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ABSTRACT

When Distance Drives Destination, Towns Can Stimulate Development*

While city migrants see their welfare increase much more than those moving to towns, many more rural-urban migrants end up in towns. This phenomenon, documented in detail in Kagera, Tanzania, begs the question why migrants move to seemingly suboptimal destinations. Using an 18-year panel of individuals from this region and information on the possible destinations from the census, this study documents, through dyadic regressions and controlling for individual heterogeneity, how the deterrence of further distance to cities (compared to towns) largely trumps the attraction from their promise of greater wealth, making towns more appealing destinations. Education mitigates these effects (lesser deterrence from distance; greater attraction from wealth), while poverty reduces the attraction of wealth, consistent with the notion of urban sorting. With about two thirds of the rural population in low-income countries living within two hours from a town, these findings underscore the importance of vibrant towns for inclusive development.

JEL Classification: J61, O15, O55

Keywords: Africa, internal migration, urbanization, secondary towns

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1 Introduction

In most of the developing world wealth is unequally spread geographically and increases with city size (Ferre et al. 2012; Young, 2013; Gollin et al., 2021). This suggests migration as an important avenue for growth and poverty reduction, affecting both those who move (McKenzie et al. 2010, Beegle et al. 2011, Bryan et al. 2014) and those who remain behind (Giles and Yoo 2007, Kinnan et al. 2018, De Weerdt and Hirvonen 2016, Morten 2019). Moves to big cities are, on average, much more lucrative than moves to small towns. But survey data show that few people make it to the cities and many more migrants end up with more modest income gains realised through moves to smaller towns (Christiaensen et al., 2019). A key question is therefore how migrants choose their destinations: why do migrants move to seemingly sub-optimal locations?

One consideration is that there are perhaps a number of non-monetary amenities, such as health, public goods, crime or pollution that serve to compensate for the lower consumption levels (Dustmann and Okatenko, 2014). Gollin et al. (2021) argue against this possibility by showing that in 20 developing countries and across a range of non-monetary amenities the urban gradient remains clearly visible: practically every amenity they can measure seems to improve with population density. The authors interpret this as evidence in favour of a friction model in which people's mobility is somehow restricted, which allows the spatial disequilibrium to persist. Support for this view from our study setting in Tanzania comes from Ingelaere et al. (2018) who show that there is a widespread desire to move out of the rural areas and into larger urban agglomerations, especially by younger people. But despite their acute awareness of the spatial differences in living standards, for the average young person living in a remote village, moving is also considered a daunting, sometimes impossible, endeavour.

Much of the migration literature over the past couple of decades has further emphasized the importance of selection, with the younger, better educated and richer found more likely to move. They are often better equipped to overcome migration costs and could stand to benefit more from the employment opportunities for the skilled that urban areas offer (Young, 2013; Lucas 2015; Hamory, 2020). As those categories are also smaller in number, this could help explain the smaller number eventually making it to the city, compared to the towns.

We use household survey and census data from Tanzania to explore our key question, why many more migrants move to seemingly sub-optimal towns. As in other settings documented in the literature, the data confirm the existence of rising living standards across the urban spectrum, from rural areas over towns to cities. That urban gradient is visible both in terms of assets and housing wealth as well as amenities. Overlaying the wealth distributions, we find that living standards of the 90th percentile in rural areas still lie below those of the 10th percentile in urban areas.

This is problematic for the basic Todaro (1969) model, which assumes that the rural wage needs to equal the weighted average of the high and low urban wage, with the weights being the likelihood of getting each. Kanbur et al. (2019) consider an extension of the basic model that introduces migration costs.[1] These can bring the Todaro model back in line with the empirical observation in our setting that the rural wage is lower than both the lower and higher urban wage. Their second extension to the model is to consider multiple destinations (town or city), each characterised by different formal and informal destination wages (Kanbur et al., 2019).[2]

Guided by this model we use a novel data set on migrants for whom we have pre-migration and post-migration survey data to explore how migration costs and expected income at destination affect destination choice. At baseline in the early 1990's the respondents all lived in Kagera, a large, remote and primarily rural region in the north-western part of Tanzania. By 2010 about half of those who were still alive had moved out to other villages, towns or cities. We use the pre-migration survey data to create a dyadic dataset of all possible migrant-destination pairs, out of which the migrant will have chosen one and not chosen all others. We then use census data to construct measures of the basic Todaro building blocks (expected wages and migration costs), allowing us to test the relative importance of each.

Particularly, we proxy migration costs with distance. The use of distance as a proxy for

[1]Migration costs are broadly defined here, including transport costs but also the risk associated with the move as well as set up and jobs search costs at the destination, and so forth. They typically increase with distance.

[2]Similarly, Lagakos et al. (2020) emphasize the importance of heterogeneous migration costs in understanding observed migration patterns and returns across destinations (and individual attributes).

migration costs (broadly defined) and migration deterrent has a long history in the migration literature (Ravenstein, 1885; Stewart, 1941; Schwarz, 1973; Lucas, 2001; Lucas 2015).[3] Migration networks (such as the presence of a family member at destination) could help overcome migration costs, even over large distances (Munshi, 2003; Bao et al. 2007; Stuart and Taylor, 2019), though the presence of a migration network is often itself inversely related with distance.

The results confirm that destinations that are closer and have higher local living standards are more likely to be chosen, but distance is, by quite some margin, the most important determinant. Expected wages would need to go up by 5.7 standard deviations to offset a 1 standard deviation increase in distance. Education increases the attractiveness of higher living standards at destination. Nonetheless, simulations show that towns still trump cities in our sample over most of the education gradient. Only after completing upper secondary education do cities become more attractive. The poor, on the other hand, are even more deterred by the effects of distance, while being less inclined to respond to the benefits from a higher (expected) living standard at destination. With the larger share of rural populations poorer, less educated and living closer to towns than to large urban centres, it does not surprise that a smaller than expected share of rural migrants eventually ends up in the larger, more distant cities.

The paper proceeds as follows. We first present the data and characterize the study area of Kagera and its migrants in more detail (section 2). Section 3 motivates the regression specification and identification strategy analyzing the effects of distance and destination attractiveness on destination choice, as well as how they change given key migrant characteristics. Section 4 presents the empirical results and interprets them with respect to the observed migration patterns of Kagera's population (more to towns than to cities). Section 5 concludes.

[3] Ravenstein's first law of migration, formulated in 1885 and derived from observing place of birth in the British 1871 and 1881 censuses, states that most migrants move only a short distance (Lucas, 2001). The importance of distance for migration has further been generalized into a gravity model of migration, in which the number of people migrating is inversely proportional to the square of the distance between origin and destination and proportional to the product of their populations (Stewart, 1941).

2 Context, data and the urban gradient

This section introduces our two data sources: Kagera Health and Development Survey (KHDS) and the 2002 Tanzania Population and Housing Census. Within each we demonstrate rising living standards from villages across towns to cities, which we refer to as the urban gradient. In KHDS the gradient is demonstrated for changes in migrant welfare in a panel data set, while in the census it is shown to hold cross-sectionally for all residents of these areas.

2.1 Kagera

The migrants we study all originate from the Kagera region of Tanzania. Figure 1 provides a map showing where the region is situated within Tanzania. Kagera, being primarily dependent on agriculture and far away from the ocean, is badly connected to the global economy. It is typical of remote parts of Africa where policy prescriptions for economic growth are elusive (De Weerdt, 2010). Given small plot sizes (typically 3 or 4 acres per household) and relatively low-productivity agriculture, internal migration will be an important aspect of growth and poverty reduction for this region.

In the context of this paper it is useful to highlight some of the geographical specificities of the Kagera region, which may be relevant for the study of desination choice and in particular whether urban migrants end up in large cities or smaller towns. The top panel of Figure 1 shows the baseline villages from the KHDS survey where all our respondents originate from (the survey is described in the next subsection) and the bottom panel shows the urban areas in the country, split into small towns (10-100k), big towns (100-500k) and cities (>500k).

We see that Kagera lies at the periphery of the country and has, within its borders, only one large town (Bukoba) and no cities. The closest city is Mwanza on the southern shores of Lake Victoria, while Tanzania's prime city, Dar es Salaam, is located at the other end of the country. In short, Kagera is a relatively remote region and that should be kept in mind when analysing urban destination choices of migrants originating from Kagera.

2.2 KHDS

The Kagera Health and Development Survey (KHDS) is a study into the long-run wealth dynamics of households and individuals within North West Tanzania. This study entails the resurvey of a panel of households, originally interviewed for 4 rounds from 1991 to 1994. Resurveys were then organised in 2004 and 2010. A multi-topic household questionnaire is administered to all split-off households originating from the baseline households, including those that have moved out of the baseline location.

This constitutes one of the longest-running African panel data set of this nature and offers an unprecedented set of research opportunities for examining long-run (nearly 20 years) trends in and mechanisms of poverty persistence and economic growth in rural households. As the children of the original respondents have now formed their own households, intergenerational and migration issues can be addressed by the survey data. The data is of particularly high quality and the 2010 round of the survey was conducted using electronic survey questionnaires administered on handheld computers, with automated skips and validation checks run during the interview when errors could be corrected at source. The resulting improvements in data quality have been formally assessed by Caeyers et. al. (2012).

KHDS has maintained a highly successful tracking rate. Table 1 shows that in 2010 88% of the original 6353 respondents had either been located and interviewed, or, if deceased, sufficient information regarding the circumstances of their death collected.

In 2010, households were found in three cities: Dar es Salaam, Mwanza and Kampala. This is defining cities as agglomerations with more than 500,000 inhabitants. The 2012 census puts the population of Dar es Salaam at 4.36m and Mwanza at 0.7m.[4] There are a further 21 respondents who moved to areas that, while administratively recognized within Tanzania as cities, have a population below 500,000 (Arusha, Tanga and Mbeya). Results do not change

[4] For Mwanza this is the sum of Nyamagana Municipal Council (363,452) and Ilemela Municipal Council (343,001). More detailed analysis using 2002 census data (Wenban-Smith and Ambroz, 2014) showed that while the municipal districts of Mwanza counted a population of 596,885, only 65% of these lived in strictly urban wards (others lived in rural or mixed wards). The current census does not yet disclose the new categorisations, but applying the same rural-urban ration of 65% to the current census figure gives us an urban population of 456,631. This estimate lies under 500k, but we decide to treat Mwanza as a city based on the district-level figures.

if we change the definition from population-based to administrative. All KHDS locations were matched with their census ward-level classification, which distinguish between urban, mixed and rural areas. All urban and mixed areas are classified as towns (or cities if in Mwanza, Dar or Kampala); all rural areas as rural. The KHDS CAPI application had a series of conditional drop-down menus where the interviewer chose the region, district, ward and village in which the household was located. These were pre-populated with the exact census locations and codes, so that the matching exercise is perfect. The census classification is based on 2002 data and the average migrant respondent in our survey moved in 2003.

The consumption data originate from extensive food and non-food consumption modules in the survey, carefully designed to maintain comparability across survey rounds and controlling for seasonality. The consumption aggregate includes home produced and purchased food and non-food expenditure. The non-food component includes a range of non-food purchases, as well as utilities, expenditure on clothing/personal items, transfers out, and health expenditures. Funeral expenses and health expenses prior to the death of an ill person were excluded. Conservatively, rent is also excluded from the aggregate to avoid large differences in prices for similar quality housing being the driver of any measured urban-rural disparities. The aggregates are temporally and spatially deflated using data from the price questionnaires included in each survey round. As household size may differ between urban and rural households, consumption is expressed in per adult equivalent units rather than per capita. The poverty line is set at 326,474.2 Tanzanian shillings (TSh)[5], calibrated to yield for our sample of respondents who remained in Kagera the same poverty rate as the 2007 National Household Budget Survey estimate for rural areas (37.6 percent).

Unless otherwise indicated the analysis below is conducted at the individual level.

Decomposition analysis by Christiaensen et al. (2019), illustrated again in Table 2, shows that moves to cities are more lucrative for those who make them, but that many more migrants end up in secondary towns. Furthermore, while there was similarly clear stochastic dominance between future town migrants and future city migrants by 2010, there was no stochastic dominance during the early nineties at baseline (Figure 2), suggesting that town and city migrants were observationally equivalent (at least by consumption per capita). For

[5] At the time of the survey one US dollar was worth around TSh 1,450

migrants to rural areas the stochastic dominance was already present at baseline and gets exacerbated by the end line (except for consumption per capita values to the far right of the distribution, where one would unlikely want to place a poverty line). There is a clear urban gradient to poverty, just as in Ferre et al. (2012) and Lanjouw and Marra (2018).

2.3 Census

The KHDS survey informs us on the plight of the average Kagera migrant at the different destinations. This section considers the general population characteristics across the whole of Tanzania. In 2002, about half-way between the baseline and endline KHDS rounds, the Tanzania Population and Housing Census was conducted. The Integrated Public Use Microdata Series (IPUMS) provides access to the long form census data on over 3.7 million individuals in the country, which can be disaggregated by district, and within each district by rural and urban areas, giving a total of 254 geographical areas to potentially consider (Minnesota Population Center, 2014).

The long form sample contains basic census information, such as the age and sex of all members, from which we can derive household size and a dependency ratio. Information on housing characteristics includes the number of bedrooms in the dwelling and the materials out of which the roof, walls and floors are made. Further details on utilities allow us to calculate who has electricity, piped water and a flush toilet. We further know about asset ownership. For each individual there is information on their employment status and the industry or sector they work in. The location means for each variable are presented in Table 3.

Many of the variables collected reflect the wealth of the household. Lacking weights, such as prices, to meaningfully add up the various wealth components available in our data, we reduce the dimensionality of our wealth data by extracting the first principal component of a number of housing, utility and asset outcomes of sampled households.

We use the following variables for the principal component analysis: number of bedrooms per person, whether the dwelling has an iron sheet roof (or better), walls from baked bricks (or better), a tile or cement floor, electric lighting, piped water, a flush toilet and whether it owns a radio, owns a phone and owns an iron.

Our asset index combines housing and other assets with amenities. Yet, amenities (such as contentment with local public services and area security) often explain more of people's intention to migrate than satisfaction with their personal assets and living standards (Dustmann and Okatenko, 2014). To help distinguish between the effect of these two types of wealth (private/public) on attracting migrants, we also create a separate asset index based on variables that relate purely to housing and other asset wealth (number of bedrooms per person, type of roof, wall, or floor and ownership of radio, iron and phone), as well as an amenities index based purely on the subset of variables relating to amenities (availability of electric lighting, piped water and flush toilet).

Housing, utilities and assets outcomes improve as one moves from villages over towns to cities, in line with what Gollin et al. (2021) document for much of the developing world (Table 3). This is reflected in the constructed wealth index which is much higher in towns than in rural areas and higher still in cities compared to towns (see also Figure 2). We also see that, with respect to the constructed wealth index, the 10th percentile in cities already outperforms the 90th percentile in rural areas. More broadly, the town distribution of wealth mostly dominates this of rural areas, while the city wealth distribution dominates both (Figure 3).

Furthermore, urban households are smaller, younger and their members have more years of formal education. City households are also slightly more educated than town households (0.6 more years of formal education on average – maximum years of education in the household is 8.64 years on average in the city versus 8.01 in towns). The census asks whether the household experienced any death among its members in the 12 months preceding the interview, followed by a question on the sex and age of the deceased. Somewhat fewer urban households were bereaved and in cities the age of the deceased is higher, although the size effects are not large. Very few rural households have a non-seasonally employed member, but respectively 24% and 38% of town and city households do. Finally, while only 9% of households have a member working outside of the agricultural sector in rural areas, 54% and 74% do so in towns and cities.

3 Determinants of destination choice

3.1 The extended Todaro model

The previous analysis has highlighted at least two stylized facts, which are not in line with the basic Todaro (1969) model. First, urban welfare levels clearly dominate rural welfare levels, across the whole distribution. This is true when we look at data on those who migrate to these locations in the KHDS, or on all those residing there in the census data. In the census, for example, Table 3 shows the constructed wealth index in the rural areas going from -0.99 at the 10th percentile to 0.29 at the 90th percentile, while in cities these same percentiles span 0.33 to 2.73: even the lowest city welfare level, measured this way, outperforms that of the highest rural ones. Similarly, KHDS shows that moves to towns or cities clearly outperform not moving or moves to rural areas.

These facts are problematic for the original Todaro model, as the model requires rural wages to equate the expected city wages in equilibrium. Kanbur et al. (2019) extend the model by introducing a cost to moving for each migrant (financial, social, psychological,...). The equilibrium condition now requires that rural wages plus migration costs need to equal the expected urban wage, so that there is a range of costs that can make the Todaro model fit the stylized facts.

Second, both KHDS and the census show that the economy is not dualistic, but displays a clear gradient from villages, over towns to cities. Thus, the second extension the authors make to the Todaro model is the introduction of multiple destinations.

The model highlights the role of a number of key variables when it comes to destination choice: the cost of moving and the destination wages. The next section introduces these variables into a regression framework to assess their relative importance and their interaction with poverty, education and age.

We use distance to destination as a proxy for the cost of moving. While the use of distance has been somewhat ignored in the more recent development literature, it has a long tradition in migration (Lucas, 2001). The focus on distance as proxy for migration deterrent in this study, is further motivated by the work of Ingelaere et al. (2018), who conduct detailed life history interviews with 75 respondents sampled from the Kagera Health and Development Survey (KHDS), the same survey underlying the analysis in this paper. They show how respondents themselves, when narrating their life histories, talked about distance as an impediment to moving: it raises the cost of moving, it complicates returning home to visit or when things go wrong at destination, it makes it difficult to maintain ties, can erode informal property rights and typically comes with higher cultural barriers to moving.

3.2 Econometric specification

If we are to understand destination choice among migrants then it is as important to know where the migrant moved to as it is to know which potential destinations the migrant did *not* migrate to. Within the census we can identify 78 locations that were destinations for KHDS migrants, representing either urban or rural locations in 57 districts. Our analysis makes the assumption that these 78 locations are the potential destinations for our sample of migrants. They revealed themselves as practically feasible destinations for at least one of our migrants.

Each of the migrants in our sample has chosen to move to one potential destination; and has therefore also chosen *not* to move to the 77 other potential destinations. In order to understand that choice better, we create a dyadic data set that contains 78 observations for each migrant i; one observation for each potential destination d. Our dependent variable Y_{id} is a dummy equal to one if i was found in location d during the last survey round and zero otherwise. Our analysis will consist of studying the correlates of Y_{id}. This kind of dyadic analysis has been used before to understand destination choice by Fafchamps and Shilpi (2013). We follow these authors in analysing only those who have actually migrated in order to not confound the destination choice with the migration choice. We also analyse separately those who have moved to rural areas and those who have moved to urban areas.

Destination choice Y_{id} will depend on the observed and unobserved characteristics of the individual (including those related to household and community circumstances), the destination (such as the standard of living the migrant would expect to achieve at destination) and the relation between the individual and the location (such as distance to destination or the interaction between the individual's wealth level and the destination's wealth level).

Our data set-up has 78 observations per individual, which allows us to address observed and unobserved individual characteristics of the individual by including an individual fixed effect α_i in the regression. Another econometric concern is whether the structure of the error terms is influenced by the baseline survey's two-stage sampling design. We therefore report standard errors that account for clustering within each of the 51 KHDS villages of origin, which were the primary sampling units in the baseline survey (Abadie et al., 2017).

The key independent variables of interest include the characteristics of the destination district in vector $\mathbf{D}_d$ and relational variables in vector $\mathbf{R}_{id}$ that are specific to the $i - d$ pair, such as distance of d to i's baseline village and how the effect of destination characteristics changes with individual characteristics such as education interacted with destination characteristics. We do not include any individual, household or community level effects. These are controlled for by the inclusion of the individual fixed effect α_i, which helps protect our estimated coefficients on the destination and relational variables of interest from bias due to unobserved individual heterogeneity (selection).

We then estimate the following equation:

$$Y_{id} = \mathbf{D}_d\beta_1 + \mathbf{R}_{id}\beta_2 + \alpha_i + \epsilon_{id}, \tag{1}$$

where ϵ_{id} is an error term.

In our most basic regression set-up we populate $\mathbf{D}_d$ average wealth at destination and $\mathbf{R}_{id}$ with the natural logarithm of the km distance of the destination district to the baseline community.

4 Results

4.1 Distance is not dead

In the first column of Table 4 we estimate Equation 1 on a dyadic data set that links all migrants to all destinations. Consistent with the insights from the literature, both wealth and distance are significantly correlated to destination choice, with opposite signs: the further away is the potential destination, the less likely it will be chosen; the wealthier the location is, the more likely it will be chosen. The (absolute) magnitude of the distance coefficient is, however, 4 times that of the wealth coefficient. Multiplying those coefficients by the standard deviations of the corresponding variables in the dyadic data set (0.97 for distance and 0.71 for wealth), we see that average wealth at destination would need to go up by 5.7 standard deviations to offset the negative effect of a one standard deviation increase in distance.

These results hold controlling for individual characteristics. This does, however, not exclude that the deterring and appealing effects of distance and wealth, respectively, differ by individual characteristics. We explore this by interacting distance and wealth at destination with baseline poverty status (1=poor) (Table 4, column 2), years of formal education (column 3), and baseline age (column 4). Coming from a poor household increases the negative effect of distance and decreases the attraction of high wealth at destination. Similarly, education attenuates the friction related to distance and enlarges the pull of high wealth areas, consistent with high wealth areas offering more opportunities for higher educated people. Interactions with age show that older people display a slightly lower pull-effect of wealth and are equally affected by distance as young people.

Our wealth index includes both housing and other asset wealth, as well as amenities. We investigate whether either of these components dominates destination choice and enter separate indices for each of these components of wealth as well as their interaction (column 5). Only the interaction of the two indices is statistically significant, suggesting that neither the assets nor the amenities component dominate the effects of the wealth index, but both are complementary to each other.

Finally, we explore whether distance and wealth have different effects depending on whether the potential destination is urban or rural (column 6). To do so, we include a dummy variable indicating the urban status of the destination as a regressor, as well as its interactions with distance and wealth. Urban destinations are substantially less likely to be chosen, but controlling for whether the destination is urban or rural, we do not see any differential effect in the pull effect of the destination's wealth. The deterring effect of distance also remains, but is twice as strong for rural than for urban destinations.

We explore these differences between urban and rural migrants further by altering how we form the dyads. In Table 5 we link all urban migrants to all 47 urban locations. For urban migrants selecting urban locations distance and wealth are both significantly associated with destination choice, with coefficients roughly of equal absolute magnitude. At a per standard deviation change the absolute magnitude for distance (sd=0.91 in this dataset pairing urban migrants with urban destinations) is 1.6 times greater than that for wealth (sd=0.50). In Table 6 we link all rural migrants to all 31 rural locations. Again, both distance and wealth matter, but expressed in standard deviation change (sd=1.03 for distance and a much lower sd=0.20 for wealth in the rural-rural dyadic dataset) distance outweighs wealth by a factor of 7.5.

For urban migrants, interactions with poverty and educational status at the outset further show that the pulling power of urban destination wealth is reduced for poorer households. Better educated individuals, on the other hand, tend to find wealthier urban destinations more attractive than lesser educated individuals and also tend to be less deterred by distance. Nonetheless, the deterring effect of distance remains, even for highly educated individuals (Table 5). It is only by around three years of post secondary education that distance loses its effect completely. Urban migrants with such high levels of education would not be deterred by distance and, furthermore, the pull effect of destination wealth would be 50% higher for them, compared to those who only completed primary education (the modal level of education in our sample).

Poor rural migrants on the other hand, are more deterred by distance than poor urban migrants, and as their urban counterparts, they are also less inclined to respond to larger wealth at destination. As with urban migrants, more education reduces the deterring effect of distance for rural migrants (albeit at a lesser gradient) and increases the appeal of wealth at destination (this time at a steeper gradient). There is also a small negative interaction effect between age and wealth.

A Shapley decomposition for the regressions in columns 1 of Table 4 shows that distance accounts for 98% of explained variation of destination choice in the full sample. A similar exercise for column 1 of Table 5 shows that distance accounts for 75% of the explained variation once we restrict the analysis to dyads formed by urban migrants choosing between urban locations. We should bear in mind that the R-squares are quite low in all regressions (between 4 and 17 percent). This is in large part due to the fact that we are considering a large number of possible destinations for each person (47 urban and 31 rural destinations). But it also a reminder that distance does not tell the whole story. Despite the low R-square, it is obvious from the F-test for joint significance of all regressors reported in the table that, taken together, wealth and distance are important determinants of destination choice.

4.2 Distance, towns and cities

For all three dyadic samples of Table 4, Table 5 and Table 6 the regressions highlight the dominance of distance over wealth as a correlate of destination choice, both as a share of explained variation and when comparing the size of standardized regression coefficients. In this subsection we ask to what extent distance and wealth differences between cities and towns explain the observed preference for towns as a destination choice in our study setting, and how that varies across types of households.[6]

Our baseline villages lie, on average, 3.06 logged kilometres from the closest town and 5.64 from the closest city, so the difference is 2.58. Plugging that difference into the regression equation estimated in column 1 of Table 5 (urban migrants only) shows, ceteris paribus, a 8.5 (=0.033*2.58) percentage point higher likelihood of choosing towns because they are closer. Only 2.6 percentage points of this advantage of towns over cities gets undone through

[6] As pointed out in subsection 2.2 Kagera is a relatively remote region located far from the nearest cities (Figure 1). The choice between city or town would play out differently, obviously, for a migrant living in close proximity to a big city.

higher destination wealth in cities, which we know, from Table 3, is 0.69 in favour of cities (0.038*0.69=2.6). The first panel ('ALL') in Figure 4 visualises this horse race between distance and wealth for urban migrants. We can also conduct this exercise using all migrant-destination pairs in Table 4. Here towns have a 6.5 percentage point higher likelihood of being chosen (0.025*2.58) and the wealth effect does little in favour of cities reducing that number by only 0.4 percentage points (0.006*0.69). Clearly, the pull effect of higher wealth in cities is much lower than the discouragement effect of the corresponding increase in distance. We conjecture that that is the reason many people prefer towns over cities.

Who does end up going to the city? Our heterogeneity analysis in Table 5 shows how wealth at destination has a larger pull effect for the non-poor and the educated and how the negative effect of distance on destination choice is attenuated by schooling, but exacerbated by poverty. Our simulations depicted in Figure 4 show that the distance effect becomes very attenuated for high levels of education. The deterrent effect of distance is over five times stronger for those without education compared to those with higher secondary education. In fact only for this latter group is the distance effect is so attenuated that the wealth effect (which increases with with education, although much more modestly) becomes stronger and cities become more attractive than towns. As the regression results do not simultaneously interact with other individual characteristics we do not conclude from this analysis that raising education levels would increase migration to cities. Rather the results indicate that there exists a type of respondent for whom the trade-off between distance and wealth no longer favours towns as a destination choice. Such differential frictions would lead to the kind of sorting documented by Hamory et al. (2020) and Young (2013). This may result from education itself as well as other characteristics of the household where the more educated person grew up, such as wealth levels, access to networks, as well as mindset which may all help overcome migration costs.

5 Concluding remarks

This paper starts from the observation that in our study area of Kagera, Tanzania, much larger shares of the rural population tend to migrate to towns than to cities, despite greater welfare gains from moving to the latter than from moving to the former. With many of the rural migrants originally also poor, town migration contributed more to poverty reduction than city migration. To shed light on this seemingly sub-optimal destination choice of rural-urban migrants, we draw on an extension of the Todaro model which explicitly considers different destinations (towns and cities) as well as spatial friction/migration costs to motivate an empirical specification to examine the drivers of this equilbrium.

In particular, using a dyadic regression structure applied to our two decade long panel of individuals from Kagera, augmented with the wealth to be expected at the different possible destinations from the census, we estimate the differential effect on destination choice of migration costs and expected wealth gain at destination controlling for individual characteristics (i.e. selection) through individual fixed effects. Migration costs were proxied by distance to the destination, following a longstanding (though recently somewhat ignored) tradition in the migration literature (Lucas, 2001). Acknowledging the well-documented importance of selection in migration, individual heterogeneity in the anticipated deterrent effect of distance and the expected pull effects of expected wealth at destination were further explored through interaction with the migrants' poverty status, education level, and age before migrating. Simulations were finally conducted to explore the empirical strengths of the different factors in explaining the migration flows.

The findings underscore the continuing relevance of distance for destination choice (rural and urban); in our sample, expected wealth at destination would have to increase by 5.7 standard deviations on average to offset a 1 standard deviation increase in (log) distance. In this, it is consistent with Ravenstein's first law of migration, put forward in 1885, stating that most migrants move only a short distance. When confined to urban destinations only, the deterrent effect of distance remains, but the attraction of wealth increases, with the strength of these effects in turn affected by the migrant's poverty (reduced attraction of wealth) and educational status (reduced deterrence of distance, increased attraction of wealth). With the closest cities on average much further away for most of the rural population than the closest towns and rural populations often poorer and less educated (Beegle and Christiaensen 2019), the finding that more rural-urban migrants end up in towns than in city, contributing in the aggregate more to poverty reduction than city migration, does not surprise in light of the regression findings. The importance of distance in understanding the decomposition results is also confirmed by the simulations.

Broadly interpreted, these findings could be seen as supporting the New Urban Agenda (United Nations, 2017) which calls for balanced territorial development policies and plans that strengthen the role of small and intermediate cities and towns, especially since a large share of the global rural population gravitates around small and intermediate urban centres. Globally, 28% of the rural population lives within 1 hour travel time from a city of 1 million or more; 27% within one hour travel time from an intermediate city (250,000-1 million) and 27% within one hour traveling from a town (250,000 or less) (Cattaneo, Nelson, and McMenomy, 2021). In low-income countries, the share of the rural population living within one hour of a town rises to 43%, with another 20% living within 2 hours; 13% live within one hour from an intermediate city and 7% within one hour from a city (>1 million). Among the extreme poor, eighty percent are rural (82% in Sub-Saharan Africa) (Beegle et al. 2019). African cities thus face a double burden to act as engines of poverty reduction; they need to become economically dense—not merely crowded, to generate the virtuous agglomeration economies associated with cities in the developed world (Lall, Henderson, and Venables, 2017), and they are also far from where the poor live.

At a minimum the findings indicate that the role of distance in migration decisions, highlighted in the earlier work on migration continues to be important empirically, especially in more remote areas, and that it may have been neglected prematurely more generally. The paper did not try to uncover why distance plays such an important role. The aforementioned in-depth life histories with 75 respondents from the KHDS survey (Ingelaere et al. 2018) point among other things to transport costs and the liquidity constraints to overcome this, the socio-cultural affinity with the destination, and the ability to maintain ties with the home community and return home when things go wrong (safety net). Networks can reduce the deterrence of distance (especially over long distances and including deterrence related to socio-cultural affinity) (Lucas, 2001; 2015). It explains their importance in determining migration and destination. But their emergence often also depends on distance and in the first place. Some distance related aspects, such as transport costs and information, may be more amenable to policy, and can reduce friction even over short distance as illustrated by the effect of cash transfers on seasonal migration in Bangladesh (Bryan, Chowdhury and Mobarak, 2014). Others may take more time (such as the development of social safety nets).

Together it would suggest that the effect of distance on destination choice is likely to continue for some time.

Finally, two potential spill-overs following the interplay between distance, towns and migration may further accelerate the structural transformation and deserve further attention. First, many new towns are arising in Tanzania, as they are across much of the African continent. OECD/SWAC (2020) combines demographic data with satellite and aerial imagery to document a total of 7,617 urban agglomerations of at least 10,000 people in Africa in 2015. In 1950 that number stood at just 624. Growth in the number of urban agglomerations has been especially strong in recent years. From 2000 to 2015 2,475 new urban areas came into existence through in-situ urbanisation. With every new small town (a subset of) rural dwellers will see the distance between their home village and the nearest urban agglomeration shrink. Given the primacy of distance as a determinant of destination choice documented here, we would expect frictions to rural-urban migration to come down through the rise of small towns. Such rural-urban migration is an important component of structural transformation, so the rise of small towns is not only a consequence of this process, but could actually speed it up. Relatedly, there are good reasons to believe other frictions, for example related to the flow of goods, services and information between urban and rural areas will also come down with the emergence of small towns. While important studies like Dorosh and Thurlow (2013, 2014) and Gibson et al. (2017) have studied how urban growth in large versus small towns affects rural poverty reduction, we still know very little about the exact mechanisms through which this happens.

Second, given their proximity, towns can be particularly important in facilitating the first move, which is often the hardest, thereby potentially instigating a virtuous cycle of physical and economic mobility. The results from the Kagera life histories highlight the difficultly and importance of the first move, an oft ignored phenomenon. It is difficult because it is often a step in the dark that prospective migrants need to undertake with little preparation and before all the right elements (finances, skills, networks and the like) are in place to ensure that the move will be successful. It often comes with many risks and hardships. It is important because it often sets in motion a virtuous circle of physical and economic mobility. In this sense we should not just judge the value of towns as points of final destinations, but also as enablers of a first move that builds networks, financial resources and human capital potentially (but not automatically) leading to further migration - and in particular, further migration that would not have been possible without the intermediary step. With towns more easily accessible, rural dwellers will become more physically mobile, which will open opportunities to make life improving choices. The importance of transit migration has been highlighted by Artuc and Ozden (2018) in the context of international migration, but remains under documented in low-income contexts as in Africa.

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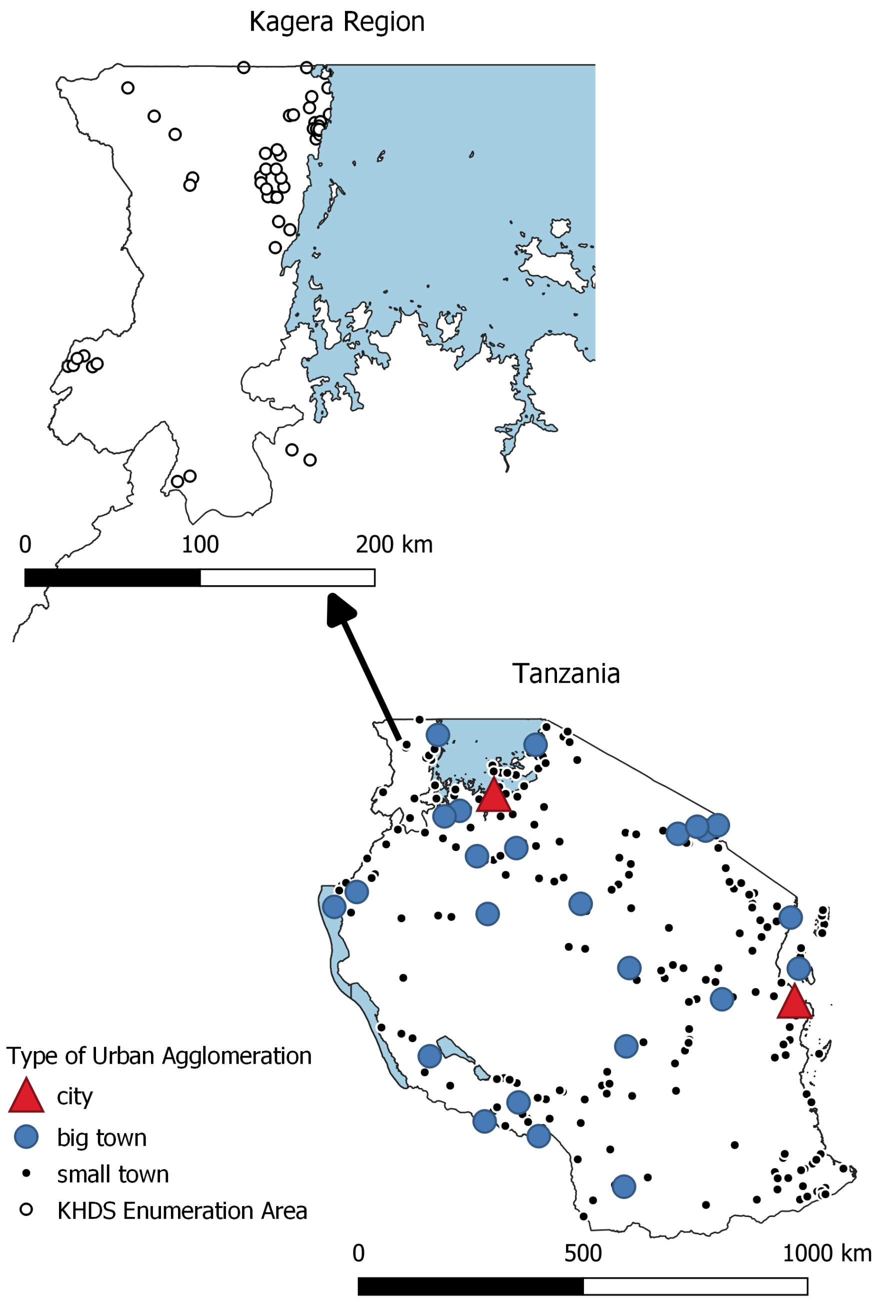
Tables and Figures

Table 1: KHDS response rates

	2004	**2010**
Interviewed	4430 (70%)	4339 (68%)
Deceased	961 (15%)	1275 (20%)
Untraced	962 (15%)	739 (12%)
TOTAL	**6353 (100%)**	**6353 (100%)**

Figure 1: Tanzania and Kagera



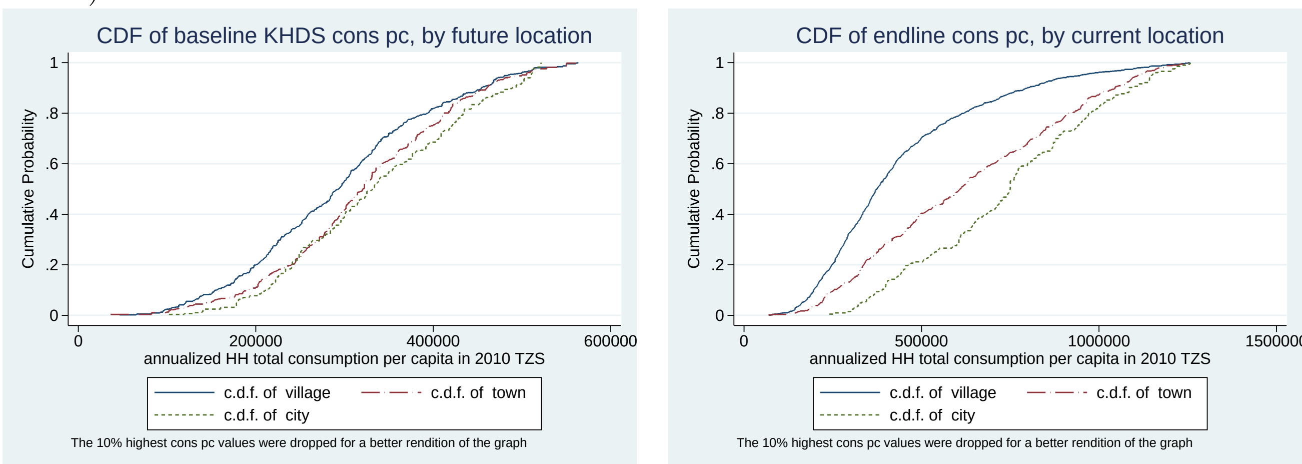
This map shows the location of baseline KHDS enumeration areas, as well as the spatial distribution of urban agglomerations in Tanzania. Agglomeration and population data are from Africapolis (OECD/SWAC, 2020).

Table 2: Decomposing growth and poverty reduction by 2010 location

2010 Location	*N*	1991-94 average	Growth (consumption per capita) 2010 average	Change in average	Share in total growth
Rural	1,086	347,433	573,281	225,848	0.29
Town	702	390,934	906,228	515,293	0.43
City	285	400,836	1,229,495	828,659	0.28
TOTAL	2,073	369,617	776,247	406,630	1.00

2010 Location	*N*	1991-94	Poverty headcount 2010	Change in headcount	Share in total net poverty reduction
Rural	1,086	0.56	0.35	-0.21	0.40
Town	702	0.45	0.14	-0.31	0.38
City	285	0.45	0.02	-0.42	0.21
TOTAL	2,073	0.50	0.23	-0.27	1.00

Figure 2: Comparison of baseline and endline consumption per capita, by 2010 location (KHDS)



Baseline CDF

Endline CDF

Figure 3: CDF of census-based wealth index, by location (population-weighted)

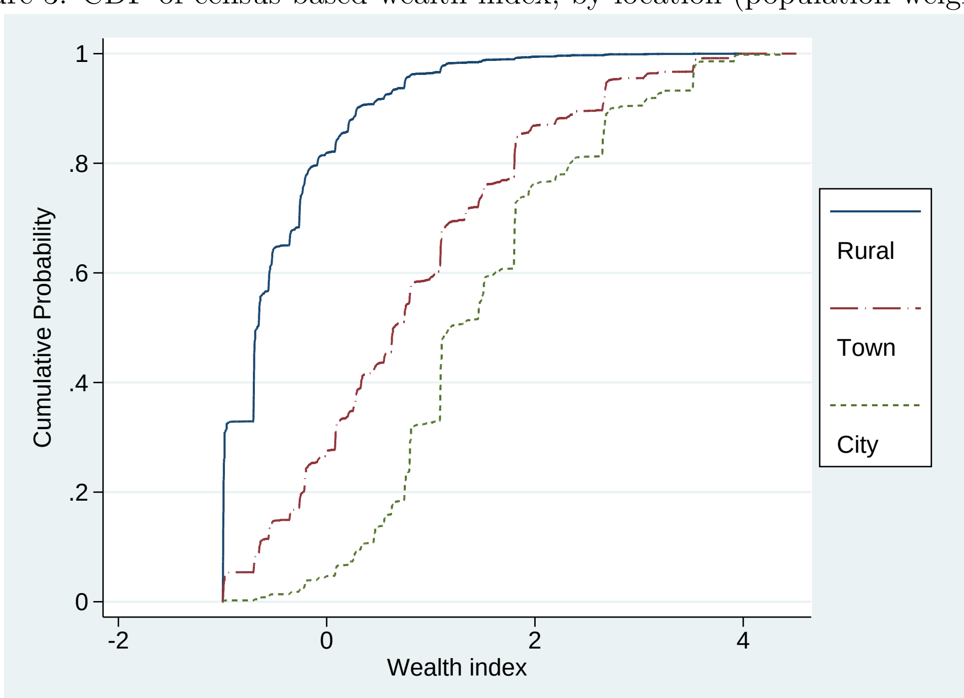


Table 3: Census location means

	Rural	**Town**	**City**
At least corrugated iron sheet roof	0.33	0.84	0.99
At least baked brick walls	0.18	0.52	0.88
At least tile or cement floor	0.11	0.62	0.88
Electric lighting	0.01	0.29	0.45
Piped water	0.21	0.68	0.77
Flush Toilet	0.00	0.11	0.16
No. bedrooms	2.29	2.20	2.08
No. bedrooms per person	0.71	0.71	0.72
GoodElec	0.01	0.27	0.42
Owns Radio	0.45	0.67	0.75
Owns Phone	0.01	0.08	0.20
Owns Iron	0.03	0.07	0.09
No. members age 19 or younger	2.68	2.14	1.83
No. members age 20-60	1.82	1.86	2.11
No. members age 61 or older	0.26	0.15	0.10
Household size	4.76	4.15	4.04
Dep. ratio (as share of 20-60 year olds)	1.71	1.27	0.94
Maximum years of formal education in HH	6.70	8.01	8.64
HH experienced death past 12 months	0.06	0.05	0.05
Age died (if deceased past 12 months)	23.20	27.81	27.13
At least one member non-seasonal employee	0.05	0.24	0.38
At least one member works in non-ag sector	0.09	0.54	0.74
Wealth index	-0.46	0.79	1.48
Wealth index at 10th percentile	-0.99	-0.65	0.33
Wealth index at 20th percentile	-0.99	-0.23	0.75
Wealth index at 80th percentile	-0.09	1.80	2.34
Wealth index at 90th percentile	0.29	2.65	2.73
Amenities index	-0.37	0.73	1.18
Asset index	-0.44	0.69	1.38

Notes: Averages are constructed using the census long form survey weights. Only Dar es Salaam and Mwanza are considered cities. The constructed wealth index is the first principal component using the following variables: number of bedrooms per person, whether the dwelling has an iron sheet roof (or better), walls from baked bricks (or better), a tile or cement floor, electric lighting, piped water, a flush toilet and whether it owns a radio, owns a phone and owns an iron.

Table 4: Destination choice of migrants - dyadic regressions

	(1)	(2)	(3)	(4)	(5)	(6)
Distance to destination (ln km)	-0.025***	-0.023***	-0.039***	-0.023***	-0.027***	-0.035***
	(-21.176)	(-18.077)	(-31.178)	(-14.512)	(-17.531)	(-13.328)
(-”-) * (poor HH)		-0.003*				
		(-1.825)				
(-”-) * (yrs schooling)			0.002***			
			(12.043)			
(-”-) * (age in years)				-0.0001		
				(-1.589)		
(-”-) * (urban destination)						0.019***
						(5.527)
Wealth index	0.006***	0.009***	-0.006***	0.009***		0.022***
	(6.062)	(8.244)	(-5.880)	(6.031)		(4.390)
(-”-) * (poor HH)		-0.006***				
		(-4.642)				
(-”-) * (yrs schooling)			0.002***			
			(12.496)			
(-”-) * (age in years)				-0.0001***		
				(-2.821)		
(-”-) * (urban destination)						-0.003
						(-0.535)
Asset index					-0.003	
					(-0.856)	
Amenities index					-0.002	
					(-0.486)	
(Asset index)*(Amenities index)					0.020***	
					(7.231)	
Urban destination						-0.141***
						(-6.455)
R-square	.0443	.0449	.0497	.0444	.049	.0561
F	827	427	568	414	590	433
p-value F	0.000	0.000	0.000	0.000	0.000	0.000
N	156,936	155,688	156,936	156,936	156,936	156,936

Notes: LPM estimates of Equation 1 with standard errors clustered by the 51 origin enumeration areas. Regression coefficients with *t*-statistics in parentheses. The dyads are formed by linking all 2,012 KHDS migrants to all possible 78 destinations. Destination wealth is the average household wealth index at destination calculated from the census. The wealth index is the first principal component using the following variables: number of bedrooms per person, whether the dwelling has an iron sheet roof (or better), walls from baked bricks (or better), a tile or cement floor, electric lighting, piped water, a flush toilet and whether it owns a radio, owns a phone and owns an iron. The amenities index is constructed in a similar fashion using a subset of these variables (electric lighting, piped water and flush toilet) and the asset index is constructed using all the other variables. Distance is the natural logarithm of distance in kilometers between the baseline location and the potential destination, as the crow flies.

Table 5: Destination choice of urban migrants - interactions

	(1)	(2)	(3)	(4)
Distance to destination (ln km)	-0.033***	-0.035***	-0.063***	-0.031***
	(-12.249)	(-10.987)	(-15.508)	(-5.657)
(-"-) * (poor HH)		0.003		
		(0.786)		
(-"-) * (yrs schooling)			0.004***	
			(8.516)	
(-"-) * (age in years)				-0.000
				(-0.327)
Wealth index	0.038***	0.042***	0.024***	0.040***
	(11.866)	(12.680)	(3.124)	(10.626)
(-"-) * (poor HH)		-0.008**		
		(-2.274)		
(-"-) * (yrs schooling)			0.002***	
			(2.787)	
(-"-) * (age in years)				-0.000
				(-0.383)
R-square	.0485	.049	.0547	.0485
F	240	130	294	133
p-value F	0.000	0.000	0.000	0.000
N	45,449	45,120	45,449	45,449

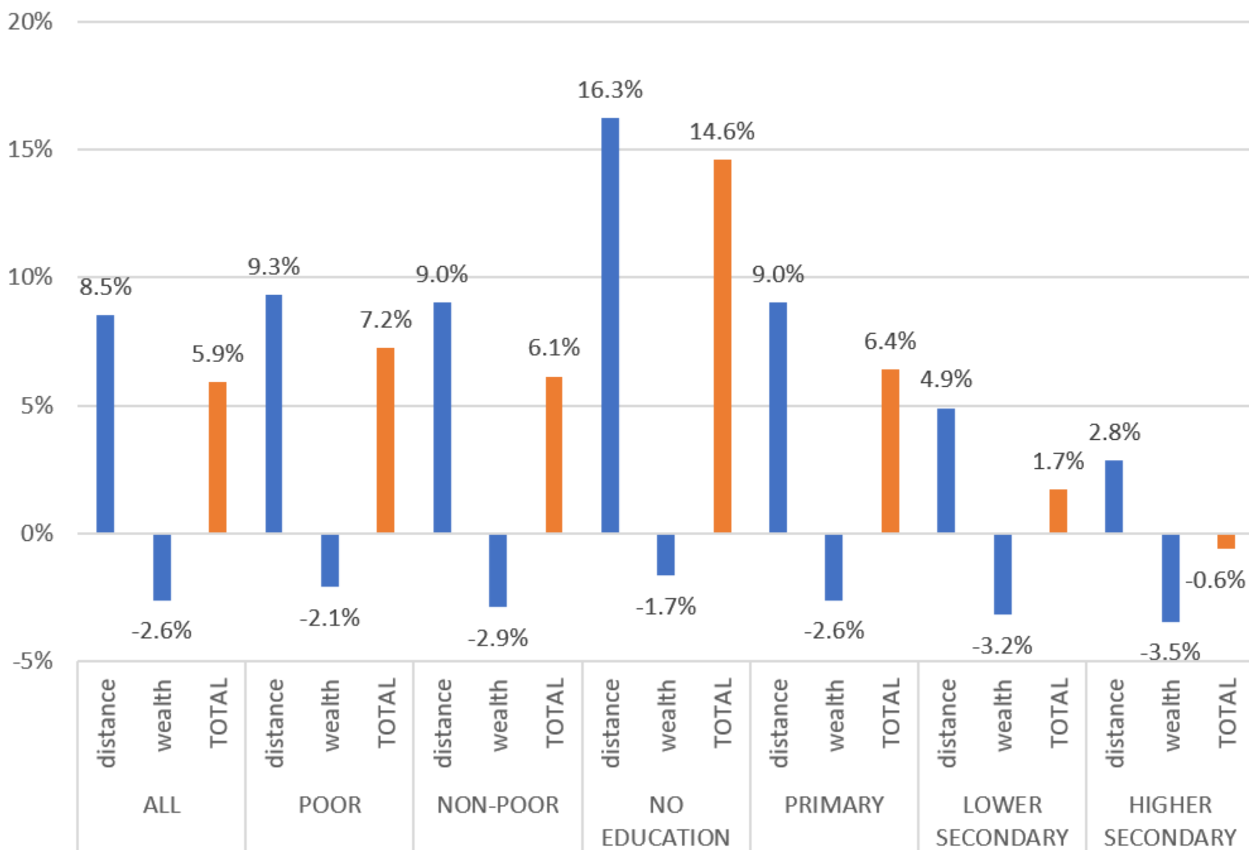
Notes: LPM estimates of Equation 1 with standard errors clustered by the 51 origin enumeration areas. The dyads in the first and fourth column are all migrants linked to all possible destinations. Regression coefficients with t-statistics in parentheses. The dyads in the second column are all urban migrants linked to all potential urban destinations. The dyads in the third column are all rural migrants linked to all potential rural destinations. Destination wealth is the average household wealth index at destination calculated from the census. The wealth index is the first principal component using the following variables: number of bedrooms per person, whether the dwelling has an iron sheet roof (or better), walls from baked bricks (or better), a tile or cement floor, electric lighting, piped water, a flush toilet and whether it owns a radio, owns a phone and owns an iron. The amenities index is constructed in a similar fashion using a subset of these variables (electric lighting, piped water and flush toilet) and the asset index is constructed using all the other variables. Distance is the natural logarithm of distance in kilometers between the baseline location and the potential destination. Poverty information comes from the baseline household in which i was residing in 1991-94. Education is measured as years of formal education at baseline.

Table 6: Destination choice of rural migrants - interactions

	(1)	**(2)**	**(3)**	**(4)**
Distance to destination (ln km)	-0.071***	-0.066***	-0.083***	-0.071***
	(-29.180)	(-26.434)	(-22.623)	(-23.494)
(-”-) * (poor HH)		-0.007**		
		(-2.181)		
(-”-) * (yrs schooling)			0.002***	
			(5.180)	
(-”-) * (age in years)				0.000
				(0.146)
Wealth index	0.049***	0.065***	0.017*	0.063***
	(6.186)	(6.401)	(1.961)	(6.282)
(-”-) * (poor HH)		-0.026**		
		(-2.214)		
(-”-) * (yrs schooling)			0.006***	
			(4.612)	
(-”-) * (age in years)				-0.000**
				(-2.203)
R-square	.172	.172	.174	.172
F	740	380	390	376
p-value F	0.000	0.000	0.000	0.000
N	32,395	32,116	32,395	32,395

Notes: LPM estimates of Equation 1 with standard errors clustered by the 51 origin enumeration areas. Regression coefficients with t-statistics in parentheses. The dyads are all rural migrants linked to all potential rural destinations. Destination wealth is the average household wealth index at destination calculated from the census. The wealth index is the first principal component using the following variables: number of bedrooms per person, whether the dwelling has an iron sheet roof (or better), walls from baked bricks (or better), a tile or cement floor, electric lighting, piped water, a flush toilet and whether it owns a radio, owns a phone and owns an iron. The amenities index is constructed in a similar fashion using a subset of these variables (electric lighting, piped water and flush toilet) and the asset index is constructed using all the other variables. Distance is the natural logarithm of distance in kilometers between the baseline location and the potential destination. Poverty information comes from the baseline household in which i was residing in 1991-94. Education is measured as years of formal education at baseline.

Figure 4: Likelihood of choosing towns over cities



This figure shows how much more likely it is for KHDS migrants to choose a town over a city as an urban destination. The y-axis measures this as a predicted likelihood by plugging into the regressions estimated in Table 5 (i) the difference between average distance to the nearest town and average distance to the nearest city, and (ii) the difference between average town wealth and average city wealth. The orange bars labelled 'TOTAL' add these two effects together.