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 magnitude of the changes in household composition and labor force activity, amongst the remaining members of the household, that correlate with a pensioner leaving the household. I use 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 of employed middle-aged adults in the household, as

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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 children who remain in the household are affected.

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Comments and suggestions are most welcome.

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 generally 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 percentage 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 the 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 decid-

ing 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 only limited effects on youth labor supply, and no evidence that schooling enrolment of children is affected.

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 recipient households. 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' income 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. Empirically, no data exists to answer this specific question. The question that I do answer in this paper is related, however. I ask, 'How does household composition and labor market activity change at the same time that we observe the departure of the pensioner'. 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.

In addition to the empirical question being addressed, this paper highlights that one of the caveats that applies to most of the previous research needs to be taken seriously; namely that the assumption that household formation is exogenous to the pension is not valid. While the existence of this problem has been previously documented, this is the first time in the SA OAP literature that we can measure how misleading looking at changes in activity might be if one did not also consider the underlying changes in composition.

4 Theory

The most basic model of household formation assumes that households form for the production of some non-tradeable good in which there are economies of scale (Becker, 1973). In this paper, I assume that household composition and labor supply of household members are both endogenous outcomes to changes in non-labor income. 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).

Economic theory is fairly clear on the effect of a loss of outside income on labor supply 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. 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. This follows directly from the model on child labor by Baland and Robinson (2000).

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 a resident adult has to leave the labor market to assist with child care. Alternatively, we might expect non-resident family adults to take up residence in the household. On the other hand, the household may have to send adult members out of the household to become migrant laborers in other regions, which is consistent with the model by Rosenzweig and Stark (1989). A different compositional response could be for the household to send children to live with members of their kin network in other households.[3]

[3]Fostering of Arican children is not uncommon in South Africa. See for example, Beittel (1992) and Sagner and Mtati (1999).

The prediction of the effects on household compostion is thus by no means unambiguous. However, given the existing literature, I conjecture that it is likely that the ratio of adults to children will increase, although the mechanism by which this is attained in unclear. Ultimately, however, the question remains to be informed by empirical analysis.

5 Data, Sample Selection, and Related Issues

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 of each year. They 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 worked and earnings for all household residents aged 16 and above. In some waves there is also basic information about the quality of the household's physical dwelling structure, home ownership, and the relative importance of various forms non-labor related earnings. These latter are household level variables.

I make use of data from wave 4 through wave 9 of the LFS in this paper (i.e. Sept 2001 - March 2004). Since the analysis I conducted is at the household level, I collapsed all the relevant information to the household level. Table 1a shows the initial sample sizes in the cross-sections, and the subsequent sample after each additional restriction discussed below is imposed. Initially, there are 163197 unique household numbers (within waves) across all of the waves combined.

The question on whether a person receives the pension or not is asked only of those who are not currently employed. Since the means test is relatively generous, this is likely to be a non-trivial proportion of the working elderly. Moreover, the LFS is structured to classify

a broad range of activities as 'employment', which exacerbates the problem. [4] I therefore decided to make use of the legal age requirements as proxies for pension income. For this reason, I excluded all households which had any household members' age as unknown. I also focus exclusively on African headed households. [5] 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.

From waves 4 to 9, the LFS contained a 20% out-rotation component of dwellings.[6] Thus, theoretically at least, 80% of dwellings were revisited between any two six month periods. The essence of my analysis is to identify households that we observe in two subsequent waves of the LFSs, identify those which had a pensioner in the 'first' wave and 'lost' that pensioner by the next one, and measure the magnitude of other changes that occur in such households as well. In its most basic form, this is simply a 'before and after' comparison.

However, the process is plagued by problems associated with measurement error, due to the possibility of false matches. Since my identification is based on the idea that a pensioner's departure from a household will lead to additional responses from the remaining household member, it is essential that I do, in fact, observe the same household in each of the two waves. It should be stressed that this is a dwelling level panel, and is thus not necessarily the same household over time. [7] A related data problem is that it is possible that the dwelling that was 'revisited' was in fact a different dwelling to the original one surveyed in the prior wave.

[4] 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.

[5] Technically, I included households in which the eldest member is an African. Given that the eldest member is generally the household head, and the infrequency with which multi-racial households are observed in the data, I am comfortable making the assumption that this captures the race of the household head accurately in almost all cases.

[6] Source: Statistics South Africa Labour Force Survey metadata documents.

[7] 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. StatsSA used this variable, amongst others, to generate their individual level panel.

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 was included in the StatsSA individual level panel [8], and has the same race, gender, and similar ages in wave t and $t+1$.[9]

I also excluded dwellings where there was more than one household on the property, since this represented a greater risk of false matches than single household properties.[10] Finally, I included only households with at least one person who was pension age-eligible in wave t.

I am thus able to identify households that had a pension-aged member in wave t, where the pensioner[11] is absent in wave $t+1$, for this subset of households. At the end of this process, I have 12374 matched households that are included in my sample. Of these, 446 show a net increase in the number of resident pensioners by the subsequent wave. These I also excluded from my analysis. The final sample, then, has 11928 households, observed once in the 'before' period (wave t) and once in the 'after' period (wave $t+1$) each. The unit of observation is thus a household-panel, and some households are included more than once if they meet all the criteria and appear in more than one panel.

Ultimately, I am left with 1653 'Loser' households, which show a decrease in the net number of pensioners, and 10275 'Keeper' households, which have no change in the net number of pensioners between wave t and wave $t+1$.

[8] StatsSA recently invested considerable resources to extract an individual level panel from this rotating dwelling level panel. The match quality is likely to be good, since they use the household identifier information, as well as the confidential first and last name of the respondent to identify the person level matches.

[9] By 'similar' age I required that the $-2 \leq age_{t+1} - age_t \leq 3$.

[10] StatsSA indicated that the 'hhid' were maintained across waves by property, but not necessarily by dwellings within properties. Of the households that satisfied every other requirement for inclusion in the sample, this excluded 6.25% of households.

[11] 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.

5.2 Selection Correction on Observables

All of this selection introduces the possibility of selection bias. In order for the analysis to be a valid description of what happens to pensioner households on average, I need to assume that the households that are included are representative of pensioner households in general. This assumption is unlikely to be true.

The first three columns in Table 2 show how the households that meet all the other criteria[12] but did not feature in the panel compare to those that were included in the final sample. I compare these two groups for a host of composition and activity variables. For most variables, t-tests for differences in the means reject the null hypothesis that those included and those that attrited were drawn from the same underlying population.

To the extent that such attrition arises for observable reasons, we can correct for this by reweighting our matched sub-sample. For example, if shack dwellers are more likely to move and are thus less likely to be matched, we can adjust the weighting of those shack dwellers who we do manage to match. Thus, non-random matching on observables is not an insurmountable problem per se, as we can use the 'inverse probability weighting' (IPW) method to obtain unbiased estimates.(see Wooldridge 2001, pp 587-590).

I estimated probit models and reweighed the panel sample using the IPW method. The probits were estimated separately for each wave. The probits were estimated only using those observations for which I had a corresponding household that I could potentially match to. This is not too problematic, since the objective is purely a statistical rebalancing one - I want the group in the panel to look more like that from the full cross-section.

The variables I included were original household composition and location variables, employment data of various demographic groups within the household, and information about the ownership and characteristics of the physical home. Since the 'wall type', 'home ownership'

[12]That is, they had a pensioner, the eldest person was African, there were no observations with age missing, and there was only one dwelling on the property.

and 'dwelling type' questions are only asked in the September waves, for waves 5 & 7 I used the information from the matched household in the subsequent wave.

The results are presented in the form of marginal effects calculated at the mean of each variable. The results suggest that the panel over-represents larger households, urban households, as well as households who owned their home, none of which is surprising. I then predicted the probability of inclusion in the panel, and all results in the analysis are weighted by the inverse of this probability, multiplied by the relevant sampling weights.

A glance at columns III to VI in Table 2 suggests that the process was fairly successful at its objective of re-balancing the panel to look like the cross-section.

5.3 Non-random Selection on Unobservables

A more difficult potential problem occurs if we have non-random matching based on unobservable characteristics, which persists even after the selection correction on observable characteristics. If these characteristics are orthogonal to the variables we are interested in, the estimates will still be unbiased in expectation. If, however, an entire household migrates in search of better economic opportunities upon the death of a pensioner, I cannot control or adjust for this. I thus need to qualify my findings to those Loser households where at least one member stays in the same residence.[13]

6 Identification using deaths

One might be concerned about endogenous out-migration of the pensioner. As a robustness check, I further restricted the sample to include only Losers who experience 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

[13]It is impossible to determine whether this is a large or small problem in this context.

generate an indicator variable for whether an elderly member died recently in a Loser household.[14] This variable is called '$Death1$'. 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 used the 'good' individual level matches from the StatsSA panel, and identified who was married to a pensioner. This is only possible for the subset that were married in $Wave_t$ and lived with their spouse at the time. I then infer death by identifying those who transitioned to become a widow or widower in $Wave_{t+1}$. I classify the variable '$Death2$'=1 if the above criteria are satisfied in a Loser household. This yields a subset of Losers who lost a pensioner through death. The '$Death1$' sub-sample has 58 observations and the '$Death2$' sub-sample has 81 observations.

6.1 Dependent variables

Table 4, Col 1 & 2 shows the mean household composition of the 'Keepers' and 'Losers' identified. I classified each household member by age. The classification was somewhat arbitrary, with 'kids young' being aged 7 or lower, 'kids school' aged 8 - 15, 'youth' aged 16 - 20, 'young adults' aged 21 - 35, 'middle adults' aged 36 - 50, and 'older adults ages 51 - 59 if female, and 51 - 64 if male. [15]

Keeper households are remarkably stable. Loser households are relatively more fluid, with some changes in the number of school aged children, middle aged women and older adults. The simple comparison of means suggests that Loser households do indeed experience some re-organization of household composition that occurs when a pensioner leaves, with a decrease in the number of dependents and an increase in the number of adults. The 'difference-in-differences' (DD) has almost no bearing on the results, since the Keepers are so stable.

[14]The 'deaths' file in LFS 5 that I have access to had the 'age at death' variable corrupted, in that the last digit of the variable is missing. This implies that I only observe the age at death in 10 year intervals. I included all deaths where the age at death was non-missing and greater than or equal to 60.

[15]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.

This suggests that a 'before-after' estimator with Loser households would probably yield very similar results as the DD regression results discussed below.

Table 5 shows the mean number of people in various age groups in schooling and labor market activity. Again, Keeper households are incredibly stable. Youth who remain in Loser households also seem to be unaffected by the loss, although there is reduction in the mean number of children in Loser households who are enrolled in school. This, however, is almost exactly equal to the decrease in the mean number of children in Loser households.

For labor supply, I use the conventional definitions 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 youth and young adults, there are generally fairly small increases in activity. Amongst middle aged adults, there is a noticable increase in female employment and labor force participation, particularly if one considers the proportionate increase. The largest effects, however, seem to be manifest amongst the older adults. This is not surprising, given the relatively low rates of labor force participation amongst older African adults.

Equally interesting, though, is that the changes in labor supply, shown by the broad and narrow definitions of labor force participation, are almost perfectly matched by increases in work. This is particularly interesting in the high unemployment environment that most of these households are in.

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 6 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, 6 and 8).

The samples are necessarily smaller, and the data more noisy. Nevertheless, I observe some interesting dynamics. The Keeper households remain fairly stable, which lends credibility to the aforementioned assumption. 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. In the 'before' period, roughly 1 in 12 Loser households reported remittances as their main source of income, in the 'after' period, this increases to almost 1 in 4.

7 Empirical Specification

I next employ multivariate regression techniques to control for additional factors, and test for the statistical significance of these changes in composition and activity. 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. My regression takes the form:

$\triangle$'$depvar_j$' $= \beta_0 + \beta_1 losepen + \beta_2 X_j + \epsilon_j$
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, wave dummies and a count variable for the number of pensioners in the household in the initial period. I include this last one since losing one of two pensioners potentially 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.

8 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 7, 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 school going children of -0.085. The number of youth decreases a little, but the magnitude is fairly small, and the coefficient is not statistically significant. The mean number of young adults also does not significantly change. The coefficient on middle aged adults, and particularly the middle aged females, is significant, and affects about 1 in 12 Loser households.

However, the largest and most clearly significant changes are observed in the older adults category. More than 1 in three Loser households gets an additional older adult, with 1 in 5 getting an additional female. The net effect on household size is less than 1, which is what is would be if the household lost only a pensioner and no other compositional changes occurred. This is consistent with the idea that residency would readjust to respond to the loss of the pensioner's time and income, and suggests considerable re-organizing of households that is correlated with a pensioner's departure. Moreover, the coefficient for adult men of each group is small relative to the coefficient for women of that group. This suggests that female migration is more sensitive to the presence of a pensioner than male migration.

Table 8 presents similar coefficients, for the labor market and school enrolment variables. The departure of a pensioner correlates with a statistically significant reduction in the schooling

enrolment of children, although this is more than accounted for by the change in composition. Youth labor supply also seems to be generally unaffected, particularly after accounting for the small changes in composition. This is in line with my expectations, since the payoffs to education are relatively 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. The number of young adults that are employed increases by a statistically significant 0.04. We know from Table 7 that the mean number of middle aged females increased by 0.071, while Table 8 indicates that the number of middle aged females that are employed increased by 0.042 on average. Thus, the number of middle aged females employed increased, as well as the number available for home production activities. The largest coefficients are for older adults, with more than 1 in 7 households experiencing the entry of an additional adult in the labor force, and almost 1 in 8 households having an additional older adult find employment.

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, primarily amongst the older adults, but also amongst middle aged females, 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.

9 Caveats and Robustness checks

9.1 Using Deaths for identification

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 pensioner's departure. 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 compared the same variables at their mean for the sub-sample where I believed that the pensioner had died. These are presented in Table 9 and Table 10 for the composition and activity variables respectively. The cleaning and classification process is described in the Data section. I present only the means, as the samples are fairly small. [16] Nevertheless, even with these small and highly selected sub-sample, the coefficient estimates are occasionally significant. I indicate whether the corresponding regression coefficient was statistically significant by means of asterisks.

The estimates are not always the same as those for the entire panel, as the samples are different, and the 'treatment' different too. Moreover, there may be additional changes

[16] The full regressions are available from the author upon request.

that occur with deaths, that further change activity and composition. Because the subsamples of identified deaths are so small, the estimates are noisy and not very informative. Nonetheless, they are occasionally considerably larger than those for the full set of Loser households. Moreover, the general lack of significance may be more a case of small sample sizes and insufficient statistical power than the lack of a 'true' effect.

The results for the changes in composition look somewhat consistent with the results obtained when using the larger set of all Loser households, particularly for the older adults. In particular, the number of middle aged adults increases substantially, and is even marginally significant for females using the *death*2 variable. The same can be said for the activity coefficients for the middle aged adult females and the older adults, which is particularly reassuring. Given all the regressions that I have estimated, it seems that middle aged adult female residency and employment, as well as that of older adult members, is indeed affected by the presence of the pensioner.

9.2 Measurement Error due to age misreporting

One additional caveat needs to be discussed. This relates to the problem that age is often misreported in the LFS. Since the entire analysis is based on a classification by age, this may be particularly problematic.

For the most part, it results in attenuation bias, which makes my coefficient estimates conservative. This occurs since some households where nothing really changed, may have been classified as Losers, while others which reported higher than their true age in each period would have been classified as Keepers. However, the category that is likely to be sensitive to such measurement error is the older adult category, where I might well have over-estimated some of the response. That said, the fact that even the tiny death samples indicated some changes in composition and LFP among the older adults provides additional reasons to believe that not all of the results obtained for this demographic group can be attributed to measurement error.

10 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 general theoretical discussion and most of the prior empirical literature. 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.

Methodologically, analyzing changes in composition in conjunction with changes in activity may be important in conducting research. For example, if one did not observe the compositional decrease in the number of school aged children in the household, one would have incorrectly concluded that the loss of a pensioner decreases children's schooling enrollment rates. Policy targeted at families and households need to account for extended family and kinship networks, as these are endogenous to such policies.

11 References

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12 Tables

Table 1a: Sample Sizes - Cross Sections

Wave	# HHID	+ No Age missing	+ African 'headed'	+ only 1 HH on property
4	27,356	27,253	21,141	17,552
5	29,011	28,931	22,089	17,769
6	26,474	26,393	20,067	18,374
7	26,702	26,653	20,274	18,295
8	26,825	26,792	20,368	18,345
9	26,829	26,791	20,388	18,304
Total	163,197	162,813	124,327	108,639

Table 1b: Sample Sizes - Matched HH Data

Panel	# Matched HHs	& ≥ 1 'good' indiv. Match	& ≥ 1 $pens_t$	Losers	Keepers	Gainers
4-5	12,633	8,964	2,405	343	1,970	92
5-6	14,145	9,586	2,677	356	2,240	81
6-7	14,380	9,298	2,528	336	2,098	94
7-8	13,553	8,904	2,395	332	1,975	88
8-9	13,700	8,909	2,369	286	1,992	91
Total	68,411	45,661	12,374	1,653	10,275	446

Notes:

Only applies to African headed households with only 1 dwelling per property, in both periods

Table 2: Selection (on observables): Means in $Wave_t$

Col	I	II	III	IV	V	VI
Variable	X-sect only	Panel	Diff (II-I)	Full X-Section	Panel - Reweighted	Diff (V-IV)
urban	0.372	0.379	0.007	0.376	0.373	-0.003
hhsize	4.910	5.649	0.739**	5.350	5.401	0.051
# kids young (0-7)	0.737	0.887	0.150**	0.827	0.830	0.004
# kids school (8-15)	0.970	1.186	0.216**	1.099	1.120	0.021
# youth (16 - 20)	0.524	0.634	0.110**	0.589	0.599	0.010
# young adults (21 - 35)	0.908	1.077	0.169**	1.009	1.023	0.014
# middle adults (36 - 50)	0.418	0.481	0.063**	0.455	0.456	0.001
# older adults (51 - pension age)	0.193	0.207	0.014*	0.202	0.202	0.000
# pension aged	1.177	1.197	0.020**	1.189	1.191	0.002
# kids school attend	0.943	1.148	0.206**	1.065	1.084	0.019
# youth attend	0.386	0.475	0.089**	0.439	0.449	0.010
# young adults work	0.189	0.213	0.024**	0.203	0.205	0.001
# middle adults work	0.137	0.152	0.016**	0.146	0.144	-0.002
# older adults work	0.052	0.056	0.004	0.055	0.056	0.001
# young adults in LF (broad)	0.739	0.886	0.147**	0.827	0.841	0.015
# middle adults in LF (broad)	0.321	0.367	0.046**	0.348	0.347	-0.001
# older adults in LF (broad)	0.089	0.094	0.006	0.092	0.092	0.000
# young adults in LF (narrow)	0.516	0.602	0.087**	0.567	0.575	0.008
# middle adults (narrow)	0.244	0.278	0.034**	0.264	0.263	-0.001
# older adults (narrow)	0.070	0.074	0.004	0.072	0.073	0.000

Notes:

1. Sample is all African headed households, with a single dwelling on the property,
with no member's age missing, and at least one 'pensioner' in the household
2. Data corresponds to $Wave_t$ - i.e. from Waves 4 - 8
3. Means are unweighted, except in column V
4. The 'single dwelling' requirement excludes 6.25% of the sample, when all the other constraints are satisfied
5. * denotes statistical significance at the 5% level, ** denotes the same at the 1% level
6. The pension age is 60 or above for women, and 65 or above for men

Table 3: Selection correction probits: Dep. Var. is 'Inclusion in Panel'

Variable	wave 4	wave 5	wave 6	wave7	wave 8
hhsize	**0.018**	**0.02**	**0.027**	**0.023**	**0.031**
	[0.003]**	**[0.003]****	**[0.003]****	**[0.003]****	**[0.003]****
urban	0.041	**0.051**	**0.059**	**0.044**	0.035
	[0.020]*	**[0.020]****	**[0.020]****	**[0.020]***	[0.021]
walls-brick	0.043	**0.087**	0.029	-0.026	0.036
	[0.033]	**[0.030]****	[0.032]	[0.036]	[0.035]
walls-cement	0.011	**0.068**	0.042	-0.006	0.048
	[0.034]	**[0.028]***	[0.031]	[0.037]	[0.033]
walls-iron	-0.022	0	0.022	-0.067	-0.037
	[0.051]	[0.043]	[0.045]	[0.057]	[0.056]
House owned & paid for	0.068	**0.118**	**0.185**	**0.249**	0.065
	[0.042]	**[0.044]****	**[0.046]****	**[0.052]****	[0.053]
House owned, not fully paid for	0.042	0.07	**0.122**	**0.116**	0.056
	[0.051]	[0.047]	**[0.041]****	**[0.052]***	[0.066]
House rented	-0.047	-0.05	0.044	-0.013	-0.054
	[0.057]	[0.054]	[0.047]	[0.057]	[0.069]
house-hut	0.045	0.038	0.005	-0.051	0.017
	[0.031]	[0.029]	[0.032]	[0.038]	[0.033]
house-shack	0.048	-0.068	-0.027	-0.063	0.023
	[0.041]	[0.045]	[0.045]	[0.051]	[0.046]
house-other	**0.083**	-0.012	-0.071	-0.05	-0.062
	[0.040]*	[0.044]	[0.049]	[0.055]	[0.059]
# pensioners	0.001	-0.003	-0.011	-0.005	0.006
	[0.018]	[0.018]	[0.019]	[0.021]	[0.020]
# young adults working	0.008	-0.005	0.008	-0.011	-0.003
	[0.015]	[0.015]	[0.016]	[0.016]	[0.018]
# middle aged adults working	-0.011	0.035	**0.051**	0.015	-0.024
	[0.019]	[0.019]	**[0.021]***	[0.022]	[0.023]
# older adults working	-0.015	-0.05	0.016	-0.007	-0.036
	[0.032]	[0.028]	[0.032]	[0.036]	[0.035]
Observations (N)	3091	3576	3415	3232	3193

Notes:

1. Standard errors in brackets

2. * significant at 5% level; ** significant at 1% level

3. Coefficients on Province dummies omitted. (only occasionally significant)

4. Omitted categories:

Dwelling ownership: Rent free accomodation

Wall type: Mud walls

House type: Brick

5. The Dwelling Ownership, Wall Type and house Type information is obtained from that household for waves 4, 6 & 8. For waves 5 & 7, they are obtained from the wave 8 information of the household with the same hhid. This was done as the module that contains these questions is only asked in September waves of the LFS.

Table 4: Summary statistics - Composition

	T0		**T1**				
	Keeper	**Loser**	**Keeper**	**Loser**	$Delta_K$	$Delta_L$	**DD**
HH size	5.36	6.29	5.32	5.52	-0.04	-0.78	-0.74
# kids young	0.86	0.95	0.84	0.93	-0.02	-0.02	0.00
# kids school	1.11	1.28	1.11	1.21	0.01	-0.08	-0.08
# youth	0.59	0.75	0.58	0.72	-0.01	-0.04	-0.03
# young adults	1.02	1.21	0.99	1.19	-0.02	-0.02	0.01
# young adult - M	0.47	0.58	0.46	0.57	-0.01	-0.01	0.00
# young adult - F	0.55	0.63	0.54	0.63	-0.01	-0.01	0.01
					0.00	0.00	0.00
# mid-aged adults	0.46	0.52	0.47	0.61	0.00	0.09	0.08
# mid-aged adult - M	0.21	0.22	0.21	0.23	0.00	0.01	0.01
# mid-aged adult - F	0.25	0.30	0.26	0.38	0.01	0.08	0.07
# older adults	0.17	0.25	0.18	0.61	0.01	0.36	0.35
# older adult - M	0.08	0.13	0.08	0.29	0.00	0.16	0.16
# older adult - F	0.09	0.13	0.10	0.32	0.01	0.20	0.19
# pens age	1.17	1.35	1.17	0.29	0.00	-1.06	-1.06
N	10,275	1,653					

note: Means are weighted by [pweight x 1/Pr(match)]

Table 5: Summary statistics - Activity

	T0		T1				
	Keeper	**Loser**	**Keeper**	**Loser**	$Delta_K$	$Delta_L$	**DD**
# of kids in school	1.071	1.235	1.080	1.174	0.009	-0.061	-0.070
# of youth in school	0.449	0.551	0.439	0.532	-0.010	-0.019	-0.009
# of youth Work	0.021	0.019	0.019	0.025	-0.002	0.006	0.008
# of youth Work - F	0.007	0.007	0.006	0.011	-0.001	0.004	0.005
# of youth Work - M	0.014	0.012	0.013	0.014	-0.001	0.003	0.003
# of young adult Work	0.196	0.241	0.184	0.269	-0.013	0.028	0.041
# of young adult Work - F	0.094	0.108	0.087	0.120	-0.008	0.011	0.019
# of young adult Work - M	0.102	0.133	0.097	0.150	-0.005	0.017	0.022
# of mid-adult Work	0.145	0.176	0.147	0.232	0.002	0.057	0.054
# of mid-adult Work - F	0.082	0.091	0.084	0.137	0.002	0.046	0.044
# of mid-adult Work - M	0.063	0.085	0.063	0.095	0.000	0.011	0.011
# of older adult Work	0.046	0.085	0.046	0.201	-0.001	0.116	0.117
# of older adult Work - F	0.024	0.038	0.024	0.104	0.001	0.066	0.066
# of older adult Work - M	0.023	0.047	0.022	0.097	-0.001	0.050	0.051
# of youth in LF (br)	0.133	0.192	0.133	0.161	0.000	-0.031	-0.031
# of youth in LF (br) - F	0.069	0.088	0.068	0.077	-0.002	-0.010	-0.009
# of youth in LF (br) - M	0.063	0.105	0.065	0.084	0.002	-0.021	-0.023
# of young adult in LF (br)	0.836	0.989	0.816	0.986	-0.021	-0.003	0.017
# of young adult in LF (br) - F	0.447	0.505	0.437	0.506	-0.009	0.001	0.011
# of young adult in LF (br) - M	0.389	0.484	0.378	0.479	-0.011	-0.005	0.006
# of mid-adult in LF (br)	0.354	0.401	0.364	0.443	0.010	0.042	0.032
# of mid-adult in LF (br) - F	0.193	0.215	0.202	0.262	0.009	0.047	0.038
# of mid-adult in LF (br) - M	0.161	0.186	0.163	0.181	0.001	-0.005	-0.006
# of older adult in LF (br)	0.082	0.131	0.084	0.280	0.003	0.149	0.146
# of older adult in LF (br) - F	0.040	0.056	0.044	0.139	0.004	0.083	0.079
# of older adult in LF (br) - M	0.042	0.075	0.041	0.141	-0.001	0.066	0.067

Table 5: Summary statistics - Activity (cont.)

	T0		T1				
	Keeper	**Loser**	**Keeper**	**Loser**	$Delta_K$	$Delta_L$	**DD**
# of youth in LF (nar)	0.066	0.083	0.066	0.083	0.000	0.001	0.000
# of youth in LF (nar) - F	0.031	0.035	0.031	0.036	0.001	0.001	0.000
# of youth in LF (nar) - M	0.036	0.048	0.035	0.048	-0.001	0.000	0.001
# of young adult in LF (nar)	0.560	0.675	0.539	0.678	-0.022	0.003	0.025
# of young adult in LF (nar) - F	0.279	0.321	0.269	0.326	-0.011	0.004	0.015
# of young adult in LF (nar) - M	0.281	0.354	0.270	0.352	-0.011	-0.001	0.010
# of mid-adult in LF (nar)	0.268	0.303	0.275	0.355	0.007	0.052	0.045
# of mid-adult in LF (nar) - F	0.144	0.156	0.149	0.202	0.006	0.045	0.039
# of mid-adult in LF (nar) - M	0.124	0.147	0.126	0.153	0.001	0.007	0.005
# of older adult in LF (nar)	0.063	0.104	0.062	0.241	-0.001	0.136	0.137
# of older adult in LF (nar) - F	0.030	0.043	0.031	0.116	0.001	0.073	0.073
# of older adult in LF (nar) - M	0.032	0.061	0.031	0.124	-0.002	0.063	0.065

Table 6: Summary statistics: Main Income Source

Distribution of Main Income Source in Household (%)

	T_0		T_1	
	Keeper	**Loser**	**Keeper**	**Loser**
Salaries and/or wages	15.6	27.5	15.4	31.9
Remittances	4.5	8.5	4.2	23.2
Pensions and grants	77.8	58.6	77.9	36.7
Sales of farm product	0.4	0.4	0.4	1.2
Other non-farm income	1.5	3.1	1.8	5.3
no income	0.2	1.7	0.2	1.6
Unspecified	0.0	0.2	0.1	0.0
N	6,060	965	4215	688

note:

1. The T_0 data relates to observations in Panels 4-5, 6-7 and 8-9, the T_1 data relates to observations in Panels 5-6 & 7-8

Table 7: Regression results: Composition

Dependent Variable		losepen
	Coeff	Std. Err.
Outcome Variable		
HH size	-0.734	[0.067]***
# kids young	0.005	[0.029]
# kids school	-0.085	[0.029]***
# youth	-0.024	[0.022]
# young adults	0.005	[0.031]
# young adult - M	0.002	[0.022]
# young adult - F	0.004	[0.022]
# mid-aged adults	0.08	[0.022]***
# mid-aged adult - M	0.009	[0.014]
# mid-aged adult - F	0.071	[0.016]***
# older adults	0.347	[0.019]***
# older adult - M	0.155	[0.014]***
# older adult - F	0.192	[0.015]***
# pens age	-1.052	[0.006]***

Notes:

1. Robust Std. Errors, clustered at the 'hhid' level are reported

2. Omitted coefficients on variables included in the regression for variables:

Province dummies, wave dummies, urban dummy and no. of pensioners in the 'wave_t' period.

3. N = 11928 in each of the regressions

4. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level

Table 8: Regression Results - Activity

Dependent Variable	losepen	
	Coeff	Std. Err.
Outcome Variable		
# of kids in school	-0.072	[0.028]**
# of youth in school	-0.005	[0.019]
# of youth Work	0.007	[0.006]
# of youth Work - F	0.005	[0.004]
# of youth Work - M	0.002	[0.005]
# of young adult Work	0.041	[0.018]**
# of young adult Work - F	0.019	[0.012]
# of young adult Work - M	0.023	[0.013]*
# of mid-adult Work	0.054	[0.015]***
# of mid-adult Work - F	0.042	[0.010]***
# of mid-adult Work - M	0.012	[0.010]
# of older adult Work	0.118	[0.013]***
# of older adult Work - F	0.067	[0.010]***
# of older adult Work - M	0.051	[0.009]***
# of youth in LF (br)	-0.031	[0.018]*
# of youth in LF (br) - F	-0.007	[0.011]
# of youth in LF (br) - M	-0.024	[0.013]*
# of young adult in LF (br)	0.015	[0.029]
# of young adult in LF (br) - F	0.006	[0.021]
# of young adult in LF (br) - M	0.009	[0.020]
# of mid-adult in LF (br)	0.026	[0.021]
# of mid-adult in LF (br) - F	0.034	[0.015]**
# of mid-adult in LF (br) - M	-0.008	[0.013]
# of older adult in LF (br)	0.147	[0.015]***
# of older adult in LF (br) - F	0.081	[0.011]***
# of older adult in LF (br) - M	0.066	[0.011]***

Table 8: Regression Results - Activity (cont.)

Dependent Variable	losepen	
	Coeff	Std. Err.
# of youth in LF (nar)	0.001	[0.012]
# of youth in LF (nar) - F	0.001	[0.007]
# of youth in LF (nar) - M	0	[0.010]
# of young adult in LF (nar)	0.025	[0.031]
# of young adult in LF (nar) - F	0.013	[0.020]
# of young adult in LF (nar) - M	0.012	[0.020]
# of mid-adult in LF (nar)	0.043	[0.021]**
# of mid-adult in LF (nar) - F	0.037	[0.014]***
# of mid-adult in LF (nar) - M	0.005	[0.012]
# of older adult in LF (nar)	0.139	[0.014]***
# of older adult in LF (nar) - F	0.074	[0.010]***
# of older adult in LF (nar) - M	0.065	[0.011]***

Notes:

1. Robust Std. Errors, clustered at the 'hhid' level are reported

2. Omitted coefficients on variables included in the regression for variables:

Province dummies, wave dummies, urban dummy and no. of pensioners in the 'wave_t' period.

3. N = 11928 in each of the regressions

4. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level

Table 9: Difference in means for deaths: Composition

	All Losers	**Death 1**			**Death 2**		
	Diff	**T0**	**T1**	△	**T0**	**T1**	△
HH size	**-0.779**	6.40	5.48	-0.92***	6.58	5.88	-0.70***
# kids young	**-0.020**	1.05	1.01	-0.04	1.05	1.02	-0.03
# kids school	**-0.078**	1.11	1.06	-0.05	1.19	1.27	0.07
# youth	**-0.039**	0.83	0.72	-0.11	0.77	0.73	-0.04
# young adults	**-0.017**	1.27	1.29	0.02	1.23	1.35	0.11
# young adult - M	**-0.012**	0.59	0.48	-0.10	0.50	0.60	0.10
# young adult - F	**-0.006**	0.69	0.81	0.12	0.73	0.75	0.02
# mid-aged adults	**0.088**	0.62	0.76	0.14	0.38	0.51	0.13
# mid-aged adult - M	**0.009**	0.23	0.30	0.07	0.14	0.13	-0.01
# mid-aged adult - F	**0.080**	0.39	0.46	0.08	0.24	0.37	0.14*
# older adults	**0.358**	0.09	0.24	0.16**	0.06	0.15	0.09*
# older adult - M	**0.160**	0.04	0.10	0.06	0.02	0.07	0.06*
# older adult - F	**0.198**	0.05	0.15	0.10	0.04	0.07	0.03
# pens age	**-1.060**	1.44	0.44	-1***	1.90	0.87	-1.04***
N	**1653**	**58**			**81**		

Notes:

1. Means are weighted by [pweight x 1/Pr(match)]

2. Death 1 is obtained from the Deaths file in wave 5

3. Death 2 is obtained using the 'spouse - widow' algorithm described in the paper

4. The sample in death2 conditions on marital status and co-residency, so it is not entirely comparable to the other two samples.

5. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level

These are obtained from the corresponding coefficient estimate in the DD regression.

Table 10: Difference in means for deaths: Activity

	From Panel		**Death 1**			**Death 2**	
	△	**T0**	**T1**	△	**T0**	**T1**	△
# of kids school	**-0.061**	1.08	0.99	**-0.10**	1.18	1.27	**0.08**
# of youth school	**-0.019**	0.69	0.58	**-0.11**	0.67	**0.59**	**-0.08**
# of youth Work	**0.006**	0.00	0.02	**0.02**	0.03	0.05	**0.01**
# of youth Work - F	**0.004**	0.00	0.00	**0***	0.00	0.02	**0.02**
# of youth Work - M	**0.003**	0.00	0.02	**0.02**	**0.03**	**0.03**	**0.00**
# of young adult Work	**0.028**	0.28	0.39	**0.11**	0.21	0.36	**0.15***
# of young adult Work - F	**0.011**	0.10	0.23	**0.13***	0.11	0.19	**0.08**
# of young adult Work - M	**0.017**	0.18	0.16	**-0.02**	0.09	0.17	**0.07**
# of mid-adult Work	**0.057**	0.13	0.29	**0.17**	0.13	0.17	**0.05**
# of mid-adult Work - F	**0.046**	0.10	0.18	**0.09**	0.05	0.15	**0.10***
# of mid-adult Work - M	**0.011**	0.03	0.11	**0.08**	0.07	0.02	**-0.05***
# of older adult Work	**0.116**	0.02	0.08	**0.06***	0.00	0.04	**0.04**
# of older adult Work - F	**0.066**	0.02	0.05	**0.03**	0.00	0.00	**0.00**
# of older adult Work - M	**0.050**	0.00	0.03	**0.03**	0.00	0.03	**0.03**
# of youth in LF (br)	**-0.031**	**0.19**	**0.10**	**-0.08**	0.11	0.12	**0.02**
# of youth in LF (br) - F	**-0.010**	0.08	0.04	**-0.04****	0.05	0.07	**0.02**
# of youth in LF (br) - M	**-0.021**	0.11	0.06	**-0.04**	**0.06**	**0.06**	**0.00**
# of young adult in LF (br)	**-0.003**	**1.07**	**1.18**	**0.11**	1.11	1.12	**0.01**
# of young adult in LF (br) - F	**0.001**	0.53	0.75	**0.22****	0.64	0.65	**0.00**
# of young adult in LF (br) - M	**-0.005**	0.54	0.43	**-0.11**	0.47	0.48	**0.01**
# of mid-adult in LF (br)	**0.042**	0.43	0.60	**0.17**	0.31	0.40	**0.09**
# of mid-adult in LF (br) - F	**0.047**	0.27	0.36	**0.10**	0.18	0.31	**0.13***
# of mid-adult in LF (br) - M	**-0.005**	0.16	0.23	**0.07**	0.13	0.09	**-0.05**
# of older adult in LF (br)	**0.149**	0.05	0.13	**0.09****	0.00	0.09	**0.09****
# of older adult in LF (br) - F	**0.083**	0.02	0.07	**0.04**	0.00	0.04	**0.04***
# of older adult in LF (br) - M	**0.066**	0.02	0.07	**0.04**	0.00	0.04	**0.04***

Table 10: Difference in means for deaths: Activity (cont.)

	From Panel		**Death 1**			**Death 2**	
	△	**T0**	**T1**	△	**T0**	**T1**	△
# of youth in LF (nar)	**0.001**	**0.07**	**0.08**	**0.01**	0.06	0.07	**0.02**
# of youth in LF (nar) - F	**0.001**	0.00	0.02	**0.02**	0.02	0.03	**0.01**
# of youth in LF (nar) - M	**0.000**	0.07	0.05	**-0.01**	**0.03**	**0.04**	**0.01**
# of young adult in LF (nar)	**0.003**	**0.84**	**0.78**	**-0.07**	0.72	0.71	**-0.01**
# of young adult in LF (nar) - F	**0.004**	0.42	0.42	**0.01**	0.41	0.42	**0.00**
# of young adult in LF (nar) - M	**-0.001**	0.43	0.35	**-0.07**	0.31	0.30	**-0.01**
# of mid-adult in LF (nar)	**0.052**	0.27	0.49	**0.23**	0.18	0.25	**0.08**
# of mid-adult in LF (nar) - F	**0.045**	0.15	0.27	**0.13**	0.08	0.19	**0.11***
# of mid-adult in LF (nar) - M	**0.007**	0.12	0.22	**0.10**	0.10	0.06	**-0.04**
# of older adult in LF (nar)	**0.136**	0.03	0.12	**0.09****	0.00	0.05	**0.05***
# of older adult in LF (nar) - F	**0.073**	0.02	0.06	**0.03**	0.00	0.01	**0.01**
# of older adult in LF (nar) - M	**0.063**	0.01	0.07	**0.05**	0.00	0.03	**0.03**
N	**1653**	**58**			**81**		

Notes:

1. Means are weighted by [pweight x 1/Pr(match)]

2. Death 1 is obtained from the Deaths file in wave 5

3. Death 2 is obtained using the 'spouse - widow' algorithm described in the paper

4. The sample in death2 conditions on marital status and co-residency, so it is not entirely comparable to the other two samples.

5. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level