

# Going Back Home: Internal Return Migration in Rural Tanzania

KALLE HIRVONEN<sup>a</sup> and HELENE BIE LILLEØR<sup>b,\*</sup>

<sup>a</sup> *International Food Policy Research Institute, Addis Ababa, Ethiopia*

<sup>b</sup> *Rockwool Foundation Research Unit, Copenhagen, Denmark*

**Summary.** — While reasons for out-migration are relatively well understood, little is known about why people return to their rural origins. We contribute to filling this gap in the literature by using 19-year tracking data from rural Tanzania to estimate the patterns and determinants of return migration, and we find that return is largely associated with unsuccessful migration. For men, return is linked to poor job-market outcomes at the migration destination, and for women, to the ending of marriages. Female migrants who exchange transfers with relatives at home, and men who are financially supported by their families, are more likely to return.  
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## 1. INTRODUCTION

Recent years have witnessed a rise in interest in internal migration in sub-Saharan Africa. Indeed, with the emergence of the “African Growth Miracle” (McKay, 2013; Radelet, 2010; Young, 2012), internal migration has become an important topic for policy-makers in Africa. In order to shed light on this area, researchers have attempted to understand the patterns of structural transformation of the African Economies (Bryceson, Kay, & Mooij, 2000; Dorosh & Thurlow, 2014; McMillan & Harttgen, 2014; McMillan, Rodrik, & Verduzco-Gallo, 2014) and hence the patterns of rural-to-urban migration in sub-Saharan African countries (de Brauw, Mueller, & Lee, 2014; Potts, 2010).<sup>1</sup> In the literature this type of physical mobility is, often implicitly, linked to the idea that individuals move in order to maximize their expected incomes (Harris & Todaro, 1970). Despite this re-emerging<sup>2</sup> interest in rural-to-urban migration, however, most of the internal migration in sub-Saharan Africa remains from rural areas to other rural areas (Castaldo, Deshingkar, & McKay, 2012; Lucas, 2007; Potts, 2013). This type of movement may be motivated by marriage (Beegle & Poulin, 2013; Kudo, 2015), attempts to diversify rural incomes (e.g., Christiaensen, De Weerd, & Todo, 2013), or both (Rosenzweig & Stark, 1989).

While the reasons why people out-migrate internally are relatively well understood, little is known about why people return to their rural origins, especially in sub-Saharan Africa. As highlighted by Junge, Revilla Diez, and Schätzl (2013), the existing literature is mainly organized along a success–failure dichotomy. Theoretically, in the Harris–Todaro framework, a return migrant can be understood as an “unsuccessful” migrant; someone who failed to find a formal job in an urban area. The magnitude of return migration then reflects the fluctuating conditions of the urban labor market.<sup>3</sup> On the other hand, if out-migration was part of household-level welfare maximization (Stark & Bloom, 1985), return is then “[...] the logical outcome of a ‘calculated strategy’, defined at the level of the migrant’s household, and resulting from the successful achievement of goals or target” (Cassarino, 2004, p. 255). The empirical evidence, largely from international migration literature, often portrays returnees as successful migrants who, during their migration spell send remittances home, return after successfully reaching their

target savings, and after return act as important change agents bringing capital and new skills, and engaging in entrepreneurial activities (De Vreyer, Gubert, & Robilliard, 2010; Dustmann, 2003; Dustmann & Kirchkamp, 2002; Dustmann & Mestres, 2010; Démurger & Xu, 2011; Marchetta, 2012; Piracha & Vadean, 2010; Yang, 2006).

In this paper, we attempt to unpack different patterns of and motives for internal return migration through an analysis of an extraordinarily long panel survey from Tanzania. We use a unique 19-year panel survey designed to track migration from and within the Kagera region in northern Tanzania. The tracking feature of the survey permits us to follow migrants (including return migrants) through their entire migration cycle, from the origin household to their destination (and back, in the case of return migrants), while at the same time also following the non-migrant family members at the place of origin. With three major rounds of data collection (early 1990s, 2004 and 2010), the dataset offers an unprecedented opportunity to analyze and document the extent, nature and determinants of internal return migration in an African context.<sup>4</sup>

Among migrants who left their baseline villages between 1991–94 and 2004, the rate of return migration found at interview 6 years later in 2010 was 14%. In a sample of prime-age (17–45-year-old) tracked panel respondents selected for the main analyses in this paper, the level of return migration was 17%. This corresponds to more than one in six of the original migrants going back home.

In contrast to the narrative emerging from the international migration literature, our results do not support the view that return migrants had a successful migration spell and – despite positive selection into out-migration – return migrants are not significantly different from those who never migrated. While self-selection into out-migration is linked to positive factors, selection into return migration has negative associations. We find that future return migrants as well as their parents have

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lower levels of education and originate from households which – prior to the out-migration event – had lower levels of consumption and asset holdings compared to those of continuing migrants. In addition, for women, returning home is associated with the ending of marriages.

Previous literature has documented how some migrants engage in strategic remitting that buys them an option to return in case of financial or other misfortunes during the migration spell (Amuedo-Dorantes & Pozo, 2006; de Brauw, Mueller, & Woldehanna, 2013). Our data on remittances do not provide support to this self-insurance hypothesis. In contrast, we find that returning men in our data *receive* considerable assistance from their home communities during their migration spell. While for women, mutual exchange of trivially small gifts with the extended family in the home community is a predictor of return. We believe that these transfers proxy for frequency of contact and we therefore interpret this finding to mean that women who maintain close links to their origin family are more likely to return.

Once back home, return migrants do not seem to stand out in any positive way from the non-migrants in the home communities. Again in contrast to the evidence in the international migration literature, we find that the returnees do not seem to be more entrepreneurial than the non-migrants; if anything, the opposite is true. In addition, despite considerably higher per capita consumption levels during the migration spell, after their return the consumption levels as well as the asset holdings of return migrants are similar to those who never left the home community. Moreover, chronic illness rates are higher among the male returnees compared to the non-migrant and continuing migrant peers. Finally, using subjective questions on well-being, we also find that the returned women are less satisfied with their lives than both non-migrants and continuing migrants. These findings support the notion that return migrants are largely unsuccessful migrants – past migration spells are not associated with any clear welfare benefits relative to those who never left the baseline villages.

In the next section, we relate this paper to previous literature in the field and highlight the few contributions there have been to internal return migration in Least Developed Countries. In Section 3 we describe our data and sample selection, while in Section 4 we examine the migration movements and compare the characteristics of non-migrants, continuing migrants and return migrants. We discuss our econometric approach in Section 5. Section 6 presents the regression results of predetermined selection into, and more recent determinants of, return migration. In Section 7 we study the association between migrants' remittances and the decision to return, while Section 8 gives an account of how migrants fare in their home communities after return. Section 9 concludes.

## 2. LITERATURE REVIEW

Return migration usually occurs after a single long migration spell. This is in contrast to seasonal, temporary, or circular migration, which are characterized in the literature by systematic and regular movements between the place of origin and the destination (Constant, Nottmeyer, & Zimmermann, 2013; Gmelch, 1980; Potts, 2010; Skeldon, 2012; Vadean & Piracha, 2010). Return migration is usually seen in the literature as a permanent or semi-permanent return to the place of origin (King, 1986).

There exists a substantial body of literature on international return migration. One of the earliest contributions in this literature is King (1978) that offers a framework for examining

return migration. For a useful overview on various return migration theories in this context, see Cassarino (2004). Junge *et al.* (2013) offer a comprehensive literature review on return migration – both internal and international – focusing on the success–failure aspect. Complementing these existing reviews, our literature review focuses solely on the empirical evidence on *internal* return migration.

The empirical analyses of reverse internal migration patterns in an African context have focused on macro level accounts of reverse rural–urban flows. Recent urbanization studies using, for example, satellite imagery have shown that the high population growth rates in urban areas observed in many sub-Saharan Africa countries have slowed down, or are even stagnating (e.g., Beauchemin, 2011; Potts, 2009, 2012). This picture is supported by findings from a national household survey in Ghana, where high rates of urban-to-rural migration flow may, at least in part, be explained by return migration flows (Castaldo *et al.*, 2012).

To the best of our knowledge, only two papers discuss the actual return decision in an African context, both of them being based on data from Kenya. Owuor (2007) examines the importance of a rural connection for urban migrants. Using quantitative and qualitative approaches, the author finds that male migrants who cannot support their families cope by sending their wives and children back to the place of origin. This strategy provides the family with access to self-produced food from rural farming activities. Falkingham, Chepngeno-Langat, and Evandrou (2012) study the return migration decision and its determinants for older (50+ years) urban migrants in the slums of Nairobi, using a destination-based panel survey over a 3-year period. They find that 13% of their sample had left Nairobi (presumably for their original home area); the existence of children living outside the slums was an important pull factor, and age and poverty represented typical push factors.

Other empirical analyses of internal return migration in developing countries originate from Thailand, Vietnam and China. In the Nang Rong district of north-eastern Thailand, 26% of migrants returned over a 6-year period (Piotrowski & Tong, 2010). Using surveys representative of the rural population in three provinces in Thailand and three provinces in Vietnam, Junge *et al.* (2013) find that 31% of the Vietnamese and 26% of the Thai migrants return to their local areas of origin within a 3-year window. The cross-sectional return rates in China are similar and estimated to be between 25% and 38% (Démurger & Xu, 2011; Wang & Fan, 2006; Zhao, 2002), although these numbers may also capture circular migration due to institutional barriers to migration (the *hukou* system), as identified by Hare (1999) and Hu, Xu, and Chen (2011).

The empirical analyses of Chinese return migration to rural areas are all based on interviews with households in the origin communities, and collected as cross-sectional data (Démurger & Xu, 2011; Wang & Fan, 2006; Zhao, 2002). Common areas of focus in these studies are self-reported reasons for return and the ways in which the economic activities or occupational choices of the returnees differ from those of the non-migrants. Démurger and Xu (2011) characterize return migrants as successful when the migration experience has enhanced their skill to such an extent that they engage in entrepreneurial activities and become self-employed or obtain a high-ability job. The success–failure dichotomy is less clear cut in Zhao (2002), which highlights the importance of having a non-migrant spouse to whom to return as a central element in the return decision. Family reasons are also important determinants of return in the study by Wang and Fan (2006), who also stress the negative reasons for selection into return migration rather

than continuing migration and thus emphasize the concept of returnees as being unsuccessful migrants.

In studies from Thailand and Vietnam, [Piotrowski and Tong \(2010\)](#) and [Junge et al. \(2013\)](#) use panel surveys from rural origin communities that follow migrants and potential migrants during three to 6-year migration windows. These data are rich in that they follow migration from origin households over time. However, as with the studies from China mentioned above, the surveys do not track migrants during the migration spell, and therefore the information on migrants originates from proxy respondents. [Piotrowski and Tong \(2010\)](#) find that economic determinants of return point to unsuccessful migration spell, while the non-economic determinants point to the significance of having close family members (spouse, children, or mother) in the origin community. These results are thus similar to those of [Zhao \(2002\)](#) and [Wang and Fan \(2006\)](#), as these researchers also highlight the importance of family or of migration failure in the return decision. Using a rich data set, [Junge et al. \(2013\)](#) compare local return migrants to regional return migrants (i.e., those who return to their province, but not to their community of origin) as well as continuing migrants and non-migrants. They find that regional return migrants fare much like the continuing migrants: they are better educated and less likely to be engaged in agricultural activities compared to local return migrants and non-migrants. Local return migrants, on the other hand, are more comparable to the non-migrants. Strong family ties and low levels of education are important determinants of local migrants' return and many of them engage in agriculture after their return. As noted by the authors, these findings emphasize the need to distinguish between migrants who return to their home villages and those who return to their 'home-region'. However, since a large fraction of the migration we see in our data is within-region, our definition throughout the paper of return migration is return to the local area of origin.

Return intentions play a central role in a large body of literature that examines migrants' motives to remit.<sup>5</sup> In the New Economics of Labor Migration ([Stark & Bloom, 1985](#)), remittances are viewed as an integral part of the household-level diversification strategy ([Cassarino, 2004](#)). Another hypothesis in this strand of literature is that migrants engage in strategic remittance behavior in order "[...] to retain the prospect of ultimately returning home with dignity" ([Lucas & Stark, 1985, p. 914](#)). Such transfers can also be understood as self-insurance, where the migrant buys "a return insurance" so that the origin family does not deprive her the right to return ([Amuedo-Dorantes & Pozo, 2006; de Brauw et al., 2013; Hoddinott, 1994; Rapoport & Docquier, 2006](#)). The empirical literature on this topic usually proxies future return migration with direct questions about the migrant's return intentions ([Ahlburg & Brown, 1998; Brown, 1997; Dustmann & Mestres, 2010; Merkle & Zimmermann, 1992](#)) or with income uncertainty in the destination area ([Amuedo-Dorantes & Pozo, 2006; de Brauw et al., 2013](#)). It is unclear, however, how well these proxies predict the actual return decision. Indeed, [Ahlburg and Brown \(1998, p. 128\)](#) concede that "[d]ata on individual return migrants are of course preferable to the attitudinal response that we employ". Having such data at our disposal, and with information about who returns and who stays, we are able to capture the "realized risk of return", and can therefore explore this question more directly than the earlier literature.

Similar to the current paper, the study by [Tong and Piotrowski \(2010\)](#) on Thailand is an exception in this regard. The authors have panel data based on origin surveys, which they can use to analyze how remittances to the origin

community shape the *actual* return decisions. Their findings suggest that migrants planning to return "use remittances to keep the return option open by maintaining membership in the origin household" ([Tong & Piotrowski, 2010, p. 85](#)). However, since only small remittance amounts predict return, the authors argue that their results are indicative of a signaling (rather than a self-insurance) strategy whereby a migrant ensures continuing membership of the origin household.

As the foregoing shows, the evidence on internal return migration is surprisingly scant, especially in an African context. The requirements of quality and quantity of data for a careful analysis of return migration are considerable, and we believe this may partly explain the dearth of research on this topic. Ideally, in order to describe return migrants, comparisons should be made both with the continuing migrants (the return migrants' former peers) and with the non-migrants in the home communities (their peers after return), and these comparisons should be made before, during, and after the migration spell. An optimal survey would therefore collect iterative information directly from both migrants and non-migrants in both origin and destination households, with a period of time between the data collection rounds that was long enough for some people to out-migrate, settle and return. Proxy respondents should ideally not be used, as there may be considerable asymmetry in the information held by migrants and by proxy respondents in the origin household. Indeed, recent empirical literature suggests that extended family members may deliberately hide information from others. For example, [Baland, Guiringer, and Mali \(2011\)](#) show how individuals in Cameroon opt for high-interest loans in order to conceal their true income. Similarly, using a lab experiment in Kenya, [Jakiela and Ozier \(2012\)](#) find that women were willing to reduce their income in order to keep it hidden. [de Laat \(2014\)](#) finds that split-migrant couples in the Nairobi slums devote considerable resources to acquiring information about their spouses. Therefore the use of proxy respondents for either the ongoing migrants, as in [Piotrowski and Tong \(2010\)](#), [Tong and Piotrowski \(2010\)](#) and [Junge et al. \(2013\)](#), or for the returnees, as in [Falkingham et al. \(2012\)](#), comes with the risk of introducing considerable bias into the statistical analysis.

The strength of the present paper lies in the fact that we have more reliable data than earlier studies. With our longitudinal tracking survey covering both origin and migrant households, we have the ideal survey design to analyze various aspects of internal return migration in a sub-Saharan African context. The next section describes these data in detail.

### 3. DATA AND SAMPLE SELECTION

Kagera is a region in the north-western part of Tanzania. It lies on the shores of Lake Victoria and shares borders with Uganda, Rwanda and Burundi. The 2012 census estimated a population of 2.5 million ([URT, 2013](#)). The region is predominantly rural, with more than 80% of households relying on agricultural production as their main source of income ([URT, 2012](#)).

#### (a) Data

The Kagera Health and Development Survey (KHDS) was one of the longest-running African panel surveys, spanning 19 years in total and with three major survey rounds conducted in the early 1990s, in 2004 and in 2010 ([De Weerd et al., 2012](#)). In the first round, members of 915 households were

interviewed. These households were situated in 51 villages across Kagera. Households were interviewed up to four times each at six-monthly intervals during 1991–94 (see [World Bank, 2004](#)).<sup>6</sup> In what follows, we refer to these first survey rounds as the *baseline*.

The first follow-up survey was organized in 2004 with the aim of re-interviewing all the individuals interviewed in the baseline surveys. This involved careful tracking of individuals who had migrated away from their baseline villages to other parts of the region, elsewhere in Tanzania, or to neighboring Uganda. More than 93% of the baseline households were re-contacted after a 10-year period, meaning that at least one panel respondent from each household was interviewed ([Beegle, De Weerd, & Dercon, 2006](#)).<sup>7</sup> Due to migration and household partition for other reasons (e.g., children leaving parental households to establish their own homes), the 2004 sample covered more than 2,700 households.

The second follow-up survey was organized by the present authors in 2010 jointly with researchers from EDI-Tanzania, University of Oxford and the World Bank. This time the household re-interview rate was 92%, yielding a sample of more than 3,300 households ([De Weerd et al., 2012](#)). Compared to other panel surveys of this nature, these household-level attrition rates are exceptionally low ([Alderman, Behrman, Kohler, Maluccio, & Watkins, 2001](#)). At the individual level, the re-interview rates among surviving panel respondents were 82% in 2004 and 85% in 2010.

The tracking feature in the surveys in 2004 and 2010 created a panel of respondents rather than of households. In these survey rounds, individuals were only tracked if they had resided in one of the households interviewed at baseline in 1991–94. We call these individuals *panel respondents*.<sup>8</sup> In all the survey rounds, a household was defined as a group of people who had lived in the same dwelling and shared their meals together for at least three of the 12 months immediately prior to the interview ([World Bank, 2004](#)). Individuals who had recently joined the household and intended to stay for at least 6 months were also treated as household members.<sup>9</sup> Since the fieldwork in both of the follow-up surveys started with interviewing households in the baseline villages, this definition of household membership means that we do not capture short-term migration spells. In particular, circular or seasonal migrants who leave the household for less than a 6-month period would be considered as a part of the origin household.<sup>10</sup> Furthermore, a retrospective migration module administered in the 2010 survey round showed that the average (right-censored) migration spell among the migrants was 8.4 years (with a median of 8 years). These data are therefore ideal for studying long-term migration patterns, as both non-migrants, migrants, and return migrants (provided that they returned between the 2004 and 2010 rounds) were observed and interviewed. The data are not suited to the analysis of circular or seasonal migration.<sup>11</sup>

Empirically, we follow [Beegle et al. \(2011\)](#) in defining non-migrants as individuals who remain in their original baseline village. Migrants are then individuals found residing outside the baseline village, be it elsewhere in Kagera, in other regions of Tanzania, or in Uganda. [Figure 1](#) provides an overview of the migration flows over the 19-year period. The baseline household survey included 6,353 individuals, all of whom were interviewed at least once in 1991–94. Excluding the 1,275 individuals who had died by 2010, we are left with 5,078 panel respondents. Of these, 51% lived in the baseline village in 2004, and the remainder (49%) were migrants.<sup>12</sup> In the 2010 survey round, we find that an additional 689 panel respondents had out-migrated during 2004–10, leaving 38% (1,914 panel respondents) of the original sample in the baseline

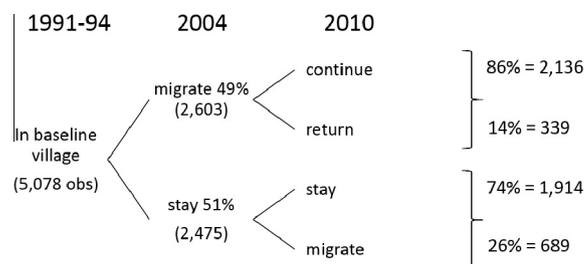


Figure 1. Scope of return migration in Tanzania.

villages as non-migrants or “stayers”.<sup>13</sup> Of the people classed as migrants in 2004, 14% (339 panel respondents) had returned to their baseline villages and 86% (2,136 panel respondents) were still migrants in 2010.<sup>14</sup>

### (b) Sample selection

In the analysis that follows, we operate with three different categories of panel respondent: *stayers*, *continuing migrants*, and *return migrants*. A panel respondent is a *stayer* if she was residing in the baseline village throughout the full cycle of the panel (i.e., in 1991–94, 2004 and 2010). *Continuing migrants* are individuals who were found residing outside their baseline villages in both the 2004 and the 2010 rounds. *Return migrants* are panel respondents who were found residing outside their baseline villages in 2004 but were found to have returned to the baseline village in the 2010 round. Our analysis is based on a comparison of the characteristics of these three groups at different points in time. For this reason we exclude from our sample those 689 individuals who out-migrated during 2004–10.

The final sample consists of panel respondents who were observed in all three survey rounds. In order to achieve a more precise description of the characteristics of the return migrants and for the analysis of the determinants of the return migration decision, we further constrain the sample to individuals who were prime-age adults (17–45 years old) in 2004 and thus who were no longer attending school. These restrictions ensure that we do not capture returns caused by leaving secondary school (often a boarding school) or motivated by retirement. Finally, we also exclude polygamists from the analysis, since defining them as stayers or migrants is difficult due to the fact that they appear in multiple households. Starting from the 5,078 panel respondents in [Figure 1](#), [Table 10](#) of the Appendix shows how each of these restrictions affected our sample size. The final sample of 2,035 panel respondents used in the empirical analysis is composed of 177 return migrants, 855 continuing migrants, and 1,003 stayers.<sup>15</sup>

## 4. MOVEMENTS AND CHARACTERISTICS OF INTERNAL MIGRANTS, INCLUDING RETURN MIGRANTS

[Table 1](#) shows how the out-migration from baseline villages that took place between the baseline in 1991–94 and the survey in 2004 was largely rural-to-rural. Nearly half (46%) of the migrants moved from rural Kagera to another rural area within Kagera or elsewhere, while 15% moved from urban to rural areas. Rural-to-urban migration constitutes about 17% of the migration flow in our sample. We also see that women were more likely to move from one rural area to another than men were. More than 53% of the migrant women went from

Table 1. *Migration flows between 1991–4 and 2004*

	All (%)	% Returned	Female (%)	% Returned	Male (%)	% Returned
From rural Kagera to						
Kagera rural	46	22	51	20	37	28
Other rural	2.4	20	2.3	19	2.6	22
Kagera urban	9.1	5.3	7.7	3.8	12	7.3
Other urban	7.8	5.0	5.5	0.0	12	9.5
Sub-total	66	n/a	67	n/a	64	n/a
From urban Kagera to						
Kagera rural	12	14	14	14	9.6	15
Other rural	2.5	0.0	2.0	0.0	3.5	0.0
Kagera urban	13	25	12	21	15	31
Other urban	7.0	6.9	6.1	4.8	8.7	10
Sub-total	34	n/a	33	n/a	36	n/a
Total	100	n/a	100	n/a	100	n/a
Number of observations	1,032	177	687	108	345	69
Overall return percentage		17		16		20

Note: The “% returned” column shows the percentage of migrants who have returned by 2010 in the corresponding migration flow category.

Table 2. *Reasons for leaving the baseline village*

	Total (%)	Male (%)	Female (%)
Marriage	43	3.7	62
Divorce/widowhood	2.7	0.3	3.9
Work	26	57	11
Education	5.6	8.7	4.1
Family	14	17	13
Parents died/inheritance	6.2	11.8	3.5
Other local responsibilities	0.5	0.6	0.5
Own health	0.7	0.0	1.1
Other	1.0	0.9	1.1
Total	100	100	100
Number of observations	988	323	665

Notes: Sample of 988 migrants in 2004. Information is missing for 22 female and 22 male migrants.

rural Kagera to another rural area, whereas the corresponding figure for men is only 40%. Finally, 80% of the migrants moved within Kagera, while 20% moved to another region in Tanzania or to Uganda.

The magnitude of return migration in this reduced sub-sample is slightly higher than our previous gross figure of 14%, averaging 17% among the 1,032 individuals whom we observe as migrants in 2004. Thus, more than one in six of the migrants that we followed had returned by 2010. Although our estimate of the extent of return migration within the 6-year window is somewhat lower than the estimates from Asia described above, the proportion of migrants who return is still sizeable. Understanding what characterizes these migrants and why they return home may therefore be important for understanding general migration patterns. Among those who were migrants in 2004, we see from the raw figures that the probability of a migrant returning during 2004–10 was somewhat higher for men than for women, and for the rural-to-rural migrants than for others.

In the 2004 survey, the migrants were asked why they left their baseline village. Table 2 reports the reasons given. More than 25% of our sample reported that they had left because they had found work or because they went to look for it. More than 40% had left because of marriage. These aggregate statistics, however, mask clear gender differences in migration motives. The majority of men gave a work-related reason for

leaving, while most women reported that they had left their baseline village because of marriage. We allow these subjective reports of out-migration motives to guide us in our analyses of return migration determinants below.

We split the individuals in the sample into the three categories of stayers, continuing migrants and return migrants. This permits the comparison of individual characteristics across these groups on a bivariate basis. We first use the baseline data from 1991 to 1994, before any migration had taken place. At this point, the individuals in our sample were between 7 and 35 years old and resided in their baseline villages. In Table 3, we see that women were more likely to migrate than men and, despite the age restriction in selecting the sample, migrants were on average 2 years younger than those who never migrated. Looking at the differences in 1991 between future stayers and future migrants, and further between future continuing and future return migrants, a few interesting observations emerge. First, migrants were somewhat less likely to be the children of the head of the household. We also find that migrants were likely to originate from larger and more educated families, and that they themselves were more educated on average than their peers.<sup>16</sup> Interestingly, the difference between migrants and stayers' baseline per capita consumption levels was not statistically different from zero.<sup>17</sup> However, migrants originated from households that were richer in terms of durable assets.

Table 3 also shows differences between the two migrant categories (continuing and return migrants). Those who had returned to their baseline village by 2010 were slightly older than those who were still migrants in that year. Moreover, return migrants were less well educated relative to their peers than continuing migrants, and their parents had lower levels of education than the parents of continuing migrants. They also came from poorer households. Although household consumption levels in 1991–94 do not seem to correlate with out-migration by 2004, they do correlate significantly and negatively with return to the baseline village during 2004–10. Indeed, return migrants originate from baseline households with fewer resources, both in terms of consumption levels and asset holdings. In addition, they have poorer educational background characteristics than the continuing migrants, both in terms of own years of schooling as well as their parents'.

We then use the 2004 data to compare the characteristics of stayers and migrants, and to examine the differences observed

Table 3. *Descriptive statistics in 1991 by future migration status*

	Migration status in 2004			Migration status in 2010 of migrants		
	Stayer	Migrant	Difference	Continuing migrant	Return migrant	Difference
Male	0.605 (0.489)	0.334 (0.472)	0.271***	0.323 (0.468)	0.390 (0.489)	-0.067
Age (in 2004)	29.12 (7.412)	26.83 (5.780)	2.26***	26.58 (5.622)	27.93 (6.333)	-1.35***
<i>1991 characteristics:</i>						
Household size	7.512 (3.531)	8.014 (3.749)	-0.502***	8.020 (3.737)	7.983 (3.818)	0.037
Male head of household	0.805 (0.397)	0.742 (0.438)	0.063***	0.743 (0.437)	0.740 (0.440)	0.003
Child of the head	0.572 (0.495)	0.518 (0.500)	0.054**	0.497 (0.500)	0.621 (0.486)	-0.124***
Father's education (in years)	4.371 (3.046)	4.966 (3.093)	-0.595***	5.056 (3.093)	4.528 (3.061)	0.528**
Mother's education (in years)	2.664 (2.810)	3.383 (3.057)	-0.719***	3.464 (3.082)	2.989 (2.912)	0.475*
Number of acres owned	5.186 (5.159)	5.067 (5.186)	0.119	5.136 (5.268)	4.735 (4.769)	0.401
Number of years of schooling: Difference from the mean of peer group	-0.102 (2.305)	0.390 (2.077)	-0.492***	0.464 (2.057)	0.0339 (2.142)	0.430**
Baseline village was urban	0.310 (0.463)	0.344 (0.475)	-0.034*	0.350 (0.477)	0.316 (0.466)	0.034
Annual household per capita consumption, in 2010 Tanzanian shillings	345,070 (180,053)	355,071 (184,296)	-10,001	361,777 (189,386)	322,837 (153,993)	38,940***
Household per capita value of durable assets	28,843 (126,088)	93,185 (764,227)	-64,343***	109,052 (838,664)	16,541 (35,835)	92,511***

Notes: Standard deviations in parentheses. Significances of the differences in means are based on a *t*-test for the continuous variables and on Pearson's  $\chi^2$ -squared test for binary variables.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

between the two migrant types at their migrant destinations. In Table 4, this comparison between the migrants reveals that the initial differences in education observed in 1991–94 persisted into 2004. At ages of between 17 and 45 in 2004, more than 11% of the future continuing migrants had at least a secondary school education, while this was true for only 4% of the future return migrants. Although migrants were significantly less engaged in agriculture than stayers in 2004, future return migrants resembled stayers in the level of reliance on income from casual labor as their main income source. At that time, about 10% of the future return migrants and 6% of the continuing migrants reported that the less attractive and stable casual farm work was their main income-generating activity. This suggests that future return migrants were not faring as well as the continuing migrants in their 2004 locations, even though, on average, their consumption levels were the same. However, continuing migrants have more durable assets than the return migrants whose asset levels have become comparable to the ones of stayers.

Being less settled in the migration destination may partly explain future return. In 2004, future return migrants were more likely to be single, divorced, or widowed than continuing migrants, and at that time they had had a shorter migration spell on average than the continuing migrants. Future return migrants also seem to have maintained closer links with the relatives in the baseline origin village, in that they were more likely to both send and receive transfers from the extended family in the baseline village.<sup>18</sup> However, the continuing migrants sent significantly larger transfers. About 45% of the

migrants did not send any transfers to or receive any from their extended family members at home.

The 2010 follow-up survey collected retrospective information about various life events experienced by the panel respondents after 2004, such as marriages, divorces, inheritances, or economic shocks (e.g., poor harvest, death of a family member, serious illness, or loss of job). In Table 5, we see that return migrants were more likely to have experienced an economic shock during 2004–10 than continuing migrants. Interestingly, economic shocks reported by the extended family in the home village are not correlated with the return event. Finally, return migrants were more likely to have inherited land or to have divorced or been widowed over this period than were continuing migrants. These findings suggest that such life events are likely to be important determinants of future return. We examine these determinants in more detail using multivariate regression techniques in the sections that follow.

## 5. ECONOMETRIC ISSUES

In the main empirical analysis below, we model the probability of a migrant having returned to the baseline village by 2010. The return for an individual *i* is captured by a binary variable  $return_i$  that has a value of 1 if the migrant returned during 2004–10 and a value of 0 otherwise. We are thus only estimating return probabilities within a 6 year window. Using a probit model, the latent probability of return is expressed as:

Table 4. Descriptive statistics in 2004 by current and future migration status

	Migration status in 2004			Migration status in 2010		
	Stayer	Migrant	Difference	Continuing migrant	Return migrant	Difference
Lives in an urban area	0.239 (0.427)	0.365 (0.482)	-0.13***	0.386 (0.487)	0.266 (0.443)	0.120***
Has completed primary schooling	0.730 (0.444)	0.759 (0.428)	-0.029	0.767 (0.423)	0.718 (0.451)	0.049
Has completed secondary schooling	0.0269 (0.162)	0.0979 (0.297)	-0.071***	0.110 (0.313)	0.0395 (0.195)	0.071***
Jobless	0.0419 (0.200)	0.109 (0.311)	0.111***	0.117 (0.322)	0.0678 (0.252)	0.049**
Non-farm worker	0.209 (0.407)	0.294 (0.456)	0.049***	0.305 (0.461)	0.237 (0.427)	0.068*
Works on own farm	0.645 (0.479)	0.534 (0.499)	0.111***	0.523 (0.500)	0.588 (0.494)	-0.065
Works on someone else's farm	0.104 (0.305)	0.064 (0.245)	0.040***	0.055 (0.228)	0.107 (0.310)	-0.052**
Living with a child	0.642 (0.480)	0.646 (0.478)	-0.004	0.650 (0.477)	0.627 (0.485)	0.023
Living with spouse	0.603 (0.489)	0.673 (0.469)	-0.070***	0.678 (0.467)	0.650 (0.478)	0.028
Married	0.632 (0.482)	0.699 (0.459)	-0.023***	0.702 (0.458)	0.684 (0.466)	0.018***
Divorced or widowed	0.0877 (0.283)	0.0930 (0.291)	0.008	0.0854 (0.280)	0.130 (0.337)	-0.045*
Migration spell (in years)	n/a	6.474 (3.489)	n/a	6.587 (3.480)	5.883 (3.484)	0.704**
Has relatives in baseline village	n/a	0.832 (0.374)	n/a	0.828 (0.378)	0.853 (0.355)	-0.025
Land owned in acres	3.318 (4.291)	1.964 (3.858)	1.35***	1.908 (3.958)	2.236 (3.329)	-0.328
Household per capita annual consumption in 2010 Tanzanian shillings	394,482 (243,700)	576,592 (569,562)	-18,211***	582,712 (557,316)	547,033 (626,215)	35,678.9
Consumption data missing	0.0199 (0.140)	0.0291 (0.168)	0.028	0.0257 (0.158)	0.0452 (0.208)	-0.020
Household per capita value of durable assets	28,023 (102,632)	111,407 (629,808)	-64,343***	128,321 (690,022)	29,706 (71,999)	92,511***
Transfers to relatives in baseline village	n/a	11,140.5 (40,177)	n/a	11,917.3 (43266.6)	7,388.1 (18854.5)	4,529.2**
Transfers from relatives in baseline village	n/a	6,009.6 (25,874)	n/a	5,410.9 (20,754.0)	8,901.6 (42,679.4)	-3,490.7
=1 if transfers to relatives in baseline village	n/a	0.494 (0.500)	n/a	0.475 (0.500)	0.588 (0.494)	-0.113***
=1 if transfers from relatives in baseline vill.	n/a	0.412 (0.492)	n/a	0.389 (0.488)	0.520 (0.501)	-0.131***
=1 if did not send or receive any transfers	n/a	0.459 (0.499)	n/a	0.478 (0.499)	0.367 (0.483)	0.111***

Notes: Standard deviations in parentheses. Significance of the difference in means based on a *t*-test for continuous variables and Pearson's  $\chi^2$ -squared test for binary variables.

\*  $p < 0.1$ .  
 \*\*  $p < 0.05$ .  
 \*\*\*  $p < 0.01$ .

$$\text{prob}(\text{return}_i = 1) = \Phi(x'\beta) \quad (1)$$

where  $x$  is a vector of individual, household- and community-level characteristics affecting the individual's probability of return and  $\beta$  represents a vector of the estimated coefficients. To avoid reverse causality issues, the individual, household- and community-level characteristics are constructed using data from the 1991–94 or 2004 rounds, i.e., data obtained prior to the return event. As is inherent in any analysis on migration, there is likely to be substantial selection based on unobservable characteristics. We therefore caution against interpreting our estimates as identifying a causal relationship.

In particular, if these unobserved characteristics are correlated with the observed ones ( $x$  in Eqn. 1), then a causal interpretation of our estimates would certainly not be valid. Our aim is not to provide a complete causal analysis on the basis of the observed determinants of return migration, but rather to provide a careful descriptive analysis in a multivariate setting, which we believe to be of value not only in offering a contribution to the scarce literature on return migration in an African context but also for guiding future research in this field.

The probit model constrains the probability to a [0,1] interval by assuming a cumulative density function (CDF) that follows a normal distribution  $\Phi(\cdot)$ . The true underlying CDF

Table 5. *Life events in 2004–10 by migration status*

	Migration status in 2010		Difference
	Continuing migrant	Return migrant	
Inherited land	0.106 (0.309)	0.186 (0.391)	-0.08***
Reported a shock	0.160 (0.367)	0.220 (0.416)	-0.06**
Shock in baseline village	0.269 (0.444)	0.299 (0.459)	-0.03
Got married	0.139 (0.346)	0.169 (0.376)	-0.03
Got divorced/ was widowed	0.144 (0.351)	0.249 (0.433)	-0.105***

Notes: Standard deviations in parentheses. Significance of the difference in means based on a *t*-test for continuous variables and Pearson's  $\chi^2$ -squared test for binary variables. 'Shock in the baseline village' refers to economic shocks reported by relatives residing in the baseline village.

\*  $p < 0.1$ .  
 \*\*  $p < 0.05$ .  
 \*\*\*  $p < 0.01$ .

is, however, unknown to the researcher. Given our sample size ( $N = 1,032$ ) and the intuitive appeal in assuming a normal distribution, we based our primary analysis on the probit model. However, our results are robust to alternative functional forms, such as logit, complementary log-log, and linear probability models.<sup>19</sup>

## 6. DETERMINANTS OF OUT-MIGRATION AND RETURN MIGRATION

Before turning to our main analysis based on Eqn. (1), we briefly use our baseline data to predict the selection into migration based on individual- and household-level characteristics observed in 1991–94 (i.e., before any out-migration). This analysis is based on a probit model where we model the probability of the individual migrating between the baseline round in 1991–94 and the 2004 round as  $\text{prob}(\text{migrate}_i = 1)$ . Stayers constitute the reference category.

Column 1 of Table 6 provides the probit estimates with the corresponding marginal effects. We see that, as expected, there is some dominance of positive factors in the decision to

Table 6. *Estimating selection into migration (Column 1) and into return migration (Column 2) using individual characteristics at the baseline (1991–94)*

	1: Selection into migration		2: Selection into return migration	
	Coeff	Mfx	Coeff	Mfx
Male	-0.733** (0.060)	-0.260*** (0.019)	0.210** (0.100)	0.051** (0.024)
Age in years	-0.034*** (0.005)	-0.012*** (0.002)	0.018** (0.008)	0.004** (0.002)
Child of the head of the household	-0.182*** (0.064)	-0.064*** (0.023)	0.372*** (0.101)	0.091*** (0.024)
Household size	0.024** (0.009)	0.009** (0.003)	0.003 (0.016)	0.001 (0.004)
Household had a male head	-0.198*** (0.075)	-0.070*** (0.026)	-0.028 (0.117)	-0.007 (0.029)
Father's education	0.003 (0.011)	0.001 (0.004)	-0.018 (0.018)	-0.004 (0.004)
Mother's education	0.011 (0.012)	0.004 (0.004)	-0.001 (0.018)	-0.000 (0.004)
Land owned in acres	0.001 (0.007)	0.000 (0.003)	-0.014 (0.013)	-0.003 (0.003)
Number of years of schooling: Difference from the mean of peer group	0.039*** (0.014)	0.014*** (0.005)	-0.046** (0.023)	-0.011** (0.006)
Baseline village was urban	-0.032 (0.096)	-0.011 (0.034)	-0.008 (0.160)	-0.002 (0.039)
Logged household per capita consumption	0.140** (0.070)	0.050** (0.025)	-0.278** (0.113)	-0.068** (0.027)
Baseline district dummies	Yes		Yes	
Sample	Stayers, return migrants, continuing migrants		Return migrants, continuing migrants	
Number of observations	2,008		1,017	
Log pseudo likelihood value	-1246.87		-452.358	
Wald $\chi^2$ (df = 16)	255.93		38.65	
Prob > $\chi^2$	0.0000		0.0012	
McFadden pseudo- $R^2$	0.104		0.046	
McKelvey and Zavoina- $R^2$	0.204		0.089	

Notes: 'Coeff' refers to probit estimate, 'Mfx' to corresponding marginal effect. Robust standard errors in parentheses. The standard errors for the marginal effects are calculated using the Delta Method. In Column 1, 27 panel respondents are dropped due to missing observations in father's height, land area, own schooling and household per capita consumption variables. In Column 2, 15 panel respondents are dropped due to missing observations for father's education, own schooling, and household consumption variables.

\*  $p < 0.1$ .  
 \*\*  $p < 0.05$ .  
 \*\*\*  $p < 0.01$ .

migrate both in terms of individual and of household characteristics. On average and *ceteris paribus*, more educated (relative to their peers) and younger individuals migrate, and the migrants come from larger households with higher per capita baseline consumption levels. In line with the findings in the descriptive statistics, women are more likely to migrate than men, consistent with the patrilocal context where women migrate on marriage (see Table 2). Somewhat contrary to the positive selection interpretation, individuals who originate from female (usually widow)-headed households are found in this multivariate setting to be more likely to migrate than others. Living in a female-headed household may be linked to poorer and more uncertain future prospects in the village, particularly with regard to land availability (Kudo, 2015).

We then drop the stayers from the analytical sample and use the probit model to estimate the probability of return among the 2004 migrants.<sup>20</sup> First, we explore the extent to which the baseline characteristics – observed some 10–15 years before the return migration event – have any predictive power. In other words, we study whether, among the selected group of migrants, there is also selection into return migration based on the same set of predetermined baseline characteristics observed in 1991. Column 2 of Table 6 shows the results. In line with the descriptive analysis above, gender and education are strong predictors of future return, with the less educated

and men being more likely to return. Furthermore, in line with the descriptive statistics, we find that return migrants tend to originate from poorer baseline households. A 10% increase in baseline household consumption is associated with a 0.68 percentage-point decrease in the probability of returning. Since the mean return migration rate is 17% in the final sample, this corresponds to a 4% decrease in the likelihood of returning.<sup>21</sup> The remaining bivariate associations found above become insignificant in this multivariate set-up, implying, for instance, that parents' education at baseline does not independently predict selection into future return migration once other characteristics are controlled for. Regression diagnostics show that the model based on baseline household- and individual-level characteristics does not perform particularly well in predicting future return migration. Nevertheless, the null hypothesis that all coefficients are jointly zero is rejected at the 1% level: the Wald  $\chi^2$  test statistic (with 16 degrees of freedom) is 38.65.

We base our main analysis of the determinants of return migration on the individual and household characteristics among migrants during the migration spell (i.e., in 2004 – before the return migration event). Table 7 reports the regression results based on Eqn. (1). As before, the table shows the probit estimates and the marginal effects. The various goodness-of-fit measures reported at the bottom of Table 7 suggest

Table 7. Determinants of return migration during 2004–10

	1: Pooled		2: Men		3: Women	
	Coeff	Mfx	Coeff	Mfx	Coeff	Mfx
Male	0.290** (0.136)	0.062** (0.029)				
Age in years	0.033*** (0.011)	0.007*** (0.002)	0.062*** (0.021)	0.013*** (0.004)	0.023 (0.014)	0.005 (0.003)
Migration spell (in years)	-0.045*** (0.016)	-0.010*** (0.003)	-0.032 (0.028)	-0.007 (0.006)	-0.045** (0.021)	-0.009** (0.004)
Has completed primary schooling	0.024 (0.126)	0.005 (0.027)	0.163 (0.257)	0.035 (0.055)	-0.064 (0.152)	-0.013 (0.031)
Has completed secondary schooling	-0.718*** (0.224)	-0.154*** (0.049)	-1.338*** (0.310)	-0.284*** (0.067)	-0.215 (0.310)	-0.044 (0.064)
Jobless	0.175 (0.209)	0.038 (0.045)	0.519 (0.364)	0.110 (0.076)	-0.015 (0.280)	-0.003 (0.057)
Works on own farm	0.186 (0.163)	0.040 (0.035)	0.200 (0.264)	0.042 (0.056)	0.246 (0.219)	0.051 (0.045)
Works on someone else's farm	0.325 (0.227)	0.070 (0.049)	0.189 (0.383)	0.040 (0.081)	0.445 (0.302)	0.091 (0.062)
Living with a child	-0.181 (0.152)	-0.039 (0.033)	-0.212 (0.305)	-0.045 (0.065)	-0.197 (0.177)	-0.040 (0.036)
Married	0.182 (0.229)	0.039 (0.049)	0.249 (0.387)	0.053 (0.082)	0.207 (0.331)	0.043 (0.068)
Divorced or widowed	-0.059 (0.256)	-0.013 (0.055)	-0.927 (0.606)	-0.196 (0.129)	0.084 (0.358)	0.017 (0.074)
Has relatives in baseline village	0.289* (0.150)	0.062* (0.032)	0.345 (0.237)	0.073 (0.050)	0.393* (0.207)	0.081* (0.042)
Land owned in acres	0.012 (0.013)	0.003 (0.003)	0.013 (0.025)	0.003 (0.005)	0.016 (0.014)	0.003 (0.003)
Logged per capita consumption	-5.429*** (1.992)	-1.168*** (0.424)	-4.232 (3.450)	-0.897 (0.728)	-6.222** (2.674)	-1.278** (0.538)
Squared	0.202*** (0.075)	0.043*** (0.016)	0.157 (0.128)	0.033 (0.027)	0.232** (0.102)	0.048** (0.021)
Consumption data missing	0.338 (0.297)	0.073 (0.064)	-0.131 (0.364)	-0.028 (0.077)	0.756 (0.518)	0.155 (0.106)
Household size	0.002 (0.025)	0.000 (0.005)	0.028 (0.043)	0.006 (0.009)	-0.034 (0.029)	-0.007 (0.006)

(continued on next page)

Table 7 (continued)

	1: Pooled		2: Men		3: Women	
	Coeff	Mfx	Coeff	Mfx	Coeff	Mfx
Child of the 1991-household head	0.333*** (0.109)	0.072*** (0.023)	0.442** (0.207)	0.094** (0.043)	0.275** (0.133)	0.056** (0.027)
Lives in urban Kagera	-0.016 (0.150)	-0.003 (0.032)	-0.085 (0.261)	-0.018 (0.055)	0.028 (0.177)	0.006 (0.036)
Lives in rural area outside Kagera	-0.213 (0.290)	-0.046 (0.062)	-0.324 (0.402)	-0.069 (0.086)	-0.125 (0.391)	-0.026 (0.080)
Lives in urban area outside Kagera	-0.634*** (0.231)	-0.136*** (0.049)	-0.699** (0.318)	-0.148** (0.067)	-0.838** (0.405)	-0.172** (0.081)
<i>Life events 2004–10:</i>						
Inherited land	0.254* (0.145)	0.055* (0.031)	0.340 (0.230)	0.072 (0.048)	0.135 (0.199)	0.028 (0.041)
Reported a shock	0.169 (0.126)	0.036 (0.027)	-0.339 (0.263)	-0.072 (0.056)	0.356** (0.150)	0.073* (0.031)
Shock in baseline village	0.085 (0.115)	0.018 (0.025)	-0.031 (0.226)	-0.007 (0.048)	0.093 (0.140)	0.019 (0.029)
Got married	0.422** (0.214)	0.091** (0.046)	0.721** (0.313)	0.153** (0.065)	0.230 (0.352)	0.047 (0.072)
Got divorced/was widowed	0.606*** (0.154)	0.130*** (0.032)	0.030 (0.382)	0.006 (0.081)	0.627*** (0.182)	0.129*** (0.036)
Baseline district dummies	Yes		Yes		Yes	
Observations	1,014		333		681	
Log pseudo likelihood	-393.5		-127.4		-252.6	
Wald $\chi^2$ (df = 30 29 29)	89.09		61.52		64.72	
Prob > $\chi^2$	0.000		0.000		0.000	
McFadden pseudo- $R^2$	0.117		0.173		0.132	
McKelvey and Zavoina- $R^2$	0.240		0.365		0.266	

Notes: 'Coeff' refers to probit estimate, 'Mfx' to corresponding marginal effect. Robust standard errors in parenthesis. The standard errors for the marginal effects are calculated using the Delta Method. The reference categories are: 'lives in rural Kagera', 'has not completed primary schooling', 'non-farm worker', and 'never married'. 'Shock in the baseline village' refers to an economic shocks reported by relatives residing in the baseline village. In this table, 18 panel respondents are dropped due to missing observations in the migration spell variable. Dropping this variable from the model and estimating the remaining model using the full sample of 1,032 migrants yields nearly identical estimates for all variables.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

that this model fits the data reasonably well.<sup>22</sup> Because of the considerable gender heterogeneity found in the migration decisions, the overall results are split by gender in Columns 2 and 3.<sup>23</sup> All regressions include baseline district dummies in order to control for the migrants' initial location, and thus we capture the unobserved labor market characteristics of the home district.<sup>24</sup>

The pooled model in Column 1 of Table 7 shows that men are, on average and *ceteris paribus*, 6 percentage points more likely to return than women. Comparing the results from the pooled model with the gender-disaggregated results shows that the correlations between the covariates and the return probability are highly gender-specific. For men, the likelihood of return increases with age, whereas age is not associated with return in the female sample. In the female sample, on the other hand, the length of the migration spell is associated with a decrease in the probability of returning. Since women out-migrate largely because of marriage, the migration-spell variable is likely to be strongly correlated with the length of the marriage, which in turn may proxy for marital success. We also find that lack of secondary schooling is a strong predictor of future return for men, whereas it does not exert an independent impact on the return probability of women.<sup>25</sup>

Family relations also matter for the future return probability. Having relatives (i.e., former household members) in the baseline village is associated with a six-percentage-point increase in the probability of returning, although the effect is

statistically different from zero only at the 10% level in the female sample and is insignificant in the male sample ( $p = 0.145$ ). For both men and women, being a child of the household head in 1991 is associated with an increase in the return probability of seven percentage points on average, *ceteris paribus*. The migration destination also seems to play a role. The location dummies show that migrants living in urban areas outside Kagera (mostly in Dar es Salaam and Mwanza) are almost 14 percentage points less likely to return than those who reside in rural parts of Kagera.

We use consumption level in 2004 as a proxy for migrants' income during the migration spell and find that it is largely negatively associated with the probability of returning.<sup>26</sup> Figure 2 plots the predictive margins at different points of the logged consumption distributions. We see that the predicted return probabilities are as high as 20% at the lower end of the 2004 consumption distribution among migrants and decrease to about 15% as we move toward the middle of the distribution. In line with the sign and significance of the consumption coefficients presented in Table 7, the figure exhibits a slight non-linear U shape. The turning point can be found at a logged consumption level of 13.5 – a point beyond the 75th percentile of the unconditional consumption distribution. After this point the return probability increases slightly. However, since we are now operating at the tail of the distribution, the confidence intervals are also spread out. In themselves, the graphical and numerical analyses do not provide adequate

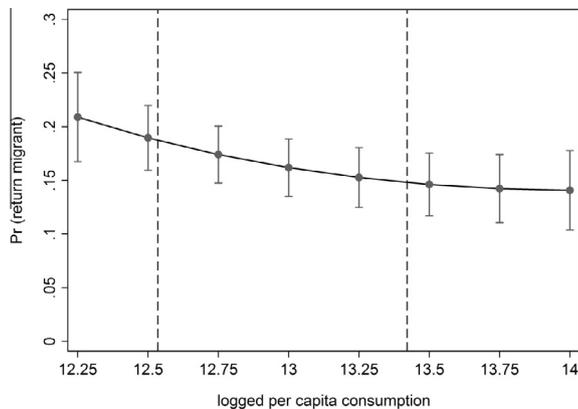


Figure 2. Predictive margins for different levels of consumption (Column 1 in Table 7) Note: The dashed lines represent the 25th and 75th consumption percentiles. The solid lines show the 95% confidence intervals for the point estimates. The estimated turning point is 13.5.

support for the hypothesis that there is a positive association between return probabilities and migrant consumption for the upper tail of the distribution. The consumption coefficients are more precisely estimated for women than for men.

The value of assets is another welfare indicator. We therefore also analyzed whether, after controlling for a host of potential confounding factors, there are any differences in accumulated assets between the two migrant groups. The results (not reported) confirm the descriptive statistics reported in Table 4: lower (logged) durable asset levels are associated with a higher probability of returning.<sup>27</sup> This suggests that – relative to continuing migrants – returnees are *not* sacrificing consumption to save on assets. It is worth repeating here that these wealth-related associations should not be interpreted as causal relationships. For example, continuing migrants may systematically differ in their unobserved characteristics (e.g., ability, motivation, risk preferences) from return migrants.

Finally, when we examine the life-event variables, it is clear that these are also important determinants of future return in the multivariate setting. Land inheritance is associated with an increase in the likelihood of returning. The coefficient is statistically significant at the 10% level in the pooled sample but is non-significant in the gender-disaggregated samples. The *p*-value in the male sample is 0.114, while in the female sample it is 0.474. It seems then that the statistically significant effect in the pooled sample is driven by men. This finding is consistent with the customary law that in this context often excludes daughters from inheriting land from their fathers (see e.g., De Weerdt, 2010). We also see that getting married is associated with an increase in the likelihood of returning for men, while women whose marriages end (through divorce or being widowed) are more likely to return. In line with the descriptive statistics reported in Table 5, migrants who reported a shock during 2004–10 are more likely to return than those who did not. However, this only holds for the female sample. Finally, it is worth noting that, as in the bivariate setting, shocks in the baseline village are not associated with either an increase or a decrease in the probability of returning.

All in all, we find that that being well-off and well-educated and, for women, in a stable marriage is associated with a lower probability of returning to the baseline village. This suggests that return migration is indeed linked with experiences of failure in migration where lack of education, lower consumption, lower asset holdings, negative economic shocks, and the ending of marriages are strong determinants.

## 7. DOES REMITTANCE BEHAVIOR PREDICT RETURNING?

In this penultimate empirical section, we focus on the question of whether remittance behavior during the migration spell predicts returning. We depart from the remittance literature by modeling (future) return as a function of remittances. Furthermore, in contrast to the situation with international migration, it is typical for internal migrants to both send and receive transfers from the home community. This is the case in our migrant sample: 35% of the migrants both sent money to and received transfers from the origin family. It is therefore important to consider both outgoing and incoming transfers, rather than to focus only on the transfers from the migrant to the home community.

The econometric specification is based on Eqn. (1). We append the transfer variables described in Table 4 to the right-hand side of the equation. We also add controls for variables that may jointly determine both return intentions and the level of net transfers, that is we control for the average wealth of the migrants' extended families in the baseline villages (proxied by their average consumption level measured in 2004), for migrants' network sizes (proxied by household sizes at baseline), and for the age and gender of the baseline household head. By including the (logged per capita) consumption of the migrant households as well as of the origin households in the baseline villages, we ensure that the estimated coefficients on the transfer variables are not driven by wealth differences among the migrants at their migration destination, or by wealth differences among their origin households.

Table 8 reports the marginal effects found on the basis of a probit model. As before, we show the results for the pooled sample as well as for the male and female sub-samples. Panel A shows the results based on a model where the transferred amounts are modeled using natural logarithmic transformation.<sup>28</sup> Interestingly, the coefficients for the logged transfer variables appear to be insignificant in the pooled model. The results for the male sample show that men who are supported by their relatives in the home village are more likely to return than other male migrants. There is no association between remittances and return probability in the female sample. Taken together, these results do not support the notion of strategic remitting as found in some of the earlier empirical literature (Amuedo-Dorantes & Pozo, 2006; de Brauw *et al.*, 2013; Lucas & Stark, 1985). Furthermore, the return does not seem to be associated with a successful migration experience during which a substantial part of the destination income is transferred back to the origin household.<sup>29</sup>

Although the level of remittances does not seem to predict future return, the act of remitting could in itself be a predictor, in that it ensures a connection to the baseline village. It may be more strategic for a migrant wishing to keep the return option open to send smaller amounts fairly regularly rather than an occasional larger amount. To investigate this, in Panel B of Table 8 we replace the logged remittance variables with simple dummies. As before, migrant men who receive transfers from the baseline village are found to be more likely to return than those who do not. However, we now find that female migrants are six percentage points more likely to return if they have been sending remittances to their former household members in the baseline village prior to the return. This effect is significant at the 10% level.

In Panel C of Table 8 we further split the remittance amounts into small (TZS 2,000 or less<sup>30</sup>) and larger transfers (more than TZS 2,000). This exercise reveals that female

Table 8. *Does remittance behavior during the migration spell predict return?*

	Sample means (Std. Dev.)	(1) Pooled	(2) Men	(3) Women
<i>Panel A</i>				
ln (transfers to relatives in BLV + 1)	4.403 (4.557)	0.003 (0.003)	-0.006 (0.006)	0.006 (0.004)
ln (transfers from relatives in BLV + 1)	3.537 (4.301)	0.004 (0.003)	0.018*** (0.005)	-0.001 (0.004)
<i>Panel B</i>				
=1 if sent transfers to BLV	0.49 (0.50)	0.036 (0.030)	-0.037 (0.051)	0.060* (0.034)
=1 if received transfers from BLV	0.41 (0.49)	0.039 (0.029)	0.140*** (0.045)	0.007 (0.034)
<i>Panel C</i>				
=1 if did not send anything to BLV	0.51 (0.50)	ref	ref	ref
=1 if sent less than TZS 2,000 to BLV	0.11 (0.31)	0.065* (0.037)	-0.096 (0.076)	0.109*** (0.040)
=1 if sent more than TZS 2,000 to BLV	0.38 (0.49)	0.026 (0.032)	-0.021 (0.053)	0.047 (0.036)
=1 if did not receive anything from BLV	0.59 (0.49)	Ref	Ref	Ref
=1 if received less than TZS 2,000 from BLV	0.11 (0.32)	0.069* (0.037)	0.012 (0.072)	0.078* (0.040)
=1 if received more than TZS 2,000 from BLV	0.30 (0.46)	0.029 (0.031)	0.172*** (0.047)	-0.030 (0.036)
Observations		1,014	333	681

Notes: 'Transfers' in Panel A refer to the total amounts of transfers (measured in 2004) to/from the linked households located in the baseline villages (BLV). In addition to the same covariates as in Table 7, the regressions in this Table further control for the average (log) consumption of stayer households in the network (measured in 2004), household size, and head's age, and gender (all measured in 1991). The standard errors for the marginal effects (Mfx) are calculated using the Delta Method. For other notes, see Table 7.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

migrants who remit small amounts to their extended family in the baseline village are more likely to return than those who remit larger amounts.<sup>31</sup> However, we also find that female migrants who receive small amounts are again more likely to return than others.<sup>32</sup> Given this observed symmetry in the impact of sending and receiving, we surmise that these trivially small transfers proxy for frequency of contact with the home community. As described in De Weerd (2001), the exchange of small gifts among women forms an important ritual in local culture. It seems then that women who maintain close links with their extended families are also more likely to return.

## 8. LIFE AFTER RETURN

How do the return migrants fare once they are back in their origin communities? Due to obvious reverse causality concerns, we refrain from studying this question in a multivariate setup, and instead focus on simple descriptive statistics that we believe will shed some light on this issue. From Table 9 we see that after relocating to their baseline villages, most returnees formed their own households. Almost 84% of them were either heads of their household or spouses of heads of households in 2010. We also find that male returnees are more likely to report being chronically ill (an illness lasting longer than 6 months) than continuing migrants and stayers.

Compared to the continuing migrants, the returnees seem to engage more in agricultural activities, either on their own farms or as casual laborers on farms of others. Interestingly, they do not seem to be more entrepreneurial than the stayers; if anything the opposite is true. Even without controlling for

the positive factors associated with selection into migration compared to stayers, raw average figures suggest that return migrants are less likely to own a non-farm business than stayers. This contrasts with what has been found in other studies, in which return migrants have been found to be important for the promotion of local development. For example, De Vreyer *et al.* (2010) find that international return migrants in West Africa gain a wage premium and that those who become entrepreneurs have a productive advantage. With respect to internal return migrants in China, Démurger and Xu (2011) find that internal return migrants are more likely to be self-employed entrepreneurs than their counterparts who remained at home.

The comparison of the consumption outcomes during the migration cycle strengthens the view that return migrants have often experienced failure of some kind in their migrations (see Tables 3, 4, and 9). From 1991–94 to 2004, migrants' consumption increased by 62%, while consumption among stayers only increased by 15%. Importantly, as documented in Table 4, the comparison between the two migrant groups reveals no statistically significant difference in their 2004 consumption. However, Table 9 shows that once back in their baseline villages, the return migrants have, on average, the same consumption level as the stayers, whereas the consumption of the continuing migrants remains considerably higher.<sup>33</sup>

However, if the migration spell was characterized by lower life satisfaction (Stillman, Gibson, McKenzie, & Rohorua, 2015), then the drop in consumption could be offset by improved subjective well-being after return. We investigate this using a Cantril (1965)-type ladder approach and compare the subjective well-being ladder score across the three groups

Table 9. *Descriptive statistics in 2010 by migration status*

	Migration status in 2010				
	Stayer	Continuing migrant (CM)	Return migrant (RM)	Difference CM – RM	Difference Stayer – RM
Household per capita annual consumption in 2010 Tanzanian shillings	474,299.6 (343,231)	652,114 (549,777)	452,694 (315,601)	199,420***	21,606
Head of household	0.606 (0.489)	0.400 (0.490)	0.469 (0.500)	–0.069	0.137***
Spouse of head of household	0.238 (0.426)	0.503 (0.500)	0.362 (0.482)	0.141***	–0.124***
Son/daughter of head of household	0.107 (0.309)	0.0398 (0.196)	0.102 (0.303)	–0.062***	0.005
Other relation to the head of household	0.0489 (0.216)	0.0573 (0.233)	0.0678 (0.252)	–0.0105	–0.019
Chronically ill	0.1426 (0.3498)	0.1556 (0.3626)	0.1921 (0.3951)	–0.0365	–0.0495*
Chronically ill women only:	0.1490 (0.3565)	0.1675 (0.3738)	0.1667 (0.3744)	0.0009	–0.0177
Chronically ill men only:	0.1384 (0.3456)	0.1304 (0.3374)	0.2319 (0.4251)	–0.101**	–0.0935**
Jobless	0.0140 (0.117)	0.0339 (0.181)	0.0226 (0.149)	0.0113	–0.009
In school	0.00399 (0.0631)	0.0175 (0.131)	0.00565 (0.0752)	0.01185	–0.002
Works on own farm	0.635 (0.482)	0.516 (0.500)	0.667 (0.473)	–0.151***	–0.032
Works on someone else's farm	0.0439 (0.205)	0.0316 (0.175)	0.0621 (0.242)	–0.031**	–0.0182
Non-farm worker	0.303 (0.460)	0.401 (0.490)	0.243 (0.430)	0.158***	0.060
Engaged in non-farm business	0.598 (0.491)	0.463 (0.499)	0.475 (0.501)	–0.012	0.123***
Life satisfaction ladder score (LSLS)	3.865 (1.520)	3.842 (1.386)	3.542 (1.365)	0.300***	0.323***
LSLS women only:	3.864 (1.546)	3.864 (1.441)	3.435 (1.320)	0.428***	0.428***
LSLS men only:	3.867 (1.504)	3.710 (1.266)	3.710 (1.426)	0.087	0.156
Household per capita value of durable assets	57,068 (276,981)	218,579 (1,197,648)	71,874 (468,090)	146,706***	–14,805
(log) change in per durable capita assets during 1991–2010	3.077 (5.578)	3.571 (5.698)	2.299 (5.663)	1.272***	0.778*

Notes: Standard deviations in parentheses. Significance of the difference in means based on a *t*-test for continuous variables and Pearson's  $\chi^2$ -squared test for binary variables.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

of panel respondents.<sup>34</sup> We find that female return migrants are less satisfied with their lives than both female stayers and continuing migrants. There are no statistically significant differences among males. The mean ladder value for female return migrants is 3.4, while for both female stayers and continuing migrants the corresponding value is 3.9. The differences with both groups are statistically significant at the 1% level and remain significant at least at the 5% level if we control for differences in age, years of schooling – and marital status in 2010. As before, we caution against a causal interpretation of this correlation. In particular, we cannot distinguish whether these women return because they were unhappy, whether they become unhappy after return, or whether they are just a group of people who are innately unhappy. A closer examination of this issue would require data on migrants' life satisfaction at the time of migration.

Unfortunately these questions were not asked in the 2004 round.

Finally, Table 3 shows that returnees come from households with a lower level of durable assets at the baseline than stayers and continuing migrants. By 2010, we see that while the continuing migrants remain wealthier in terms of assets, the gap between stayers and return migrants has closed (Table 9). Maybe then the initial out-migration decision of the returnees was, at least partly, motivated by asset accumulation? Previous literature in the context of international migration has found evidence that some return migrants are *target savers* who return after reaching a certain desired level of savings (Dustmann, 2003; Yang, 2006). In the last row in Table 9 we test whether there are any differences in changes of (logged) durable asset values during 1991–2010.<sup>35</sup> We do not find that return migrants have accumulated more assets than stayers

over the survey period, if anything the opposite is true. This – together with the evidence on remittance behavior – suggests that the initial out-migration decision of the return migrants was not motivated by asset accumulation.

## 9. CONCLUSIONS

In this paper we have shown that the extent of internal return migration in Kagera in north-western Tanzania during 2004–10 was 14–17%, depending on the sample chosen. This shows that although there is a high degree of permanency in the internal migration patterns analyzed in this paper, there are considerable reverse migration flows going back to their places of origin. The possibility of return remains for those whose migration spell did not fulfil the job or marriage expectations that prompted migration in the first place. Moreover, the migration patterns found in the data cannot simply be characterized by a linear rural–urban migration trajectory, but seem considerably more complex, gender-specific, and with a large rural-to-rural migration component.

Using a unique data set spanning 19 years and tracing both stayers, return, and continuing migrants during three rounds of surveys, we have provided evidence that although there are positive factors associated with selection into migration, selection into return migration is mostly associated with negative factors. A number of observations point to the notion that return is associated with an unsuccessful migration experience. Among the migrants, the returnees are those who have lower levels of schooling, they originate from households with lower levels of consumption and asset holdings compared to continuing migrants and these differences remain both during and after the migration spell. Indeed, an average return migrant in our sample has not reached any different levels of consumption or asset accumulation relative to the average non-migrant. Furthermore, women who experience misfortunes in marriage, in terms of divorce or widowhood, are more likely to return.

To some extent then, this evidence suggests that return represents a fallback option for the migrants. Despite this notion, our data do not provide support to the hypothesis that future return migrants engage in strategic remitting to keep their return options open. When we consider the remittance behavior during the migration spell, we find that men who are financially *supported* by their extended family at home in their village of origin are more likely to return than other migrants. While for women, we find that return is positively associated

with small *mutual* financial transactions between the migrants and their extended families in the baseline village. We interpret this as proxying for closeness with the extended family at home, and women who maintain close links with the home community are more likely to return home. After their return, the female returnees report lower levels of life-satisfaction compared to both stayers and to women who were still migrants in 2010. We also document that the return migrants do not engage more frequently in non-agricultural entrepreneurial activities than do the stayers; if anything the opposite is true.

While we cannot provide an unambiguous definition for what constitutes a success or failure in this context, these findings are in sharp contrast to the more positive narrative emerging from the international return migration literature. Our detailed descriptive analysis suggests that internal return migration in the Tanzanian context is not associated with any great welfare gains to the returnee herself who is at most faring as well – and possibly even worse – than those who never left the home community.

We end by drawing some lessons for future research. First, the findings in this study highlight the need to be careful when generalizing lessons across international and internal migration literatures. They also call for a gender-specific approach in studying internal migration: cultural norms and expectations are likely to differ for males and females and this may result in very different migration dynamics across the gender lines. Moreover, the data requirements for analyses of return migration are indeed substantial, both in terms of time span of the panel and the need to track migrants to their migration destinations and back. Although proxy respondents can be informative, they cannot be used for welfare comparisons in terms of consumption, asset holdings, or subjective wellbeing between continuing migrants, return migrants, and stayers. Therefore, the costs of maintaining tracking panels of individuals may be well worth it as they are the only means to study various important life events that occur between childhood and adulthood in contexts of mass-migration. Finally, the location of the study may explain some of the patterns observed in this paper. While by no means an atypical region in sub-Saharan Africa, Kagera is located far away from the commercial capital and the coastal areas of the country. It is possible that conducting a similar survey in a less remote or semi-urban location (with better economic opportunities) would yield somewhat different findings regarding who returns, and why. This would constitute an interesting path for future research.

## NOTES

1. This type of structural transformation, where countries move away from agriculture to more productive sectors of the Economy, is typically accompanied by internal migration from rural to urban areas (Collier & Dercon, 2014).

2. Economists have long been interested in internal migration, due to its historical centrality in economic development. Some of the key early contributions in this literature include Lewis (1954), Ranis and Fei (1961) and Chenery and Syrquin (1975).

3. Since the prospective migrants do not have perfect knowledge of the employment prospects, these flows can also reflect over-optimistic expectations by the prospective rural migrants (Lipton, 1980).

4. Only very few individuals from the original sample migrated outside Tanzania, permitting us to focus exclusively on internal migrants.

5. For reviews of this literature, see Rapoport and Docquier (2006), Adams (2006) and Yang (2011).

6. Comparisons of various welfare indicators with the 1991–92 Tanzanian Household Budget Survey suggest that KHDS provides a representative sample for the region during this period (Beegle, De Weerd, & Dercon, 2011).

7. This excludes 17 households in which all previous household members were deceased.

8. Individuals who joined the household after the first round of data collection in 1991–94 and were living in the household in 2004 are not considered to be panel respondents and therefore not tracked in 2010.
9. Other exceptions include the head of household (as identified by the household members), who was always considered to be a member. Contract servants, tenants and boarders, and their dependants, were not considered to be household members.
10. Kagera and large parts of Tanzania have two rainy seasons, in which agricultural production takes place. The long rainy season (*Masika*) in Kagera takes place between March and May, and the short one (*Vuli*) in October–December. This further helps to ensure that seasonal migrants are considered to be household members, and not migrants, in our survey.
11. Previous work on migration using these data has studied the impact of migration on living standards (Beegle *et al.*, 2011), the role of migration in risk sharing (De Weerd & Hirvonen, 2013), the impact of weather shocks on out-migration rates (Hirvonen, 2014) and links between marriage and migration decisions (Kudo, 2015).
12. The figures for migrants include individuals who were not found. It is very unlikely that these non-tracked individuals were residing in their baseline villages.
13. In both the 2004 and 2010 rounds, the tracking information reveals that only very few people migrated outside East Africa (less than 1%). Among the migrants to other East African countries, about 80% migrated to Uganda. Since our survey team tracked migrants to Uganda, we have reliable information about the circumstances of most of the international migrants as well.
14. These numbers do not include migration spells that took place between the 2004 and 2010 survey rounds, 14% thus represent a lower bound estimate of the magnitude of return migration.
15. This is our gross sample. In some of the analyses below, a few variables may contain a small number of missing observations, reducing the sample further.
16. Given the age restriction, most of our sample respondents had not yet completed their schooling at the time of the baseline survey round. A raw measure of education would consequently be highly correlated with age. To circumvent this problem, we follow Beegle *et al.* (2011) in computing the years of schooling relative to peers, and use that figure in our empirical analysis.
17. The consumption aggregates are temporally and spatially deflated using data from a price questionnaire included in the survey. All consumption values in this paper are expressed in annual per capita terms using 2010 Tanzanian shillings (TZS).
18. The 2004 survey collected information about cash and in-kind transfers in the previous 12 months between extended family members. By extended family we refer to household members who used to live together at the baseline in 1991–94.
19. Results are available upon request.
20. Here we could have also applied a multinomial probability model with three categories: stayers, continuing migrants, and return migrants. This would have extended the comparison to the stayers. Results from the multinomial probit model yield similar coefficients when comparing continuing migrants to return migrants. In addition, when the stayer's baseline characteristics are compared to those of continuing migrants we get similar results to the ones observed in column 1. This is not surprising given that the continuing migrants comprise more than 80% of the migrant cell in column 1.
21. We did not find evidence of a non-linear (quadratic) relationship between the baseline consumption and the probability of out-migrating or returning.
22. Veall and Zimmermann (2006) survey different goodness-of-fit measures for binary probability models and find that the McKelvey and Zavoina (1975)  $R^2$ -test corresponds most closely to the conventional  $R^2$  used in the OLS models.
23. This gender separation is also supported by the data. A likelihood ratio test akin to Chow (1960) with one degree of freedom yields a  $\chi^2$  test statistic of 4.70 ( $p = 0.030$ ).
24. The 51 baseline villages are in six Kagera districts.
25. The difference between the coefficients on the primary and secondary schooling dummies is statistically significant at the 1% level ( $p = 0.000$ ) in the pooled and male samples but insignificant in the female sample ( $p = 0.656$ ).
26. The 2004 consumption variable is missing for 30 migrants. In order to preserve the sample size in the regression we replace these missing observations with the (migrant) sample mean but add a dummy to the regression model to capture these migrants for whom data are missing. Fortunately, the coefficient on this “consumption missing” dummy appears insignificant in all columns, suggesting that the missing consumption observations are not (independently) correlated with the probability of return.
27. To conserve space, these results are omitted but available upon request from the authors.
28. The natural logarithmic transformation is warranted due to the fact that the distribution of the transfer variable is right-skewed. In addition, the transformation makes the point estimate less sensitive to outliers. We account for zeroes using the conventional method by adding 1 to the transferred amount before taking the logs.
29. We also tried modeling remittances using a net-remittance variable that has a negative value if the migrant received more than sent to his or her relatives at home. We also ran the regressions separately using only incoming and outgoing transfers. Both these approaches yield qualitatively identical findings with those in Panel A of Table 8. These results are available upon request.
30. Spread over a period of 12 months, TZS 2,000 is unlikely to represent a large sacrifice to the sender. This is evident when the sum is compared to the official poverty line figure. The latest official basic needs poverty line for rural Tanzania, calculated from the 2007 Household Budget Survey, is TZS 13,114 per 28 days (URT, 2009). The previous estimate from 2000/1 sets the same poverty line at TZS 6,996 (URT, 2002).
31. The difference between the estimated coefficients for the out-going transfers is statistically significant at the 10% level ( $p = 0.084$ ).
32. The difference between the estimated coefficients for the incoming transfers is statistically significant at the 1% level ( $p = 0.009$ ).
33. These observations on the consumption outcomes hold in both the male and female sub-samples.

34. More specifically, we asked each household to place themselves on a nine-step ladder measuring life-satisfaction, as follows: 'Imagine a nine-step ladder, and suppose we say that the top of the ladder, step 9, represents the best possible life for you and the bottom, step 1, represents the worst possible life for you. Where on the ladder do you feel this household stands at the present time?'

35. The variable capturing the changes in asset holdings is characterized with a number of extreme values resulting in long left and right-hand tails. Logging the asset variables makes the *t*-test less sensitive to these extreme values.

## REFERENCES

- Adams, R. H. (2006). International remittances and the household: Analysis and review of global evidence. *Journal of African Economies*, 15, 396–425.
- Ahlburg, D. A., & Brown, R. P. C. (1998). Migrants' intentions to return home and capital transfers: A study of Tongans and Samoans in Australia. *The Journal of Development Studies*, 35(2), 125–151.
- Alderman, H., Behrman, J., Kohler, H.-P., Maluccio, J. A., & Watkins, S. (2001). Attrition in longitudinal household survey data. *Demographic Research*, 5(4), 79–124.
- Amuedo-Dorantes, C., & Pozo, S. (2006). Remittances as insurance: Evidence from Mexican immigrants. *Journal of Population Economics*, 19(2), 227–254.
- Baland, J.-M., Guirking, C., & Mali, C. (2011). Pretending to be poor: Borrowing to escape forced solidarity in Cameroon. *Economic Development and Cultural Change*, 60(1), 1–16.
- Beauchemin, C. (2011). Rural–urban migration in West Africa: Towards a reversal? Migration trends and economic situation in Burkina Faso and Côte d'Ivoire. *Population, Space and Place*, 17(1), 47–72.
- Beegle, K., De Weerd, J., & Dercon, S. (2006). *Kagera health and development survey, 2004: Basic information document*. Mimeo, The World Bank.
- Beegle, K., De Weerd, J., & Dercon, S. (2011). Migration and economic mobility in Tanzania: Evidence from a tracking survey. *Review of Economics and Statistics*, 93(3), 1010–1033.
- Beegle, K., & Poulin, M. (2013). Migration and the transition to adulthood in contemporary Malawi. *The ANNALS of the American Academy of Political and Social Science*, 648(1), 38–51.
- Brown, R. P. C. (1997). Estimating remittance functions for Pacific Island migrants. *World Development*, 25(4), 613–626.
- Bryceson, D., Kay, C., & Mooij, J. (2000). *Disappearing peasants?: Rural labour in Africa, Asia and Latin America*. Intermediate Technology London.
- Cantril, H. (1965). *The pattern of human concerns* (Vol. 4). Cambridge Univ Press.
- Cassarino, J.-P. (2004). Theorising return migration: The conceptual approach to return migrants revisited. *International Journal on Multicultural Societies*, 6(2), 253–279.
- Castaldo, A., Deshingkar, P., & McKay, A. (2012). Internal migration remittances and poverty. *Migrating out of poverty RPC Working Paper 7*. Brighton, UK: Sussex Centre for Migration Research, University of Sussex. Original edition, Migrating out of poverty RPC working paper.
- Chenery, H. B., & Syrquin, M. (1975). *Patterns of development, 1950–70*. New York, NY: Oxford University Press.
- Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica: Journal of the Econometric Society*, 591–605.
- Christiaensen, L., De Weerd, J., & Todo, Y. (2013). Urbanization and poverty reduction – The role of rural diversification and secondary towns. *Agricultural Economics*, 44(4–5), 435–447.
- Collier, P., & Dercon, S. (2014). African agriculture in 50 years: Smallholders in a rapidly changing world? *World Development*, 63, 92–101.
- Constant, A. F., Nottmeyer, O., & Zimmermann, K. F. (2013). The economics of circular migration. In: *International handbook on the economics of migration* (p. 55).
- de Brauw, A., Mueller, V., & Lee, H. L. (2014). The role of rural–urban migration in the structural transformation of Sub-Saharan Africa. *World Development*, 63, 33–42.
- de Brauw, A., Mueller, V., & Woldehanna, T. (2013). Motives to remit: Evidence from tracked internal migrants in Ethiopia. *World Development*, 50, 13–23.
- de Laat, J. (2014). Household allocations and endogenous information: The case of split migrants in Kenya. *Journal of Development Economics*, 106, 108–117.
- De Vreyer, P., Gubert, F., & Robilliard, A.-S. (2010). Are there returns to migration experience? An empirical analysis using data on return migrants and non-migrants in West Africa. *Annals of Economics and Statistics/Annales d'Economie et de Statistique*, 307–328.
- De Weerd, J. (2001). Community organisations in rural Tanzania: A case study of the community of Nyakatoke, Bukoba Rural District. *The Nyakatoke series, report (3)*.
- De Weerd, J. (2010). Moving out of Poverty in Tanzania: Evidence from Kagera. *Journal of Development Studies*, 46(2), 331–349.
- De Weerd, J., & Hirvonen, K. (2013). Risk sharing and internal migration. *World Bank policy research working paper (6429)*.
- De Weerd, J., Beegle, K., Lilleør, H. B., Dercon, S., Hirvonen, K., Kirchberger, M., et al. (2012). Kagera health and development survey 2010: Basic information document. *Rockwool Foundation working paper series no. 46*.
- Démurger, S., & Xu, H. (2011). Return migrants: The rise of new entrepreneurs in rural China. *World Development*, 39(10), 1847–1861.
- Dorosh, P., & Thurlow, J. (2014). Can cities or towns drive African development? Economywide analysis for Ethiopia and Uganda. *World Development*, 63, 113–123.
- Dustmann, C. (2003). Return migration, wage differentials, and the optimal migration duration. *European Economic Review*, 47(2), 353–369.
- Dustmann, C., & Kirchcamp, O. (2002). The optimal migration duration and activity choice after re-migration. *Journal of Development Economics*, 67(2), 351–372.
- Dustmann, C., & Mestres, J. (2010). Remittances and temporary migration. *Journal of Development Economics*, 92(1), 62–70.
- Falkingham, J., Chepngeno-Langat, G., & Evandrou, M. (2012). Outward migration from large cities: Are older migrants in Nairobi 'returning'? *Population, Space and Place*, 18(3), 327–343.
- Gmelch, G. (1980). Return migration. *Annual Review of Anthropology*, 135–159.
- Hare, D. (1999). 'Push' versus 'pull' factors in migration outflows and returns: Determinants of migration status and spell duration among China's rural population. *The Journal of Development Studies*, 35(3), 45–72.
- Harris, J. R., & Todaro, M. P. (1970). Migration, unemployment and development – A Two-Sector Analysis. *American Economic Review*, 60(1), 126–142.
- Hirvonen, K. (2014). Temperature changes, household consumption and internal migration: Evidence from Tanzania. *Unpublished manuscript*.
- Hoddinott, J. (1994). A model of migration and remittances applied to Western Kenya. *Oxford Economic Papers-New Series*, 46(3), 459–476.
- Hu, F., Xu, Z., & Chen, Y. (2011). Circular migration, or permanent stay? Evidence from China's rural–urban migration. *China Economic Review*, 22(1), 64–74.
- Jakiela, P., & Ozier, O. (2012). Does Africa need a rotten kin theorem? Experimental evidence from village economies. *World Bank policy research working paper (6085)*.
- Junge, V., Revilla Diez, J., & Schätzl, L. (2013). Determinants and consequences of internal return migration in Thailand and Vietnam. *World Development* (in press).
- King, R. (1978). Return migration: A neglected aspect of population geography. *Area*, 175–182.
- King, R. (1986). *Return migration and regional economic problems*. London: Croom Helm Ltd.
- Kudo, Y. (2015). Female migration for marriage: Implications from the land reform in rural Tanzania. *World Development*, 65, 41–61.
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *The Manchester School*, 22(2), 139–191.
- Lipton, M. (1980). Migration from rural areas of poor countries: The impact on rural productivity and income distribution. *World Development*, 8(1), 1–24.

- Lucas, R. E. B. (2007). Migration and rural development. *Electronic Journal of Agricultural and Development Economics*, 4(1), 99–122.
- Lucas, R. E. B., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *The Journal of Political Economy*, 901–918.
- Marchetta, F. (2012). Return migration and the survival of entrepreneurial activities in Egypt. *World Development*, 40(10), 1999–2013.
- McKay, A. (2013). Growth and poverty reduction in Africa in the last two decades: Evidence from an AERC growth-poverty project and beyond. *Journal of African Economics*, 22(Suppl. 1), i49–i76.
- McKelvey, R. D., & Zavoina, W. (1975). A statistical model for the analysis of ordinal level dependent variables. *Journal of Mathematical Sociology*, 4(1), 103–120.
- McMillan, M. S., & Harttgen, K. (2014). What is driving the 'African Growth Miracle'? *National Bureau of Economic Research (NBER) No. 20077*.
- McMillan, M., Rodrik, D., & Verduzco-Gallo, Í. (2014). Globalization, structural change and productivity growth, with an update on Africa. *World Development*, 63, 11–32.
- Merkle, L., & Zimmermann, K. F. (1992). Savings, remittances, and return migration. *Economics Letters*, 38(1), 77–81.
- Owuor, S. O. (2007). Migrants, urban poverty and the changing nature of urban-rural linkages in Kenya. *Development Southern Africa*, 24(1), 109–122.
- Piotrowski, M., & Tong, Y. (2010). Economic and non-economic determinants of return migration: Evidence from rural Thailand. *Population (english edition)*, 65(2), 333–348.
- Piracha, M., & Vadean, F. (2010). Return migration and occupational choice: Evidence from Albania. *World Development*, 38(8), 1141–1155.
- Potts, D. (2009). The slowing of sub-Saharan Africa's urbanization: Evidence and implications for urban livelihoods. *Environment and Urbanization*, 21(1), 253–259.
- Potts, D. (2010). *Circular migration in Zimbabwe & contemporary Sub-Saharan Africa*. Woodbridge, UK: Boydell & Brewer.
- Potts, D. (2012). Challenging the myths of urban dynamics in sub-Saharan Africa: The evidence from Nigeria. *World Development*, 40(7), 1382–1393.
- Potts, D. (2013). Rural-urban and urban-rural migration flows as indicators of economic opportunity in Sub-Saharan Africa: What do the data tell us? *Migrating out of poverty research programme working paper*.
- Radelet, S. C. (2010). *Emerging Africa: How seventeen countries are leading the way*. Washington, DC: Center for Global Development Books.
- Ranis, G., & Fei, J. C. H. (1961). A theory of economic development. *The American Economic Review*, 51(4), 533–565.
- Rapoport, H., & Docquier, F. (2006). The economics of migrants' remittances. In S.-C. Kolm, & J. M. Ythier (Eds.), *Handbook of the economics of giving, altruism and reciprocity* (pp. 1135–1198). Elsevier.
- Rosenzweig, M. R., & Stark, O. (1989). Consumption smoothing, migration, and marriage – Evidence from rural India. *Journal of Political Economy*, 97(4), 905–926.
- Skeldon, R. (2012). Going round in circles: Circular migration, poverty alleviation and marginality. *International Migration*, 50(3), 43–60.
- Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *American Economic Review*, 75(2), 173–178.
- Stillman, S., Gibson, J., McKenzie, D., & Rohorua, H. (2015). Miserable migrants? Natural experiment evidence on international migration and objective and subjective well-being. *World Development*, 65(January), 79–93.
- Tong, Y., & Piotrowski, M. (2010). The effect of remittances on return migration and its relation to household wealth: The case of rural Thailand. *Asia-Pacific Population*, 25(2), 53.
- URT. (2002). Household Budget Survey 2000/1 – Tanzania Mainland. The United Republic of Tanzania (URT).
- URT. (2009). Household Budget Survey 2007 – Tanzania Mainland. The United Republic of Tanzania (URT).
- URT. (2012). National Sample Census Of Agriculture 2007/2008: Regional Report – Kagera Region (Vol. V) The United Republic of Tanzania (URT).
- URT. (2013). Population and Housing Census: Population Distribution by Administrative Units; Key Findings. National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar. United Republic of Tanzania (URT).
- Vadean, F., & Piracha, M. (2010). *Circular migration or permanent return: What determines different forms of migration?* (Vol. 8). Emerald Group Publishing Limited.
- Veall, M. R., & Zimmermann, K. F. (2006). Pseudo-R2 measures for some common limited dependent variable models. *Journal of Economic Surveys*, 10(3), 241–259.
- Wang, W., & Fan, C. C. (2006). Success or failure: Selectivity and reasons of return migration in Sichuan and Anhui, China. *Environment and Planning A*, 38, 939–958.
- World Bank (2004). *User's guide to the Kagera health and development survey datasets*. Mimeo, The World Bank.
- Yang, D. (2006). Why do migrants return to poor countries? Evidence from Philippine migrants' responses to exchange rate shocks. *The Review of Economics and Statistics*, 88(4), 715–735.
- Yang, D. (2011). Migrant remittances. *The Journal of Economic Perspectives*, 129–151.
- Young, A. (2012). The African growth miracle. *Journal of Political Economy*, 120(4), 696–739.
- Zhao, Y. (2002). Causes and consequences of return migration: Recent evidence from China. *Journal of Comparative Economics*, 30(2), 376–394.

## APPENDIX

Table 10. Impact of restrictions on sample size

	Total
1. Observations in Figure 1	5,078
2. Out-migrated after 2004	4,389
3. Appeared in all 3 survey rounds	3,282
4. Not polygamists	3,263
5. Aged 17–45 years in 2004	2,110
6. Not in school in 2004	2,035

Note: Each row represents the remaining number of individuals after the sample restriction described in the first column.