Migration among adolescents from rural Malawi[1]

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Abstract

This paper identifies patterns of internal migration among adolescents from rural Malawi, and the individual and household characteristics associated with migration. The data come from five rounds of the Malawi Schooling and Adolescent Study (MSAS) conducted in two rural districts of Malawi since 2007. The sample consists of 2,346 adolescents aged 18-22 in 2011. Results reveal that adolescents from rural Malawi are fairly mobile, with nearly half the sample moving in the 4 years that they were observed. A large proportion of migrants moved to rural villages and stayed within the same district, with a lot of circular migration. Females were almost as likely to move as males, challenging any automatic assumptions that migration is a young male phenomenon. A large subset of the migration might not be considered independent in that it comprised adolescents who were rejoining parents. Getting married is strongly correlated with moving for both males and females, even in the predominantly matrilineal and matrilocal Southern region. A typical portrait of migrant males emerges – those who move do so for economic opportunity, and are likely to be unmarried and living in households without their parents. There is some evidence for positive selection on socioeconomic traits among movers, particularly when moving for economic opportunity and to more urbanized areas. Finally, there are indications of improvements in economic welfare associated with migration undertaken for specific reasons – marital as well as economic opportunity moves for females, and just the latter for males.

Introduction

Adolescence is a challenging period in the life cycle. Along with the physiological changes that occur during these years, adolescents in the developing world will typically experience several major life events in a relatively compressed time period. Most of these events, such as marriage, parenthood, and full time participation in the labor force, are considered markers of entry into adulthood. All these life events are interrelated, and additionally connected to the phenomenon of migration, a transition to adulthood that receives less attention than others. Many studies indicate that probabilities of migration are much higher for individuals in the 15-30 age range (National Research Council and Institute of Medicine, 2005). Yet the quantitative evidence on adolescent migration in sub-Saharan Africa is relatively sparse. Youth make up a sizeable fraction of migrants, but adolescents and young adults do not receive special attention in many studies of migration (Clark and Cotton, 2011). Adolescent migration merits consideration separate from adult migration and child migration precisely because it is characterized by elements of both those processes. Furthermore age patterns in migration vary for males and females with female migration generally peaking at earlier ages than male migration. This paper examines patterns in adolescent migration in Malawi, and the socioeconomic and demographic correlates of migration using unique longitudinal data from southern Malawi.

Background

Given Malawi's high total fertility rate and the resultant expansive population pyramid, adolescents – defined as individuals between the ages of 10 and 24 – make up nearly 33% of the population (NSO, Malawi and ORC Macro, 2005). In a poor country like Malawi, where 80% of the population lives in rural areas (World Factbook, 2011), young people in rural areas are bound

to move for a whole host of reasons including higher education, marriage, and employment in various sectors such as commercial agriculture, mining, transport and construction which have historically played host to migrant workers in Malawi (IOM, 2011).

Neoclassical microeconomic theories of migration posit that individuals move when doing so generates positive expected returns, after accounting for wage differentials between markets, the probability of obtaining employment in the destination market, travel costs and living expenses until employment is found (Ranis and Fei, 1961; Sjaastad, 1962; Todaro, 1969). Human capital theories of migration posit that individual attributes could impact income as well as costs, thus resulting in migrant selectivity (Todaro, 1980). In rural Malawi where livelihoods are largely derived from subsistence agriculture, returns to education are presumably greater outside the villages in which most adolescents reside. Thus individuals with more education and higher skill-levels are probably more likely to move than others. Such individuals are more likely to come from higher socioeconomic status (SES) households , which have the ability to facilitate migration by providing money to cover costs, and also have connections to better-resourced social networks that can create opportunities (Devereux, 1999). Since expected returns are conceivably higher and costs lower for such adolescents in Malawi, they may have a greater propensity to migrate.

While the neoclassical model is based on individual choice, the new economics of labor migration (NELM) conceives of migration as part of a broader household strategy (Stark, 1991; Stark and Bloom, 1985). It also regards migration as being not just an income-maximizing strategy, but a strategy to minimize income risks and loosen local capital constraints. Family

members may migrate in order to work in markets that are not subject to the same economic conditions as the home market, thus spreading risks. In this approach, household characteristics and not just individual ones are thought to influence migration decisions. This household-level strategy is especially relevant in Malawi where HIV prevalence is high – 10.6% among those 15-49 are HIV-positive (MDHS, 2010) – and exerts an economic toll on families via decreased productive capacity, decreased income, increased costs, and shifts in expenditure patterns (Desmond et al, 2000). Migration in this context can be an important coping strategy for the household. If HIV/AIDS is inversely related to education levels, this would imply that all else being equal, poorer households would be more likely than wealthier households to need migration as a coping strategy, and thus be more likely to send out adolescents.

The NELM model also provides one kind of framework for understanding marriage migration. Rosenzweig and Stark (1989) hypothesize that marital arrangements in India, where women usually move to the husband's household, is an implicit contract serving to diminish income risk and assist consumption smoothing, under conditions with informational costs and risks associated with geographic location. Traditional marriage-related practices are obviously different in Malawi than in India – the practice of *lobola* instead of dowry, and the much lower prevalence of arranged marriages. Further, the three largest tribes of Southern Malawi – Yao, Lomwe, and Chewa – are matrilineal and thus matrilocal/uxorilocal (Reniers, 2003). However, male marital migration can hypothetically be driven by the same considerations as female marital migration – marriage outside local mate pools (regardless of the direction of movement) could be a cultural practice at least partially underpinned by risk-smoothing intentions.

Anglewiscz et al (2011) discuss the two major reasons for moving in Malawi – to earn money with which to supplement subsistence agriculture, and to move in with a spouse. Often these reasons follow gender lines closely, with males more likely to move for economic opportunity, and females or males for marriage depending on the region and tribe. A recent study of adolescent migration in Central Malawi by Beegle and Poulin (2012) concludes that moves are not uncommon, and the predominant reasons are non-economic. They also find that while historically ethnic traditions in this area held that girls and women usually did not move upon marrying, women were more likely to move than boys and men, and that marriage was the main reason for doing so. We explore reasons for moving in the Southern region of Malawi, paying attention to gender differences in the correlates of migration for different reasons, and variation in circularity by reason.

Clark and Cotton (2011) note that while in many developing country studies, rural-urban migration receives the most attention, the bulk of internal migration is not unidirectional movement from the rural areas to two large cities but circular migration (where migrants regularly return to their rural homelands) and local migration (where migrants move to the closest urban town regardless of its size). Rural-urban migration is a relatively recent phenomenon in Malawi, and it has been on the rise after the end of President Banda's 30-year rule (in 1994) during which time such movement was restricted (Kalipeni, 1997). We thus examine movement to destinations of various urbanization levels, distance from original location, and explore differences among individuals who move to these destinations.

Research questions

- How mobile are adolescents in Malawi? Why do they move? Where do they move to? We start with characterizing mobility in our sample in terms of proportion moving, reasons for moving, and destinations of moves, circularity of moved, and duration between moves.
- What distinguishes adolescents who move from those who don't? We show differences between movers and non-movers in their various social, economic, and demographic characteristics using bivariate tabulations. We then examine the characteristics associated with moving (once and multiple times) using multivariable regressions, looking for possible selectivity in migration along socioeconomic dimensions.
- Moving beyond a yes/no indicator of mobility, we next ask whether adolescents moving for specific reasons – marriage, economic opportunity and rejoining parents – are somehow different than their counterparts who do not move. By examining Round 4 characteristics associated with each reason for moving, we look for possible selection among certain types of movers compared to non-movers.
- Similarly, we ask whether adolescents that are moving to different types of destinations – rural villages, trading centers, urban centers/*boma*s – are somehow different than their counterparts that do not move. We also categorize destinations as being nearer or farther. By examining Round 4 characteristics associated with each type of destination, we look for possible selection among those who move to certain types of destinations compared to non-movers.
- Finally, we conduct a crude test of whether migration for different reasons is economic welfare- maximizing behavior, by verifying if migration is positively associated with Round 5 household assets, controlling for Round 4 assets.

Data

The data for this analysis come from the Malawi Schooling and Adolescent Survey (MSAS), a longitudinal study of 2,650 adolescents resident in two contiguous rural districts in the southern region of the country, and reported to be aged 14-16 in January 2007. The initial 2007 sample consisted of 1,764 students (875 females and 889 males) who were randomly selected from the enrollment rosters at 59 randomly selected primary schools in Machinga and Balaka districts. The probability of a particular school being included was proportional to its enrollment in 2006. At each school, approximately 30 students stratified by gender and age who were enrolled in standards 4-8, the last four years of primary school, were interviewed. An additional sample of 886 adolescents (463 females and 423 males) who were not enrolled in school was drawn from the communities surrounding the selected primary schools. These respondents, referred to as the "out-of-school sample" because of their status when first interviewed, were identified through key informants located at the school or in the randomly selected school catchment villages. The study's ratio of 14-16 year olds attending standards 4-8 relative to those out of school was dictated by the proportion observed in the 2004 DHS for Malawi. However, when broken down by gender, females in school are slightly over-represented in our sample, and males in school are slightly under-represented. Also, we are missing adolescents 14-16 who were either in standards 1-3 or in secondary school.

Follow-up interviews have been conducted annually since 2007; the most recent round of data was collected in 2011. The study successfully re-interviewed 91 percent, 90 percent, 88 percent and 88 percent of the original sample in 2008, 2009, 2010, and 2011, respectively. The final sample consists of 2,346 adolescents aged 18-22 in 2011. One important point especially

relevant to this study is that only adolescents who are still living in Malawi are interviewed in any given year. Each year, interviewers attempt to contact all respondents from Round 1 but if it is learned that they have left the country, those adolescents are not interviewed. This analysis is thus necessarily a study of internal migration.

The MSAS adolescent instrument includes an extensive set of questions on household and family characteristics, educational attainment, schooling history and experiences, household labor and employment, health, marriage, and sexual behavior. Numeracy and literacy assessments were also conducted in each round. All these serve as explanatory variables in the models. Approximately 200 cases were dropped from multivariate analyses due to missing information on at least one covariate.

Migration data were collected using a migration roster. Adolescents' location at last interview was confirmed, and then they were asked "What is the name of the village/area that you moved to next?" Every place they moved to until the time of current interview is recorded. Adolescents were asked a limited set of questions about the places which form the essence of the measures described in the next section.

Measures and Methods

The main indicators of mobility are

1. Ever moved (between R1 and R5): Never moved; moved at least once; not interviewed all rounds
2. Moves in past year (R5): Did not move; moved once; moved more than once

3. Circularity in movement (R5): Whether adolescent returned to a previous village in the past year
4. Reason (if stated for any move in past year, R5) : Marriage; economic opportunity; moved with parents; rejoined parents; fostered; help relatives; school reasons; other
5. Urbanization level of destination (most urbanized level moved to in past year, R5): Rural village; trading center; *boma*/major urban center; other
6. District (relative to R1 district farthest moved to in past year, R5): Within district; contiguous district; non-contiguous district; different country

Background characteristics include

1. Constant characteristics: Sex; tribe; mother's education; father's education
2. Time-variant characteristics: Age; marital status; childbearing status; religion; household assets; co-residence with mother and father; in school or not; highest grade completed; Chichewa and English literacy; numeracy; unpaid work (excluding household chores); paid work (in cash and/or kind).

Bivariate tabulations and multivariable logistic and ordinary least squares regressions are used to analyze the various outcomes. Based on the outcomes, the independent variables are sometimes derived from earlier rounds of data; the round is always indicated in the tables.

Results

Table 1 characterizes mobility/migration reported by Round 5 (2011). 46% of females and males had ever moved between Rounds 1 and 5 (of course those not interviewed every round could

have moved, 15% of girls and 19% of boys). Figures 1 and 2 break down moves by round and age, and a marked pattern emerges among females. At every round, a greater percentage of younger females had lived somewhere other than the original village they were interviewed in. If looking at moves within the past year (at R5), 31.5% of females and 39.6% of males had moved in the past year. A smaller percentage of females than males had moved twice or more.

FIGURES 1 and 2 HERE

The most common reason, for moving in the past year, cited by both females and males was rejoining parents (43% and 48% stated it for at least one move in the past year). The second most common reason for females was marriage, and for males economic opportunity. School reasons, including moves to a better school, are more frequently cited by males than females (21% v. 11%). Helping relatives also seems to be an important motivation (10% of female movers and 12% of male movers).

In terms of urbanization levels of destination, the vast majority of migrants moved to rural villages (63% of female migrants, 51% of male migrants). The next largest category was trading centers, followed by urban centers (including district administrative headquarters), with males more likely than females to move to the latter (21.4% v. 15.3%). Another measure of a similar nature shows the districts adolescents moved to. Nearly half of moves by females are within the same district, with the rest mostly divided between contiguous (to R1 district) and non-contiguous districts. Roughly a third of males stayed within district, moved to a contiguous district, and to a non-contiguous district. 6% went to a different country (and returned).

TABLE 1 HERE

There is a large amount of circular migration in the sample. 58% of females and 67% of males that had moved in the year between R4 and R5 had moved to a village/town/city that they had lived in during a previous round. This was obviously highest among those who said they moved to rejoin parents, followed by adolescents who had moved to help relatives or moved for school reasons. Adolescents that had moved to urban centers were the most likely to have lived in a previous village or location in general. In terms of distance, it was those who had moved to contiguous districts that were most likely to have gone back to live in a previous location.

TABLE 2 HERE

Table 3 shows the mean duration to first move since last interview is close to 6 months for females and males. Duration between first move and second move is lesser, particularly for males. Females that moved to rejoin parents did have shorter stays than other female movers, and males who moved to help relatives had short stays as well.

TABLE 3 HERE

Table 4 shows descriptive characteristics of non-movers and movers (between Rounds 4 and 5). Some substantial differences emerge between the two groups. Females that moved were on average, slightly younger than female non-movers. They were more likely to never have been married (but more likely to marry between rounds – also true for males), not have a child, be

Christian, come from households with more assets (also true for males), and to have more educated mothers. Further, female movers were more likely than non-movers to still be in school (although more likely to leave school between rounds), have higher grade attainment, and less likely to have done unpaid work. Male movers were much more likely to have engaged in paid work than non-movers.

TABLE 4 HERE

Table 5 uses multivariable analysis to examine the Round 4 characteristics associated with moving subsequently. With a few exceptions, the various determinants are similarly associated with moving once, or moving multiple times. All else being constant, getting married between rounds is associated with elevated odds of moving once for both females and males. Those with children, however, had lower odds of moving. Indicating some positive selection for migration on socioeconomic characteristics, those with more household assets and higher grade attainment were more likely to have moved. But counter to that are coefficients indicating that females whose fathers had completed primary education or those who were literate in Chichewa were less likely to have moved. Being in the same household as biological parents obviously implies lower odds of moving given that moves to rejoining parents were such a large category. Interestingly, females that did unpaid work in the past year but males that did paid work were more likely to have also moved in that time.

TABLE 5 HERE

In Table 6, we explore the specific reasons adolescents move, and whether particular characteristics operate differently depending on the reason for moving. Specifically is there positive or negative socioeconomic selection for moving for marriage, economic opportunity, and to rejoin parents? Several interesting findings emerge. First, neither household assets nor parental education seem to affect the odds of moving for marriage versus not moving at all. On the other hand, household assets and maternal education were positively associated with the likelihood of moving for economic opportunity or rejoining parents. An exception to these findings is that own grade attainment was positively related to females moving for marriage but negatively associated with females moving for economic opportunity. Secondly, all else being equal, married males are less likely to move for economic opportunity than unmarried males (although having a child increases those odds). Also, males and females living with their fathers, and those still in school are less likely to move for economic opportunity. Finally, females that moved for marriage were less likely than non-movers to be doing paid or unpaid work while the opposite was true for males. Those that moved for economic opportunity were indeed more likely to have been doing paid work. Those that moved to rejoin parents were also more likely to be working.

TABLE 6 HERE

Table 7 examines differences in background characteristics associated with moving to various types of destinations as opposed to not moving. Results indicate that household assets are positively related to moving to an urban center. Higher grade attainment seems to distinguish

females moving to trading centers. Marriage is associated with increased odds of females and males moving to rural villages, and males moving to trading centers.

Males that moved to urban centers were the most likely to have also done paid work; there is also some indication (in coefficient patterns) that females that moved to more urbanized areas were more likely to also have done paid work.

TABLE 7 HERE

In Table 8, we examine how predictors of moves to nearer and farther destinations are related to predictors of moving in general or urbanization level of destinations. Males who got married are more likely to move to nearer destinations, while males who were already married were less likely to move to farther ones. These two effects are clearly connected to the higher likelihood of migration associated with marriage for males in Table 5. However having children is associated with higher odds of males moving to farther destinations. Again, this is connected to the greater likelihood of men with children moving multiple times. For females, English literacy is associated with moves to farther but not nearer destinations, linked to the same effect on moving to urban centers or *bomas.*

TABLE 8 HERE

In Table 9, we examine whether migration is associated with improvements in welfare as measured by household assets, controlling for assets and other characteristics in R4. Presumably, they should be positively associated. In the first model, we see that simply moving is associated

with a greater number of assets in R5. The second model looks at move for marriage. Moving for marriage is associated with higher number of household assets in R5 for females, and lower number for males. The third model shows that if they moved for economic opportunity then their R5 assets are indeed higher. There seem to be no changes in household assets when adolescents moved to rejoin parents. Being married or getting married is associated with lower number of assets in R5. This is reflective of selectivity in those who marry early, as they tend to be from poorer households compared to adolescents that are still unmarried.

TABLE 9 HERE

Discussion

Adolescents in rural Malawi are fairly mobile, with nearly half the sample moving in the 4 years that they were observed. Females were almost as likely to move as males, challenging assumptions that migration is a young male phenomenon. However the main reasons for moving followed gender lines – females cited marriage, and males cited economic opportunity as reasons. Nevertheless, this may represent gendered conditioning as much as it does the "true" reasons for moving which can be much more complex. When respondents have to select one answer in response to a question about why they moved, females may just be more likely to choose marriage while boys choose economic opportunity, even if the actual reasons were more nuanced (such as females moving for marriage as well as economic opportunity). A large segment of migrants might not be characterized as independent movers in that they changed residence to rejoin parents. Consistent with evidence from an adjacent region, we see that experiencing the major life event of marriage is strongly correlated with moving (Beegle and

Poulin, 2012). Even though southern Malawi is uxorilocal, females as well as males that married during the year have a higher probability of having moved in the same year, most likely to villages within the same or contiguous districts. This finding supports the notion that a gradual shift away from dominantly matrilocal traditions has occurred with more females joining males, wherever those males may have moved to for economic reasons] (Beegle and Poulin 2012; Mtika and Doctor, 2002). It is also consistent with the theory that with increasing economic development a matrilineal society is increasingly likely to adopt patrilineal customs (Holden, 2003).

While we did not explore all types of migration in this paper in detail, two important ones were school reasons (quality of the school, attending secondary school, etc) and helping relatives. Moving for school reasons reflects the limited education opportunities in these poor districts, while moving to help relatives reflects the continued relevance of traditional extended kinship structures in Malawi and the extent to which individuals invest in and draw from these structures.

In line with an emerging body of research on adolescent migration, we find that movement is not predominantly rural-urban in nature. In fact, in our sample of rural adolescents, a large proportion of migrants moved to rural villages and stayed within the same district, with clear circularity in migration. This is not surprising given the large proportion of adolescents who reported having moved to rejoin parents and for school reasons. As one may have expected, males are more likely to move to more urbanized areas, to other districts and even countries. Conforming to typical portraits of migrant males, those who moved, regardless of reason and destination, were more likely to have also been working during the year. Co-residence with

biological parents appears to deter moving for economic opportunity, and moving to any type of destination, particularly for males. This possibly occurs through pathways of greater economic security for adolescents in the household, particularly compared to what they could have had elsewhere via other living arrangements. As observed elsewhere, co-residence with parents may indicate the promise of land inheritance which would also deter movement (Beegle and Poulin, 2012).

The evidence for selection on socioeconomic traits among movers is mixed. If we look more specifically at the reason for moving, there is some indication of positive selection but only for those moving for economic opportunity or rejoining parents, and not among those moving for marriage. This may suggest that while other type of moves are beneficial to those of higher SES and/or facilitated by higher SES, marital migration is more a cultural practice, and one that cuts across SES lines. In keeping with the finding of positive selection based on reason for moving, is the finding of positive selection based on urbanization level of destination (but not distance from original district). Household assets are positively associated with moves to urban centers, while marital migration is a more rural phenomenon (marriage was strongly positively associated with moves to rural areas).

Finally, there is some evidence to indicate improvements in economic welfare associated with migration undertaken for specific reasons – marital as well as economic opportunity moves for females, and just the latter for males. The fact that moving for marriage is associated with increased assets in a subsequent round for females but not males is noteworthy – it lends support to economic explanations for the emergence of non-traditional female marital migration in this

region. Moves to rejoin parents are fundamentally different in nature – part of the circular migration phenomenon – and thus results about changes in asset levels when moving to rejoin parents do not echo results for other types of moves. Interestingly, neither tribe affiliation nor religion features as a strong influence in these models. This is not to say however that those aspects do not play a role.

Limitations

This study is not without limitations. First is the problem of establishing causality; for example, when trying to sequence marriage and migration. Reporting of dates is subject to recall error and not reliable thus making it hard to disentangle whether a move occurred before some other life event. In addition, migration as well as its correlates identified here could have common antecedents. Nevertheless, using measures from a previous round represents an improvement over using cross-sectional data.

Second is the problem of attrition and its implications for migration histories. Only 76% of the original sample of girls and 71% of the original sample of boys was interviewed every year thereafter. This implies that for 27% of the sample, we are missing at least a year's worth of information on whether they moved. However, 90% and 87% of the original sample of females and males respectively was interviewed in R5, so any information on moves in the year between R4 and R5 is available for those respondents. An additional 3% of females as well as males were actually tracked down but refused to be interviewed. Figures 3 and 4 show that there is slightly more loss to follow-up among older adolescents indicating they may have moved between

rounds. We do know from other studies that probabilities of migration go up with age, a finding seen even more clearly in Figures 5 and 6.

FIGURES 3, 4, 5 AND 6 HERE

Finally, it is particularly challenging to separate mobility from migration. We treated at face value, adolescents' own responses based on their own perception of what constitutes movement and residence. In that sense, our estimates of mobility can only be thought of as the upper bound on migration rates among these adolescents.

Conclusion

In this paper, we shed light on many interesting facets of adolescent migration in rural, southern Africa. We see that adolescents, including adolescent girls, are quite mobile. There are even some welfare improvements associated with migration However, there is some positive selection among migrants indicating that it is adolescents of comparatively higher economic status that benefit from migration. This is not to say that adolescent migrants, particularly those in urban areas, do not need services, protection, and cross-sectoral policy attention. Since males are still more likely to benefit from income streams associated with migration, opening up similar opportunities for females may result in welfare gains if they are simultaneously equipped with assets and protected from risks known to be associated with migration.

Next steps in this research agenda include developing a more nuanced profile of the 'typical' migrant moving for a given reason, and studying household composition of migrants to

investigate whether marital migration for both genders is connected to changing household structures (from extended kinship structures to nuclear units).

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Table 1: Characterizing mobility reported by Round 5 (2011) (percentages)

	Females	Males
Moves between R1 and R5		
Never moved from R1 village	38.6†	35.1
Moved at least once between R1 and R5	45.7	46.4
Not interviewed all rounds	15.8†	18.5
Moves between R4 and R5		
Did not move	68.5***	60.4
Moved once	20.3	19.3
Moved twice or more	11.2***	20.3
Duration between moves		
Mean time to first move (months)	5.5	5.7
Mean time to second move (months)	4.4***	3.2
Among migrants		
Reason for any move between R4 and R5 (do not sum to 100%)		
Marriage	41.2***	9.1
Economic opportunity	7.6***	30.9
Rejoined parents	43.0	48.3
Moved with parents	2.4	2.0
Fostered	4.2	5.4
Help relatives	10.2	12.0
School reasons	10.8***	21.4
Other	10.5	9.1
Most urbanized area moved to between R4 and R5		
Rural village	63.3***	51.4
Trading center	20.7	23.9
Boma/Major urban center	15.3**	21.4
Other	0.7**	3.3
Farthest area moved to between R4 and R5		
Within original R1 district	44.2***	32.7
Contiguous to R1 district	27.6	28.3
Non-contiguous to R1 district	26.1**	33.4
Different country (and returned)	2.1**	5.6
N	1209	1137

Note: Means different by sex at ***p<.01 **p<.05 †p<.10

Table 2: Circularity of movement (moving to any past residence between Rounds 4 and 5

(percentages)

	Females	Males
Total	57.9	67.0
By reason stated for any move between R4 and R5		
Marriage	36.0**	39.0
Economic opportunity	37.9	63.6
Rejoined parents	90.4	87.6
Moved with parents	22.2	44.4
Fostered	62.5	54.2
Help relatives	82.1	72.2
School reasons	82.9	71.9
Other	65.0	70.0
By most urbanized area moved to between R4 and R5		
Rural village	57.2**	67.7
Trading center	48.8	58.7
Boma/Major urban center	71.0	72.5
Other	33.3	80.0
By farthest area moved to between R4 and R5		
Within original district	51.2**	63.3
Contiguous district	71.4	79.5
Non-contiguous district	60.6	58.0
Different country (and returned)	75.0	88.0

Note: Means different by sex at ***p<.01 **p<.05 †p<.10

Lighter text indicates N<25

Table 3: Duration between moves, from Round 4 interview to first move, and first to second move
(months)

	R4 interview--> 1st move		1st move to 2nd move	
	Females	Males	Females	Males
Mean time to move	5.5	5.7	4.4***	3.2
Median time to move	4.7	5.1	3.1	2.0
By reason stated for any move between R4 and R5				
Marriage	5.0	5.4	5.1	3.2
Economic opportunity	5.0	5.0	4.5	3.0
Rejoined parents	5.4	5.8	3.2	3.9
Moved with parents	5.9	4.9	2.0	2.8
Fostered	5.0	6.5	1.3	2.7
Help relatives	5.4	6.4	4.0	2.3
School reasons	3.9	4.1	4.6	3.9
Other	6.8	7.0	6.8	1.3
By most urbanized area moved to between R4 and R5				
Rural village	5.6†	6.3	4.6**	3.1
Trading center	5.3	4.8	4.2	3.6
Boma/Major urban center	5.0	5.4	4.2	3.1
Other	8.3	4.6	2.0	2.4
By farthest area moved to between R4 and R5				
Within original district	5.4	5.4	4.8**	3.2
Contiguous district	5.9	6.2	3.9	3.0
Non-contiguous district	5.2	5.7	4.5	3.4
Different country (and returned)	2.7	3.2	4.6	2.9

Note: Means different by sex at ***p<.01 **p<.05 †p<.10
Lighter text indicates N<25

Table 4: Characteristics of those who did not and did move between R4 and R5 (percentages unless otherwise indicated)

	Females		Males	
	Non-movers	Movers	Non-movers	Movers
Age in years (R4)	18.9	18.7***	18.6	18.6
Marital status				
Never married (R4)	32.6	50.0***	90.1	91.9
Currently married (R4)	61.8	45.1***	9.2	7.3
Previously married (R4)	5.5	4.7	0.8	0.8
Never married in R4 and R5	25.5†	31.4†	84.7	80.6†
Already married at R4	67.2	49.9***	9.8	8.1
Got married between R4 and R5	7.3	18.7***	5.4	11.3***
Children				
1 or more child (R4)	63.1	45.6***	6.8	6.3
No children in R4 and R5	25.9	43.3***	88.4	87.4
Already had children at R4	63.0	45.6***	6.8	6.3
Had child between R4 and R5	11.1	11.1	4.8	6.3
Religion (R4)				
Muslim	48.5	41.5**	44.6	42.1
Christian	51.0	57.9**	54.5	57.3
Other	1.0	0.6	0.9	0.5
Tribe (R1)				
Yao	42.7	40.0	40.8	41.4
Household assets (R4)	4.8	5.6***	5.6	6.0**
Household assets (R5)	4.7	5.7***	5.6	5.9
Parental co-residence (R4)				
Mother in household	35.2	34.2	64.5	48.4***
Father in household	20.4	18.7	38.4	21.2***
Mother's education (R1)				
No schooling	45.3	41.8	48.4	45.4
Some primary	42.8	40.7	42.6	41.6
Primary complete+	11.7	17.4***	9.0	12.9**
Father's education (R1)				
No schooling	27.5	30.5	27.4	26.3
Some primary	43.7	38.9	49.4	44.7†
Primary complete+	28.8	30.5	23.2	28.9**
Schooling				
In school (R4)	20.5	33.6***	50.9	48.9
Already out of school at R4	78.6	64.6***	46.2	49.7
Still in school at R5	15.4	22.2***	41.4	41.3
Dropped out between R4 and R5	5.1	11.4***	9.5	7.6
Highest grade (R4)	6.8	7.5***	7.2	7.4
Literacy and Numeracy (R4)				
Can read 2 Chichewa sentences	80.9	83.9	83.3	84.1
Can read 2 English setences	55.4	65.7***	66.0	67.6
Numeracy (score on 22)	4.7	5.2***	5.1	5.2
Work (R5)				
Ever did unpaid work	99.0	100.0†	97.2	96.4
Ever did paid work	98.1	99.5†	95.1	96.9
Unpaid work in past year	47.7	34.7***	34.4	36.3
Paid work in past year	12.6	14.5	41.9	52.6***
N	785	342	664	382

Note: Means different from non-movers at ***p<.01 **p<.05 †p<.10

Table 5: Characteristics from R4 associated with moving between R4 and R5
(odds ratios from logit models)

	Moved v. did not move		**1 move v. no move**		**2+ moves v. no move**	
	Females	Males	Females	Males	Females	Males
Independent variables						
Age in years (R4)	0.97	0.88†	1.00	0.94	0.89	0.81**
Marital status						
Never married in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already married at R4	1.42	0.81	2.59**	1.16	0.51	0.56
Got married between R4 and R5	3.40***	2.67***	6.01***	4.07***	1.35	1.44
Children						
No children in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already had children at R4	0.49***	0.90	0.51**	0.31**	0.46**	2.39†
Had child between R4 and R5	0.52**	1.14	0.51†	0.83	0.51†	1.87
Muslim (R4)	0.76†	1.05	0.74	1.13	0.81	1.09
Yao (R1)	0.98	0.98	1.07	0.81	0.80	1.10
Household assets (R4)	1.06**	1.07**	1.05	1.08**	1.10†	1.06
Parental co-residence (R4)						
Mother in household	0.62**	0.70**	0.52***	0.40***	0.84	1.32
Father in household	0.84	0.47***	0.79	0.42***	0.85	0.52***
Mother's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.98	0.99	1.06	0.88	0.73	1.11
Primary complete+	1.36	1.24	1.32	0.99	1.14	1.44
Father's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.73	0.94	0.72	1.00	0.82	0.88
Primary complete+	0.68**	1.14	0.63†	0.99	0.76	1.27
Schooling						
Already out of school at R4	1.00	1.00	1.00	1.00	1.00	1.00
Still in school at R5	0.93	0.86	1.23	0.95	0.66	0.85
Dropped out between R4 and R5	1.11	0.78	1.52	1.00	0.63	0.61
Highest grade (class)	1.17**	1.07	1.18**	1.11†	1.15†	1.00
Literacy and numeracy (R4)						
Can read 2 Chichewa sentences	0.58***	0.93	0.72	0.98	0.33***	0.88
Can read 2 English sentences	1.08	0.88	1.00	0.74	1.37	1.07
Numeracy (score on 22)	0.99	1.03	0.98	1.02	1.00	1.06
Work (R5)						
Unpaid work in past year	0.61***	1.23	0.57***	1.11	0.70	1.42†
Paid work in past year	1.24	1.69***	1.06	1.42†	1.59†	1.94***
Constant	0.70	2.61	0.16	0.49	2.23	4.58
N	1109	1039	1003	857	882	828

Note: Regression coefficient significant at *** p<0.01 ** p<.05 †p<.10

Table 6: Characteristics from R4 associated with reason for move between R4 and R5 (odds ratios from logit models)

	Reason for move					
	Marr. v. no move		Econ opp v. no move		Rejoin parents v. no move	
	Females	Males	Females	Males	Females	Males
Independent variables						
Age in years (R4)	1.00	0.87	1.21	1.02	0.93	0.95
Marital status						
Never married in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already married at R4	-	-	0.32	0.32**	0.93	0.56
Got married between R4 and R5	-	-	0.28	0.57	1.82	1.69
Children						
No children in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already had children at R4	0.61	3.05**	0.23	2.03	0.36***	0.97
Had child between R4 and R5	1.01	5.33***	0.27	3.67**	0.27***	0.96
Muslim (R4)	1.10	2.16	0.79	1.64	0.70	1.00
Yao (R1)	0.75	0.75	0.21	1.13	0.96	0.99
Household assets (R4)	0.99	1.04	1.51***	0.97	1.10**	1.09***
Parental co-residence (R4)						
Mother in household	1.32	1.46	4.17†	1.03	0.38***	0.90
Father in household	0.56†	0.63	0.13**	0.46**	1.02	0.60**
Mother's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.94	0.67	0.94	1.36	0.93	1.09
Primary complete+	0.97	1.13	3.09	3.16**	1.45	1.24
Father's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.71	0.95	0.92	0.86	0.96	0.97
Primary complete+	0.71	0.44	2.15	0.65	0.68	1.36
Schooling						
Already out of school at R4	1.00	1.00	1.00	1.00	1.00	1.00
Still in school at R5	-	0.05***	0.03**	0.08***	0.86	0.99
Dropped out between R4 and R5	1.81†	1.21	1.68	0.54	0.99	0.70
Highest grade (standard/form)	1.23**	1.10	0.48**	1.05	1.14	1.02
Literacy and numeracy (R4)						
Can read 2 Chichewa sentences	0.65	1.12	1.08	1.09	0.38***	1.04
Can read 2 English sentences	0.90	0.47	10.83**	1.00	1.04	0.84
Numeracy (score on 22)	0.90	1.17	1.13	1.00	1.08	1.02
Work (R5)						
Unpaid work in past year	0.39***	2.23**	0.80	0.94	1.30	1.50**
Paid work in past year	0.45**	3.26***	19.48***	5.25***	2.10**	1.71***
Constant	0.34	0.08	0	0.04	0.61	0.3
N	790	691	793	749	910	828

Note: Regression coefficient significant at *** p<0.01 ** p<.05 †p<.10

Table 7: Characteristics from R4 associated with destination of move between R4 and R5 (odds ratios from logit models)

	Type of destination					
	Rur. vill v. no move		Trad. cent. v. no move		Urb. cent. v. no move	
	Females	Males	Females	Males	Females	Males
Independent variables						
Age in years (R4)	0.94	0.85**	0.98	0.86	1.04	0.96
Marital status						
Never married in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already married at R4	2.44**	1.08	1.83	1.19	0.36†	0.11***
Got married between R4 and R5	6.89***	3.82***	1.71	2.96**	1.16	0.36
Children						
No children in R4 and R5	1.00	1.00	1.00	1.00	1.00	1.00
Already had children at R4	0.57†	0.65	0.27***	1.69	0.57	2.96
Had child between R4 and R5	0.52**	1.06	0.49	0.64	0.63	4.93**
Muslim (R4)	0.75	1.05	0.89	1.54	0.75	1.01
Yao (R1)	1.03	1.09	0.79	0.87	1.10	0.93
Household assets (R4)	1.05	1.05	1.09	1.02	1.15**	1.12***
Parental co-residence (R4)						
Mother in household	0.43***	0.50***	1.48	0.98	0.80	1.02
Father in household	0.98	0.63†	0.59	0.36***	0.51	0.41***
Mother's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.98	0.93	1.10	1.29	0.71	0.87
Primary complete+	1.22	0.76	1.26	1.86	1.35	1.74
Father's education (R1)						
No schooling	1.00	1.00	1.00	1.00	1.00	1.00
Some primary	0.76	1.04	0.65	0.63	0.83	1.42
Primary complete+	0.74	1.09	0.39**	1.11	0.77	1.57
Schooling						
Already out of school at R4	1.00	1.00	1.00	1.00	1.00	1.00
Still in school at R5	1.87	0.83	0.37†	1.53	0.49	0.89
Dropped out between R4 and R5	1.42	0.94	1.06	0.91	0.46	0.49
Highest grade (class)	1.07	1.11	1.56***	0.99	1.18	1.00
Literacy and numeracy (R4)						
Can read 2 Chichewa sentences	0.58†	0.92	0.99	1.16	0.37	0.73
Can read 2 English sentences	0.89	0.73	1.40	0.61	2.17	1.95
Numeracy (score on 22)	1.03	1.02	0.87	1.22**	1.08	0.94
Work (R5)						
Unpaid work in past year	0.70**	1.24	0.40***	0.93	0.59	1.00
Paid work in past year	1.14	1.73***	1.29	1.03	1.78	2.10***
Constant	0.74	2.97	0.01†	0.66	0.02	0.11
N	986	861	845	746	829	752

Note: Regression coefficient significant at *** p<0.01 ** p<.05 †p<.10

Table 8: Characteristics from R4 associated with distance of move between R4 and R5 (odds ratios from logit models)

	Distance of move			
	Near move v. no move		Far move v. no move	
	Females	Males	Females	Males
Independent variables				
Age in years (R4)	0.94	0.92	1.03	0.84†
Marital status				
Never married in R4 and R5	1.00	1.00	1.00	1.00
Already married at R4	1.51	1.47	1.10	0.23**
Got married between R4 and R5	3.51***	3.95***	2.45†	1.10
Children				
No children in R4 and R5	1.00	1.00	1.00	1.00
Already had children at R4	0.41***	0.50	0.73	3.00**
Had child between R4 and R5	0.51**	1.02	0.49	1.55
Muslim (R4)	0.84	0.94	0.54†	1.34
Yao (R1)	0.87	0.95	1.44	0.92
Household assets (R4)	1.06**	1.07**	1.09†	1.09**
Parental co-residence (R4)				
Mother in household	0.65†	0.69†	0.54†	0.69
Father in household	0.88	0.52***	0.68	0.40***
Mother's education (R1)				
No schooling	1.00	1.00	1.00	1.00
Some primary	1.03	1.10	0.81	0.80
Primary complete+	1.58†	1.49	0.74	0.81
Father's education (R1)				
No schooling	1.00	1.00	1.00	1.00
Some primary	0.76	0.85	0.66	1.05
Primary complete+	0.64**	0.98	0.73	1.40
Schooling				
Already out of school at R4	1.00	1.00	1.00	1.00
Still in school at R5	0.94	1.19	0.80	0.61†
Dropped out between R4 and R5	1.18	1.09	0.76	0.49
Highest grade (class)	1.16**	1.04	1.21†	1.08
Literacy and numeracy (R4)				
Can read 2 Chichewa sentences	0.62†	0.77	0.42†	1.23
Can read 2 English sentences	0.86	0.81	2.12**	1.03
Numeracy (score on 22)	1.00	1.07	0.98	0.98
Work (R5)				
Unpaid work in past year	0.75†	1.33†	0.31***	1.08
Paid work in past year	1.41	1.78***	0.83	1.48†
Constant	0.76	0.85	0.06	2.14
N	1025	894	860	791

Note: Regression coefficient significant at *** p<0.01 ** p<.05 †p<.10

Table 9: Characteristics from R4 associated with household assets in R5
(coefficients from OLS regression)

	Household assets in R5							
	Females	Males	Females	Males	Females	Males	Females	Males
Independent variables								
Moved past year (v. no move)	0.44***	0.21	-	-	-	-	-	-
Moved for marriage (v. no move)	-	-	0.59***	-1.00**	-	-	-	-
Moved for econ. opp. (v. no move)	-	-	-	-	1.26**	0.54**	-	-
Moved to rejoin pars. (v. no move)	-	-	-	-	-	-	-0.15	-0.08
Age in years (R4)	0.06	-0.04	0.06	-0.05	0.04	-0.05	0.05	-0.05
Marital status								
Never married in R4 and R5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Already married at R4	-0.69***	-0.85**	-0.77***	-0.72**	-0.57**	-0.81**	-0.66***	-0.87**
Got married between R4 and R5	-0.55**	-1.13***	-0.65**	-0.81***	-0.34	-1.04***	-0.43†	-1.08***
Children								
No children in R4 and R5			0.00	0.00	0.00	0.00	0.00	0.00
Already had children at R4	-0.06	0.79**	-0.09	0.76**	-0.07	0.74**	-0.14	0.78**
Had child between R4 and R5	0.01	0.39	-0.05	0.37	0.00	0.33	-0.07	0.40
Muslim (R4)	0.08	-0.21	0.05	-0.19	0.07	-0.22	0.06	-0.21
Yao (R1)	0.15	-0.02	0.18	-0.03	0.16	-0.03	0.15	-0.02
Household assets (R4)	0.58***	0.60***	0.58***	0.61***	0.58***	0.61***	0.58***	0.61***
Parental co-residence (R4)								
Mother in household	-0.11	-0.01	-0.17	-0.02	-0.17	-0.03	-0.16	-0.03
Father in household	0.07	0.16	0.09	0.11	0.09	0.14	0.06	0.12

Mother's education (R1)								
No schooling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Some primary	-0.01	0.42***	-0.01	0.40***	0.01	0.40***	-0.01	0.42***
Primary complete+	0.17	0.83***	0.20	0.83***	0.20	0.81***	0.21	0.84***
Father's education (R1)								
No schooling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Some primary	-0.01	-0.12	-0.01	-0.12	-0.03	-0.12	-0.03	-0.12
Primary complete+	0.07	-0.03	0.06	-0.03	0.03	-0.01	0.04	-0.02
Schooling								
Already out of school at R4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Still in school at R5	0.01	0.31	0.01	0.28	0.12	0.37†	0.00	0.30
Dropped out between R4 and R5	-0.47†	-0.02	-0.49†	-0.02	-0.45	0.01	-0.46†	-0.03
Highest grade (class)	0.19***	0.11**	0.20***	0.12**	0.22***	0.11**	0.21***	0.11**
Literacy and numeracy (R4)								
Can read 2 Chichewa sentences	0.05	0.61**	0.01	0.62**	-0.01	0.60**	-0.01	0.61**
Can read 2 English sentences	-0.01	-0.18	0.00	-0.20	-0.02	-0.19	0.00	-0.19
Numeracy (score on 22)	-0.03	-0.06	-0.02	-0.05	-0.03	-0.05	-0.03	-0.05
Work (R5)								
Unpaid work in past year	-0.20†	-0.21	-0.19	-0.19	-0.24**	-0.19	-0.24†	-0.20
Paid work in past year	-0.36**	-0.20	-0.31†	-0.16	-0.43**	-0.24†	-0.33†	-0.17
Constant	0.20	2.08†	0.29	2.29**	0.37	2.23†	0.42	2.24†
N	1109	1031	1109	1031	1109	1031	1109	1031

Note: Regression coefficient significant at *** p<0.01 ** p<.05 †p<.10

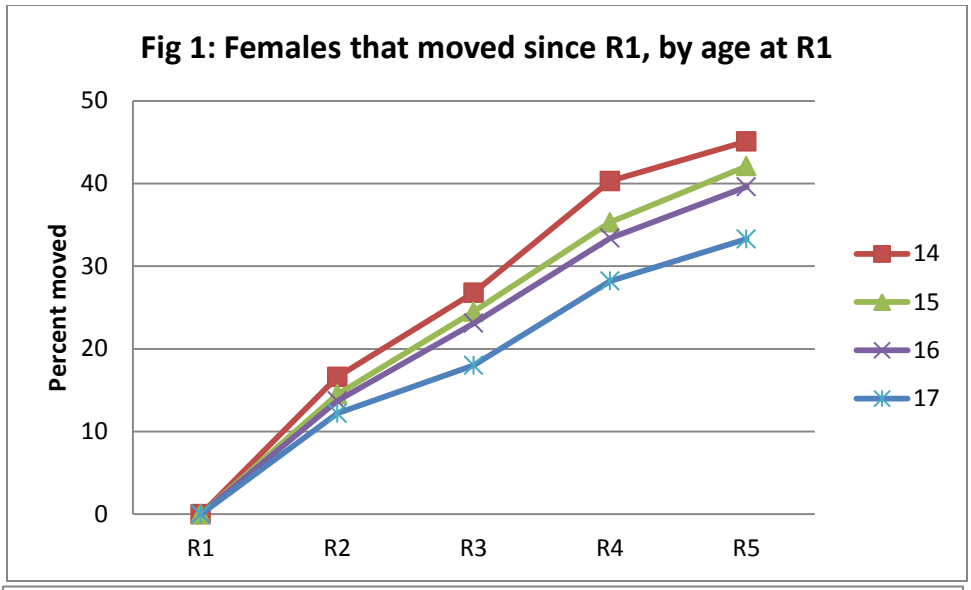
Fig 1: Females that moved since R1, by age at R1
Percent moved
50
40
30
20
10
0
R1
R2
R3
R4
R5
14
15
16
17

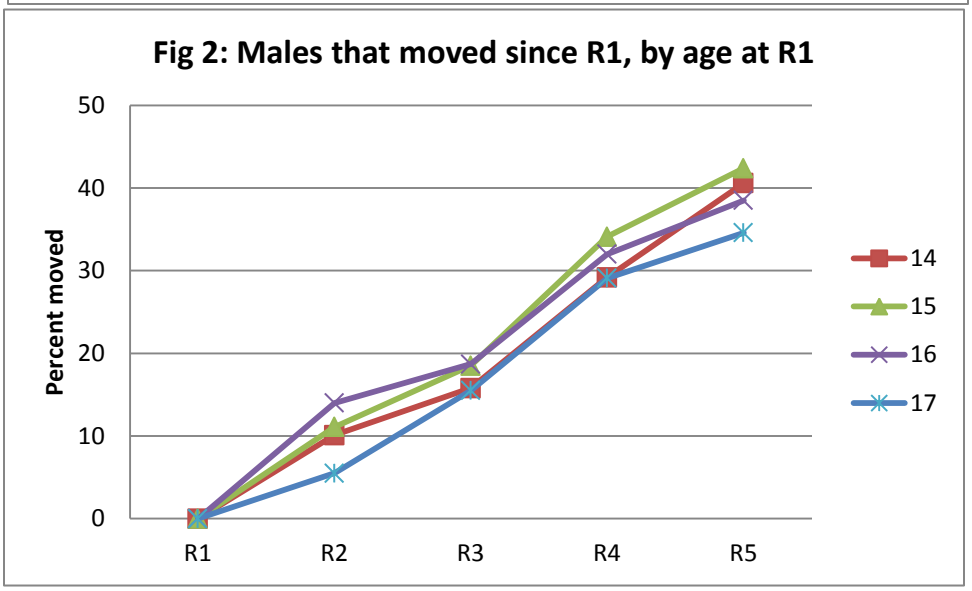
Fig 2: Males that moved since R1, by age at R1
Percent moved
50
40
30
20
10
0
R1
R2
R3
R4
R5
14
15
16
17

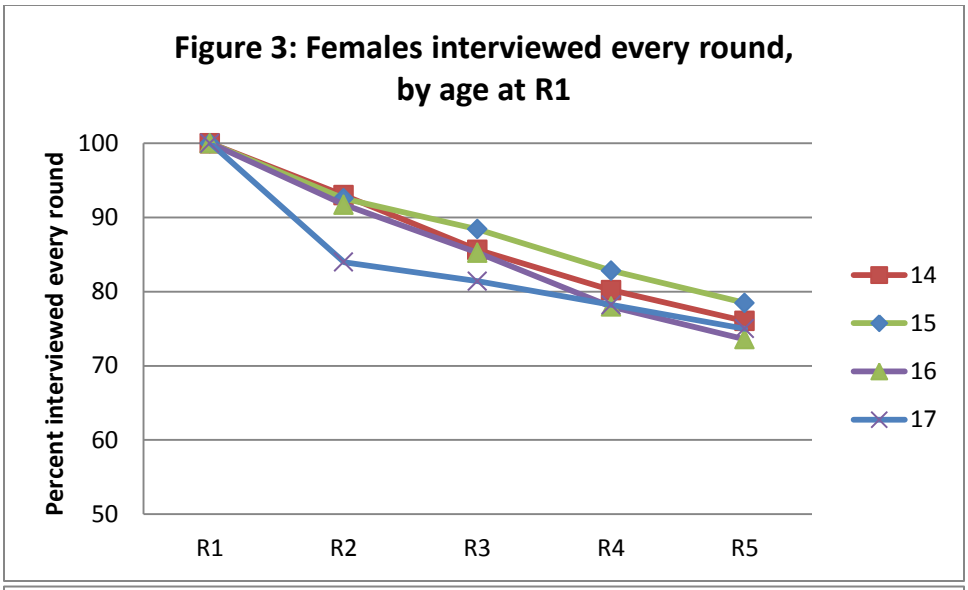
Figure 3: Females interviewed every round, by age at R1
Percent interviewed every round
100
90
80
70
60
50
R1
R2
R3
R4
R5
14
15
16
17

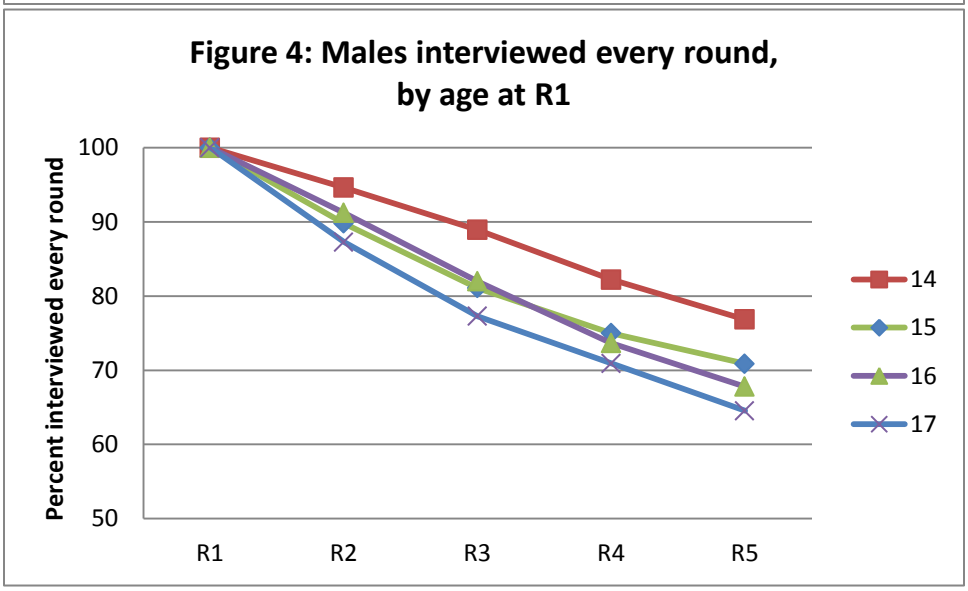
Figure 4: Males interviewed every round, by age at R1
Percent interviewed every round
100
90
80
70
60
50
R1
R2
R3
R4
R5
14
15
16
17

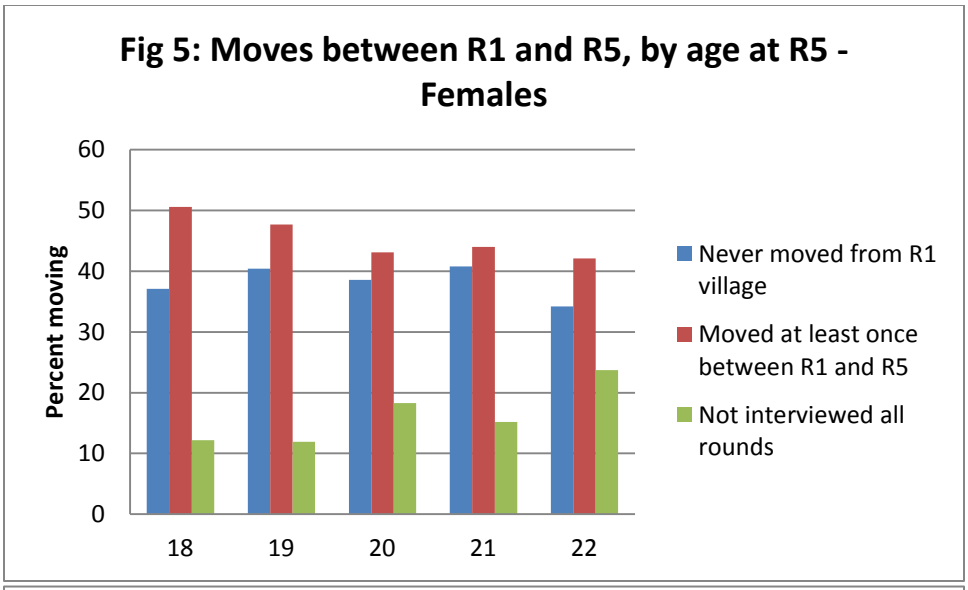
Fig 5: Moves between R1 and R5, by age at R5 - Females
Percent moving
60
50
40
30
20
10
0
18
19
20
21
22
Never moved from R1 village
Moved at least once between R1 and R5
Not interviewed all rounds

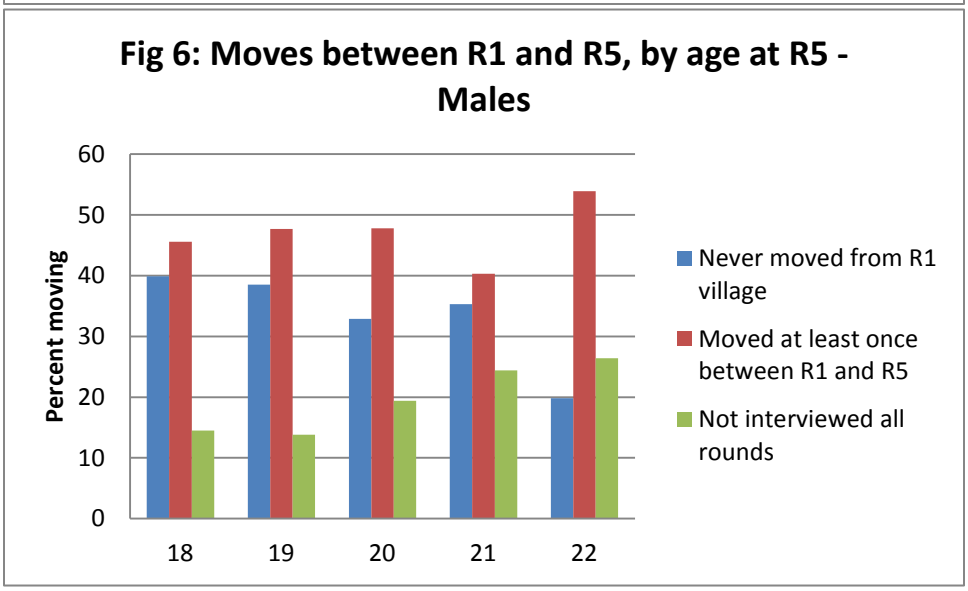
Fig 6: Moves between R1 and R5, by age at R5 - Males
Percent moving
60
50
40
30
20
10
0
18
19
20
21
22
Never moved from R1 village
Moved at least once between R1 and R5
Not interviewed all rounds