Does Money Protect Health Status? Evidence from South African Pensions

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ABSTRACT

The channels by which better health leads to higher income, and those by which higher income protects health status, are of interest to both researchers and policy makers. In general, quantifying the impact of income on health is difficult, given the simultaneous determination of health and income. In this paper, we quantify the impact on health status of a large, exogenous increase in income—that associated with the South African state old age pension. Elderly Black and Coloured men and women who did not anticipate receiving large pensions in their lifetimes, and who did not pay into a pension system, are currently receiving more than twice median Black income per capita. These elderly men and women generally live in large households, and this paper documents the effect of the pension on the pensioners, on other adult members of their households, and on the children who live with them. We find, in households that pool income, that the pension protects the health of all household members, working in part to protect the nutritional status of household members, in part to improve living conditions, and in part to reduce the stress under which the adult household members negotiate day to day life. The health effects of delivering cash provide a benchmark against which other health-related interventions can be evaluated.

1. Introduction

A strong, positive association between income and health status has been documented between countries, and within countries at points in time, and within countries over time with economic development. The channels by which better health leads to higher income, and those by which higher income protects health status, are of interest to both researchers and policy makers. However, quantifying the impact of income on health and documenting the mechanisms through which income leads to better health are difficult, given the simultaneous determination of health and income.

In this paper, we quantify the impact of a large, exogenous increase in income—that associated with the South African state old age pension—on health status. We find, in households that pool income, that the pension protects the health of all household members, working in part to protect the nutritional status of household members, and in part to improve living conditions, and in part to reduce the stress under which the adult household members negotiate day to day life.

We begin in Section 2 with a discussion of an integrated family survey run in 1999, one that captured information on individuals' health, mental health, social connectedness and economic status. In Section 3 we document the relationship between income and health status, and then turn to the pension as an instrument allowing us to identify the causal impact of income on health status. In Section 4 we document some of the pathways through which higher incomes lead to better health.

2. The Langeberg Survey

In 1999, the South African Labour and Development Research Unit (SALDRU) at the University of Cape Town ran a survey on a racially stratified random sample of 300 households (1300 individuals) in the Langeberg Health District, which is comprised of three magisterial districts (county-sized administrative units) in the Western Cape in South Africa.[1] (See Case and Wilson 2001 for additional details on the survey.)

The survey instrument used was one that had been developed over a four year period, and was the joint product of researchers at the University of Cape Town (Monica Ferreira, HSRC/UCT Centre for Gerontology, Karen Charlton, Nutrition and Dietetics Unit; and Francis Wilson, Economics and SALDRU); the University of the Western Cape (Pieter le Roux, Economics); the University of the Witwatersrand (Merton Dagut, and Martin Wittenberg, Faculty of Commerce); Rhodes University (Valerie Moller); the Medical Research Council (Krisela Steyn and Debbie Bradshaw); Princeton University (Anne Case and Angus Deaton, Economics and Woodrow Wilson School); Harvard University (Robert Jensen, Kennedy School of Government, David Bloom and Larry Rosenberg, School of Public Health, and Lakshmi Reddy Bloom); MIT (Courtney Coile, Economics); and Drs. Steven Low (University of Cape Town), John Gear (Health Systems Trust), Najma Shaikh, and Ingrid le Roux (Western Cape Provincial Department of Health), together with other persons in the medical community of South Africa. This team of gerontologists, economists, public health experts and physicians grappled with the

[1]The survey was carried out under the auspices of SALDRU, the Southern African Labour and Development Research Unit of the School of Economics at the University of Cape Town (UCT), under the direction of Francis Wilson. The survey manager was Jaqui Goldin, who organized the interviews, which were conducted by students of the School of Social Work at UCT and community workers who had been specially trained in the process. Sampling and listing was done by Matthew Welch & Faldie Esau with generous advice from Jim Lepkowski of the ISR at the University of Michigan.

survey design, both structure and content, through many rounds of piloting, until there was consensus that the questionnaire worked well in the field. Funding for the pilot surveys was provided by the National Institute of Aging, through a grant to David Bloom and the National Bureau of Economic Research, and by the John D. and Catherine T. MacArthur Foundation, through a grant to Princeton University, and through the HSRC/UCT Centre for Gerontology, at UCT. Funding for the Langeberg Survey was provided by the Mellon Foundation, through a grant to the University of Cape Town.

A key component of the survey design was that every adult identified as a household member would be interviewed separately. In South Africa, as elsewhere, household members often have private information to which other members do not have access. A household member's earnings, for example, or whether she has a bank account, is often information that she would protect from others in the household. In addition, conflict between household members can lead to very different accounts of life in the household. In one pilot household, the head of household reported that no one in the household drank "too much." His adult children, interviewed separately, spoke of the fear they lived with, because their father was regularly drunk and abusive. In another pilot household, the female household head refused to recognize the presence of her son's child as a member of her household, although this grandchild was living in her house, with her son. Relying only on the account of one "knowledgeable household member," as do most household surveys, the child's presence (or the head's drinking problem) would have been entirely overlooked. Moreover, mental and physical health status relate to individuals, not to households, and should be asked at the individual level.

The survey had four modules. The first was a household module, which collected

information from the person in the household identified as “most knowledgeable about how income is spent by this household” on household composition, income, and expenditures. We added experimental questions on whether and how often adults and, separately, children in the household had to skip meals because there was not enough money for food. We also added experimental questions on how the household would classify its financial situation (on a five point scale from “very comfortable” to “extremely poor”) and, when the household respondent gave an answer that was not at least “comfortable,” the question was asked how much money in total the household would need per month to be comfortable.

The survey also had a module for younger adults (aged 18 to 54), in which questions were asked on work histories, earnings, health status, mental health status and social connectedness. A module for older adults (aged 55 or greater) asked additional questions on activities of daily living, and about South Africa’s unique old age pension. Weight and height were recorded for all adults. The fourth module in the survey collected information on vaccines from children’s health cards, interviewed an adult about whether and for how long the child was breast fed, and weighed and measured all children aged 12 and under.

Summary statistics for the survey are provided in Table 1, where we present means by race for health status, individual incomes, and household and individual characteristics that are important in what follows.

All adults aged 18 and above were asked to rate their health, in answer to the following question: “How would you describe your health at present? Would you say it is excellent, good, average, poor or very poor?” Answers are scored from 1 to 5, with “excellent” equal to 1 and “very poor” equal to 5. Self-reported health has been shown to be a strong predictor of mortality,

even when one controls for current health status and behaviors. Poor self-ratings of health are also a significant predictor of change in functioning among the elderly. (See Idler and Kasl 1995 for findings on changes in functioning, and for extensive references on the studies of self reported health and mortality.) In the Langeberg survey, we find Blacks report themselves to be in significantly worse health (2.80) than Coloureds (2.34) and Whites (2.22), with mean self reported health for Blacks closer to "average" than to "good." The median response among Blacks was "average," while that among Coloureds and Whites was "good."

Table 1 also makes clear that Blacks have significantly lower incomes than do Coloured and White respondents in the Langeberg survey. On average Black incomes are half of Coloured incomes, and Coloured incomes are a third of White incomes. Whites are significantly older than Blacks or Coloureds in the Langeberg survey ─ in part due to the fact that this area of the Western Cape is a popular retirement area for Whites. Whites also have markedly higher levels of education; Whites on average have completed 12 years of schooling, while Blacks and Coloureds on average have completed fewer than 7. Roughly 10 percent of our adult Black and Coloured sample are pensioners, and more than 20 percent of the Black and Coloured adults in our sample live with a pensioner.

3. The impact of income on health status

A strong association between income and health status can be seen in Table 2, which examines the relationship between self-reported health status and income, while controlling for age, sex, and education. Self-reported health status is an ordinal measure, and regressions that treat the difference between "excellent" and "good" (say) as equal to that between "poor" and "very poor"

are unlikely to be appropriate. For that reason, we quantify the relationship between income and health status using ordered probits. For Blacks and Coloureds, a doubling of income is associated with an improvement in self-reported health of roughly 0.2 points. For Whites, a doubling of income is associated with an improvement in health status of 0.3 points.

For all races, older adults report worse health on average. However, results in Table 2 show that the health status of Whites erodes more slowly with age (.023 points per year of age) than does that of Blacks (.035), bearing in mind that higher numbers are associated with worse health. For Blacks, a doubling of income is associated with the same improvement in health status we would expect to see if we could roll back the respondent's age by 6 years: both are associated with an improvement in health of just over 0.2 points. Education is associated with better health, particularly for Whites. We find a much smaller effect for Blacks, and no effect for Coloured respondents. This may be due to the fact that Blacks and Coloureds would have been forced to attend schools that were inferior to White schools in virtually every dimension. (See Case and Deaton 1999.)

For comparison, the last two columns in Table 2 present ordered probits for Blacks and Whites in the U.S., using data from the National Health Interview Survey (NHIS) from 1986-95. The association between income and health status in the U.S. is very similar to that observed in the Langeberg survey for Blacks and Coloureds, with a doubling of income being associated with roughly a 0.2 point improvement in health status. The self-reported health status of Americans erodes more slowly with age than that of South Africans. As was true in the South African data, we find health status in the U.S. eroding more quickly with age for Blacks than for Whites. Education in the U.S. appears to be protective of health status and, again as was true in the South

African data, education appears to be more protective for Whites than for Blacks. Women in the U.S. report worse health on average, controlling for age, education and log of household income. The 'female' coefficient is very similar for the Black samples of the Langeberg (.136) and the NHIS (.153), although in the Langeberg its standard error is large.

That there is a strong association between income and health status does not by itself demonstrate that income has a causal effect on health. Threads run from income to health, and from health to income, with third factors potentially influencing them both (Smith 1999, Fuchs 1982). We must have a sharp knife with which to cut the knot between health and income. The South African old-age pension is just that sort of instrument.

The state old age pension was originally intended as a safety net for the small numbers of Whites who reached retirement age without an adequate employment-based pension. The pension was first extended to the Coloured and Indian population, in an attempt to make the three-chamber parliament politically palatable (van der Berg 1994), and payments were gradually equalized across all racial groups during the disintegration of the apartheid regime in the early 1990s. Complete parity in payment between races was reached, and the system fully was in place, at the end of 1993.

The pension appears to be a modest amount of money when measured using a yardstick of White incomes, but looks like quite a large amount of money when measured against Black incomes: at the time of the Langeberg survey, the pension was 520 Rands per month, an amount equal to the median Coloured income and 2.5 times median Black income in the Langeberg survey. On paper, the pension is means-tested. In practice, women aged 60 or above and men aged 65 or above generally receive the full amount of the pension if they do not have a private

pension. The take-up rate for the state pension is roughly 80 percent for Blacks and Coloureds. For Whites, who are generally covered by private pensions, the take-up rate is less than 10 percent (Case and Deaton 1998).

3.1 Identification

We identify the impact of money on health status by comparing the self reported health status of Black and Coloured adults who live with pensioners and those that do not. For children, we use height for age as a measure of long-term nutritional status, and compare heights of children living in households with and without a pensioner. For most of the analysis, we will focus on Black and Coloured households, and will identify pensioners based on age-eligibility, in order to avoid issues of take-up.

If all Black and Coloured elderly receive the pension, we cannot identify the impact of the pension separately from the impact of having an elderly person in the household. Perhaps grannies have more time to care for small children, leading to healthier children among those who live with a granny. Alternatively, if older adults require a good deal of care and attention, then their presence may prove to be a burden on other adults in the household.

We propose two strategies to disentangle the impact of the pension income from the impact of the pensioner. First, the Langeberg survey asked a "knowledgeable" household member whether people in the household pool their incomes. If incomes are pooled, then the pension income should protect the health status of all household members. However, if incomes aren't pooled, then we should find no effect of pension receipt on the health of other household members. Table 1 shows that roughly 20 to 25 percent of Black and Coloured adults in the

Langeberg survey are living in households that do not pool income. (The strongest predictor of non-pooling is the presence in the household of a young adult ─male or female─who is currently working for money. In pilot surveys, we found that these young men and women are often not willing to put their money into a common household pool.) We will use the difference in the impact of pension income in households that pool and those that do not as one strategy to identify the effect of money on health status.

The second strategy is to control for the number of older household members (ages 55 and above) in our analysis. If as adults get older they become more helpful (harmful) to the health of other members, then we should be able to quantify that effect by adding a control for the number of members aged 55 and above. This second strategy, then, quantifies the difference made by the presence of older members who are receiving the pension (ages 60 and above for women, 65 and above for men) and those who are not (ages 55 to pension age). Table 1 shows that roughly a third of the Black and Coloured adults in the Langeberg survey were living with someone aged 55 or above.

In what follows, we do not present results controlling for household or individual income, because these are likely to be determined jointly with the health status of household members. Each pensioner brings 520 Rands per month into the household, and the tables that follow can be read as the estimated effect of this extra income on respondents' health status.

3.2 The effect of income on health status

We estimate the effect of pension income on health status by running ordered probits of self-reported health status on the number of pensioners in the household, and on an indicator that the

respondent is a pensioner, controlling for age, sex, race, and race interacted with sex, for Black and Coloured adults in the Langeberg survey. Results for these probits are presented in Table 3. We present results separately for respondents from households where incomes are pooled (columns 1 and 2), not pooled (columns 3 and 4), and for all respondents regardless of pooling status (columns 5 and 6).

Table 3 shows that, in households that pool income, the pension protects the health status of all adults. All else equal, adding an additional pensioner to the household improves the health status of all adults by 0.5 points. In households that pool income, pensioners receive no additional health protection above that which all adults receive: the coefficient on the indicator that the respondent is a pensioner is positive (suggesting worse health), but never significantly different from zero. In contrast, in households that do not pool income, having pensioners in the household is not protective of health status, unless the respondent is the pensioner. In non-pooling households, pensioners report health status that is a full point better (1.03) than other household members on average, controlling for age, race and sex. That pension income has a larger effect on pensioners' health in non-pooling households is consistent with a model in which money protects health status. In non-pooling households, the pensioner may retain a greater share of the pension income for his or her personal use, which then would have a larger effect on personal health.

The number of members aged 55 or above is not a significant determinant of health status in either pooling or non-pooling households. The coefficient on this measure of the number of older members is small and insignificant in all specifications. The presence of an older member has no significant effect on health status, unless that older person brings resources in the form of

a pension.

When we group together respondents from households that pool and those that do not, we find that the presence of pensioners is still protective of health status, although the coefficient has been attenuated by grouping together respondents who are protected by pension income (those from pooling households) and those who are not (from non-pooling households).

Overall, we take the results in Table 3 as evidence that pension income protects health status of all adult household members, in pooling households, and the health status of the pensioners (and pensioners only) in non-pooling households.

We turn to the impact of pension income on health outcomes for Black and Coloured children in Table 4, where we present results of regressions of height for age, controlling for the number of pensioners in the household. We restrict our sample to children born after January 1, 1994, the date at which the pension was fully operational. We find, with or without controls for the number of members aged 55 and above, that a pensioner is associated with roughly a 5 centimeter increase in a child's height for age, controlling for sex, household size, the number of members aged 0 to 17, and a complete set of quarter-since-birth indicator variables to capture the effect of age on height. This effect is roughly equal to a half-year's growth for Black and Coloured children aged 0 to 6 in the Langeberg data, and is roughly one standard deviation increase in height for age. (This estimate is, then, slightly higher than that estimated by Duflo (2000), who found that grandmothers' pensions increased heights for age for granddaughters by 0.7 standard deviations, using data from a period before the pension was entirely operational.)

The evidence in Section 3 shows that cash, in the form here of the South African old age pension, improves the health status of all adults in households where income is pooled, and the

heights of children living with pensioners. We turn in Section 4 to discuss ways by which Rands might lead to better health outcomes.

4. Mechanisms leading to better health

The mechanisms through which money may be used to foster better health may be many. We begin with a look at the answers to open-ended questions asked of pensioners: "*What did you start doing differently when you received your pension*?" and "*In what ways did your life become better when your pension started, if any*?" We present the answers to these questions (for the pensioners who provided answers) in Table 5. Some respondents note that the pension is smaller than the amount of money they had been earning, but many report the pension to be a greater amount. Food figures prominently in the pensioners' responses. One respondent replies, for example, that he now "*Looked after the children and made sure that there was always something to eat*." In addition, many respondents report that they upgraded their housing, putting in a kitchen unit, or a phone, or a paraffin stove. Finally, some pensioners report they have fewer worries.

We can quantify some of these mechanisms by examining the impact of the pension on nutrition, on sanitation, on psychosocial stress, and on the health consequences of limitations in activities of daily living.

4.1 Activities of daily living

One mechanism through which the old age pension appears to improve health is through protecting the health status of the older household members who report limitations in their

activities of daily living (ADLs). The Langeberg survey asked all household members aged 55 and older about their level of difficulty in carrying out the following activities by themselves:

Dressing
Bathing
Eating
Toiletting
Taking a bus, taxi or train
Doing light work in or around the house
Managing money (if they had to)
Climbing a flight of stairs
Lifting or carrying a heavy object
Walking 200-300 meters.

If an older respondent reported difficulty with an activity (answering "difficult, but can do with no help, can do but only with help, can't do"), then the respondent was given a value of "1" for having a limitation in that activity. The number of limitations was then summed over all activities. For Black and Coloured respondents, the number of limitations in ADLs are plotted in Figure 1, where we find a great deal of variation in limitations within this population.

That limitations in ADLs are significantly correlated with health status can be seen in Table 6, where we report estimates from ordered probits of self-reported health status as a function of the number of limitations in ADLs, by sex of respondent, an indicator that the respondent is a pensioner, the number of ADLs interacted with the respondent being a pensioner, and the number of ADLs interacted with the household size, for Black and Coloured respondents aged 55 and older. All probits in Table 6 also control for the respondent's sex, race, age, race interacted with age, and include the number of household members and the number of members aged 0 to 17.

We find that limitations in ADLs is associated with significantly worse health status.

Limitations for women are associated with larger erosions in health status than are those for men (although the difference between women and men is not statistically significant). Pensioners with limitations in ADLs report better health status than do older adults with limitations who do not receive the pension. In addition, older adults in larger households report better health status with limitations in ADLs than do other older adults. It appears that both the pension income and residence in a large household is protective for members with limitations.

These results are consistent with a model in which money (in the form of a pension) brings help (purchased or volunteered) when respondents can not dress or bathe by themselves. In addition, in a large household, it is possible that additional household members may be at hand to help when an older adult is unable to dress or bathe himself or herself.

4.2 Sanitation

A second way in which money may influence health is through better sanitation. The pension may be used to upgrade household facilities, and some of the improvements made may have health consequences. In Table 7, we present evidence from probit estimation that the presence of a pensioner in the household is positively and significantly correlated with a flush toilet in the dwelling, and negatively correlated with an indicator that the household's source of water is off-site. Roughly 40 percent of the Black and Coloured households in our sample have a flush toilet; 10 percent do not have water on-site. Obtaining water on-site, or a flush toilet, may take time to accomplish. We allow for this possibility in Table 7 by regressing these water-related variables on the number of years the pensioner should have been receiving his or her pension (based on age) interacted with an indicator that a pensioner is present. We find that the presence of a flush

toilet is significantly more likely, the greater the number of years of pension receipt in the household.

4.3 Nutrition

Results in Table 8 suggest that the pension is also useful in protecting the nutritional status of adults within the household. A knowledgeable household member was asked in each household whether in the past year an adult in the household had skipped a meal or had had the size of a meal reduced because of lack of funds. Probit results in Table 8 show that, in households where pensions are pooled, the pension significantly reduces the probability that an adult has skipped a meal. In households that pool income, the presence of a pensioner reduces the probability that an adult has skipped a meal by roughly 25 percent (with or without controls for the number of members aged 55 and above.) These results are consistent with the answers given to open-ended questions (reported in Table 5), where many pensioners reported that life had changed upon pension receipt because the pensioner could now purchase enough food.

That skipping meals is associated with poorer health can be seen in Table 9, where we regress health status on an indicator that meals were skipped, together with information on the number of pensioners in the household. In a pooling household, when an adult is reported to have skipped a meal, health status of respondents is 0.20 points worse. In non-pooling households, the coefficient on missing a meal is also large (.23) but is not significantly different from zero, given the large standard error the coefficient attracts. Adding the information on meal skipping reduces the pensioner coefficient in pooling households by roughly 5 percent. With enough information on how pension income is spent, we may be able to parse out the effect of having a pensioner on

household health into its component parts.

4.4 Psychological risk factors

Pension receipt may also reduce the level of psychosocial stress faced by household members. Adler et al. (1994) and Marmot (1999), among others, have argued that the lack of adequate resources may reduce people's ability to cope with stressful life events, and may put people at risk for depression, hostility and psychosocial stress.

We explore this channel using data collected in the Langeberg survey on depression, a close correlate of stress (Sapolsky 1994). Each adult respondent was asked how often in the past week they felt:

that they could not stop feeling miserable
depressed
sad
they cried a lot
they did not feel like eating
that everything was an effort
their sleep was restless
they could not get going.

We use a respondent's answers to these questions to create a depression index. Specifically, for each, if the respondent reported that he or she felt this way "most of the time" we coded their answer as a "1," and our depression index is the simple sum of these responses. Table 10 shows that the depression index is significantly lower, the greater the number of pensioners in the household. The presence of members aged 55 and above has no significant effect on the index, suggesting that it is not the presence of older members, but the money they bring with them, that reduces stress for all adults within the household.

5. Conclusions

Income, in the form of an old age pension, has been shown here to improve the health status of all household members, in households that pool income. This improvement provides a benchmark against which governments and international organizations interested in improving health status can evaluate other health-related interventions. In those cases in which the lack of capacity, organizational ability or political will makes improvement in health systems difficult to deliver, the delivery of cash may be a better option if the goal is improvement in health.

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Table 1. The Langeberg Survey
Variable Means and Standard Errors
Adults Ages 18 and Above

	Blacks	Coloureds	Whites
Self-reported health status (1=Excellent 2=Good, 3=Average, 4= Poor, 5=Very Poor)	2.80 (.091)	2.34 (.060)	2.22 (.124)
Respondent's total income	489 (82.8)	921 (145)	2968 (538)
Respondent's age	37.1 (1.41)	38.8 (.756)	49.6 (2.29)
Respondent's completed education	6.95 (.276)	6.52 (1.07)	11.7 (.465)
Indicator: Respondent is a pensioner	.100 (.044)	.076 (.015)	.220 (.057)
Indicator: Respondent lives with a pensioner	.232 (.074)	.213 (.059)	.326 (.083)
Indicator: Respondent lives with someone aged 55 or above	.361 (.080)	.337 (.061)	.512 (.088)
Indicator: Respondent lives in a household that does not pool income	.186 (.075)	.244 (.052)	.104 (.039)
Number of Observations	229	316	136

Sample means are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area).

Table 2. Income and Health Status

Dependent variable: Self-reported health status (1=Excellent, 5=Very Poor)
Ordered Probits

	Blacks	Coloureds	Whites	US Blacks	US Whites
Log(own income)	−.229	−.222	−.325	−.176	−.209
	(.071)	(.068)	(.130)	(.004)	(.002)
Age	.035	.032	.023	.019	.017
	(.005)	(.004)	(.012)	(.0002)	(.0001)
Education	−.049	.014	−.155	−.052	−.077
	(.024)	(.015)	(.064)	(.001)	(.001)
Female	.136	.006	−.019	.153	.079
	(.216)	(.166)	(.247)	(.008)	(.003)
N obs	122	243	86	83427	544256

Standard errors are presented in parentheses.
South African ordered probits are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). Income for the NHIS is total household income. Both the U.S. and South African samples restricted to adults aged 18 and older. Source: The Langeberg Survey 1999 (columns 1-3) and the U.S. National Health Interview Survey 1986-95 (columns 4-5).

Table 3. Pensioners, Income Pooling, and Health Status
Ordered Probits, Coloured and Black Respondents Only

	Household Pools Income		Household Does Not Pool		All Households	
Number of pensioners	−.503	−.586	.148	.182	−.291	−.357
	(.259)	(.383)	(.278)	(.264)	(.154)	(.269)
Indicator: respondent	.262	.314	−1.03	−1.03	−.195	−.161
is a pensioner	(.612)	(.682)	(.450)	(.448)	(.480)	(.523)
Number of members	--	.089		−.033	--	.070
aged 55 or above		(.179)		(.149)		(.163)
Indicator: household	--	--	--	--	−.019	−.009
does not pool income					(.087)	(.075)
Number of Obs	422	422	95	95	517	517

Standard errors are presented in parentheses. Ordered probits are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). All probits include indicators for age, sex, race, and age interacted with race. Results are robust to estimation separately by race, and to the inclusion of the respondent's years of completed education.

Table 4. Pensioners and Children's Height

Coloured and Black Children Born After January 1, 1994

Dependent Variable: Children's height in centimeters

	Black Children		Coloured Children	
Number of pensioners	5.10	8.09	6.03	5.74
	(2.62)	(3.87)	(1.51)	(1.62)
Number of members aged 55 or above	--	−3.11	--	.574
		(3.55)		(.907)
Number of Obs	37	37	44	44

Standard errors are presented in parentheses. OLS regressions are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). All regressions contain an indicator for female children.

Table 5. Respondent reports on life after pension receipt
Black and Coloured Pensioners

PANEL A "What did you start doing differently when you received your pension?"		
Race	Sex	Open-ended response
		In households that do not pool income
Black	F	Yes things became different because the money that I earned was smaller than the pension
Coloured	F	still the same
Black	F	Bought furniture and renovated the house.
Black	F	I had to start budgeting. I never budgeted before.
Black	F	Relieved poverty a bit
Black	M	No
Black	F	Opened a bank account.
Coloured	M	the household were more easier when she got the pension
Coloured	M	His lifestyle changed-better living conditions. Has enough money left to carry h
Coloured	F	nothing
		In households that pool income
Coloured	M	they bought less food now because of the expense of some things
Coloured	M	the hours of work was reduced and he could pay his burial money up to date
Coloured	F	all necessities -such as bed linen and enough food for the house hold
Coloured	M	a telephone put in
Coloured	M	were able to pay off his burial
Coloured	F	Nothing changed as the money became more, the price of groceries increased
Black	M	He gave it to his wife
Black	F	She started to suffer; bought less food because she got less money
Black	M	Financially it went worse because the pension is less than what he earned
Black	M	Doing odd jobs on own time
Black	M	pay debts, pay municipality
Black	F	Lifestyle improved
Black	F	I buy kitchen unit
Black	F	Could afford a better life, like buying more food for children and things like o
Black	M	Cannot recall.
Black	M	Looked after the children and made sure that there was always something to eat.
Coloured	F	Bought personal things
Coloured	M	life gets better and 03 could save money
Coloured	F	Nothing changed. Her salary wasn't much less than her pension
Coloured	F	the household were more easier when she got the pension
Black	M	In the household things goes much better. I could bought a parafin stove and more f
Coloured	M	Worked a less than before
Coloured	M	Expenses needed to decrease with a strict budget
Coloured	F	sick-asthma
Coloured	F	TO BUY MORE BEDDING
Coloured	F	nothing -too many expenses

Table 5. Respondent reports on life after pension receipt

PANEL B "In what ways did your life become better when your pension started, if any?"		
Race	Sex	Open-ended response
		In households that do not pool income
Black	F	It become better because pension money was more that make my life to be better
Coloured	F	none wise my life became better
Black	F	It is better. I'm more independent.
Black	F	It was better cause they could buy food though not yet enough
Black	M	Still the same.
Black	F	I could open my own bank account and my life has improved.
Coloured	M	she could buy more food
Coloured	M	Residentiality improved and conditions in house seems to be stable
Coloured	F	went worse
		In households that pool income
Coloured	M	Did not become better at all
Coloured	M	He has always food to eat now
Coloured	F	Lifestyle improved now
Coloured	M	yes converted
Coloured	M	is able to buy himself some things
Coloured	F	Can now buy more groceries and other specialities
Black	M	It didn't get better because while he was working he earned more money
Black	F	When she stopped working she draw UIF money with that she was able to change her
Black	M	life did not get better
Black	M	none
Black	F	Could buy more food
Black	F	My life become better than before because the pension money is more than the one
Black	F	Could maintain children better than before
Black	M	Nothing changed.
Black	M	none
Coloured	F	Could buy better food for the house hold
Coloured	M	I could buy any thing I need and to give money for household
Coloured	F	It did not improve much
Coloured	F	she could buy more food
Black	M	With the income
Coloured	M	Don't have to work anymore
Coloured	M	There were less worries, and they didn't need to work anymore and could rest
Coloured	F	no money
Coloured	F	NONE
Coloured	F	not better

Table 6. Activities of Daily Living (ADLs) and Self Reported Health Status

Dependent variable = Self reported health status (1=Excellent, 5=Very Poor)

Ordered Probits

Number of ADL limitations	.152	.376	.481	.381	.535
Male respondent	(.087)	(.159)	(.198)	(.156)	(.190)
Number of ADL limitations	.235	.576	.791	.585	.896
Female respondent	(.129)	(.189)	(.274)	(.186)	(.239)
Indicator: respondent is a pensioner				.251	.890
				(.388)	(.385)
Number of ADL limitations ×			−.249		−.335
pensioner			(.120)		(.112)
Number of ADL limitations ×		−.044	−.048	−.044	−.050
household size		(.026)	(.028)	(.025)	(.027)

ADL questions were asked only in the older adult module (ages 55 and above), and sample is restricted to Black and Coloured respondents aged 55 and above. Number of observations = 70.
Standard errors are presented in parentheses. OLS regressions are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). All regressions include indicators for sex, race, age, race interacted with age, and controls for the number of household members and the number of members aged 0 to 17.

Table 7. Sources of Water
Probit Estimates
Black and Coloured Households

	Source of household's water is off-site		Indicator: Flush toilet in dwelling	
Someone in household is eligible for a state pension	–.001 (.039)		.187 (.118)	
Number of years of pension receipt (based on pensioner's age)		–.008 (.007)		.031 (.014)
Urban	–.066 (.087)	–.064 (.087)	.111 (.950)	.111 (.193)

Notes to Table 7. Standard errors in parentheses. All probits include household size, and an indicator that the household is Coloured. Probits are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). Numbers reported in the table are the change in the probability of the household having this type of sanitation, given a change in the right side variable. Number of observations = 220. Source: The Langeberg Survey 1999.

Table 8. Meals Missed for Lack of Money and the Old Age Pension

Probit Estimates

Black and Coloured Households

	Household Pools Income		Household Does Not Pool Income		All Households	
Number of pensioners in household	−.256 (.107)	−.210 (.150)	−.161 (.203)	−.047 (.209)	−.242 (.069)	−.186 (.123)
Number of members aged 55+		−.051 (.090)		−.124 (.080)		−.063 (.080)
Indicator: household does not pool income					−.029 (.080)	−.037 (.084)
Number of observations	186	186	34	34	220	220

Dependent variable =1 if the "knowledgeable" household member reported that in the past 12 months an adult in the household skipped a meal or had the size of a meal reduced because there was not enough money for food. Numbers reported in the table are the change in the probability that a member has missed a meal, given a change in the right side variable. Also included in each probit are household size and an indicator for the household's race. The sample contains one observation per household.

Table 9. Hunger and Health Status

Dependent Variable: Self Reported Health Status (1=Excellent, 5=Very Poor)

Ordered Probits

	Pooled			Not Pooled			All		
Indicator: an adult in the household skipped meals	--	.199 (.078)	.197 (.078)	--	.226 (.236)	.220 (.231)	--	.200 (.088)	.197 (.085)
Number of pensioners in household	–.606 (.409)	–.586 (.399)	–.477 (.282)	.189 (.171)	.232 (.150)	.375 (.303)	–.387 (.283)	–.357 (.277)	–.253 (.164)
Indicator: respondent is a pensioner	.319 (.684)	.332 (.680)	.266 (.605)	–.864 (.526)	–.916 (.524)	–.958 (.511)	–.151 (.526)	–.159 (.522)	–.211 (.473)
Number of members aged 55+	.123 (.202)	.125 (.191)	--	.145 (.238)	.157 (.249)	--	.113 (.186)	.118 (.178)	--
Household size	–.026 (.058)	–.020 (.061)	–.004 (.059)	–.112 (.123)	–.124 (.128)	–.110 (.111)	–.030 (.061)	–.028 (.065)	–.014 (.057)
Household does not pool income	--	--	--	--	--	--	.020 (.083)	.014 (.085)	–.009 (.104)
Number of obs	413	413	413	95	95	95	508	508	508

Notes to Table 9. Standard errors in parentheses. Sample restricted to Black and Coloured households. All regressions are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). Included in all regressions are indicators that the respondent is Coloured, female, respondent's age, and age interacted with Coloured, and the number of members aged 0 to 17. Source: The Langeberg Survey 1999.

Table 10. The Depression Index and the Old Age Pension
Dependent variable = Depression Index (with values from 0 to 8)

Indicator: household contains at least one pensioner	−.529	
	(.266)	
Indicator: household contains one pensioner		−.518
		(.238)
Indicator: household contains two or more pensioners		−.942
		(.517)
Indicator: respondent is a pensioner	−.316	−.188
	(.302)	(.356)
Number of members aged 55+	.072	.113
	(.177)	(.204)
Indicator: household does not pool income	.100	.079
	(.294)	(.313)

Standard errors are presented in parentheses. OLS regressions are weighted using weights based on the 1996 South African census, taking into account the stratification of the sample (by race), and the clustering of observations (by enumerator area). Sample restricted to Black and Coloured respondents ages 18 and above. Number of observations = 528. All regressions include indicators for sex, race, age, race interacted with age, and controls for the number of household members and the number of members aged 0 to 17.

Figure 1. Limitations in Activities of Daily Living