Social Positioning of Older Persons in Rural South Africa: Change or Stability?

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Abstract

Objectives: Older persons' withdrawal from the labor force and increasing physical frailty usually result in their being viewed as "dependent". In the South African context, the convergence of old-age pensions, high unemployment, and high HIV prevalence challenges this conceptualization of older persons' social positioning.

Methods: Using data from the Agincourt Health and socio-Demographic Surveillance System and a new typology of older persons' social positioning based on living arrangements, we (1) describe older persons' living arrangements at two time periods; (2) calculate transition probabilities of older persons' changing living arrangements over time; and (3) identify possible drivers of change.

Results: Most older persons experience stability in living arrangements over time, particularly amongst those who start in productive roles. Most changes in household type are into arrangements in which older persons are likely to play productive roles. Older cohorts experience less change than younger cohorts.

Discussion: Older South Africans fulfill productive roles in households while, simultaneously experiencing aging related frailty and diminished labor capacity. While there is considerable stability in living arrangements over time, configurations signal older persons' taking on and moving into arrangements in which they likely play productive roles; more research is needed to understand the implications of these results.

Key words: South Africa, Living Arrangements, Social Positioning, Aging

Introduction

How does the social positioning of older persons – as dependent or productive members of households – change as they age in rural South Africa? Most extant research on aging uses a limited and static conceptualization of older persons as "dependent" because of their withdrawal from the labor force and increasing physical frailty. For example, the standard dependency ratio used by demographers relies on discrete age groupings to reflect productive and dependent proportions (Hoover & Siegel, 1986; Sanderson & Scherbov, 2007). Economists and others tend to emphasize income generation and economic productivity as the critical criteria to determine productivity; access to pensions and other sources of support are viewed as indicators of dependency (Calasanti & Bonanno, 1986; Easterlin, 1991; Harwood, Sayer, & Hirschfeld, 2004). Increasing life expectancy globally has, of course, necessitated a rethinking of what *old* means and has blurred the lines between productive and dependent groups. The convention, however, particularly in lower and middle income countries, continues to situate older persons, often beginning at age 60, in a dependent status from which there is no return.

The South African context offers a unique convergence of factors – access to a state-funded old-age pension, high unemployment, high HIV prevalence and AIDS mortality, and increasing life expectancy at birth – which, taken together, obligates older persons to fulfill productive roles while, at the same time, experiencing their own aging related frailty and diminished labor capacity. Further, the increasing prevalence of non-communicable diseases and aging with HIV means that the burden of disease among older persons is not insignificant (Hontelez et al., 2011; Mayosi et al., 2009; Wallrauch, Bärnighausen, & Newell, 2010). This set of competing demands necessitates approaching social positioning of older persons as a multidimensional and dynamic concept. Nowhere is this made more visible than in the household living arrangements in which older people live. These arrangements offer a lens into the ways that families manage, configure, and respond to the needs of their members over time. In this analysis, we use data from the Agincourt Health and socio-Demographic Surveillance System (HDSS) in rural northeastern South Africa and a new typology of older persons' social positioning based on living arrangements to (1) describe the extent of change in the living arrangements of older persons in two time periods (2000-

05, 2005-2010); (2) calculate transition probabilities of older persons moving from one living arrangement to another between periods; and (3) identify possible drivers of such transitions. Between 2000 and 2010 there were two important shifts—a change in the HIV related mortality profile around 2005, and the lowering of men's pension eligibility age to 60 from 65 to attain parity with women which occurred in 2008. The 2000-2005 period was marked by rapidly increasing HIV related mortality that peaked in 2007 before starting to decrease in 2008 partly attributable to the roll out of anti-retroviral therapy (ART) (Kabudula et al., 2014).

The importance of this study can be appreciated in a number of ways. First, given the implications for wellbeing of older persons, it is critical that we improve our understanding of how, as people age, they move between dependent and productive roles. Second, while many studies have established the role of pensions in providing financial security to poor South African households (Bertrand, Mullainathan, & Miller, 2003; Case & Deaton, 1998; Duflo, 2003; Ferreira, 2006), we know very little about how the relative value of this social grant changes over time as pensioners age. Third, population growth among individuals 65 and older is projected to be fastest in Africa, compared to other world regions, increasing 296% between 2010 and 2050 (Pew Research Center, 2014). Therefore, understanding the aging process in Africa paramount.

Getting Old in South Africa

The proportion of persons aged 65 and older in South Africa is projected to double between 2010 and 2050, from 5.2 to 10.5 percent (United Nations, 2014). Because there are very few institutional options for older persons' care in South Africa particularly in the Black population, most people continue to live with and be cared for by family members into their old age until their death. The majority, particularly older women, live with adult children and/or grandchildren (Bongaarts & Zimmer, 2002; Zimmer & Dayton, 2005). Despite the preference for intergenerational co-residence, older South Africans are not necessarily a financial burden to their families. One way in which they are productive is through their access to old age pension which offers a monthly income transfer of USD109. While the South African social pension program has been in place since the late 1920s,

Black South Africans only had equal access beginning around 1994 (Niño-Zarazúa, Barrientos, Hickey, & Hulme, 2012). Until 2008, men were only eligible to receive the pension at age 65 while women could do so at age 60 but it has since been equalized such that both men and women receive it starting at age 60. The majority of age eligible Black South Africans receive the pension, with 90% coverage nationally and about 80% in Agincourt, the site for the present study (Burns, Keswell, & Leibbrandt, 2005; Schatz, Gómez-Olivé, Ralston, Menken, & Tollman, 2012).

Unlike in many high-income countries, pensions in Southern Africa are non-contributory; the majority of older Africans has had employment with few benefits or never engaged in formal employment. Therefore, the cash transfer is essentially an anti-poverty measure assisting older persons, the unemployed, single parents, migrants, and children (Case & Deaton, 1998; Møller & Sotshangaye, 1996). Furthermore, because middle income African settings, like South Africa, have schools, health facilities, and other amenities, pensions enable poor households to better access these resources (Niño-Zarazúa et al., 2012). With pension receipt, older South Africans' reported health and quality of life improve, as does the food security and wellbeing of other household members (Ardington et al., 2010; Case & Menendez, 2007; Schatz et al., 2012). Further, girls' school enrollment is positively affected by living with a female pensioner (Case & Menendez, 2007). These improvements in health, schooling and wellbeing may point to older persons having extensive bargaining power, and using their pension income for the good of the household (Case & Menendez, 2007). Given their access to resources, pensioners might be attractive household members, and thus more likely than those not pension-eligible to be living in multigenerational households playing a productive role.

Two additional factors that impact older South Africans are the high unemployment rate, and the trajectory of the HIV epidemic, both of which have a direct impact on the working age population. Unemployment rates in South Africa are estimated to be as high as 25-40% among the Black population (Banerjee, Galiani, Levinsohn, McLaren, & Woolard, 2008; Kingdon & Knight, 2004; Klasen & Woolard, 2009). Some studies suggest that the old-age pension actually contributes to the high unemployment rate by supporting younger potential workers and thus keeping them out of the labor market (Banerjee et al., 2008;

Bertrand et al., 2003). Second is the high prevalence of HIV and delayed rollout of anti-retroviral therapy (ART), which have been critical factors in defining older persons' roles and responsibility within households (Hosegood, 2009; Hosegood & Timaes, 2005; Madhavan, Schatz, & Clark, 2009; Madhavan, Schatz, Clark, & Collinson, 2012). Older persons, particularly grandmothers, have taken on carework responsibilities related to sick HIV-positive adult children and fostered and orphaned grandchildren (Bohman, van Wyk, & Ekman, 2011; Ogunmefun & Schatz, 2009; Schatz, 2007). While other high prevalence countries like Uganda and Botswana responded quickly by providing near universal access to ART by 2005, South Africa only reached 21% of those in need by that time (World Health Organization & UNAIDS, 2006). In the years following ART rollout, older persons' roles and responsibilities likely changed again as a result of increasing life expectancy, fewer household members suffering from acute illness but more chronic management of the disease, fewer orphans, and a greater likelihood of older persons themselves being HIV-positive, as individuals age with the disease. The changing profile of HIV will continue to influence the extent to which older persons need to and can play a productive role particularly in the context of their own aging related needs.

Conceptual Background

Older persons' social positioning is inextricably tied to the extent of their "dependency." Who and why someone is considered "dependent" is a contentious issue. Age-based criteria, conventionally applied by demographers, includes a combination of the reproductive life span (for women), labor force participation and physical abilities (Kautz, Bendavid, Bhattacharya, & Miller, 2010; Uhlenberg, 1996; Watkins, Menken, & Bongaarts, 1987). Economists tend to focus on economic contribution as the key marker of individual productivity. Some scholars have problematized the very conceptualization of "dependence." Robertson (1997) highlights the competing demands that are placed on older adults in western contexts to be socially independent yet deems them economically dependent. To address this conundrum, she has called for a moral economy of interdependence, based on the notion of reciprocity, which would transcend the dependence/independence dichotomy. More recently, Fine and Glendinning (2005:618) take issue with the rigid distinctions between caregiving and dependency and suggest that

we consider the range of meanings inherent in each that "create opportunities for the active development of practices of human recognition in response to lifecourse imperatives."

The temporal nature of social positioning is important to consider. Most studies in demography and economics characterize the social status of older persons as a static attribute. For example, the transition out of the labor force is usually seen as permanent from which there is no re-entry back into productive roles (Easterlin, 1991; Tienda, 1980). Similarly, transitioning out of the reproductive life span is usually viewed as a one-way process out of a productive state. While biologically, this makes sense, social norms are more likely to dictate women's "productive state." For example, the "grandmother rule" states that women should stop their own childbearing once their daughters start theirs even if they have not reached the end of the reproductive span (Ware, 1979). Moreover, this transition, in many situations, necessitates that the grandmother remains highly productive in terms of caregiving. The lens of living arrangements in which grandmothers co-reside and provide carework in multi-generation households makes this evident. Efforts at modeling transitions in living arrangements of older adults, while illustrative of the rate and magnitude of change in co-residence patterns (Wilmoth, 1998), say very little about changes in social positioning.

Our attempt to address both these issues is grounded in life course theory (Elder, 1974; Foner & Kertzer, 1978). The value of life course theory to understand older persons' social positioning lies in its ability to explicitly link larger social/historical events to lived experience at both the individual and family levels (Elder & Rockwell, 1979). For the analysis at hand, we draw on two key principles of the life course approach: (1) 'historical time and place' which states that the life course of individuals is embedded in and shaped by the historical time and places they experience over the life course and (2) 'linked lives' which posits that lives are lived interdependently, and social and historical influences are expressed through this network of shared relationships (Elder, 1974). As explained earlier, South Africa makes for a particularly interesting context because it is in the midst of a profound social transition. Moreover, the policy shifts in pension allocation and change in HIV mortality patterns within this historical period enable us to better understand the

effect of specific period events on the lived experience of the older persons. The concept of linked lives is important because social positioning is as much, if not more, a product of one's relationships, than it is about individual attributes. Such an approach means that we consider older persons' social positioning as fundamentally an interactive concept borne out of the social worlds that older persons inhabit. One of these social spaces is the household. A long history of scholarship on household structure and dynamism has established that the configuration of household membership is continuously shifting in response to the needs and capacity of each of its members (Goody, 1982). Therefore, it stands to reason that older persons' social positioning also needs to be approached as a dynamic process. In this sense, we are in keeping with scholarship that has examined how the individual life course interacts with the evolution of the household (Kertzer, 1986). Another way to think about it is through the lens of kinwork in which different kin assume different roles over time to meet the needs of the kin group (Stack & Burton, 1993). Change in older persons' social positioning in their households is a reflection of the changing needs of the household as children are born and individuals are ill, die or move out, or members lose or gain employment. Of course their roles are also mediated by their own aging, which at some point will render them physically incapable of serving in any productive capacity, and also divert pension funds towards their care. While older persons' productive capacity through their access to pensions is indeed welcomed in most South African households, we know very little about how competing demands brought on by old age frailty complicate these roles.

It has long been shown that life course processes and life stage obligations vary by gender (Calasanti, 2010). To begin with, higher female life expectancy results in a greater number of elderly women than men (Burns et al., 2005). Second, labor market needs also play an important role in determining the duration in formal employment roles (Edmonds, Mammen, & Miller, 2005; Posel, Fairburn, & Lund, 2006). Third, men and women occupy different roles within their families and kin groups. In her study in the Gwembe Valley of Zambia, Cliggett (2005) makes a compelling case for understanding the gendered nature of vulnerability among the older Zambians, which is partly a result of how men and women draw on social and material resources. While older South African women in Munthree and

Marahraj's (2010) study reported spending considerably more time and energy on caregiving, men were beginning to fulfill roles beyond financial support. Similarly, in Uganda, Mugisha et al. (2014) found that while women were more likely to be living with and providing care for grandchildren, men who lived with grandchildren were taking on physical, emotional and financial responsibilities related to carework. Gendered expectations formed over the life course, as well as changes later in life due to limited alternatives, have led to older persons, and older women in particular, to take on responsibilities for household members which have been documented in many AIDS endemic contexts (Bohman et al., 2011; Mudege & Ezeh, 2009; Mugisha et al., 2013; Schatz & Ogunmefun, 2007; Schatz & Seeley, 2015).

Using this conceptualization, we test the following hypotheses:

(1) Older persons are more likely to experience change rather than stability in their social positioning within households over time given the complexities and multiple demands of the households in which they live;

(2) Older persons are more likely to change into productive roles rather than into dependent roles because of their access to pensions, unfavorable employment conditions and high HIV prevalence;

(3) These transitions are influenced by sex and age cohort of the individual and vary across time periods given the links between social change and responses at the household level;

This analysis is one of the first that we are aware of that explicitly draws on life course theory to understand the social positioning of older South Africans.

Data and Methods

In this analysis, we use data from the Agincourt Health and socio-Demographic Surveillance System (HDSS) located in the Agincourt sub-district in northeastern South Africa. This semi-rural area has had high rates of both refugee influx from neighboring Mozambique and labor out-migration. From 1992 into the 2000s Agincourt experienced dramatic changes including increasing HIV prevalence, followed by increased voluntary

testing and counseling services, and more recently roll-out of ART, which started in 2008 (Gómez-Olivé, Angotti, et al., 2013; Tollman, 2008). The residents of the fieldsite face a number of challenges included sub-standard education and limited labor market opportunities (Collinson 2009). Beginning in 1992 when the baseline census was conducted in 21 village (3 villages were added in the 2007 update), there has been an annual updating of all vital events – births, deaths and in and out migrations. Temporary migrants are designated as "de jure" household members, even if physically absent for up to six months in the year preceding the interview. Household rosters include age and "relationship to household head" for each member.

Following work by the World Health Organization, we define an older person as an individual 50 years or older (Kowal et al., 2012). This age cut-off also allows us to examine differences among older persons pre- and post-pension eligibility which occurs at age 60. Moreover, this is consistent with other ADHSS research focused on developing robust measures of older persons' physical and cognitive wellbeing (Gómez-Olivé, Thorogood, Clark, Kahn, & Tollman, 2013). In this analysis, we include all individuals age 50+ resident in the fieldsite in 2000, giving us a starting population of 7518 individuals (10.6% of the total population in 2000). We construct a longitudinal data file that links each individual to their respective living arrangements in 2000, 2005 and 2010. We apply a typology of living arrangements developed in an earlier analysis that categorizes the positioning of older persons within households according to their likelihood of being more dependent or more productive (Schatz, Madhavan, Collinson, Gómez-Olivé, & Ralston, 2014). Arrangements in which older persons are more likely to be productive include "single generation" in which there is no one else to take care of them, and "complex linked" which is a multi-generational household usually made up of unmarried children, who are also often unemployed, with their children. The arrangements in which they are more likely to assume a dependent role is "linear linked" a multi-generational household in which older persons are taken care of by married, employed children and grandchildren and "two generation" where older persons are living with married and/or employed children, who are able to take care of them. The "other" category is a catch all for all arrangements that are too small in number but not appropriate to include in the other categories. This

typology is robust to validity checks that we conducted using data on union status, employment and migration status of household members (see Appendix A). It is also informed by qualitative research conducted by the authors in the fieldsite. The resulting five categories are: single generation (1), two generation (2), linear linked (3), complex linked (4), and other (5).

Our analysis follows in these steps. First, we examine descriptively the extent of change and stability in living arrangements that these individuals experience in each of two periods: 2000-2005 and 2005-2010. Second, we calculate transition probabilities for different types of change in each period for those who change. These probabilities are calculated as follows:

Number in Living Arrangement x at T_1 moving to living arrangement y at T_2 / total number of individuals in the period

Lastly, we use multinomial logit and logistic models to analyze the influence of sex and age group at the start of period on change and types of change. The multinomial model predicts the likelihood of experiencing a change or being censored compared to no change. Logistic models are employed to estimate the likelihood of experiencing specific types of change (compared to all other changes) for only those who changed living arrangements. The age grouping at the start of each period allow us to see how the aging process itself and pension eligibility status may interact to influence transition in older persons' social positioning. In particular, it allows us to consider the possible competing effects of increasing physical frailty evident at older ages with the added value of pension access. These groups are as follows: 50-54 (pre-pension) going to 55-59 (pre-pension); 55-59 (pre-pension) going to 60-64 (early pension); 60-64 (early pension) going to 65+ (older pension); 65+ (older pension) going to oldest ages with pension. Control variables include household socioeconomic status based on wealth rankings and operationalized as quintiles (Collinson, Gerritsen, Clark, Kahn, & Tollman, 2009). The quintiles move from 1 for poorest and 5 for wealthiest. Nativity status (South African or Mozambican born), and living arrangement at the start of the period are also included. We cluster on household to adjust for correlated standard errors from having more than one older persons per household.

Results

We start with basic descriptive characteristics of the Agincourt HDSS population of older persons in 2000 in Table 1.

Insert Table 1 here.

The proportion of women at the oldest ages is substantially greater than the proportion of men (45% vs. 34%) reflecting higher female life expectancy. Women are also found in greater proportions in poorer households compared to men. The split between South African and Mozambican born is fairly even for men and women. Table 2 presents the distribution of older persons who experienced no change and change in their social positioning, or experienced censoring through mortality or out migration in each time period. We disaggregate by sex, age group and living arrangement at the start of the period to highlight the extent of variation on these factors.

Insert Table 2 here.

Most older persons experience stability in their social positioning, at least over 5 year periods, across age group, sex and initial living arrangement. Moreover, these patterns are similar in both time periods. Men are, however, proportionally more likely to be censored out, most likely through death, than women. There is a small decrease in the proportions who experience change with older age groups; these groups are also more likely to be censored. Older persons living in single generation or complex linked arrangements, both structures in which the older person is likely to be playing a productive role, are most likely to remain stable in both periods. Moreover, we also find that two generation and linear linked arrangements, structures in which older persons are more likely to be playing a dependent role are more likely to change in both periods. Because the other category is made up of so many different arrangements, it is difficult to determine what stability in this category actually reflects. Finally, we find that those living in single generation and 'other' arrangements are most likely to be censored due to mortality. While going against our initial hypothesis that we are likely to see more change than stability, this is similar to what Nyirenda et al. (2014) found in their analysis of older persons' living arrangements in Kwa

Zulu Natal. However, the stability appears to be of a particular kind – productive positioning. Moreover, those who are in dependent roles are likely not to remain there over a 5-year period. To better understand these dynamics, we examine transition probabilities of moving from one type to another as shown in Table 3, which is restricted to those older persons who changed living arrangements in each period (2000-05 and 2005-10).

Insert Table 3 here.

Because we are using total number of individuals who changed living arrangement in the period as the denominator, the percentages in all the cells are small. However, there are some transitions that, nonetheless, merit consideration. In both periods, the highest probabilities (6%-8%) are evident for transitions between categories 2, 3 and 5 (all dependent) to category 4 (productive) and the percentages are notably higher in the 2005-2010 period – 11%-15%. This may be reflective of the high HIV related mortality rates experienced in at least the first half of Period 2, which increase the caregiving demands on older persons. Alternatively, it may reflect the effect of the ART roll-out that began towards the end of the period in 2008 which would translate into people living with HIV who themselves are in a dependent position because of diminished labor capacity. In both time periods, however, 8% and 15% of older persons, respectively, move from category 4 to category 3 in which they are more likely to be dependent. These older persons are likely to be the oldest of the old for whom old age frailty necessitates movement into a dependent category. In other words, their productive value derived from pension access and decision-making power may be superseded or muted by their increasing physical challenges, which require others to take care of them. Taken together, however, these transition probabilities provide qualified support for our second hypothesis that those who experience a change are more likely to move into productive roles. In order to understand better the drivers of change, we move to regression results (Table 4) to address hypothesis three that sex and age group influence the likelihood of experiencing change net of individual and household attributes and that these processes vary across time period.

Insert Table 4 here

There is no significant sex difference in the likelihood of experiencing change in either period but it is interesting to note that the direction of effects changes. Whereas women were more likely than men to experience change in Period 1, they are less likely to do so in Period 2. This could be partly attributed to the lowering of men's pension eligibility age that occurred in Period 2 which means that there were larger numbers of men with resources who might be attractive household members. Being female decreases the likelihood of being censored compared to males in both periods, most likely attributable to higher male mortality. The lack of significant effects of age group in both periods goes against our expectation that particular age groups would be more likely to change because of actual or anticipatory effects of pension receipt. However, this non-effect does suggest that other factors, e.g. strength of relationships, may play a bigger role than pension receipt in influencing social positioning of older persons. Moreover, the subtle differences across time period invite some careful reflection. In the 2000-2005 period, those in the 55-59 group are less likely to change compared to those in the youngest group (early pre-pension) possibly because they acquire pension eligibility status in the period, which may provide more incentive for households to retain the older person as a household member. The fact that we don't find such an effect for the 60-64 group further supports our claim. However, this is somewhat different in the 2005-2010 period where we find significance for the 60-64 age group, which in this period would include men who are all already pension eligible. This may reflect the effects of worsening unemployment or higher mortality rates. The very strong negative 'age' effect found for the oldest group in both periods may be a reflection of increasing physical frailty which would make it more likely that the older person's positioning remains stable. As expected, the oldest age group is also most likely to be censored through mortality.

The independent effect of living arrangements at the start of period shows some interesting patterns in the two periods. In Period 1, being in arrangement 2 or 3 (both dependent positioning) significantly increases the likelihood of change whereas being in 4 (productive) or 5 (other) does so only marginally. In the second period, all arrangements have a highly significant positive effect on the likelihood of change suggesting that worsening employment prospects combined with stable but high levels of HIV related

mortality have altered the demand for older persons' productive contributions. It is also interesting that older persons living in arrangement 4 (productive) at the beginning of the period are significantly less likely to be censored in both periods. Socioeconomic status has no influence on the likelihood of change in either period but has large negative effects on the likelihood of being censored. Nativity status has no effect on the likelihood of change or being censored in either period. We now turn to a more focused examination of the role of sex and age group at the start of the period on being in a productive role (categories 1 or 4) at the end of the period for only those older persons who changed living arrangements in the period. To facilitate interpretation, we collapsed the five living arrangement categories at the start of the period into three categories based on older person's social positioning.

Insert Table 5 here.

Being female has a marginal negative effect on the odds of being in a productive role in 2000-2005 but not so in Period 2. Surprisingly, age group at the start of the period has no effect on the odds of being in a productive role, going against our expectations that actual or anticipatory pension-eligibility effects may be reflected in age transitions. The lack of any difference in sex or age group effects across periods suggests that not enough time has transpired to capture effects of the pension-eligibility change for men which occurred towards the end of the second period. Being in a productive role (but in a different arrangement) at the start of the period has a positive effect on being in that role at the end of the period. The large and highly significant odds ratio in both periods underscores the apparent tenacity of the productive role despite aging related frailty that may be increasing. Per expectations, the higher the household socioeconomic status, the lower the odds of being in a productive role at the end of the period. Interestingly, being Mozambican born works against being in a productive role in both periods, which maybe attributable to difficulty in accessing the pension despite being legally eligible (Schatz, 2009).

Discussion

In this paper, we have attempted to understand how older rural South Africans' social positioning changes over time in a context marked by high unemployment, high HIV prevalence and the existence of an old-age pension system. Specifically, we examined the

extent of change into living arrangements suggestive of taking on a productive role. We examined this issue in two 5-year periods (2000-2005 and 2005-2010) distinguished by shifts in the HIV mortality profile, which also reflects the roll out of ART (Kabudula et al., 2014) and in the pension eligibility age for men. Our findings suggest that overall the social positioning of most men and women over the age of 50 remains stable in both time periods. However, the stability is greater for those in a household living arrangement where our classification suggests older members have a productive rather than dependent role. Moreover, when we examined those who changed living arrangements, we again found that older persons are more likely to change into living arrangements where we categorize older persons roles as productive. Not surprisingly, these transitions weaken with age when the consequences of old age physical frailty might trump the productive value brought through pension access and other caregiving roles. However, more sophisticated modeling strategies are in order to address this process more robustly. The differences across periods are not striking but do suggest that older persons' positioning as productive members is slightly more common in the second period, which may be a response to the very high rates of HIV mortality sustained in that period. The lack of any significant effects by sex of older person suggests that both men and women are contributing to households, perhaps in more similar ways than would be expected given gender roles developed over the life course (Calasanti, 2004). Perhaps the most interesting is the issue of age. We see in Table 5 that in both periods the likelihood of change in living arrangements tends to decrease with age. The most likely time for an older adult to experience change in living arrangements is when they are aged 50-54 which likely coincides with the transition into grandparenthood. In the first period there is a slight difference to the pattern with adults aged 60-64 having a non-significant but negative coefficient that implies the likelihood of change is about the same at age 60-64 compared with 50-54. In the second period this pattern disappears with each higher age group associated with lower likelihood of residential change.

We anticipated that old-age pensions would influence household composition in which older people reside conferring on them a productive role. The lack of significant age effects in Table 5 seems to imply that the onset of pension receipt is not the main force

determining a change to a productive role in older adults' living arrangements. To understand this further, note the higher likelihoods of change evidenced by higher coefficients of 'change' versus 'not change' for different household types in the second period. The second period has the highest background levels of adult mortality, much of it attributable to HIV/AIDS, which can imply a pressure on older adults to care for children of deceased parents, irrespective of whether or not the older adult are eligible for pensions. The higher observed household changes in the second period can be driven by a demand for older adults to provide care, rather than the supply of extra income from the old age pension. This suggests that social markers such as providing care older persons may be more important at the oldest ages than economic value derived from pension access.

While the findings of this paper merit serious consideration, a number of limitations need to be understood. Wilmoth (1998)has criticized the approach of examining transitions through regression analysis as too simplistic as it does not incorporate duration but instead only considers the starting and end points of being in certain arrangements. Despite this, we consider this approach appropriate because of our interest in change and types of change. It is also possible that our use of 5-year periods does not account for changes that occur within smaller slices of time. However, smaller time periods produced too few events to merit analysis. Additionally, we do not differentiate between change caused by the older person moving and by the household composition changing, which may be different processes. However, we expect the latter to be a more common experience because mobility decreases with age (Collinson, 2009). Even though we do not feel that left censoring issues produce serious biases in our estimates, there may be merit to exploring more dynamic event history modeling that could account for in-migrants after the start of the period. Unfortunately, we don't have data on the timing of illness and deaths in the household or more detailed data on entry and exit into employment or type of employment which would allow us to do more detailed analyses of older persons' social positioning. Without migrant history, our ability to isolate the effects of HIV infection risk or any other past illness on social positioning is limited. Importantly, there are a number of factors, particularly in early life, which could positively select out individuals to serve in productive roles or conversely, negatively select them for dependent roles. Lastly, the "other" category

in the typology is difficult to understand conceptually and empirically as it contains a diverse array of arrangements. More work needs to be done to unpack this category.

Despite these issues, we feel that this analysis makes an important contribution to the growing literature on aging in sub-Saharan Africa and to policy discussions about ensuring older persons' well-being. South Africa, because of its relative wealth, has been able to provide an old-age pension to all its citizens aged 60-plus. Our analysis suggests that, while the receipt of pension does not drastically alter social structure (at least as measured by using age as a proxy), there is every reason to believe that it does reduce economic hardship experienced by many South African households. Social positioning is a complex topic and we have approached it in a limited way by focusing on certain dimensions that we could measure. It is clear that much more research, both quantitative and ethnographic, is needed to understand fully how issues like decision-making power and status contribute to older persons' social positioning in South Africa and elsewhere.

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Table 1. Descriptive Characteristics of Older Persons, Agincourt HDSS 2000

	Men N (col %)	**Women** N (col %)	**Total**
Age Group			
50-54	834 (27.1)	914 (20.6)	1,748
55-59	603 (19.6)	770 (17.3)	1,373
60-64	588 (19.2)	750 (16.9)	1,338
65+	1,049 (34.1)	2,010 (45.2)	3,059
Socioeconomic Status			
1 (Poorest quintile)	442 (14.4)	606 (13.6)	1,048
2	457 (14.9)	740 (16.7)	1,197
3	569 (18.5)	944 (21.2)	1,513
4	616 (20.0)	919 (20.7)	1,535
5 (Wealthiest quintile)	798 (26.0)	952 (21.4)	1,750
Nativity Status			
South African	2,090 (67.9)	3,120 (70.2)	5,210
Mozambican	979 (32.1)	1,319 (29.8)	2,298
N	3,074	4,444	7,518

Table 2. Stability, change and censoring in living arrangements by sex and age group and by category at start of period in 2000-2005 and 2005-2010, Agincourt HDSS

	No Change N (row %)	**Change** N (row %)	**Censored** N (row %)	**N**
Period 1: 2000-2005				
Sex				
Female	2,251 (50.6)	1,107 (24.9)	1,094 (24.6)	4,452
Male	1,373 (44.6)	739 (24.0)	964 (31.4)	3,076
Age 2000				
50-54	833 (47.7)	528 (30.2)	386 (22.1)	1,747
55-59	700 (51.0)	347 (25.3)	326 (23.7)	1,373
60-64	665 (49.7)	340 (25.4)	333 (24.9)	1,338
65+	1,414 (46.2)	631 (20.6)	1,013 (33.1)	3,058
Category 2000				
Single Gen.	290 (45.6)	79 (12.4)	267 (42.0)	636
Two Gen.	279 (30.1)	377 (40.6)	272 (29.3)	928
Linear Linked	411 (38.2)	400 (37.2)	264 (24.6)	1,075
Complex Linked	1,434 (56.1)	542 (21.2)	579 (22.7)	2,555
Other	1,184 (51.3)	448 (19.4)	676 (29.3)	2,308
N	3,624	1,846	2,058	7,528
Period 2: 2005-2010				
Sex				
Female	2,526 (51.2)	1,272 (25.8)	1,135 (23.0)	4,933
Male	1,436 (44.3)	839 (25.9)	965 (29.8)	3,240
Age 2005				
50-54	970 (47.9)	628 (31.0)	429 (21.1)	2,027
55-59	741(48.1)	455 (29.5)	346 (22.4)	1,542
60-64	608 (52.6)	303 (26.2)	244 (21.2)	1,555
65+	1,624 (47.3)	725 (21.1)	1,081 (31.6)	3,430
Category 2005				
Single Gen.	339 (51.4)	53 (8.0)	267 (40.5)	659
Two Gen.	332 (34.7)	418 (43.6)	208 (21.7)	958
Linear Linked	469 (41.8)	492 (43.9)	161 (14.4)	1,122
Complex Linked	1,830 (60.9)	644 (21.4)	532 (17.7)	3,006
Other	941 (39.6)	504 (21.2)	932 (39.2)	2,377
N	3,943	2,111	2,100	8,154

Table 3. Transition probabilities of change between living arrangements in 2000-2005 and 2005-2010, Agincourt HDSS, N (%)

	2005					
2000	1	2	3	4	5	**N**
Single Gen (1)	0 (0)	11 (0)	2 (0)	28 (1)	38 (1)	79
Two Gen (2)	21(1)	0 (0)	98 (3)	188 (6)	70 (2)	377
Linear Linked (3)	9 (0)	48 (2)	0 (0)	242 (8)	101 (3)	400
Complex Linked (4)	40 (1)	69 (2)	248 (8)	0 (0)	185 (6)	542
Other (5)	70 (2)	54 (2)	105 (3)	219 (7)	0 (0)	448
N	140	182	453	677	394	1,846
	2010					
2005	1	2	3	4	5	**N**
Single Gen (1)	0 (0)	9 (0)	4 (0)	19 (1)	21 (1)	53
Two Gen (2)	33 (2)	0 (0)	94 (4)	236 (11)	55 (3)	418
Linear Linked (3)	19 (1)	64 (3)	0 (0)	324 (15)	85 (4)	492
Complex Linked (4)	50 (2)	77 (4)	320 (15)	0 (0)	197 (9)	644
Other (5)	82 (4)	61 (3)	98 (5)	263 (12)	0 (0)	504
N	184	211	516	842	358	2,111

Table 4. Multinomial regression results predicting likelihood of experiencing change and being censored relative to not changing in 2000-2005 and 2005-2010, Agincourt HDSS

	Period 1: 2000-2005		Period 2: 2005-2010	
	Change vs. No Change Coeff. (SE)	**Censored vs. No Change** Coeff. (SE)	**Change vs. No Change** Coeff. (SE)	**Censored vs. No Change** Coeff. (SE)
Sex of Older Person				
Male	Ref	Ref	Ref	Ref
Female	.045 (.051)	-.437 (.056)***	-.060 (.047)	-.498 (.056)***
Age Group at Start Period				
50-54	Ref	Ref	Ref	Ref
55-59	-.215 (.089)*	.027 (.092)	-.008 (.083)	.102 (.092)
60-64	-.141 (.092)	.142 (.092)	-.218 (.092)*	-.047 (.102)
65+	-.219 (.081)**	.548 (.082)***	-.241 (.074)***	.429 (.076)***
Typology at Start of Period				
Single Gen. (1)	Ref	Ref	Ref	Ref
Two Gen. (2)	1.58 (.175)***	.289 (.149)	2.06 (.192)***	.090 (.141)
Linear Linked (3)	1.29 (.176)**	.097 (.146)	1.95 (.193)***	-.437 (.147)**
Complex Linked (4)	.362 (.160)*	-.361 (.123)***	.852 (.181)***	-.621 (.114)***
Other (5)	.343 (.165)*	-.057 (.124)	1.25 (.184)***	.599 (.114)***
SES at Start of Period				
1 (poorest)	Ref	Ref	Ref	Ref
2	-.007 (.132)	-.335 (.112)**	-.130 (.119)	-.328 (.103)***
3	-.082 (.127)	-.543 (.111)***	-.044 (.119)	-.505 (.106)***
4	-.127 (.129)	-.713 (.117)***	-.076 (.119)	-.627 (.106)***
5 (wealthiest)	-.094 (.131)	-.884 (.118)***	.140 (.121)	-.873 (.112)***
Nativity Status				
South African	Ref	Ref	Ref	Ref
Mozambican	.057 (.089)	.013 (.082)	.109 (.081)	-.066 (.076)
Pseudo R^2	.0427	.0427	.0685	.0685
N	7,024	7,024	7,847	7,847

Table 5. Odds of older persons being in a productive role at end of period, Agincourt HDSS

	Period 1: 2000-2005	**Period 2: 2005-2010**
	Odds Ratios	Odds Ratios
Sex of Older Person		
Male	Ref	Ref
Female	.899 (.048)*	.947 (.046)
Age Group at Start of Period		
50-54	Ref	Ref
55-59	.934 (.091)	1.12 (.102)
60-64	1.08 (.110)	1.09 (.106)
65+	1.04 (.091)	.967 (.076)
Social Positioning at Start of Period		
Dependent	Ref	Ref
Productive	6.53 (.598) ***	5.95 (.499)***
Other	.468 (.049)*	.551 (.053)***
SES at Start of Period		
1 (poorest)	Ref	Ref
2	.737 (.108)*	.930 (.118)
3	.790 (.110)	.755 (.095)*
4	.646 (.090)**	.727 (.091)**
5 (wealthiest)	.670 (.095)**	.627 (.079)***
Nativity Status		
South African	Ref	Ref
Mozambican	.599 (.059)***	.665 (.058)***
Pseudo R^2	.2179	.1829
N	5,275	5,830