reaches age 60, there is a fall in the number of women in the household in their thirties and a rise in the numbers of younger women and young children.

[4] Admittedly, the household respondent may have incomplete information about the work status of the migrant. But even if people who migrated are not currently working or looking for work, information collected would capture the intention of the migrant at the point of departure from the household of origin.

The most obvious reason is that migration is inhibited by a lack of income. There are direct costs of migration and job search is a costly and risky undertaking: even if the expected returns from migration exceed the returns from remaining in the original location, it will be hard to borrow to finance this activity. An increase in household income through the pension can enable this constraint to be relaxed: such transfers could be either a loan (that is more effectively enforced through the household) or a gift.

Aside from credit constraints, it may be that caring responsibilities, particularly among women, restrict mobility. A positive relationship between pension income and migration therefore may also reflect the ability of elderly women in the household to take over the support for and care of children, making it possible for women to migrate, and for longer periods of time.

It also needs to be recognised, however, that a different causality could account for a positive statistical relationship between pensions and migration. For example, women who have already migrated may be more likely to attach themselves to (and therefore be identified as non-resident members of) a household when it is (or becomes) pension eligible.

In the sections that follow, we explore these mechanisms as far as is possible with the data available. We first investigate descriptive differences, particularly in labour migration from and membership in households distinguished by pension eligibility. We then examine the effect of the social pension on migration decisions, controlling for the presence of young children within the household, the wealth of the household, as well as a range of other individual and household characteristics.

## 3. Data and Descriptive Statistics

In our investigation of the relationship between social pensions and labour migration, we use the PSLSD data and follow closely the method used by Bertrand et al (2003). We focus on African households. Most recipients of the social pension are African and the large majority of labour migration originates from African households. In 1993, approximately 90 percent of all households for which social pension income was reported were African and 90 percent of all households with labour migrants were African.

We also study three-generation African households (reflecting approximately 30 percent of all African households in 1993) and we compare labour supply behaviour of prime-age adults (aged 16 to 50 years) in pension-eligible versus pension-ineligible households. Restricting the sample to three-generation households reduces heterogeneity by ensuring that the age of the grandparent (pension eligible or not) is the prime source of variation between the two household types (Bertrand et al 2003:30).[5] More than half (about 55 percent) of all three-generation African households are pension eligible in that they contain at least one resident adult of pensionable age.

However there are some differences in our sample and our focus. First, our sample includes non-resident household members who are labour migrants.[6] Second, there are no data captured at the household of origin on the number of hours worked by labour migrants. We therefore can estimate only one measure of labour supply, viz. labour force participation and specifically the physical movement out of the household to work or to find work. Third, because labour migration occurs principally from rural areas in South Africa, we restrict our study of migrant behaviour to three-generation African households in rural areas (amounting to 70 percent of all three-generation African households).

The empirical question that we address is whether the availability of the social pension influences the labour migration behaviour of prime-age adults in three-generation African households in rural areas. Table 1 presents statistics (means and standard errors) describing these adults and the households of which they are part. The table also reports separate statistics for adults in households that contain at least one person of pensionable age and in households that do not.

In many respects, differences across age-eligible and non-age eligible rural African households are not marked. Individuals on average are of similar ages and have comparable years of education. There are some differences however in household size and household income. The result reported by Bertrand et al, that three-generation age-eligible households are a bit bigger, also holds when labour migrants are included as

[5] We restrict the sample for comparability between our study and that of Bertrand et al's. But our descriptive and econometric findings are robust to a non-restricted sample. In fact, when we do not select on three-generation households, then we find that the positive relationship between pensions (eligibility or receipt) and labour migration (specifically of women) is considerably stronger and more statistically significant.

[6] In categorising households as three generational, therefore, we include both resident household members and non-resident labour migrants of working age (15 to 60 years for women and 15 to 65 years for men).

household members (9.9 compared to 9.2). Average income in age-eligible households is also greater than in non-eligible households.

We also find that the proportion of prime-age adults who are resident and employed is smaller in households where the grandparent is of pensionable age (0.16 compared to 0.18). But importantly, the table shows that labour migration constitutes a sizeable part of total labour supply. In fact, the proportion of all prime-age rural adults who are labour migrants is significantly greater than the proportion with resident employment (0.19 compared to 0.17). Furthermore, there is a dramatic difference between the two household types in the extent of labour migration. A significantly larger proportion of prime-age individuals are labour migrants in age-eligible households (0.22 compared to 0.16) and the average number of labour migrants in these households is significantly higher than in non-age eligible households (1.13 compared to 0.79).

Most labour migrants retained economic ties with their households of origin. The survey instrument does not make it possible to identify which labour migrant remitted income and we therefore cannot distinguish remittances sent specifically by labour migrants aged 16 to 50 years. However, we can establish that almost eighty percent of all three-generation rural households with at least one adult labour migrant (of any age) received remittances during the previous year. [7]

Although the extent of labour migration is greater in three-generation age-eligible households, the receipt and value of remittances is bigger in non-age-eligible households. This finding would be consistent with other research which suggests that the social pension "crowds out" remittance income (Jensen, 2003; Posel, 2001a), but we do not pursue this further here.

Table 2 describes labour migrants and compares their characteristics across household types. Most labour migrants are men: less than forty percent of all labour migrants are women although women represent 56 percent of all individuals in the sample. Labour migrants tend to be older on average than all prime-age rural Africans (32 years as opposed to 28 years). They are also more educated on average – only 12 percent of rural

[7] In fact, there is a selection bias issue: Household members who have migrated and who continue to be identified as members of the household of origin, are more likely to be remitting. Excluded from the sample of migrant workers therefore are those former household members who have migrated to places of employment, and who are no longer considered members of the sending household, perhaps because they have not retained (economic) ties with the household.

adults in the sample had completed a matric or grade ten education compared to 17 percent of labour migrants specifically.

More than sixty percent of prime-age labour migrants in 1993 were non-resident members of households that were age eligible for the pension. However, there are mostly only small differences in the characteristics of labour migrants across the two household types. A slightly higher proportion of prime-age migrants are female in age-eligible than in non-age-eligible households (0.39 compared to 0.37). Labour migrants in age-eligible households also tend to have more education, with a greater proportion having competed grade ten (0.17 compared to 0.15), and they are a bit older on average.

There are more marked (although not unexpected) differences in the migrant's position in the household. In both household types, migrants are mostly children of the head of household, but the table also highlights differences in the age structure of the generations across the households. A smaller proportion of migrants in age-eligible households are reported as heads of the household from which they migrated (0.07 compared to 0.18) – not surprisingly because the household head is often the oldest person in the household (Posel, 2001b). Furthermore, there is a striking difference between the proportion of labour migrants who are grandchildren of the head in age-eligible and non-age-eligible households (where no labour migrants in the latter households were grandchildren of the head, compared to six percent in age-eligible households).

It is not possible to identify the timing of migration and social pension receipt using these cross-sectional data. A positive relationship between pension eligibility and labour migration therefore would be consistent both with pension receipt encouraging labour migration and with labour migrants being more likely to seek (non-resident) membership of pension-eligible households in sending areas. The PSLSD does, however, include a question in the household roster asking of all household members whether they moved "here (into the household) during the past five years" (PSLSD survey questionnaire, p.5). Table 2 illustrates that a slightly larger proportion of labour migrants is identified as having "moved" into an age-eligible, as opposed to a non-age-eligible, household of origin over the past five years (0.099 compared to 0.074); but the difference is not statistically significant.[8]

[8] The difference is even smaller for female labour migrants (0.094 compared to 0.088).

## 4. The Labour Migration Decision: Regressions and Results

The regression analysis explores determinants of the migration decision – what influences whether or not a member of the household is a labour migrant? In particular, is labour migration significantly associated with access to the social pension in three-generation households?

We follow Bertrand et al (2003) by using three different measures of the social pension in the household. The first measure is pension eligibility and age-eligibility specifically, where we include a dummy variable to distinguish between prime-age individuals who live in a household with at least one grandparent of pensionable age, and those individuals who do not. The second measure is the value of reported social pension income in the household. Third, we instrument household social pension income using the number of male and female pensioners in the household.[9] To these aggregate estimates of the social pension, we also add reported household social pension income disaggregated by the gender of the pensioner.

We therefore estimate four sets of regressions, first for all prime-age Africans who are members of three-generation rural households, and then for women and men separately. In addition to the measure of pensions, we include variables that capture the individual characteristics of those in the sample (a female dummy variable in the aggregated regressions, and in all regressions a quartic in individual age and whether an individual has completed matric (grade ten) education), household characteristics (the number of household members aged 0-5, 6-15, 16-18, 19-21, 22-24 years and the size of land, measured in hectares, to which the household has access) and 14 province dummy variables. The dependent variable in the regressions equals 1 if the prime-age adult is a labour migrant and 0 otherwise.

For comparability, our specification of the regressions closely resembles that of Bertrand et al (2003), but there are some small differences. The education variable used by Bertrand et al is whether a prime-age individual has completed grade eight. We found however that having completed grade ten education was a more significant predictor of

[9] Like Bertrand et al (2003), we find that the coefficients on the number of age-eligible females and males are highly significant, and that the coefficients are not significantly different from each other (meaning that we do not find support for the take-up rate being different for age-eligible women and men) (Bertrand et al, 2003: 33).

migration behaviour. Because our sample includes only individuals living in rural areas, we include the household's access to land to capture likely farming activities of the household. Unlike Bertrand et al, we do not control for household size because the regression results are not robust to how household size is defined.[10]

The results for the whole sample are reported in table 3. At this level of aggregation, the social pension appears to have no significant effect on labour migrant behaviour, whether in the ordinary least squares (OLS) regressions (columns 1, 2 and 4) or in the two-stage (IV) regression (column 3). The estimated coefficients across the four pension measures are positive but not significantly different from zero. As Tables 4 and 5 however show, the effects of the pension, as well as of other key determinants of migrant behaviour, are sharply differentiated by the gender of the rural African adult. The effects of the pension also differ by the gender of the pensioner.

Women are significantly less likely than men to be migrants. But when women are migrants then this is positively and significantly related to pension eligibility (table 4, column 1). The results for the continuous pension income variables are not as strong. The coefficient on reported social pension income (column 2) is positive but not significant, and that for the instrumented value of pension income (column 3) is positive and only weakly significant. However, as the results reported in column 4 show, it is female pension income specifically that appears to significantly increase female labour migration.

Male labour migration, in contrast, is mostly negatively affected by pension income, particularly female pension income (table 5). But with the exception of the first regression (for pension eligibility) the coefficients are not significantly different from zero.

There are other interesting differences in the determinants of labour migration for women and men. Women who migrate have more education, and their traditional roles in farming and childcare inhibit their migration. Female labour migration is consistently and significantly reduced as the rural household's access to land and the number of young children (aged 5 years or less) in the household increase. Female labour migration, however, increases as the number of older children (aged six to fifteen years) in the household increases. This finding may reflect rising costs of childcare (and particularly the

[10] There is endogeneity between whether an individual is a migrant and the size of the household. If the household is measured only in terms of resident members, then the estimated coefficients for pension variables are highly significant and positive for both women and men. But when household size is widened to include labour migrants, then the coefficients lose some significance and for men, they change signs.

costs of schooling) as children get older, forcing women to leave the household to look for employment. It may also be easier for women to leave children who are older in the care of others.[11]

In contrast, education (completed schooling) is not a significant determinant of male migration (table 5). Furthermore, there seems to be no relationship between the number of children in the household and whether or not men are migrants. As in the estimations of female labour migration, the household's access to land is significant but for men, the coefficient is positive. If men are not engaged in farming, then we would expect men to have more mobility when households have more land and there are greater resources to facilitate labour migration.[12]

Our findings of the relationship between the social pension and labour migration therefore differ from the labour supply response reported in Bertrand et al, where the household is restricted to include only resident members. Where there is a significant relationship between the social pension and labour migration, then this is positive and it applies particularly to women. Like Bertrand et al, we also find that the effect of the social pension derives particularly from female pensioners, but in our estimations, female pension income increases the supply of labour from the household.

Pension income may help overcome two constraints to female labour migration. The first is an income or a resource constraint – poor households may not be able to afford the direct costs of initial migration or provide income support so that job search through migration can be sustained. The significance of female pension income specifically would be consistent with female pensioners sharing more from their income than male pensioners. This may be because of altruistic reasons or more self-regarding motivations if daughters and granddaughters are viewed as more reliable remitters than sons and grandsons.

The second constraint concerns women's primary responsibility for children in the household. Pensions received by women have been found to have a significant positive impact on the wellbeing of children (and specifically their anthropometric status) in the household (Duflo, 2003). There was no similar effect for pensions received by men. Female pension income therefore may facilitate female labour migration because

[11] It is not possible, however, to match mothers directly with their own children in the data set.

[12] There is also a possible endogeneity here: if male labour migrants invest in cattle and land, then it may be that households with male labour migrants have more land.

grandmothers can take over care of children (both in terms of time and income) when women migrate.

If the social pension is important particularly in overcoming an income constraint to women's migration, then we would expect the effect of the pension to be considerably dampened as the household's resources increase. The size of land to which a rural household has access for farming may be a good reflection of the economic status of the household. But our results have suggested that it would not be a good independent indicator of economic resources given women's traditional roles as farmers. We therefore re-estimate the labour migration equation for prime-age rural African women introducing a further variable for the wealth of the household. Household wealth is estimated as the value of all forms of capital owned by the rural household, including the value of housing and other property, land, livestock, agricultural equipment and other durables and income savings.

The results of these regressions are reported in table 6. The household's wealth has a positive (although not significant) effect on female labour migration. Importantly, the coefficients for pension eligibility and female pension income specifically remain positive and significant. Even in households without resource constraints, therefore, female labour migration is positively associated with female pension income in the household.

## Conclusion

How households are defined may have important implications for unravelling the effects of public policy on extended families in South Africa. In their study, Bertrand et al (2003) found that the social pension had a negative impact on the working hours and employment rates of prime-age individuals who live with pensioners. The authors suggest that "because of intrahousehold redistribution, a program designed for a group that is out of the labour force unexpectedly altered the labour supply of a nontargeted group" (Bertrand et al, 2003:49).

In our study, we focus on the effect of the social pension on the labour supply behaviour of another "group" of household members – labour migrants. The labour migration of individuals who retain membership in the household of origin, but who migrate temporarily to places of employment, has a long history in South Africa. During the 1990s, labour migration remained an important form of labour supply particularly from rural households. In rural areas, where there are few employment opportunities, distorted markets, and little access to land, individuals may gain access to labour markets by migrating to urban areas or to larger rural settlements. In 1993, the proportion of prime-age African individuals who were labour migrants was greater than the proportion with resident employment.

We find no convincing evidence that the social pension creates disincentives for prime-age individuals to migrate to work or to find work. Rather, where the social pension is significant, which it is in the case of female labour migrants, the effect is positive. Our results also suggest that pension income received by women specifically may be important not only because it helps prime-age women overcome income constraints to migration, but also because it makes it possible for grandmothers to support grandchildren.

If household membership is restricted in the analysis to include only those physically living in the household at the time of a survey, then the effect of the social pension in facilitating the migration of household members to work or to look for work will be overlooked. In turn, this can result in an incomplete understanding of the relationship between the social pension and labour supply.

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**Table 1: Descriptive Statistics, Africans (16 to 50 years) in Three-Generation Rural Households**

| | All rural households | | Age-eligible rural households | | Non-age eligible rural households | |
|---|---|---|---|---|---|---|
| Variable | Mean | Standard Error | Mean | Standard Error | Mean | Standard Error |
| Age | 27.95 | 0.131 | 28.27 | 0.166 | 27.56 | 0.207 |
| Female | 0.564 | 0.007 | 0.530 | 0.010 | 0.605 | 0.010 |
| 4th grade or higher | 0.714 | 0.006 | 0.721 | 0.009 | 0.704 | 0.009 |
| 8th grade or higher | 0.318 | 0.007 | 0.323 | 0.009 | 0.312 | 0.010 |
| 10th grade (matric) or more | 0.124 | 0.005 | 0.133 | 0.006 | 0.111 | 0.007 |
| Resident employed | 0.170 | 0.005 | 0.162 | 0.007 | 0.181 | 0.008 |
| Resident unemployed (strict) [1] | 0.054 | 0.003 | 0.056 | 0.004 | 0.051 | 0.005 |
| Resident unemployed (broad) [2] | 0.230 | 0.006 | 0.245 | 0.008 | 0.212 | 0.009 |
| Labour migrant[3] | 0.192 | 0.006 | 0.217 | 0.008 | 0.162 | 0.008 |
| Number of labour migrants | 0.974 | 0.018 | 1.130 | 0.028 | 0.790 | 0.021 |
| Household size[4] | 9.619 | 0.053 | 9.922 | 0.079 | 9.249 | 0.065 |
| Landsize (hectares) | 0.601 | 0.016 | 0.730 | 0.024 | 0.444 | 0.018 |
| Household wealth | 13161 | 397 | 15072 | 633 | 10832 | 419 |
| Total household income | 846 | 12.67 | 934 | 17.45 | 738 | 18.14 |
| Total pension income | 186 | 216 | 317 | 3.785 | 28 | 2.115 |
| Female pension income | 132 | 2.338 | 230 | 3.041 | 12 | 1.276 |
| Male pension income | 55 | 1.747 | 88 | 2.778 | 15 | 1.523 |
| Number of eligible women | 0.496 | 0.007 | 0.903 | 0.007 | 0 | 0 |
| Number of eligible men | 0.160 | 0.005 | 0.320 | 0.009 | 0 | 0 |
| Remittances received[5] | 0.520 | 0.007 | 0.485 | 0.010 | 0.563 | 0.010 |
| Remittance income | 150 | 3.243 | 129 | 3.920 | 175 | 5.334 |
| n | 5002 | | 2749 | | 2253 | |

Notes: 1. The strict definition of unemployment includes only those who had actively searched for work in the week prior to the interview. 2. The broad definition includes also the non-searching unemployed.
3. A labour migrant here refers to an individual of prime age who is away from the household for a month or more in the year to work or to look for work. 4. Household size includes all resident household members plus non-resident labour migrants who are not of pensionable age. 5. Included in remittance income are remittances also sent by elderly migrants (older than 50 years) of non-pensionable age.

**Table 2: Characteristics of 16 to 50 Year-Old African Labour Migrants in Three-Generation Households**

| | All households | | Age-eligible Households | | Non-age-eligible households | |
|---|---|---|---|---|---|---|
| Variable | Mean | Standard Error | Mean | Standard Error | Mean | Standard Error |
| Female | 0.385 | 0.016 | 0.391 | 0.020 | 0.374 | 0.374 |
| Age | 31.84 | 0.249 | 32.42 | 0.303 | 30.89 | 0.424 |
| $4^{th}$ grade or more | 0.705 | 0.015 | 0.737 | 0.018 | 0.653 | 0.025 |
| $8^{th}$ grade or more | 0.337 | 0.015 | 0.349 | 0.020 | 0.317 | 0.024 |
| $10^{th}$ grade (matric) or more | 0.165 | 0.011 | 0.174 | 0.016 | 0.150 | 0.019 |
| Household head | 0.1116 | 0.010 | 0.077 | 0.011 | 0.180 | 0.020 |
| Child of head | 0.758 | 0.014 | 0.767 | 0.017 | 0.743 | 0.023 |
| Grandchild of head | 0.040 | 0.006 | 0.064 | 0.010 | 0.0 | 0.0 |
| Recent 'in-migrant'[1] | 0.089 | 0.009 | 0.099 | 0.012 | 0.074 | 0.014 |
| n | 962 | | 596 | | 366 | |

Note: 1. 'In-migrant' here refers to a labour migrant who joined his or her household of origin in the five years preceding the survey.

**Table 3: Effect of Social Pension Income on Migrant Behaviour of all 16- to 50- Year-Old Rural Africans**

| | OLS<br><br>Pension eligibility<br>(1) | OLS<br><br>Pension uptake<br>(2) | <br><br>IV<br>(3) | OLS<br>Pension uptake by gender<br>(4) |
|---|---|---|---|---|
| Household eligibility dummy | 0.0073<br>(0.0108) | – | -- | -- |
| Pension income x 1000 | -- | 0.0217<br>(0.0258) | 0.0065<br>(0.0300) | -- |
| Female pension income x 1000 | -- | – | -- | 0.0235<br>(0.0335) |
| Male pension income x 1000 | -- | – | -- | 0.0186<br>(0.0437) |
| Female | -0.1326*<br>(0.0109) | -0.1325*<br>(0.0108) | -0.1329*<br>(0.0109) | -0.1326*<br>(0.0109) |
| Age | -0.3671*<br>(0.0952) | -0.3669*<br>(0.0951) | -0.3686*<br>(0.9523) | -0.3671*<br>(0.0952) |
| $Age^2$ | 0.0213*<br>(0.0049) | 0.0213*<br>(0.0050) | 0.0214*<br>(0.0049) | 0.0213*<br>(0.0049) |
| $Age^3$ | -0.0005*<br>(0.0001) | -0.0005*<br>(0.0001) | -0.0005*<br>(0.0001) | -0.0004*<br>(0.0001) |
| $Age^4$ | 0.0378*<br>(0.0083) | 0.0378*<br>(0.0082) | 0.0379*<br>(0.0085) | 0.0378*<br>(0.0083) |
| Matric or more | 0.0296***<br>(0.0182) | 0.0294***<br>(0.0182) | 0.0297**<br>(0.0182) | 0.0294***<br>(0.0182) |
| Number of children (0-5 years) | -0.0095**<br>(0.0048) | -0.0093**<br>(0.0048) | -0.0095**<br>(0.0049) | -0.0093***<br>(0.0048) |
| Number of children (6-15 years) | 0.0058***<br>(0.0032) | 0.0057***<br>(0.0033) | 0.0058***<br>(0.0033) | 0.0056***<br>(0.0033) |
| Landsize (hectares) | 0.0106**<br>(0.0053) | 0.0103**<br>(0.0053) | 0.0107**<br>(0.0054) | 0.0104**<br>(0.0053) |
| $R^2$ | 0.15 | 0.15 | 0.15 | 0.15 |

Notes: Robust standard errors are in parentheses. Sample for all regressions = 5002. *Significant at the one percent level; ** Significant at the five percent level; *** Significant at the ten percent level. Other covariates in the regression are number of household members aged 15-18, 19-21 and 22-24 years and 14 province indicators.

**Table 4: Effect of Social Pension Income on Migrant Behaviour of 16- to 50-Year-Old Rural *Female* Africans**

| | OLS<br><br>Pension eligibility<br>(1) | OLS<br><br>Pension uptake<br>(2) | <br><br>IV<br>(3) | OLS<br>Pension uptake by gender<br>(4) |
|---|---|---|---|---|
| Household eligibility dummy | 0.0333*<br>(0.0129) | – | -- | -- |
| Pension income x 1000 | -- | 0.0350<br>(0.029) | 0.0613***<br>(0.0395) | -- |
| Female pension income x 1000 | -- | – | -- | 0.0765**<br>(0.0397) |
| Male pension income x 1000 | -- | – | -- | -0.0370<br>(0.0526) |
| Age | -0.3217*<br>(0.1118) | -0.3275*<br>(0.1119) | -0.3218*<br>(0.1112) | -0.3315*<br>(0.1116) |
| $Age^2$ | 0.0178*<br>(0.0057) | 0.0180*<br>(0.0057) | 0.0178*<br>(0.0057) | 0.0183*<br>(0.0057) |
| $Age^3$ | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) |
| $Age^4$ | 0.0296*<br>(0.0095) | 0.0298*<br>(0.0095) | 0.0295*<br>(0.0953) | 0.0304*<br>(0.0095) |
| Matric or more | 0.0383***<br>(0.0226) | 0.0388***<br>(0.0227) | 0.0385***<br>(0.0227) | 0.0399***<br>(0.0227) |
| Number of children (0-5 years) | -0.0198*<br>(0.0056) | -0.0200*<br>(0.0057) | -0.0196*<br>(0.0057) | -0.0198*<br>(0.0057) |
| Number of children (6-15 years) | 0.0122*<br>(0.0040) | 0.0123*<br>(0.0040) | 0.0122*<br>(0.0040) | 0.0118**<br>(0.0040) |
| Landsize (hectares) | -0.0101**<br>(0.0051) | -0.0093***<br>(0.0051) | -0.010**<br>(0.0051) | -0.0088***<br>(0.0051) |
| $R^2$ | 0.10 | 0.09 | 0.10 | 0.10 |

Notes: Robust standard errors are in parentheses. Sample for all regressions = 2821. *Significant at the one percent level; ** Significant at the five percent level; *** Significant at the ten percent level. Other covariates in the regression are number of household members aged 15-18, 19-21 and 22-24 years, and 14 province indicators.

**Table 5: Effect of Social Pension Income on Migrant Behaviour of 16- to 50- Year-Old Rural *Male* Africans**

| | OLS<br><br>Pension eligibility<br>(1) | OLS<br><br>Pension uptake<br>(2) | <br><br>IV<br>(3) | OLS<br>Pension uptake by gender<br>(4) |
|---|---|---|---|---|
| Household eligibility dummy | -0.0298***<br>(0.0183) | – | -- | -- |
| Pension income x 1000 | -- | 0.0013<br>(0.0451) | -0.0749<br>(0.0592) | -- |
| Female pension income x 1000 | -- | – | -- | -0.0481<br>(0.0573) |
| Male pension income x 1000 | -- | – | -- | 0.0746<br>(0.0718) |
| Age | -0.4172*<br>(0.1644) | -0.4127*<br>(0.1646) | -0.4122*<br>(0.1648) | -0.4150*<br>(0.1648) |
| $Age^2$ | 0.0252*<br>(0.0085) | 0.0251*<br>(0.0085) | 0.0250*<br>(0.0085) | 0.0249*<br>(0.0085) |
| $Age^3$ | -0.0006*<br>(0.0002) | -0.0006*<br>(0.0002) | -0.0006*<br>(0.0002) | -0.0006*<br>(0.0002) |
| $Age^4$ | 0.0474*<br>(0.0147) | 0.0475*<br>(0.0147) | 0.0471*<br>(0.0147) | 0.0472*<br>(0.0147) |
| Matric or more | 0.0137<br>(0.0292) | 0.0140<br>(0.0292) | 0.0151<br>(0.0293) | 0.0131<br>(0.0292) |
| Number of children (0-5 years) | -0.0006<br>(0.0083) | 0.0003<br>(0.0084) | -0.0014<br>(0.0085) | 0.0005<br>(0.0084) |
| Number of children (6 to 15 years) | 0.0013<br>(0.005) | 0.0009<br>(0.0053) | 0.0017<br>(0.0053) | 0.0011<br>(0.0053) |
| Landsize (hectares) | 0.0346*<br>(0.0108) | 0.0332*<br>(0.0108) | 0.0355*<br>(0.0109) | 0.0323*<br>(0.0108) |
| $R^2$ | 0.17 | 0.17 | 0.17 | 0.17 |

Notes: Robust standard errors are in parentheses. Sample for all regressions = 2181. *Significant at the one percent level; ** Significant at the five percent level; *** Significant at the ten percent level. Other covariates in the regression are number of household members aged 15-18, 19-21 and 22-24 years, and 14 province indicators.

**Table 6: Re-estimating the Effect of Social Pension Income on Migrant Behaviour of 16- to 50-Year-Old Rural *Female* Africans**

| | OLS<br><br>Pension eligibility<br>(1) | OLS<br><br>Pension uptake<br>(2) | <br><br>IV<br>(3) | OLS<br>Pension uptake by gender<br>(4) |
|---|---|---|---|---|
| Household eligibility dummy | 0.0325*<br>(0.0129) | – | -- | -- |
| Pension income x 1000 | -- | 0.0333<br>(0.029) | 0.0577<br>(0.0395) | -- |
| Female pension income x 1000 | -- | – | -- | 0.0742***<br>(0.0397) |
| Male pension income x 1000 | -- | – | -- | -0.0396<br>(0.0526) |
| Age | -0.3168*<br>(0.1116) | -0.3225*<br>(0.1117) | -0.3173*<br>(0.1120) | -0.3265*<br>(0.1114) |
| $Age^2$ | 0.0176*<br>(0.0057) | 0.0059*<br>(0.0057) | 0.0176*<br>(0.0057) | 0.0181*<br>(0.0057) |
| $Age^3$ | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) | -0.0004*<br>(0.0001) |
| $Age^4$ | 0.0292*<br>(0.0095) | 0.0295*<br>(0.0095) | 0.0291*<br>(0.0095) | 0.0300*<br>(0.0095) |
| Matric or more | 0.0336<br>(0.0228) | 0.0338<br>(0.0228) | 0.0338<br>(0.0227) | 0.0349<br>(0.0227) |
| Number of children (0-5 years) | -0.0201*<br>(0.0056) | -0.0204*<br>(0.0057) | -0.0199*<br>(0.0057) | -0.0202*<br>(0.0057) |
| Number of children (6-15 years) | 0.0126*<br>(0.0040) | 0.0127*<br>(0.0040) | 0.0125*<br>(0.0040) | 0.0121*<br>(0.0040) |
| Landsize (hectares) | -0.0114**<br>(0.0051) | -0.0106**<br>(0.0052) | -0.0111**<br>(0.0051) | -0.0101**<br>(0.0052) |
| Wealth | 0.0030<br>(0.0029) | 0.0032<br>(0.0029) | 0.0031<br>(0.0029) | 0.0032<br>(0.0029) |
| $R^2$ | 0.10 | 0.10 | 0.10 | 0.10 |

Notes: Robust standard errors are in parentheses. Sample for all regressions = 2821. *Significant at the one percent level; ** Significant at the five percent level; *** Significant at the ten percent level. Other covariates in the regression are number of household members aged 15-18, 19-21 and 22-24 years, and 14 province indicators.