Household responses to adverse income shocks: Pensioner out-migration and mortality in South Africa

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Abstract

How do households cope with negative income shocks in developing countries? South Africa's unique social pension system results in most of the poor elderly receiving a generous income transfer from the state. This generally makes the pensioner the primary 'breadwinner' in the household. Several researchers have shown that pension recipiency in South Africa results in improved household welfare, along dimensions including child health, schooling enrollment of children and the consumption of leisure of prime aged adults. In this paper, I estimate the effects of a pensioner leaving the household, using nationally representative matched panel data from several waves of the South African Labour Force Surveys. I find that households experience a net increase in adults, particularly of females. There is an increase in both the number and proportion of employed adults in the household, as well as an increase in the number of adult females who are available for home production activities. I find no evidence that schooling enrollment of youth or youth labor supply is adversely affected.

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Comments and suggestions are most welcome.

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1 Introduction

What are the household level effects of providing cash transfers to poorer households in developing countries? How do households respond to the cessation of such transfers? I use nationally representative household level matched data from South African Labour Force Surveys (LFS) from September 2001 to September 2003 to answer this question. I investigate how households respond to the departure of a pensioner along the dimensions of adult labor supply, youth labor supply, and youth and children's schooling enrollment rates.

The non-contributory South African Old Age Pension (OAP) forms the backbone of the South African social security system. Recipiency rates are high amongst the elderly, and over 77% of Africans who are age-eligible report receiving the pension. In addition, a means test ensures that the pension disproportionately reaches poorer households. Not only is coverage widespread, but its value is sufficiently high to make the pensioner the main breadwinner in their households. Case and Deaton (1998) noted that in 1993, the value of the pension was "twice the median household's per capita income" amongst African households. Based on the September 2002 LFS, 19.28% of all households report "pensions and grants" as their main source of income. Amongst households with a member who is old enough to be eligible, this proportion rises to 63.67% for all households, and 70.17% for African headed households.

Given the importance of the pension, the question is of interest for at least three reasons. First, it can inform us as to how families act to mitigate against the effects of adverse economic developments. One dimension of this involves household responses in terms of household composition. In this scenario, the group that constitutes a 'household' is itself endogenously determined. This is a potentially important consideration for policies targeted at the household level. Second, policy makers would care about potential poverty implications. If the pension is keeping people out of poverty, then perhaps an anti-poverty grant could facilitate the same outcome, without the dependence on the survival of the pensioner. Third, sharing of pension income within households could well lead to non-recipients deciding not to work. In this case, the pension is likely to negatively affect labor supply, the magnitude

of which is difficult to measure.

In this paper, I address some of these questions. I find significant evidence that the pension does indeed affect the labor supply of prime aged adults in the pensioner households. I find no effects on youth labor supply, nor on the likelihood of schooling enrolment amongst youth and children.

2 Background

Lund (1993) provides an introduction to the OAP as we see it today. As stated previously, the pension is means tested, and provides a relatively generous cash transfer to recipients. Eligibility depends only on age, nationality and satisfying the means test. The age-eligibility threshold is 60 for women and 65 for men. The level of the means test is set fairly high, so that most of the elderly receive the grant. Moreover, it is based on individual income for the unmarried elderly, or joint spousal income for married couples, and hence should not have distortionary 'implicit taxation' effects for other household members. Thus, with the exception of spouses, any effects on the labor supply of non-elderly household members can be interpreted as pure income effects.

The value of the pension is adjusted periodically, usually on an annual basis, to adjust for inflation. In 2002 and 2003, the value of the pension was set at 620 and 700 rands per month respectively. Adjusting for consumer inflation[1], and converting using the current exchange rate of 6 rand : 1 US dollar, these numbers equate to approximately $125 per month. This is a large transfer relative to potential wage income, and continues for as long as the pensioner remains alive and continues to satisfy the means test.

[1]The deflator used is the official Consumer Price Index released by Statistics South Africa.

3 Related Literature

Several researchers have investigated the effects of pension recipiency on various dimensions of household welfare. Case and Deaton (1998) analyze the redistributive consequences of the OAP, as well as the expenditure patterns of households that it. They find that the OAP is an effective transfer to the poor and poverty stricken in general. Furthermore, the prevalence of three-generation households, as well as 'skip generation'[2] households, results in the pension disproportionately reaching children in poverty.

Some authors have looked at whether the OAP impacts on the health of recipients or their household members. Duflo (2000) finds a discontinuous increase in girls' height for age for children living with pension eligible persons. This increase is significant and is realized on average only when the pension recipient is a woman. Duflo (2003) reports similar evidence that the pension is shared between members of the household. Moreover, the sharing of recipients' cash from pensions is differentiated by gender. Case (2001) finds that the health of all household members is improved as a result of the pension.

Others have asked the question; 'How do other members of the household respond when a member becomes pension eligible'? Bertrand et al (2003) find that having a pension eligible person in the household has a statistically significant and negative impact on the labor supply of prime aged individuals in the household. Edmonds (2003) considers the impact of the OAP on child labor supply and schooling attendance. He finds that when a household member who is male becomes pension eligible, there is a sizable decline in child labor, coupled with an increase in schooling attendance and attainment.

Jensen (2003) questions whether household disposable income increases by the full value of the pension. He estimates that crowding out of remittances by pensions is large and significant. On average, every rand of pension income received by the elderly is met with a 0.25 to 0.30 rand decrease in remittances received from the pensioner's children. Pension income is thus *de facto* shared with family members even when they do not reside with the

[2]Households with grandparents and grandchildren but non-resident parents.

pensioner.

Most recently, Edmonds et al (2005) find that household composition itself is affected by someone becoming pension age-eligible. They find a decrease in the number of prime working-age women, and an increase in the number of children younger than five and young women of childbearing age.

Given that the pension seems to be so important in sustaining the poor and the elderly in South Africa, a natural question to consider is how do these households cope when the pension income stops. This would arise when the pensioner leaves the household, either due to out-migration or death. Data limitations precluded such a study until fairly recently. In this paper, I make use of new matched household data to shed some light on this question.

4 Theory

The theory underlying this paper is one in which household composition and labor supply of household members are both endogenous. Various authors have commented on the fact that inter-household migration occurs in response to the pension, see Edmonds *et al* (2005) and Keller (2004). Ignoring the possibility of household re-formation in response to the loss of the pensioner probably violates the assumption that the composition of the treatment and counterfactual groups experience the same evolution through time. This would bias any estimates obtained simply by comparing households that lost a pensioner with those that did not. There are thus two levels of household responses to the loss of a pensioner: Migration in and out of members; and an increase in the labor supply of household members.

Economic theory is fairly clear on the effect of a loss of outside income in a household. Assuming that leisure is a normal good, we would expect people to be more likely to work or search for jobs when the pensioner leaves the household. This is the primary focus of this paper. In this context, however, an increase in a member's willingness to participate in market based work must depend on their time available to increase their work hours. Thus,

if all 30 years olds are already engaged in market related work, then we cannot observe an increase in their labor force participation. We would thus expect the response to be greatest amongst those groups who have time to work and whose wages are relatively high (amongst the household members not currently working).

However, if an individual is currently not working so as to increase their future wages, by increasing their educational levels for example, then this would mitigate against them entering into the labor force. For this reason we would expect only small increases in labor supply amongst students and scholars, and limited dropout effects, as these should only occur under extreme duress.

Economic theories of the family and household formation are less clear about what would happen to household composition. If, in addition to the monetary value of the pension, the pensioner also provided services in the home, then such a shortfall may result in additional changes. Suppose, for example, that the pensioner looked after household children. Then there exists the possibility that an adult has to leave the labor market to assist with child care. Alternatively, we might expect family adults to take up residence in the household, or alternatively, for the household to send children to live with members of their kin network in other households. While the prediction is by no means unambiguous, it is likely that the ratio of adults to children will increase, although the mechanism by which this is attained in unclear.

5 Data

5.1 Sample selection

The data I use comes from the South African Labour Force Surveys (LFS). These are nationally representative household level surveys that are conducted with a biannual frequency, in March and September each year. The contain a complete household roster, demographic

information such as age, race, gender and education for each respondent, and detailed information on labor force participation, employment, occupation, hours and earnings. In some waves there is also basic information about the household's assets access to credit, and health of household members. Of particular relevance is a question on whether a person receives the pension or not.

From waves 4 to 8 (i.e. From September 2001 to September 2003), the LFS contained a 20% out-rotation component of dwellings.[3] Thus, between any two six month periods, 80% of dwellings were revisited. It should be stressed that this is a dwelling level panel, and is thus not necessarily the same household over time. However, the survey does have an individual level question that asks if the person in the household roster lived in this dwelling six months prior to that survey. I exclude dwellings where all respondents were not living in the dwelling for at least six months. In addition, there is no person level identifier that is consistent across waves. While individuals within dwellings can be matched based on demographic characteristics , this is likely to be done with error. [4]

A related data problem is that it is possible that the dwelling that was 'revisited' was in fact a different dwelling. In particular, in shanty towns in urban areas, and mud huts in rural areas, dwellings could well be impermanent structures. To minimize this potential problem, I included only those dwellings where at least one member has the same race, gender, and similar ages in wave t and $t+1$.[5] All of this selection introduces the possibility of selection bias. [6] In order for this analysis to be valid, I need to assume that matches occur at random

[3]Statistics South Africa reports that this rotation pattern was included until March 2004, but I only obtained that information recently, and have thus not included it in this paper. I shall do so in a subsequent version.

[4]In another paper, we performed the match based on the household identifier, age, race, gender and the question on whether the person was present in the household at the time of the previous wave. We obtained a match rate of approximately 50% of all possible matches (Dinkelman and Ranchhod, 2006, unpublished manuscript)

[5]By 'similar' age I required that the observations either had exactly the same age in the two waves, or that the age increase by at most one year between the waves t and $t+1$.

[6]One way to circumvent this is to improve the quality of the matches. This is currently not possible, but Statistics South Africa (StatsSA) has indicated that they are about to release an official version of the matched data, at the individual level. This will have much less 'noise' in it, as they have the benefit of using respondents' names to identify the matches.

across households that kept a pensioner and lost a pensioner.[7]

Match quality notwithstanding, there are other limitations with the data. First, the question on pension recipiency is asked only for those who are not currently employed. Thus, if an unemployed pensioner in wave t continued to receive a pension in wave $t+1$, but also started working between waves, we would not observe him as a pensioner in the dataset.[8] In September waves, there is a household level module which asks, 'Does any person in this household receive an Old Age Pension?', but this is not present in the subsequent March wave.[9] I therefore decided to make use of the legal age requirements as proxies for pension income. I also focus exclusively on African headed households. Africans comprise the majority of the population, are disproportionately poor, and conditional on age-eligibility, are highly likely to be receiving the pension. In all of the September waves combined (i.e. wave 4, 6 & 8), 88.5% of African headed households that included at least one pension-aged member reported that someone in the household receives the old age pension. I am thus able to identify households that had a pension-aged member in wave t, where the pensioner[10] is absent in wave $t+1$. This forms the crucial variable of interest for me.

Since one might be concerned about endogenous out-migration of the pensioner, I repeat the analysis to the plausibly exogenous event of the death of the pensioner. However, only in the wave 5 (March 2003) module were respondents asked about recent deaths in the household. I use this data to generate an indicator variable for whether an elderly member died recently in that household. This variable is called '$death2$'. In the remaining waves, I can only infer deaths indirectly. I do so using the marital status variable, in combination with the question on who the persons' spouse is. To do this, I identify the number of people who are married to a pensioner in the household with pensioners. I classify the variable '$death1$'=1 if the number of pensioners decreases by exactly the same number as the reduction of spouses

[7] I could correct for selection on observables by reweighting by the inverse of the probability of the match, but have not yet done so.

[8] We also do not have an individual level panel to identify these cases.

[9] One alternative would be to wait for the 'high quality' panel from StatsSA, and look at households that we observe for multiple September waves. The tradeoff would be in terms of sample sizes, and potential sample selection bias.

[10] For the remainder of the paper, I use the word 'pensioner' to refer to a person who is age-eligible to receive the old age pension.

of pensioners in the household, which in turn corresponds to the increase in the number of widows/widowers in the household. This 'spouse to widow/widower' algorithm yields 140 candidate deaths. I was concerned that some of these might be spurious, so I inspected whether the potentially new widow/widower's age corresponded to the age of the pensioner's spouse. Of the 140 candidates, 68 matched perfectly, 18 were clearly not the former spouse, 32 matched well but not perfectly, and 22 could possibly have matched but the ages differed by more than 3 years in absolute value. I thus only identify a subset of the deaths in the households. [11] I make use of only the relatively good quality matched, which yield a final $death1$ sample of 100.

Table 1 shows how the sample sizes change at each level of cleaning, and presents the final samples for the analysis. My final sample includes 1779 households that have a net decrease in the number of pensioners between wave t and wave $t+1$, or 15.32% of the households.[12]

5.2 Dependent variables

Table 2 shows the mean household composition of the 'Keepers' and 'Losers' from the last two columns in Table 1. I classified each household member by age. The classification was somewhat arbitrary, with 'young kids' being aged 7 or lower, 'school kids' aged 8 - 15, 'youth' aged 16 - 20, and adults aged 21 - 59 if female, and 21 - 64 if male. [13]

What is remarkable in the table is both the consistency in composition of the Keeper households, and the fluidity in the composition of the Loser households. The simple comparison of means suggests that Loser households do indeed experience an inflow of adults, particularly women, as well as an outflow of dependents, namely young children and children of school-going ages.

[11] Again, the individual level panel from StatsSA would be useful here.

[12] 437 households report a net gain in the number of pensioners between waves t and $t+1$.

[13] At age 7, children should legally be enrolled at school, but enrollment become almost universal by age 8 only. Similarly, 16 is the legal age at which a person may drop out of school or enter employment, while at 21, a person becomes a legal adult.

Table 3 shows the mean proportions of various age groups in schooling and labor market activity. Again, Keeper households are incredibly stable. Youth and children who remain in Loser households also seem to be unaffected by the loss. For labor supply, I use the conventional definition to classify a person as in the labor force or not. In the 'broad' category is included anyone currently employed or willing to work. In the 'narrow' category are the employed, and only those unemployed who are willing to work and actively searching for employment in the past month.

Amongst adults in Loser household, I observe changes that are surprising when taken together. While labor force participation seems to decrease a little using the narrow definition, it decreases by 5% points using the broad definition. Simultaneously, I observe that the proportion of adults who are employed increases by 5% points, an increase of almost 20%. While this is merely suggestive, it is consistent with the hypothesis that some unemployed people leave the labor force to concentrate on home production, while other unemployed people are forced to accept what offers are available to them.

Another potential response could be in the form of remittances to the household. Unfortunately, the survey instrument only captures this in a very crude fashion by asking "What is the main source of income for this household?". One possible response is "remittances". Moreover, the question is only asked in waves 4, 6, and 8 (i.e. the September waves). Table 4 below shows the distribution of the responses for the Keeper and Loser households in the relevant panels. In order for this comparison to be valid, one needs to believe that Loser households in waves 5 and 7 (i.e. at time T_0 in waves 5 and 7), were similar to Loser households in waves 4 and 6 (i.e. at time T_0 in waves 4 and 6).

While the samples are necessarily smaller, and the data more noisy, I observe some interesting dynamics. The Keeper households are fairly stable, though not as stable as in their composition and labor force participation. Loser households do indeed look different from Keepers even in the period prior to their loss. This would be expected if people are anticipating the coming departure of the pensioner. That said, we still observe a large decrease in the proportion reporting the Old Age Pension as their primary source of income. Wage

income increases in its relative importance. The most striking feature, however, relates to the increase in importance of remittances, the sale of agricultural produce, and 'other' income, each of which more than doubles. Of these three, remittances are the most significant, with more than one in five Loser households reporting remittances as their main source of income.

6 Empirical Specification

I now employ multivariate regression techniques to control for additional factors, and test for the significance of these differences. I regress the difference in the 'dependent variable' for households between waves t and $t+1$, on an indicator for whether the household was a Keeper or a Loser. I also estimate the coefficients separately for households in urban and rural areas. Given the differences in household structures and local economies, the effects of losing a pensioner may well differ by the geographic location of these households. My regression takes the form:

$\triangle$'$depvar_j$' $= \beta_0 + \beta_1 LosePen_j + \beta_2 X_j + \epsilon_j$
where j denotes a particular household.

'$LosePen$' is an indicator variable that equals one for Loser households, and 0 for Keeper households. Additional X variables include an indicator variable for urban areas, provincial dummy variables, a count variable for the household size in the initial period and a count variable for the number of pensioners in the household in the initial period. I include these last two since there may be mechanical relationships between original household size and subsequent flows. It is also possible that losing one of two pensioners has smaller effects than losing the only pensioner in the household.

One mis-specification of the above regression is that I am implicitly assuming that the households are independent across panels. However, with the rotation policy discussed, this cannot be true. To correct for this, I estimate robust standard errors which are clustered at

the household level.

7 Results

The coefficient on the *LosePen* variable is presented for each of the dependent variables discussed. For the composition variables which are presented in Table 5, they measure the difference in the mean changes in the dependent variables between Keepers and Losers. While these are only reduced form partial correlation coefficients, they remain very interesting.

We find that a pensioner leaving the household is coincident with a statistically significant decrease in the mean number of young and school going children, of -0.06 and -0.05 respectively. However, these differ by rural and urban areas. In rural areas, it is the young children who are most likely to leave the household, with a mean of -0.07. In urban areas, in contrast, there is a larger reduction in school aged children. The number of youth decreases a little, but the magnitude is fairly small, and the coefficient is not statistically significant.

Also interesting is the increase in prime aged adults. This increases by about 0.33 in all areas, which is equivalent to one in three households experiencing the in-migration of one more adult. This suggests considerable re-organizing of households that is correlated with a pensioner's departure. Moreover, the coefficient for adult men, while positive and significant at 0.094, is small relative to the coefficient for women, at 0.238. This suggests that female migration is more sensitive to the presence of a pensioner than male migration. In rural areas, this is even more prominent, which probably reflects the greater importance of the pension in rural areas.

Table 6 presents similar coefficients, for labor market and school enrolment variables. In these regressions, the dependent variable is constructed as a proportion of the number of members in that demographic group in a household. The results are consistent with our expectations from the table of means presented earlier.

The departure of a pensioner has very small and generally insignificant effects on youth schooling enrolment and labor supply. This is in line with my expectations, since the payoffs to education are very high in South Africa, and the opportunities for employment for young and unskilled workers are very poor.

For the adults, however, there are significant changes that occur in terms of their activity, especially when considered cumulatively. We know from Table 5 that the mean number of men in the household increases by about 0.09, while the mean number of women increases considerably more. The proportion of adults working also goes up, which implies a considerably greater number of employed adults in the Loser households. The proportion of those in the labor force using the 'narrow' definition, i.e. either employed or actively searching for employment in the past month, remains constant. Somewhat puzzling at first glance is that the proportion of people who are in the labor force using the 'broad' definition, i.e. either employed or willing to work, but not necessarily search, actually goes down, with a statistically significant coefficient of -0.04. However, this is somewhat misleading, as the this is more than explained by the increase in the number of adults. Indeed, the expected number of adults in the labor force actually increases as well.

In sum, I find considerable evidence that the household re-organizes itself in conjunction with the departure of a pensioner. As expected, labor supply increases, as does the number of employed. The number of adults increases, which is consistent with the theoretical idea that adults can provide income through market work, or goods through home production. Indeed, the increase in the number of women is such that there are simultaneously more employed women in the household, as well as more women who are not employed, which might reflect that women perform most of the home production. At the same time children, who are clearly dependents, are sent out of the household, presumably to live with others in the kinship network.

8 Caveats and Robustness checks

From a statistical perspective, the data are only suggestive, as I do not have exogenous variation in my independent variable. It is thus important to stress that the correlations presented, while in line with the theoretical predictions and rather convincing, cannot be interpreted as causal estimates.

There are other limitations, partly due to the data available. First, we cannot observe why the pensioner left, where he went to, or where the new household members came from. A complete analysis would be able to observe all of these in order to estimate more precisely the effects of the pension. There is one case, however, where the departure of the pensioner is plausibly exogenous, namely the death of the pensioner. This is still not a panacea, for the family may anticipate the death of the pensioner and start rearranging the family prior to his death. In this case, I would be biased away from finding any results, which implies that my estimates are biased towards zero, and should thus be interpreted as lower bounds of the 'true' effect.

As a robustness check, I then estimated the exact same models for the cases where I believed that the pensioner had died. The cleaning and classification process is described in the Data section. Because the sub-samples of identified deaths are so small, the estimates are terribly noisy and not very informative. While we almost never get any significant coefficients, this may be more a case of small sample sizes and insufficient statistical power than the lack of a 'true' effect.

However, the results for the changes in composition look broadly consistent with the results obtained when using the larger set of all Loser households. This is reassuring. In particular, the number of adult females increases substantially, and is even marginally significant for the $death2$ variable. Unfortunately, the same cannot be said for the change in activity variables. Indeed, the coefficients from the two death samples are often not even of the same sign. The one set of coefficients that are somewhat consistent, though, are those relating to the proportion of adult females who are employed, which is positive in each case. Given all the

regressions that I have estimated, it seems that adult female residency and employment is indeed affected by the presence of the pensioner.

9 Conclusion

I began this research by asking how poorer households adapt in response to the loss of a valuable economic member. The results presented were consistent with the loosely defined theoretical model discussed. Household composition and labor supply both adjust, with an outflow of dependents and an increase in the number of potentially valuable economic contributors. There is also some evidence that remittances increase in response. Moreover, I find that households that lose a pensioner experience a change in composition and behavior such that there is more time available for both income generating employment, as well as home production. Policy aimed at families need to account for extended family and kinship networks, as these are endogenous to such policies.

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11 Tables

Table 1: Sample Sizes (# Households)

Panel	Wave t	Wave $t+1$	Both Waves	≥ 1 indiv. match	African Headed	Pensioner T_0	Keep pensioner	Lose pensioner
45	27372	29011	19765	13,448	10,409	2,774	2,214	454
56	29011	26529	21797	15,081	11,323	3,120	2,524	483
67	26529	26702	20515	14,623	11,115	2,931	2,404	412
78	26702	26835	19621	13,896	10,518	2,784	2,251	430
Total	109614	109077	81698	57,048	43,365	11,609	9,393	1,779

Table 2: Household Composition

	Keeper		Loser	
	T_0	T_1	T_0	T_1
HH size	5.67	5.63	6.80	5.69
# Kids young (age $\leq$ 7)	0.91	0.89	1.15	1.02
# Kids school (age 8 - 15)	1.22	1.21	1.42	1.30
# Youth (age 16 - 20)	0.63	0.64	0.79	0.75
# Adults (age 21 - pension)	1.73	1.71	2.10	2.35
# Male adults	0.79	0.78	0.96	1.02
# Female adults	0.94	0.93	1.15	1.34
# Pension age	1.18	1.18	1.34	0.26
# Reporting pension	1.03	1.07	0.99	0.39

Table 3: Schooling and Labor Force Activity (mean proportions)

	Keeper		Loser	
	T_0	T_1	T_0	T_1
Kids in school	0.97	0.97	0.97	0.97
Youth in school	0.76	0.76	0.73	0.74
Youth in LF (narrow)	0.12	0.12	0.12	0.12
Youth work	0.03	0.03	0.03	0.03
Adults inLF (narrow)	0.55	0.53	0.54	0.52
Adults inLF (broad)	0.76	0.76	0.76	0.71
Adults work	0.25	0.24	0.26	0.31
Adult Males in LF (narrow)	0.59	0.59	0.62	0.58
Adult Females in LF (narrow)	0.52	0.51	0.51	0.50
Adult Males in LF (broad)	0.78	0.78	0.80	0.74
Adult Females in LF (broad)	0.76	0.76	0.75	0.70
Adult Males work	0.27	0.27	0.32	0.35
Adult Females work	0.24	0.23	0.24	0.30

Table 4: Distribution of main income source of households (%)

	Keeper		Loser	
	T_0	T_1	T_0	T_1
Salaries and/or wages	18.9	16.2	29.0	35.1
Remittances	5.0	4.3	8.9	21.5
Pensions and grants	73.7	76.9	57.2	32.6
Sales of farm product	0.5	0.4	0.6	1.8
Other non-farm income	1.6	1.9	3.1	6.7
no income	0.4	0.3	1.2	2.4
Unspecified	0.0	0.0	0.1	0.0
N	4,618	4775	866	913

Notes:

Each entry shows the percentage of households from the relevant time period who report a particular category as their main source of income.

Only one category was permitted in response.

Table 5: Change in Composition: Regression Coefficients

Δ Dependent Variable	All Areas		Rural Areas		Urban Areas	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
HH size	-0.872	0.061***	-0.878	0.075***	-0.853	0.103***
# kids young	-0.061	0.027**	-0.07	0.036*	-0.036	0.037
# kids school	-0.052	0.027*	-0.039	0.037	-0.07	0.037*
# youth	-0.022	0.021	-0.032	0.027	-0.008	0.033
# adults	0.331	0.035***	0.336	0.041***	0.324	0.065***
# adult M	0.094	0.024***	0.075	0.028***	0.127	0.043***
# adult F	0.238	0.025***	0.26	0.030***	0.196	0.045***

Notes:

Each entry is a regression coefficient from a different regression

Robust standard errors, clustered at the household level

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

Coefficients correspond to the estimate on the 'LosePen' variable

Omitted controls include province dummies, initial household size and number of pensioners

In the "All areas" regression, an 'urban' dummy variable was also included.

Table 6: Change in Activity: Regression Coefficients

Δ Dependent Variable	All Areas		Rural Areas		Urban Areas	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Prop. kids school	-0.002	0.005	0	0.006	-0.007	0.009
Prop. youth school	0.018	0.016	0.023	0.019	0.004	0.027
Prop. youth in LF (n)	-0.01	0.015	-0.03	0.017 *	0.03	0.027
Prop. youth Work	0.003	0.009	-0.001	0.012	0.014	0.013
Prop. adult in LF (n)	-0.003	0.013	-0.001	0.017	-0.009	0.021
Prop. adult in LF (b)	-0.042	0.011 ***	-0.042	0.016 ***	-0.042	0.015 ***
Prop. adults work	0.057	0.011 ***	0.059	0.014 ***	0.053	0.018 ***
Prop. adult M in LF (n)	-0.017	0.018	-0.003	0.024	-0.038	0.027
Prop. adult F in LF (n)	0.009	0.017	-0.003	0.022	0.03	0.027
Prop. adult M in LF (b)	-0.049	0.014 ***	-0.036	0.019 *	-0.065	0.021 ***
Prop. adult F in LF (b)	-0.026	0.015 *	-0.039	0.020 *	-0.003	0.021
Prop. adult men work	0.029	0.016 *	0.036	0.021 *	0.016	0.026
Prop. adult women work	0.058	0.014 ***	0.059	0.018 ***	0.058	0.023 **

Notes:

Each entry is a regression coefficient from a different regression

Robust standard errors, clustered at the household level

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

Coefficients correspond to the estimate on the 'LosePen' variable

Omitted controls include province dummies, initial household size and number of pensioners

In the "All areas" regression, an 'urban' dummy variable was also included.

"in LF (n)" means 'working or searching for employment'.

"in LF (b)" means 'working, or willing to work, but not necessarily searching'.

Table 7: Change in composition using 'death' as identifier

Δ Dependent Variable	Death 1		Death 2	
	Coeff.	Std. Err.	Coeff.	Std. Err.
# kids young	-0.05	0.105	0.01	0.079
# kids school	-0.116	0.109	-0.114	0.094
# youth	-0.034	0.107	-0.065	0.081
# adults	0.178	0.193	0.124	0.117
# adult M	0.047	0.109	-0.036	0.074
# adult F	0.131	0.143	0.16	0.088*

Notes:

'Death 1' is inferred from the subsequent marital status of the spouse in the Loser households.

'Death 2' is identified using the "deaths" module in LFS 5.

# of Loser households with 'Death 1'=1 is 100, with 'Death 2'=1 is 62.

Each entry is a regression coefficient from a different regression

Robust standard errors, clustered at the household level

* significant at 10%

Coefficients correspond to the estimate on the 'LosePen' variable

Omitted controls include an urban & province dummies, initial household size and number of pensioners

Table 8: Change in Activity using 'death' as identifier

Dependent Variable	Death 1		Death 2	
	Coeff.	Std. Err.	Coeff.	Std. Err.
Prop. kids school	-0.043	0.052	0.012	0.017
Prop. youth school	-0.005	0.085	0.071	0.074
Prop. youth in LF (n)	0.072	0.062	0.006	0.049
Prop. youth Work	0.039	0.054	0.027	0.022
Prop. adult in LF (n)	0	0.061	-0.012	0.06
Prop. adult in LF (b)	0.056	0.053	0.006	0.045
Prop. adults work	0.019	0.052	-0.013	0.051
Prop. adult M in LF (n)	0.015	0.091	-0.058	0.103
Prop. adult F in LF (n)	-0.075	0.075	-0.026	0.071
Prop. adult M in LF (b)	0.032	0.067	-0.009	0.058
Prop. adult F in LF (b)	0.066	0.062	0.01	0.052
Prop. adult men work	0.04	0.101	-0.055	0.08
Prop. adult women work	0.063	0.072	0.027	0.057

Notes:

'Death 1' is inferred from the subsequent marital status of the spouse in the Loser households.

'Death 2' is identified using the "deaths" module in LFS 5.

# of Loser households with 'Death 1'=1 is 100, with 'Death 2'=1 is 62.

Each entry is a regression coefficient from a different regression

Robust standard errors, clustered at the household level

* significant at 10%

Coefficients correspond to the estimate on the 'LosePen' variable

Omitted controls include an urban & province dummies, initial household size and number of pensioners

"in LF (n)" means 'working or actively searching for employment'.

"in LF (b)" means 'working, or willing to work, but not necessarily searching'.