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The Welfare Effects of Structural Change and Internal Migration in Tanzania

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Abstract

Structural change has implications for various dimensions of development, including poverty reduction. However, the existing empirical literature on Sub-Saharan African economies, including Tanzania, has mainly focused on trends and patterns in macroeconomic or aggregate welfare indicators, largely providing a descriptive analysis of the nature of structural change and its potential welfare implications. This paper provides micro insights on structural change in Tanzania and its effect on welfare, using a recent household panel dataset, which was collected between 2015 and 2021. The results show that cross-sector labor movements are dominated by movements between agriculture and services, although most individuals studied within the two periods continue to remain in agriculture, with industry's share in employment declining marginally. The paper shows that among the individuals studied, the number of people who slid into poverty was nearly twice the number who escaped poverty, and this is significantly influenced by the pattern of sectoral transitions experienced by the individuals. The findings show that in addition to sectoral transitions and migration being important to each other, they are both driven by similar micro factors. The paper highlights the importance of education (particularly secondary or higher education) to increasing the chances of an individual embarking on welfare-enhancing sectoral movement and associated migration across districts in Tanzania.

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The Welfare Effects of Structural Change and Internal Migration in Tanzania

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1. Introduction

The levels of economic growth and development observed across countries appear to be inextricably linked to the changes in the structure of production over time where the nature of this change determines its transformative impact on growth and development (McMillan et al, 2014; Rodrik et al., 2016). The transformative impact is realized when the changes are characterized by shifts in output and employment from low-productivity activities to high-productivity and skill-intensive activities (Diao & McMillan, 2018). The experiences of countries in the developed world show that a transformative structural change tends to follow a certain trajectory in which output and employment first shift from agriculture to industry and then to services. However, structural change in many developing and emerging economies, especially those in Sub-Saharan Africa (SSA), has been characterized by a leapfrogging of industry with output and employment shifting from agriculture to the service sector (which is often dominated by informal activities) as well as different migration and urbanization patterns (Christiaensen and Todo 2014; Dorosh and Thurlow, 2017). Consequently, structural change in these countries has generally not yielded significant benefits in terms of growth and development, and in some cases, it has rather hurt economic growth (McMillan & Rodrik, 2011; McMillan et al, 2013; Rodrik et al. 2016).

These observed differences in the path of structural change between developed and developing economies may be associated with many factors that drive the nature of structural change. The Lewis two sector model provides an important insight into the mechanism (that is, real wage gap between high productivity areas which are usually located in urban areas and the low productivity areas which are usually found in rural areas) by which a transformative structural change occurs and some of its key drivers (Gollin 2014). The wage gap reflects productivity differentials between activity areas, which have been found to be an important driver of structural change and its growth effect (Paci & Pigliaru, 1997; Diao & McMillan, 2018), even among activities that are closely related (Fagerberg, 2000).

Also, the Lewis two sector model emphasizes the importance of rural-urban migration in facilitating a transformative structural change. Studies by De Brauw et al. (2013), Christiaensen and Todo (2014) and Ingelaere et al (2018) also provide empirical evidence on the importance of migration to structural change in SSA. Ingelaere et al (2018) show specifically that migration from rural communities to secondary towns is important in the process of structural change because it constitutes the crucial bridge between semi-subsistence agriculture and the capitalistic city. Other insights from several extensions of the Lewis model and attempts at addressing its limitations have pointed to other factors affecting the nature of structural change and its growth and development impact in developing country contexts (see for example, Chen, Jefferson, & Zhang, 2011; Fan, Zhang, & Robinson, 2003 Acemoglu & Guerrieri, 2008). For examples, the literature has emphasized sectoral differences in factor proportions (Osmani 1990; Acemoglu & Guerrieri, 2008), limited investment in skills accumulation and institutional capabilities (Rodrik et al., 2016), constraints imposed by political settlements (Osei et al. 2022), as well as structural rigidities and misallocation (Gollin 2014; Gollin and Rogerson 2014) as important determinants of the nature of structural change in developing countries.

Structural change has implications on several dimensions of development including poverty reduction (see Hasan et al. 2013; Christiaensen and Kaminski 2015; Baymu and Sen 2017; Sen 2017; Atta-Ankomah and Osei 2021). Hence, understanding the nuances of its dynamics and impact from a micro perspective is as important as the macroeconomic trends and impact (Lagakos and Shu, 2021). However, the existing empirical literature especially those on SSA has mainly focused on trends and patterns in macroeconomic and aggregate welfare indicators, largely providing a descriptive analysis of the nature of structural change and its potential welfare implications (see for example studies such as McMillan & Rodrik, 2011; Christiaesen and Todo 2014; Osei and Jedwab, 2016). Other studies, but outside SSA, have used state-level data within countries to explore the relationship between movement of workers between economic sectors and poverty reduction. For example, using state-level data in India, Hasan et al (2013) show that movement of workers from low to high productivity areas is an important channel through which increases in aggregate productivity result in poverty reduction. Davis et al (2017) pooled cross sectional (national) household surveys from selected African countries to explore patterns of household income sources in SSA and found that when agro-climatic conditions are favorable, farming remains the occupation of choice for most rural households in the SSA countries studied.

A major challenge to research on structural change and its impact in Africa has been the unavailability of adequate data, particularly panel datasets, that would allow following individuals over time (Lagakos and Shu, 2021). Tanzania is, however, one of the very few African countries with micro panel datasets. Beginning in 2008/09, there are five waves of Tanzania's National Panel Surveys (NPS); however, the sample was refreshed following a population and housing census in Tanzania in 2012, after which two waves of the panel have been conducted (that is, 2014/15 and 2020/21). In this paper, we provide several micro insights on structural change in Tanzania, focusing on transitions in sectors of employment (agriculture, industry and services) and their effect on welfare at the micro-level using the two most recent waves of the NPS dataset. Specifically, we examine what forms of transitions improve welfare or affect the prospects of escaping or sliding into poverty. We also examine the extent to which such transitions may be associated with internal migration across regions and districts and the microeconomic factors that may be driving the sectoral transitions and migration.

We make the following specific contributions to the literature with significant policy implications for Tanzania and other developing contexts that are similar to Tanzania: First, the study leverages nationally representative panel datasets of individuals to examine the linkage between structural change, internal migration and household welfare, and the drivers of these. To the best of our knowledge, the closest existing studies to our work are Atta-Ankomah and Osei (2021) and Christiaensen and Kaminski (2015), which respectively used panel datasets on Ghana and Uganda to explore the effect of structural change on poverty reduction.

Our study focuses on Tanzania, another SSA country, providing additional insights into the micro dynamics, trends and implications of structural change in developing countries. It also deepens our understanding of the nexus between economic growth, structural change and welfare in Tanzania and provides policy insights for fostering growth-enhancing structural transformation that leaves no one behind in Tanzania. Our study is also distinctive in approach compared to Benson et al (2017) which used the first four waves of Tanzania's NPS but only provided descriptive analysis of trends and patterns of structural transformation within the Tanzanian agriculture sector in order to develop baseline conditions for an economy-wide modeling. Similarly, our study provides a more robust analysis of the effect of structural change on welfare than what we know from Christiansen et al (2013) which relied on a panel dataset on a region in Tanzania (Kagera Region) between 1991 and 2010 and only provided a broad-brush descriptive analysis of whether transitions from agriculture to rural non-farm economy or secondary towns affected poverty rates.

Second, our examination of the patterns of cross-sector labor movements shows that the transitions are dominated by those between agriculture and services, although the majority of the individuals we studied within the two periods continue to remain in agriculture, with industry's share in employment among them declining but marginally within the two periods. These results are generally consistent with those observed for Ghana by Atta-Ankomah and Osei (2021) and the established fact about the departure of the trajectory of structural change in developing countries from the experiences of developed countries. However, we learn additionally that contrary to the case of Ghana where the service sector dominates in employment shares among the individuals studied over time, the agriculture sector rather continues to be the employment buffer in Tanzania. This speaks to the need for transformative agricultural policies that would increase productivity levels in the agriculture sector in order to improve the lots of individuals who continue to remain in agriculture. This becomes even more important in the light of an additional finding that remaining in agriculture is associated with the lowest level of welfare compared to remaining in either industry or service sectors and also in the light of the argument by Davis et al. (2017) that remaining in agriculture may be an occupational choice for rural households in SSA. In addition, recent studies such as Christiaesen and Martin (2018) and Dorosh and Thurlow (2017) show that growth in agriculture is more poverty reducing than an equivalent growth in other sectors. Relatedly, Flachsbarth et al. (2018) show that structural change in Peru has been accompanied by growing non-agricultural jobs, although less pro-poor, while reduction in farm sizes has negatively affected poverty reduction and income inequality.

Third, we show that among the individuals studied, the share of people who slid into poverty between the two periods was nearly twice the number who escaped poverty. While Aikaeli et al (2021) used a synthetic panel to similarly explore welfare changes in Tanzania, our findings emerged from actual panel datasets, and additionally show that the welfare changes are significantly influenced by the pattern of sectoral transitions experienced by the individuals. Specifically, we show that a move from agriculture to services is welfare-enhancing while the reverse move hurts welfare. A move from agriculture to industry, however, reduces the likelihood of escaping poverty as well as preventing a slide into poverty, suggesting that the welfare effect of cross-sector labor movements between agriculture and industry may be more dependent on the specific activities or subsectors within the broad sectors between which the movements occur. Furthermore, whether movement from agriculture to industry is welfare-enhancing depends on the initial welfare status of the individual embarking on the move. Internal migration (specifically, migration between districts) significantly influences welfare, particularly the end-period poverty status and real consumption expenditure. We also find a positive association between internal migration and the cross-sector labor movements, especially those that are welfare-enhancing. These results are unique but together align generally with the results from Christiaesen and Todo (2014) which used cross country panel data on developing countries to show that migration out of agriculture into rural nonfarm activities and secondary towns yields significant inclusive growth patterns and poverty reduction.

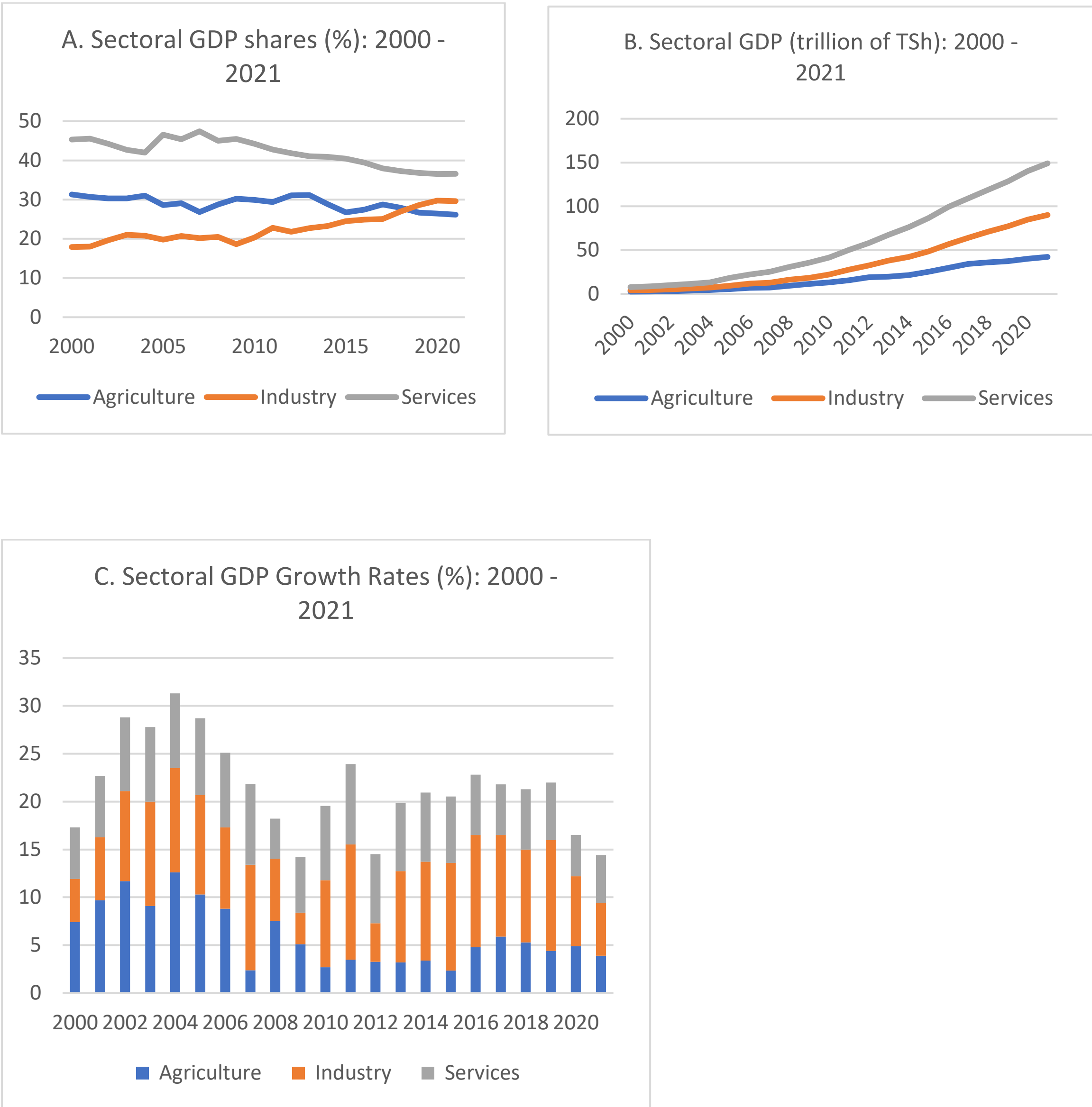
Fourth, we learn that sectoral transitions and migration are both important to each other. These results are generally similar to the key finding from Mueller et al (2019) which shows that rural to peri-urban migration facilitates diversification out of agriculture in Tanzania. Similarly, Wineman and Jayne (2016) showed that even intra-rural migration leads to a shift away from agriculture in Tanzania. However, our study additionally shows that cross-sector labor movements which have a statistically significant association with district-to-district migration are the ones that tend to have welfare effects. Moreover, we find further that both sectoral transitions and migration are driven by similar micro factors. Here, we highlight the importance of education (particularly secondary or higher education) to increasing the chances of an individual embarking on welfare-enhancing sectoral movement and associated migration across districts in Tanzania. We also observe that younger individuals are more likely to migrate and move to welfare-enhancing sectors compared to their older counterparts. Thus, improving access to education among young people (that is, deepening human capital development) is critical for ensuring that structural change is transformative enough to improve welfare. In other words, this study provides empirical evidence supporting the view that addressing a key element of what Rodrik et al. (2016) refer to as the 'fundamentals' challenge' to a transformative structural change is crucial.

The rest of the paper is organized as follows: Section 2 presents a brief review of trends in selected macroeconomic indicators for Tanzania, highlighting the changing structure of Tanzania's economy while Section 3 discusses the data and analytical approached adopted in the paper. Section 4 presents the results and discussion while the final section provides a conclusion.

2. Review of trends in selected macroeconomic indicators

Tanzania has experienced faster economic growth in the twenty years after the turn of the century compared to the same period before the year 2000, and the country was one of the fastest-growing economies in the world in 2019 (AfDB, 2020). Between 2007 and 2017, the gross domestic product (GDP) growth averaged 6.3%, while growth in GDP per capita averaged 3.3% (World Bank, 2020a). At the same time, there has been a shift in the composition of GDP, with the share of the agriculture sector declining from about 32% in 2000 to 25% in 2021 while the share for the industry sector has increased from 18% to nearly 30% between 2000 and 2021 (Figure 1a). This changing structure is largely due to the fast-paced growth of industry and services, with mining, transport, and trade being the most productive areas (NBS 2016; 2022). Over this period, the sectoral growth rates have been phenomenal, with industry experiencing the highest annual growth rates (Figure 1c).

Figure 1 Sectoral Aggregate GDPs, Shares and Growth Rates: 2000 - 2021

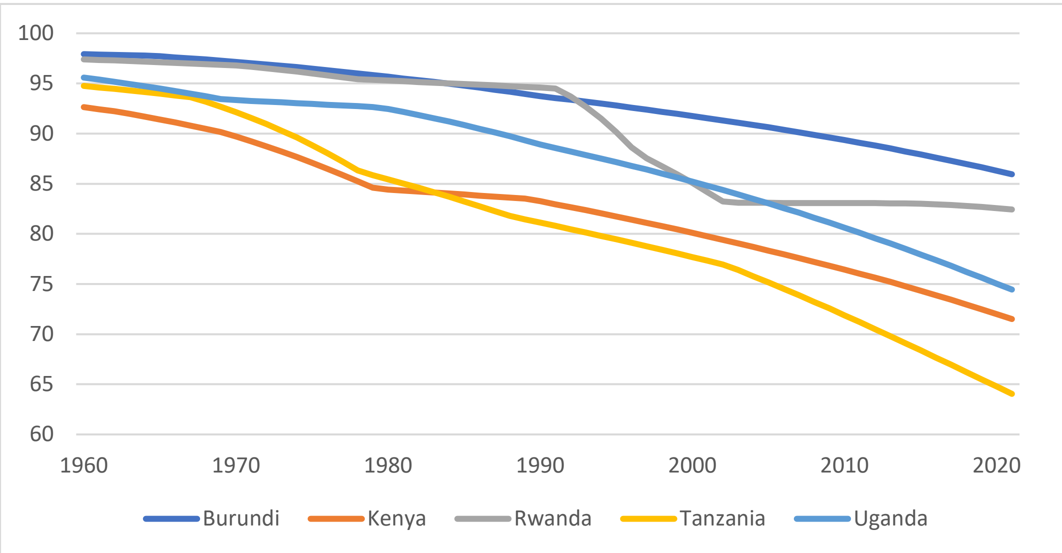


Source: Extracted from Tanzania National Accounts Reports, 2010, 2016, and 2022

Interestingly, these trends in output composition in Tanzania have been accompanied by slower transformation of the labor market structure, where employment transitions across sectors have generally been limited (World Bank 2020b). Hence, the agriculture sector continues to account for the largest share of employment – over 60 percent of the employed labor force is in agriculture – where significant structural barriers continue to hinder movement into the high-growth activity areas within industry and services (World Bank 2020b; NBS

2022). These structural barriers explain the marginal increase in employment shares in the industry and service sectors over the years. Specifically, employment shares of the industry and service sectors have seen marginal increases between 2014 and 2021 – from 6.7% and 27.1% in 2014 to 8% and 30.9% in 2021, respectively. Also, associated with the changing structure of economic output and the high growth observed in the last couple of decades in Tanzania is an increased pace of urbanization. According to the World Bank, the urbanization rate in Tanzania reached 36% in 2021, leading other East African countries, among which Tanzania has had the fastest rate of reduction in rural population (Figure 2).

Figure 2: Trends in rural population (% of total population) - East African countries



Source: World Bank Indicators

Despite the generally favorable development trends, particularly with regard to high economic growth, poverty reduction in Tanzania has become more constrained in recent years. Between 2007 and 2012, the percentage of people living under the poverty line of US$ 1.35 PPP per day in Tanzania's Mainland declined from 34.4 to 28.2 percent, respectively, while between 2012 and 2017/18 poverty declined marginally from 28.2 to 26.4 percent. More specifically, the growth elasticity of poverty dropped from -1.02 in 2007-12 to -0.45 in 2012-18 against the average of -2 for developing countries (World Bank 2020a). Thus, there have been limited wealth distribution and poverty reduction effects from the country's economic growth.

3. Data and analytical approach

3.1. Data and description of variables

The study uses the fourth and fifth waves of the Tanzania National Panel Survey (NPS) data conducted in 2014/15 and 2020/21 (hereafter 2015 and 2021 respectively). The NPS is part of the Living Standards Measurement Study Integrated Survey on Agriculture (LSMS-ISA) project which is implemented by the National Bureau of Statistics (NBS) and the Office of the Chief Government Statistician (OCGS) in collaboration with the World Bank's LSMS team. The Bill and Melinda Gates Foundation and the European Union funded the surveys, while the World Bank's LSMS team provided technical assistance. Each wave of the NPS is implemented over a 12-month period to take into account seasonality. The survey uses a multistage cluster sampling procedure and is designed to be nationally representative as well as representation at four domains/strata – Dar es Salaam, other mainland urban, mainland rural, and Zanzibar.

Five waves of the NPS have been implemented since its inception in 2008/09. Following the 2012 population and housing census and in order to control for attrition, the original sample from 2008/09 was refreshed in 2014/15, allowing for bringing in new households as well as dropping a subset of the original sample. Thus, while there are five waves of the NPS since its inception in 2008/09, the current study uses only the refresh sample of the most recent waves (2014/15 and 2020/21) for the analysis. The use of the two most recent waves was necessitated by the fact that some important variables needed for the current study were missing in the earlier NPS waves.

The NPS has rich information on household demographic characteristics, consumption expenditure, housing, assets, agriculture, employment, household non-farm businesses, food security, nutrition, among others. The longitudinal nature of the NPS and the rich household, individual and agricultural information allow for tracking dynamics in key development indicators over time, including the objectives of the current study. The NPS datasets in the public domain contain consumption aggregates for welfare analysis. In order to express consumption aggregates of the two waves in constant prices, official CPI for Tanzania from the World Bank's World Development Indicators database were used to adjust for temporal variation in consumption. The poverty line used is US$ 2.15 2017 PPP expressed in 2021 prices.

The 2015 NPS refresh sample contains 3,352 households of which 3,042 households were re-interviewed during the 2021 period. Given the specific data needs of this study, only individuals who worked in both periods and had information on sector of main employment were included in the analysis. Following additional data cleaning and imposing these restrictions, 4,266 individuals from 2,828 households were used for the analysis.

Table 1 provides summary statistics and description of salient variables used in the analysis. The main variables of interest (poverty transitions and cross sector labor movements) are defined in the following respect. Welfare is measured in terms of real consumption expenditure, poverty status and dietary diversity; all three at the end period (2021); and poverty transitions pattern. Leveraging the two waves of the panel data, we define the relationship between the welfare (poverty) status of an individual in the two time periods or the potential transitions in poverty status over the two periods (see Figure 3 for further insight). Conditional on the poverty status at the 2015 (period 1), one can define two variables for poverty transitions or changes in welfare status; positive welfare transition and negative welfare transition. Positive welfare transition variable takes a value of 1 if the individual was poor in 2015 but became nonpoor in 2021, and zero if the individual remained poor in both periods. Similarly, the negative transition variable takes a value of 1 if the individual was nonpoor in 2015 but became poor in period 2, and zero if the individual remained nonpoor in both periods. For robustness and further insights, the poverty status and consumption expenditure in 2021 are also used as dependent variables.

Like the welfare transitions variables, transitions in sector of employment and movement from one locality type to the other, are also defined to be dichotomous. They are defined such that measures are conditional on the sector of work or locality of residence at period 1. These variables are also used as dependent variables in the models that explore the microeconomic drivers of the transitions in sector of employment and migration, and as independent variables to examine their impact on welfare.

3.2. Analytical and econometric approach

The study uses both descriptive and econometric analysis. The descriptive analysis explores transition matrices and a decomposition of poverty indices by different types of labor transitions and migration patterns. The econometric analysis uses more robust framework to explore potential causal effect of structural change and migration on welfare variables as well as the microeconomic drivers of the structural change and internal migration.

The main quest of this study is to examine the welfare implications of cross-sector labor movements and migration patterns in Tanzania. We estimate the following empirical models:

$$Y_i = \beta S_i + \phi M_i + \gamma X_i + \varepsilon_i \tag{1}$$

$$M_i = \psi S_i + X_i \delta + \nu_i \tag{2}$$

$$S_i = \alpha M_i + X_i \lambda + e_i \tag{3}$$

where Y_i is a welfare variable; S_i denote the sectoral transition variables; M_i represent the internal migration variable; X_i is a vector of control variables including individual- and household-specific characteristics in 2015. The use of 2015 variables as covariates in the regression models allows for controlling for potential endogeneity between the dependent variables (welfare, migration, and structural change) and the explanatory variables (Table 1). The welfare effects of cross-sector labor mobility are captured by β, while vector ϕ explain the impact of internal migration on welfare. The effect of household and individual-specific characteristics on welfare is captured by γ, while δ and λ provide information on the effect of these characteristics on internal migration and structural change respectively. We examine the effect of structural change on migration by including cross-sector labor mobility variables in the migration model and vice versa.

Real consumption expenditure and dietary diversity, both at 2021, were estimated using the Ordinary Least Squares (OLS) regression, while Probit regression is used to estimate poverty status in 2021. The inclusion of cross-sector labor movement variables in the welfare transitions model (both positive transition and negative transitions) in equation 1 might lead to potential endogeneity. Estimating the welfare transitions model without considering this potential endogeneity might result in biased estimates and misleading conclusions and policy. Thus, we estimated the welfare transition (positive and negative) models using probit and instrumental variables (IV) approach to account for this potential endogeneity problem. Given the limited information available in the datasets used for the analysis, sectoral shares of employment at the end period, measured at the community level (enumeration areas) are used as instruments in the IV model.

3.2.1. Identification strategy

Theoretically, the chosen instrument(s) should satisfy the exclusion restriction – correlated with the potential endogenous variable (structural change), but not correlated with the error terms of the welfare variables (positive and negative transition). Thus, the effect of the instrument on welfare transitions is only felt through its correlation with the potentially endogenous variables. While identification tests results are presented and discussed in subsequent applicable sections of this paper, following Attah-Ankomah and Osei (2021) we provide the intuitive justification for the use of sectoral employment shares at the community level in end period as follows. The sectoral share of employment at end period is expected to be highly correlated with the cross-sector labor movement irrespective of the within or across community movement. There is, however, no empirical basis to expect sectoral employment shares to be highly correlated with transitions in welfare. That notwithstanding, it is important to highlight that irrespective of the justification and the results of the identification tests, an instrumental variable is as good as what the data says (Attah-Ankomah and Osei 2021).

4. Results and discussion

4.1. Descriptive analysis

4.1.1. Transitions in sector of employment

Table 2 provides information on the transition matrix for cross-sector labor movement between 2015 and 2021. Panel A of Table 2 presents the row percentages, or the probabilities associated with moving from one sector to the other while Panel B shows the number of individuals that experienced a given transition (or state-persistence) as a percentage of all individuals in the sample. In 2015, individuals working in industry accounted for 11.0% of the employed but this declined to 8.7% in 2021, whereas the shares of both agriculture and services increased marginally (see Panel B of Table 2). This trend is consistent with the fact that a smaller proportion of individuals in industry in 2015 continued to remain in industry in 2021 (36%) compared to the corresponding proportions for agriculture (82.7%) and services (63.7%) (see Panel A of Table 2). This reflects the fact that, in relative terms, transitions out of industry were higher than transitions out of the other two sectors especially agriculture, while transitions from other sectors into industry (especially from agriculture) were relatively smaller, compared to the reverse transitions (see Panel A of Table 2). Panel B of Table 2 indicates further that, in absolute terms, both inward and outward transitions between agriculture and services dominate all other types of transitions while agriculture continues to remain an important employment buffer for Tanzanians.

4.1.2. Poverty levels and transitions, 2015-2021

In Table 3 are welfare indices on consumption, poverty and dietary diversity for the two survey years. While in nominal terms per capita consumption expenditure increased by nearly 10% from TZS113,366 in 2015 to TZS 124,386 in 2021, Table 3 shows that it decreased in real terms due to almost 30% inflation which occurred between 2015 and 2021. This decline in real consumption expenditure had negative repercussions on each of the remaining welfare indicators (including dietary diversity) presented in the Table 3. Of particular concern is the observation that the poverty headcount ratio increased from about 21% in 2015 to nearly 31% in 2021. This may be because the benefits from economic growth between 2015 and 2021 may not have been fairly distributed among Tanzanians, and also inflationary shocks may have masked the growth benefit to Tanzania's poor. This emphasizes the importance of examining the potential drivers of welfare changes within this period, particularly with regards to transitions in individual's sector of employment or the changing structure of the Tanzanian economy.

Table 4 presents information on transitions in poverty status between 2015 and 2021 for the households of the individuals from the panel that were involved in this study. Panel B of Table 4 show that 19.6% of households were poor in 2015 compared to 27.1% in 2021. However, 53.1% of the poor in 2015 became nonpoor in 2021, while 20.8% of those who were nonpoor in 2015 became poor at 2021 (see Panel A of Table 4). These transition probabilities do not suggest a positive turnout or an improvement in welfare in Tanzania between 2015 and 2021, but they are only indicative of the likelihood for a household to move from a given welfare state to the other.

The true picture of what happened to welfare is provided by the information in Panel B of Table 4. The table shows that households that moved from poor to nonpoor status (9.2%) were nearly half of those that moved from nonpoor to poor status (16.7%). The pattern of transitions revealed by Panel B of Table 4 is therefore consistent with the fact that overall headcount ratio increased from 21.2% in 2015 to 30.6% in 2021 (see Table 3). Figure 3 is a scatter diagram of the real adult equivalent consumption expenditures in 2015 and 2021. The two straight lines (each representing the international poverty line (US$2.15 2017 PPP which is the same in both periods) cross each other to yield the four welfare quadrants. We can observe from Figure 3 that there are more households in quadrant A than in any other quadrant, reflecting the fact that in each period, the number of nonpoor households was much higher than the number of poor households. Comparing quadrant B and D, we find that more people slid into poverty in 2021 than the number of those who moved out of poverty in 2021.

4.1.3. Relationship between cross-sector labor movements and welfare transitions

Can sectoral labor movements have any potential implications on welfare in Tanzania? We explore this question using information in Figure 4 and Table 5. From Table 5, we can observe that all movements out of agriculture are associated with an improved welfare outcome, particularly from agriculture to services, while all movements into agriculture are associated with a worsened welfare outcome. This is consistent across all the welfare indicators – consumption expenditure, headcount ratio or dietary diversity. However, a movement from agriculture to services is associated with a more improved welfare outcome than it is with a movement from agriculture to industry. This pattern is more evident in Figure 4 which shows that movements from agriculture to services is associated with the highest percentage change in real consumption expenditure, followed by movement from agriculture to industry and then industry to services. Additionally, Figure 4 shows that the proportion of individuals who experienced a positive change in real consumption expenditure between 2015 and 2021 was highest among those who moved from agriculture to services, followed by agriculture to industry.

Table 5 shows further that moving from industry to services rather than remaining in industry is associated with a deteriorated welfare outcome (i.e. a higher headcount ratio and a lower dietary diversity score) although average and median consumption expenditures are slightly higher for movement from industry to services than remaining in industry. Similarly, moving from services to industry rather than remaining in services is accompanied by an increase in headcount ratio (but not to the extent observed for movements from industry to services). Unlike the move from industry to services, moving from services to industry is associated with a lower average consumption expenditure with virtually no change in the median value. Thus, while services tend to offer the highest opportunity for welfare improvement for individuals moving out of agriculture, the welfare implications of movements between industry and services may be a bit more nuanced and depend on the specific subsectors of industry and services involved in the movements. Generally, however, these trends and patterns observed above are largely consistent with the path of structural transformation in developing countries where industry has been less important with labor resources moving from agriculture to services (see Rodrik et al., 2016) and where such movements have been associated with welfare gains for those involved (Atta-Ankomah and Osei 2021; Christiaensen and Kaminski 2015).

4.1.4 Relationship between cross-sector labor movements and selected covariates

From Table 6, we learn about the characteristics of individuals making the various cross-sector labor movements including those making the potentially welfare-enhancing movements. Movements between agriculture and industry were dominated by males with only 21% of those who moved from agriculture to industry being females and 19.1% of those who moved from industry to agriculture being females. Similarly, both outward and inward movements between industry and services were male-dominated although females had slightly better chance at moving from industry to services than from services to industry. Table 6 further shows that movements between agriculture and services were largely gender-neutral with females accounting for 50.2% of movement from agriculture to services and 47.8% of movements from services to agriculture. Similarly, the chances of remaining in agriculture or services are largely gender-neutral, although females are slightly more likely to remain in agriculture (49%) than remaining in services (43%). Unlike the other sectors, industry appears to be significantly dominated by males with much lower opportunity for females to move from other sectors into it.

In terms of age, we do not observe much differences across the different sectoral movements although it is important to note that individuals moving out of agriculture are slightly younger than those who stayed, while the reverse is true for those moving from other sectors into agriculture. In addition, individuals moving between industry and services are of similar age while those remaining in industry are slightly younger than those who stayed in services. Table 6 shows further that the youth generally gravitate towards non-agriculture sectors, particularly services, followed by industry. Similarly, the educational level of individuals appears to be highly important for the cross-sector labor movements. Table 6 shows that the proportion of individuals with at least secondary education who moved out of agriculture are about two-to-three times the proportion of individuals with at least secondary education who remained in agriculture. At the same time, the proportion of individuals with secondary or higher education who either remained in services or in industry were about three times the proportion of their counterparts who respectively moved to agriculture. The proportion of persons moving between industry and services who had at least secondary education differ only slightly in favor of those who moved from industry to services.

Table 6 also shows that among individuals who remained in agriculture, 57.3% were married which is lower compared to the corresponding share for those who either remained in industry or services. Additionally, there were relatively more married individuals moving into agriculture than those exiting agriculture to other sectors. In contrast, the data shows limited regional- and district-level migration within 5 years prior to 2021. Generally, one can observe from Table 6 that movements out of any sector to another is associated with a higher likelihood to migrate, especially movements from industry to services, followed by agriculture to services.

4.2. Regression results

4.2.1. Effect of sectoral transitions on welfare at end period - OLS and probit results

This section presents the regression results on the effect of cross-sector labor movements on welfare indicators in 2021. Table 7 shows the OLS regression results of the effect of sectoral transition on real consumption expenditure as well as probit regression results of the effect on poverty status (that is, the probability of being poor) in 2021. The OLS regression results of the effect on dietary diversity are provided in Table A1 in the Appendix.

Generally, the results in Table 7 indicate that, apart from movements from agriculture to services, services to agriculture, and agriculture to industry, the other types of cross-sector labor movements do not have statistically significant effect on welfare in 2021. Specifically, a move from agriculture to either services or industry has a positive and statistically significant effect on real consumption expenditure in 2021, whereas a move from services to agriculture is associated with a statistically significant reduction in real consumption expenditure in 2021.

Table 7 further shows that these results are largely consistent with those on the relationship between sectoral transitions and poverty status in 2021. As can be observed from Table 7, a move from agriculture to services is negatively associated with the probability of being poor in 2021, while the reverse move is associated with an increased probability of being poor in 2021. However, in contrast to the result on the consumption expenditure, moving from agriculture to industry has no statistically significant effect on poverty status in 2021. The regression results generally suggest that movements out of agriculture (particularly to services) may be welfare-enhancing while movement into agriculture may be welfare-reducing. These results are similar to those found in Uganda by Christiaensen and Kaminski (2015), and particularly in Ghana, by Atta-Ankomah and Osei (2021). However, compared to Christiaensen and Kaminski (2015), our results show that the welfare effects are differentiated by the destination sectors for movements out of agriculture.

Further findings presented in Table A1 in the Appendix indicate that none of the sectoral transitions has statistically significant and positive relationship with household dietary diversity. These results may be associated with the fact that the dietary composition of the households may be more rooted in their taste and preferences, which are generally known to be more stable over time, or may require a relatively more monumental shift in household budget constraints to change (Sakong and Haynes 1993; Hoeffler and Ariely 1999).

From Table 7, other base year (2015) positive correlates of consumption expenditure (but at same time, are negative correlates of the probability of being poor) worth-mentioning are the age of the individual, education (i.e. having at least secondary education), access to electricity, and the quality of household dwelling measured using the material used for the roof and floor.

The results show further that large household sizes tend to have negative significant effect on welfare outcomes. As observed in Table 7, for each of the models for real consumption expenditure, the coefficient of household size is negative and statistically significant, while at the same time exhibiting positive statistically significant effect in each of the models for the probability of being poor. In addition, being a resident of a rural community is associated with a poor welfare outcomes – rural residents have lower consumption expenditure in 2021 as well as higher probability of being poor in 2021. Also, migration across districts is found to have a positive effect on consumption expenditure and a negative effect on the probability of being poor in 2021. Thus, similar to the findings of Christiaesen et al (2013) and Christiaesen and Todo (2014), we find that internal migration is important to improving welfare in developing countries. Further insights in subsequent sections show that migration across districts is positively associated with welfare-enhancing sectoral transitions from agriculture to other sectors.

4.2.2. Effect of cross-sector labor movement on transitions in welfare status – Probit and IV regression results

In this section, we explore whether individuals embarking on cross-sector movements are able to achieve positive welfare transitions between 2015 and 2021 (that is, where an individual who was poor in 2015 became nonpoor in 2021) or leads to a slide into poverty (that is, negative welfare transition, which involves a nonpoor in 2015 becoming poor in 2021). We first explore the relationship using Probit regression models, of which the results are reported in Table 8, and then address a potential endogeneity problem using instrumental variables method where the parameters are estimated using the Limited Information Maximum Likelihood (LIML) estimator, with the results reported in Table 9. It must be noted that the regressions for positive welfare transitions were performed for only sectoral transitions from agriculture because of limited degrees of freedom associated with the other sectoral transitions. This problem arises from the fact that the definition or measurement of both the welfare transition variables and cross-sector labor movement variables significantly restrict the number of observations for analysis based on the initial welfare status and the type of cross-sector movements. Moreover, the proportion of individuals who were poor in 2015 was much smaller (21.2%) compared to the proportion for the nonpoor (78.8%). This implies that the degrees of freedom for the positive welfare transitions were comparatively smaller than those for the negative welfare transitions.

Columns 1 and 2 of Table 8 show the Probit regression results on the relationship between movements out of agriculture and the probability that an individual will achieve positive welfare transition, while Columns 3 to 8 show the results for negative welfare transitions and each of the six cross-sector labor movements. The results in Column 1 show that a move from agriculture to services has statistically significant positive temporal welfare effect; poor individuals in the 2015 base period that transitioned from agriculture to services were more likely to become non-poor in 2021 end period. However, the results in Column 2 indicate that a move from agriculture to industry has no statistically significant relationship with the probability that a positive welfare transition would occur. With regards to the negative welfare transitions, the results in Columns 3 and 4 show that a move from agriculture to either services or industry has statistically significant and negative relationship with the probability that an individual would transition from being nonpoor in 2015 to being poor in 2021. A movement from services to agriculture, however, is positively associated with a statistically significant increased probability of experiencing a negative welfare transition. The results on negative transition in Table 8 further show that the other types of cross-sector movements do not have statistically significant relationship with negative welfare transitions between 2015 and 2021. Other factors which are important in the welfare transitions (particularly, negative welfare transition) are age, household size, being resident in a rural community, and improved housing characteristics, each having a statistically significant and negative effect on negative welfare transition. Note that an individual's age is positively associated with positive welfare transitions. Thus, the likelihood of moving out of poverty or remaining in a nonpoor status is higher among older people compared to younger ones.

As a robustness check on the Probit regressions of Table 8 and to deal with potential endogeneity between the two transition variables, Table 9 presents results from the IV LIML. The results on the endogeneity test in Table 9 show that for positive welfare transitions, the variable for movements from agriculture to services is exogenous while that for movements from agriculture to industry is found to be endogenous. On the other hand, agriculture to services is found to be endogenous with negative welfare transition, while the other cross-sector movements are exogenous with negative welfare transitions. All the results in Table 9 pass the relevant test of identification. The null hypothesis of under identification is rejected at 1% significance level in each of the model. Using the rule of thumb that the first-stage F statistics should be greater than 10, all models also pass weak identification test as shown by the Kleibergen-Paarrk F Statistic (which is a robust variant of the first-stage F statistic). It is noteworthy that for models with endogenous cross-sector variables, the IV LMIL results are preferred to the Probit regression results, while the reverse is true for models with exogenous cross-sector variables. The results of Table 9 are, however, qualitatively similar to those of Table 8. The signs of the coefficients and their level of statistical significance generally do not differ much although we note the following important difference: after addressing endogeneity, cross-sector movements from agriculture to industry is found to have statistically significant (at 1% significance level) and negative effect on the probability of experiencing positive welfare transitions (column 2 of Table 9), in contrast to the results from the Probit regression (column 2 of Table 8). In addition, we note that the magnitudes of the coefficients tend to be lower (both positive and negative coefficients) in the IV LMIL compared to the Probit results, a clear indication of positive selection (i.e., correlation between the endogenous variables and error term being positive).

Putting together the results from both the Probit and IV models, we highlight the following key implications of the findings. First, outward and inward movements between agriculture and industry may have different implications for welfare based on the initial welfare status of the individual. While a move from agriculture to industry reduces the likelihood of experiencing positive transitions if you were poor in 2015, it helps prevent a slide into poverty for those who were nonpoor in 2015. This result may be driven by the likelihood that it may not be the movements across these two broad sectors that matter for welfare but the specific activities or subsectors within the broad sectors between which the movements occur. This may be linked to the possibility that the initial welfare status of the individual may have significant implications on the person's capacity to move, for example, from an activity area/ subsector within agriculture to relatively more welfare-enhancing area or subsector within industry. If such an individual ends up in a subsector of industry where productivity levels are worse or not better than his initial activity area in agriculture, then, it will be highly likely for the person to either experience no welfare gains or deteriorated welfare status.

Second, a movement from agriculture to services is welfare-enhancing, while a reverse move has a reducing effect on welfare and these effects do not seem to depend on the initial welfare status of the individual. Thus, unlike the movements from agriculture to industry, movements between agriculture and services at the broad sectoral level matter for welfare.

However, this does not suggest that there may be no important heterogeneities in the effect by subsector-to-subsector movements between agriculture and services.

4.2.3. Determinants of cross-sector labor movements

In this section, we explore the correlates (mainly demographic and socioeconomic factors) associated with cross-sector labor movements. This will help determine the demographic and socioeconomic characteristics of individuals who are able to undertake welfare-enhancing cross-sector movements or otherwise. Probit regression results on the determinants are reported in Table 10. Columns 1 and 2 are respectively for movements from agriculture to services and services to agriculture, while Columns 3 and 4 are respectively for agriculture to industry and industry to agriculture. Column 5 is for industry to services while Column 6 is for services to industry. For brevity, the discussion in this section mainly focuses on the variables that are found to have statistically significant relationship with the cross-sector movements.

From Table 10, one can observe in general that the key correlates of the sectoral movements are gender, age, education, marital status, migration, housing characteristics (particularly floor types) as well as the sectoral shares in employment at the community level. We can, however, observe further that the importance of these correlates differs by the types of cross-sector movements. The results in Columns 1 and 2 show that age is negatively related with movements from agriculture to services and from agriculture to industry while it is positively associated with movements from services to agriculture. Being a female has no statistically significant relationship with movements between agriculture and services. However, females are more likely to move from industry to services, but less likely to move from agriculture to industry and from services to industry. Having at least primary education is associated with an increased chance of moving from agriculture to services as well as moving from agriculture to industry while secondary or higher education is negatively related with movements from services to agriculture, industry to agriculture and industry to services. Having primary education is also negatively associated with movement from industry to services but the reverse move is positively associated with having primary education.

The results in Table 10 one can also observe that married individuals have an increased probability of moving from industry to agriculture but have a lower probability of moving from industry to services. The results further show that migration is only important for movement between agriculture and services and a move from agriculture to industry. Specifically, we find migration to be positively associated with movements from agriculture to services as well as movement from services to agriculture. It must be noted, however, that district-to-district migration is more important for movements from agriculture to services while region-to-region migration is important for movements from services to agriculture. Additionally, district-to-district migration is positively associated with movement from agriculture to services while region-to-region migration is positively related to industry to services. This suggest that while migration may aid cross-sector labor movements which are welfare-enhancing, it may also drive cross-sector labor movements which negatively affect welfare. In general, Table 10 shows that the higher the receiving sector's share in employment at the community level, the higher the probability of moving to that sector while the reverse is true for the giving sector's share in employment at the community level. By and large, the results also show that positive correlates of the outward movements tend to be negative correlates of the inward movements, and this is also true for movement from agriculture to services and services to agriculture which have been respectively shown to enhance welfare and reduce welfare. These results are generally in line with a previous study on Ghana by Atta-Ankomah and Osei (2021) which also explore correlates of cross-sector labor movements in Ghana.

4.2.4. Drivers of internal migration

One of the key results found in Section 4.2.1 was that internal migration in the last five years prior to 2021, especially migration across districts, had a significant effect on the welfare indicators at 2021 particularly real consumption expenditure. In Section 4.2.3, we also saw that whether the individual migrated within the last five year prior to the 2021 was significantly related to the cross-sector labor movements especially those between agriculture and services. These results together suggest that while migration may have a direct effect on welfare, it may at the same time serve as an important mechanism by which individuals move across different economic sectors; movements which may bear important welfare implications, as shown in both Section 4.2.1 and Section 4.2.2. In this section, we present further evidence, indicating that internal migration may also be driven by cross-sector labor movements as well as exploring other key correlates of both district-to-district and region-to-region migration. Table 11 presents results from probit regressions in which individual migration status are regressed on cross-sector labor movement, while the full sets of regressions with other correlates are presented in Table A5 in the Appendix Section.

We observe in Table 11 that individuals who move from agriculture to services or agriculture to industry are more likely to migrate across districts. Similarly, individuals who move from industry to services or from services to agriculture are more likely to migrate from one district to the other. Table 11 additionally shows that region-to-region migration is also positively related with movements from agriculture to services, from services to agriculture as well as from industry to agriculture. We note here that, in general, the cross-sector labor movements which have a statistically significant association with migration (especially migration across districts) are the ones that tend to have welfare effects. Further information in Table A5 in the Appendix Section show that younger people (particularly, the youth), individuals with at least secondary education are more likely to migrate while older individuals, those who are married and those with primary education are less likely to migrate. Additionally, rural residents are less likely to migrate. The key insight from these correlates is that individuals who migrate are largely economic migrants, who are seeking to improve their welfare conditions although this may not always be achieved.

5. Conclusions and policy implications

This study uses a micro panel dataset on Tanzania (i.e. NPS dataset) to empirically examine the effect of structural change and internal migration on welfare, providing several insights into the micro dynamics and impact of structural change in a developing country context. The study therefore represents a significant attempt at addressing an important research gap on understanding the nature and impact of structural change and internal migration from a micro perspective in developing countries, while providing a lot of learning to shape policies towards a transformative structural change in Tanzania as well as countries with context similar to Tanzania. The study used descriptive analysis, and more importantly, several regression models including the instrumental variables technique to explore the nature of structural change including the relationship between cross-sector labor movement and internal migration and their effects on welfare transitions. While this study is not the first on structural change in Tanzania using micro (panel) datasets, it is distinct in terms of approach, scope and findings (see Benson et al 2017; Christiansen et al 2013).

In this study we show that cross-sector labor movements in Tanzania have been dominated by movements between agriculture and services although agriculture continues to remain the key employment avenue for Tanzanians. These results are generally consistent with those observed for Ghana by Atta-Ankomah and Osei (2021), except that the service sector dominated employment shares in Ghana. Additionally, we show that the number of people who slid into poverty was nearly twice the number who escaped poverty and these welfare changes are significantly influenced by the pattern of sectoral transitions experienced by the individuals. However, different patterns of sectoral transitions have varying effects on welfare, and in some cases (especially for movements between agriculture and industry), the direction of the effect tends to depend on the initial welfare status, and by conjecture, the specific activity areas/subsectors between which the transitions occur. We also learn that sectoral transitions and internal migration (particularly, across districts) are both relevant to each other, and more importantly, we find that the cross-sector labor movements which have a statistically significant association with migration across districts are the ones that tend to have welfare effects. While similar micro factors are found to be drivers of both sectoral transition and migration, education, particularly secondary or higher education, is associated with a higher chance of an individual embarking on welfare-enhancing sectoral transitions and migration.

Based on the findings, this study provides policy insights for fostering growth-enhancing structural transformation that leaves no one behind in Tanzania. Specifically, the findings call for transformative agricultural policies that would increase productivity levels in the sector in order to improve the welfare of many who may have no option other than remaining in agriculture. Moreover, improving access to education among young people (that is, deepening human capital development) is critical for ensuring that structural change is transformative enough to improve welfare. This will facilitate spatial and sectoral movements that would allow the individuals involved to exploit their capabilities, particularly human capital, for their own benefit and for the country.

Finally, the study shows that a more granular analysis is needed to understand the welfare effects of subsector-to-subsector movements, including subsectors within the same broad sector. The data used in this study did not allow such granular analysis due to limited degrees of freedom. Relatedly, the study was not able to fully capture the role of informality and its different forms. The definition of services and industry used in the current study is so broad that it assumes individuals move from the traditional agriculture sector into these sectors, without taking into account whether the services and industries involved are informal. Future study could examine separately drivers of movement from agriculture to informal sectors (services and industry) and the more formal service and industry sectors.

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Table 1: Variable definition and descriptive statistics

Variable	Definition	Mean	Sd
Sex_y4	1 if the individual is female and 0 otherwise	0.46	0.50
Age_y4	Age of individual in completed years in 2015	32.91	14.32
Primary_y4	1 if the individual has completed primary education in 2015	0.56	0.50
Secondary_plus_y4	1 if the individual has completed secondary or higher education in 2015	0.10	0.30
Married_y4	1 if the individual was married in 2015	0.63	0.48
y5_dist_5_migrat	1 if the individual has migrated across districts within the past 5 years in 2021	0.09	0.29
y5_reg_5_migrat	1 if the individual has migrated across regions within the past 5 years in 2021	0.03	0.17
Agric_Agric	1 if the individual was employed in Agriculture in both 2015 and 2021	0.83	0.38
Agric_Industry	1 if the individual was employed in Agriculture in 2015 but moved to Industry in 2021, and 0 if the individual remained in agriculture	0.04	0.20
Agric_Services	1 if the individual was in Agriculture in 2015 but moved to Services in 2021, and 0 if the individual remained in agriculture	0.13	0.34
Industry_Agric	1 if the individual was in Industry in 2015 but moved to Agriculture in 2021, and 0 if the individual remained in industry	0.31	0.46
Industry_Industry	1 if the individual was in Industry in both 2015 and 2021	0.36	0.48
Industry_Services	1 if the individual was in Industry in 2015 but moved to Services in 2021, and 0 if the individual remained in industry	0.33	0.47
Service_Agric	1 if the individual was in Services in 2015 but moved to Agriculture in 2021, and 0 if the individual remained in services	0.29	0.45
Services_Industry	1 if the individual was in Services in 2015 but moved to Industry in 2021, and 0 if the individual remained in services	0.07	0.26
Services_Services	1 if the individual was in Services in both 2015 and 2021	0.64	0.48
Agric_share	Agriculture share of employment in 2021 at the community level	64.39	29.58
Industry_share	Industry share of employment in 2021 at the community level	7.83	9.07
Service_share	Services share of employment in 2021 at the community level	27.78	24.68
Poor at 2021	1 if the individual was in a poor household at 2021 and 0 otherwise	0.31	0.46
Positive poverty trans	1 if the individual was poor in 2015 but became non-poor in 2021, and 0 if the individual was poor in both 2015 and 2021	0.47	0.50
Negative poverty trans	1 if the individual was non-poor in 2015 but became poor in 2021, and 0 if the individual was non-poor in both 2015 and 2021	0.21	0.41
Per capita consumption	Real consumption per adult equivalent (TZS) at 2021 (28 days)	124,386	170,753
Ln_expmR	Natural log of real consumption per capita consumption (28 days)	11.40	0.76
Dietary diversity	Number of food groups consumed within the last 7 days at 2021	7.77	2.08
Household Size	Number of persons in the household at 2015	4.75	2.58
Electricity	1 if the household had access to electricity at 2015	0.22	0.41
Basic Sanitation	1 if the household had access to basic sanitation facilities; include flush or pour toilets, ventilated pit latrines (VIP), and simple pit latrines at 2015	0.87	0.33
Dry safe water	1 if the household had access to safe drinking water during the dry season at 2015	0.56	0.50
Wall	1 if main material used for walls is bricks, cement blocks, stone with lime at 2015	0.49	0.50
Floor	1 if material used for floor: parquet/polished wood, vinyl/asp, cement at 2015	0.44	0.50
Roof	1 if material used for roof is asbestos, tiles, metal/tin sheets, cement at 2015	0.76	0.43
Rural	1 if the individual/household is located in rural area at 2015	0.68	0.47

Table 2: Transitions in Sector of Employment between 2015 and 2021

Sector of employment at 2015	Sector of employment at 2021			Total
	Agriculture	Industry	Services	
Panel A: Frequencies as percentages of row totals				
Agriculture	82.7	4.3	13.0	100
Industry	30.8	36.0	33.2	100
Services	29.1	7.2	63.7	100
Total	61.3	8.7	30.0	100
Panel B: Frequencies as percentages of number of all individuals in the sample				
Agriculture	49.4	2.6	7.7	59.7
Industry	3.4	4.0	3.7	11.0
Services	8.5	2.1	18.7	29.3
Total	61.3	8.7	30.0	100

Note: Proportions displayed in this figure are calculated for the subset of the sample who were present in both waves in order to directly map transitions in status of employment. Therefore, these values will not directly match wave-specific point estimates, which are representative of the full populations in each wave.

Table 3: Overall poverty/welfare indicators in 2015 and 2021

Variable	Description	Year	
		2015	2021
Per capita consumption	Real consumption per adult equivalent (TZS) (expressed in 2021 prices)	144,015	124,386
Poverty headcount	1 if the per capita consumption expenditure is below the international poverty line (US$2.15 2017 PPP)	0.212	0.306
Poverty gap	Poverty gap index	0.05	0.09
Poverty severity	Poverty severity index	0.02	0.04
Dietary diversity	Number of food groups consumed within the last 7 days	7.99	7.77

Note: sample here is restricted to only households that were in both waves and had employment/sector information in both periods.

Table 4: Transitions in poverty status between 2015 and 2021

Poverty status at 2015	Poverty status at 2021		Total
	Non poor	Poor	
Panel A: Frequencies as percentages of row total			
Non poor	79.25	20.75	100
Poor	46.87	53.13	100
Total	72.92	27.08	100
Panel B: Frequencies as percentages of all household in the sample			
Non poor	63.75	16.69	80.44
Poor	9.17	10.39	19.56
Total	72.92	27.08	100

Note: figures in this table were generated using individual-level data, thus, the totals might not correspond with the overall poverty headcount rates presented in Table 3 above.

Figure 3: The welfare quadrants – a scatter diagram depicting transitions in welfare, 2015 – 2021

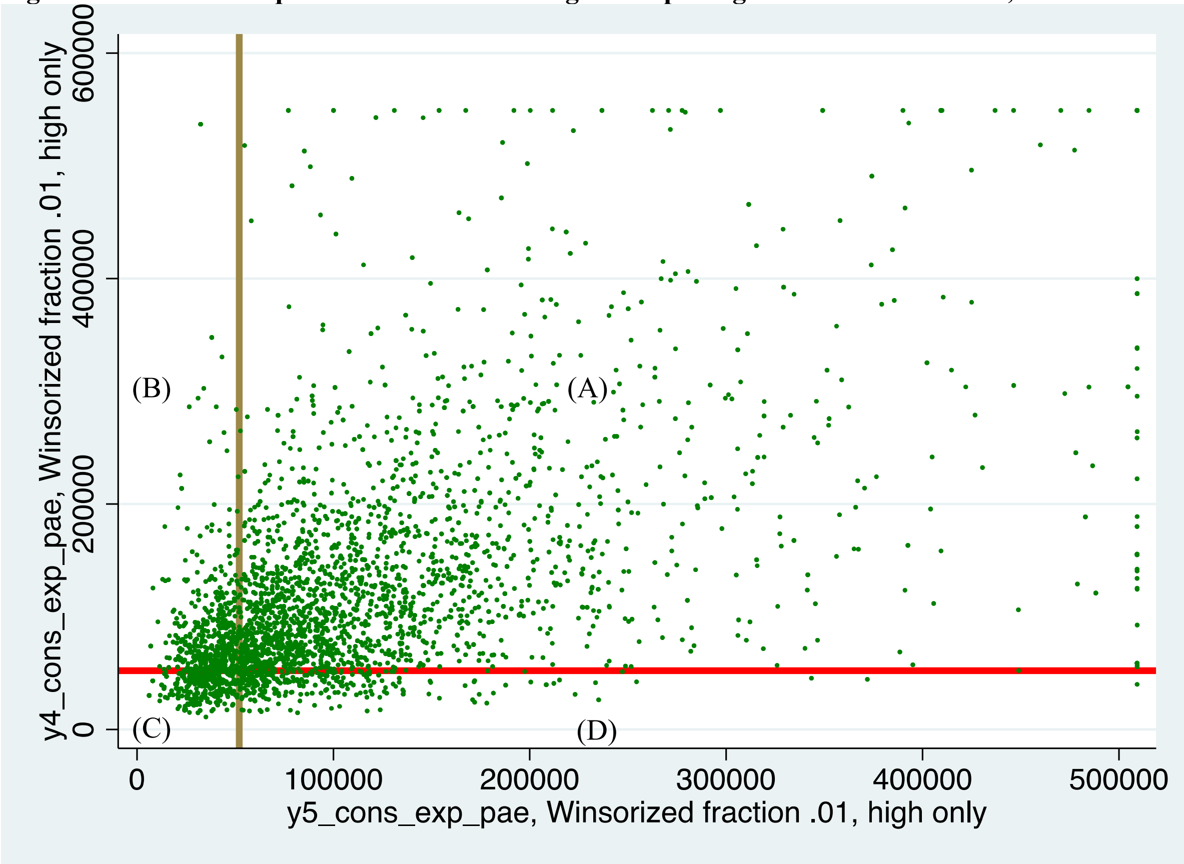

Figure 4: Changes in consumption expenditure by sectoral transitions (%)

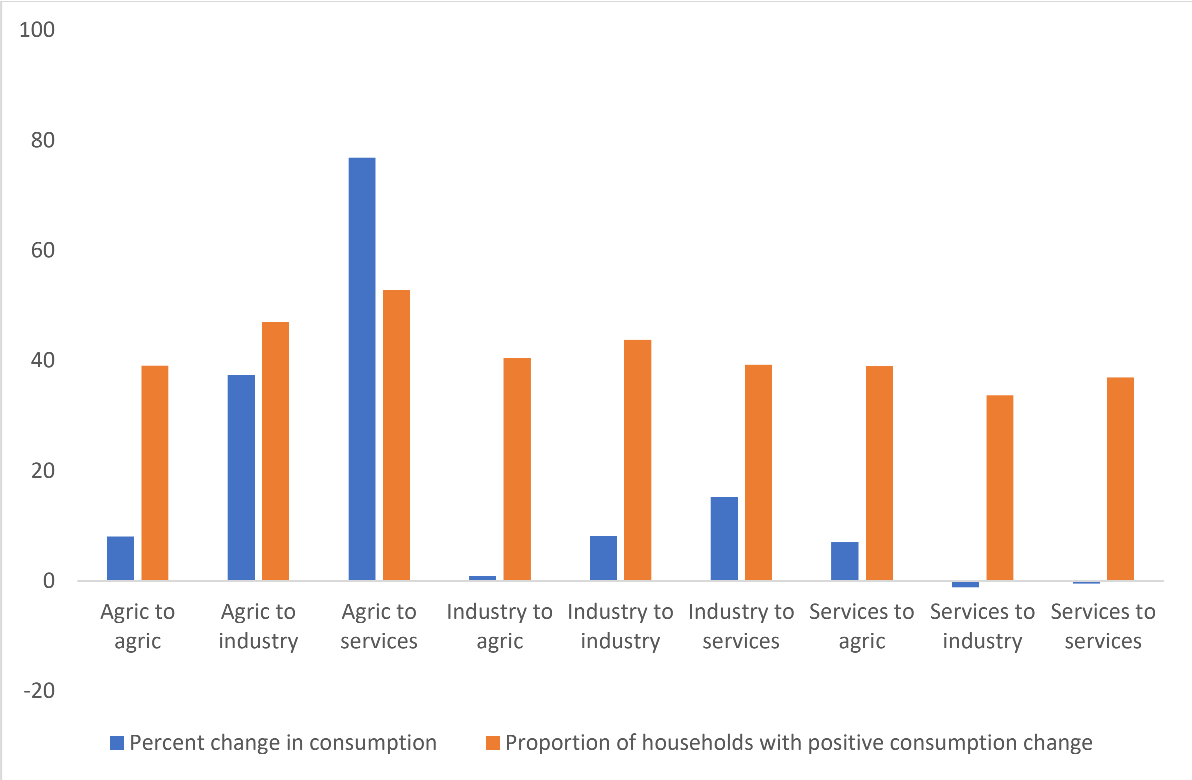

Table 5: Poverty indicators at 2021 by specific sectoral labor movements

Type of sectoral transitions	Welfare indicators at 2021					
	Median consumption expenditure	Mean consumption expenditure	Headcount	Poverty gap	Severity	Dietary diversity
Agric to agric	59,253	75,764	0.42	0.13	0.06	7.45
Agric to industry	73,546	92,733	0.33	0.12	0.06	7.63
Agric to services	86,625	135,134	0.20	0.05	0.02	7.69
Industry to agric	70,764	89,268	0.29	0.10	0.04	7.51
Industry to industry	102,828	134,606	0.07	0.03	0.01	7.93
Industry to services	104,581	136,087	0.13	0.03	0.01	7.84
Services to agric	88,469	121,705	0.25	0.07	0.03	7.94
Services to industry	135,241	144,089	0.06	0.01	0.00	8.34
Services to services	135,513	172,896	0.05	0.01	0.00	8.33

Table 6: Individual Characteristics by specific sectoral labor movements

Type of sectoral transitions	Covariates at 2015							
	Female (%)	Average Age	Primary (%)	Secondary plus (%)	Marital status (%)	Youth (%)	Y5 dist. migration 5 years[1] (%)	Y5 reg. migration 5 years[1](%)
Agric to agric	49.04	32.45	49.63	3.49	57.35	30.03	4.68	2.07
Agric to industry	21.00	28.32	53.00	10.00	45.00	49.00	5.00	5.00
Agric to services	50.16	30.71	58.69	12.46	58.03	49.51	5.25	4.59
Industry to agric	19.05	36.94	70.63	9.52	77.78	30.95	5.56	5.56
Industry to industry	9.26	34.28	53.70	30.86	69.75	38.89	8.64	1.85
Industry to services	27.14	33.94	51.43	20.71	51.43	46.43	12.86	7.86
Services to agric	47.80	38.60	58.49	11.95	71.38	24.84	11.32	7.55
Services to industry	24.21	34.18	62.11	24.21	72.63	33.68	21.05	5.26
Services to services	43.23	36.10	45.01	29.10	66.86	33.02	16.75	3.92

Notes: [1] individual migrated within 5 years prior to 2021

Table 7: Effect of cross-sector labor movement on welfare indicators at 2021

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Independent variables	Dependent variable = ln_expmR (Natural log of real adult equivalent consumption expenditure at 2021)						Dependent variable =y5_poor (1 if poor at 2021 but zero if nonpoor at 2021)					
sex_y4	0.0130	0.0197	-0.0421	-0.0690	-0.0281	-0.0474	-0.0484	-0.0538	0.2523	0.2034	0.0191	0.1591
	(0.0251)	(0.0261)	(0.0996)	(0.0894)	(0.0362)	(0.0388)	(0.0535)	(0.0555)	(0.2884)	(0.2346)	(0.1139)	(0.1582)
age_y4	0.0032***	0.0034***	-0.0035	0.0010	0.0023	-0.0001	-0.0080***	-0.0076***	0.0049	-0.0035	-0.0110**	-0.0120*
	(0.0008)	(0.0009)	(0.0033)	(0.0032)	(0.0015)	(0.0017)	(0.0019)	(0.0019)	(0.0108)	(0.0084)	(0.0049)	(0.0072)
married_y4	-0.0524*	-0.0398	-0.0810	-0.1761**	-0.0349	-0.0550	0.0981	0.0659	-0.0807	0.0516	-0.0706	-0.1812
	(0.0289)	(0.0298)	(0.0772)	(0.0798)	(0.0387)	(0.0412)	(0.0648)	(0.0668)	(0.2348)	(0.2138)	(0.1312)	(0.1735)
primary_y4	0.0302	0.0654**	-0.1400	-0.1421	-0.2249***	-0.2349***	-0.0898	-0.1406**	0.3798	0.2319	0.1024	0.0665
	(0.0268)	(0.0269)	(0.0964)	(0.0903)	(0.0424)	(0.0464)	(0.0569)	(0.0586)	(0.3028)	(0.2374)	(0.1307)	(0.1868)
secondary_plus_y4	0.1886***	0.2602***	-0.0857	0.0213	0.0135	-0.0582	-0.3757**	-0.4006**	0.1094	-0.2497	-0.4320**	-0.2092
	(0.0676)	(0.0788)	(0.1138)	(0.1221)	(0.0523)	(0.0550)	(0.1485)	(0.1602)	(0.3642)	(0.3595)	(0.2088)	(0.2343)
rural	-0.0729	-0.0990*	-0.1435*	-0.0852	-0.0104	-0.0222	0.1612	0.2404*	0.1829	0.1969	0.0095	0.2395
	(0.0514)	(0.0565)	(0.0828)	(0.0961)	(0.0468)	(0.0461)	(0.1220)	(0.1323)	(0.2799)	(0.2695)	(0.1530)	(0.1840)
y4_hhsize	-0.0166***	-0.0161***	-0.0381***	-0.0400***	-0.0583***	-0.0627***	0.0243***	0.0266***	0.0456	0.0612*	0.0656***	0.1010***
	(0.0030)	(0.0031)	(0.0137)	(0.0139)	(0.0074)	(0.0076)	(0.0071)	(0.0073)	(0.0339)	(0.0321)	(0.0213)	(0.0265)
y5_dist_5_migrat	0.2711***	0.2820***	0.2711	0.3621*	0.2475**	0.2693***	-0.2568	-0.3962*	-0.1686	-0.4584	-0.4087	-0.6244
	(0.0961)	(0.1004)	(0.1891)	(0.1960)	(0.0971)	(0.0984)	(0.2079)	(0.2383)	(0.4880)	(0.5522)	(0.4214)	(0.4607)
y5_reg_5_migrat	0.0089	0.0027	-0.1203	-0.0688	-0.1865	-0.0882	-0.3006	-0.1205		-0.2277	0.4872	
	(0.1380)	(0.1470)	(0.2255)	(0.2465)	(0.1360)	(0.1396)	(0.2707)	(0.3003)		(0.7030)	(0.4786)	
y4_electricity	0.3754***	0.4375***	0.1406*	0.2894***	0.2772***	0.2975***	-1.1780***	-1.1729***	-0.3136	-0.3459	-0.2331	-0.3168*
	(0.0696)	(0.0776)	(0.0762)	(0.1053)	(0.0414)	(0.0407)	(0.2610)	(0.2684)	(0.3100)	(0.3786)	(0.1613)	(0.1915)
y4_basicsanit	0.0497	0.0165	0.2221	0.0817	-0.0203	0.1150	0.0354	0.0793	-0.2528	0.0410	-0.2043	-0.1697
	(0.0312)	(0.0318)	(0.1437)	(0.1192)	(0.1054)	(0.1164)	(0.0675)	(0.0686)	(0.3985)	(0.2947)	(0.2169)	(0.3525)
y4_safewaterdry	-0.0329	-0.0318	0.0486	-0.0036	0.0989**	0.0476	0.0442	0.0358	-0.0834	-0.0621	-0.3718***	-0.1715
	(0.0262)	(0.0268)	(0.0750)	(0.0860)	(0.0431)	(0.0470)	(0.0547)	(0.0567)	(0.2648)	(0.2216)	(0.1244)	(0.1806)
y4_walls	-0.0019	0.0184	-0.0148	-0.0021	-0.0280	-0.0241	-0.0842	-0.0930	-0.0593	-0.2851	0.0736	0.0986
	(0.0302)	(0.0315)	(0.1027)	(0.0952)	(0.0439)	(0.0447)	(0.0677)	(0.0697)	(0.2775)	(0.2314)	(0.1387)	(0.1816)
y4_floor	0.1787***	0.1541***	0.0398	0.1631	0.2453***	0.2275***	-0.3361***	-0.2774***	-0.1706	-0.4587*	-0.5624***	-0.5899***
	(0.0366)	(0.0387)	(0.1057)	(0.0990)	(0.0493)	(0.0532)	(0.0806)	(0.0823)	(0.2966)	(0.2645)	(0.1427)	(0.1874)
y4_roof	0.1150***	0.1234***	0.3781***	0.2337*	0.0498	-0.0025	-0.0974	-0.1031	-0.7940**	-0.1543	0.1346	0.2016
	(0.0298)	(0.0304)	(0.1300)	(0.1189)	(0.0680)	(0.0828)	(0.0616)	(0.0638)	(0.3292)	(0.2583)	(0.1781)	(0.3004)
agr_ser	0.3547***						-0.5216***					
	(0.0446)						(0.0901)					
agr_ind		0.1367**						-0.1637				
		(0.0667)						(0.1351)				
ind_ser			0.0116						0.2927			
			(0.0727)						(0.2355)			
ind_agr				-0.1335						0.1705		
				(0.0862)						(0.2104)		
ser_agr					-0.1765***						0.6749***	
					(0.0470)						(0.1314)	
ser_ind						-0.0647						0.1167
						(0.0533)						(0.2437)
Constant	10.9200***	10.9199***	11.4557***	11.4701***	11.7217***	11.8311***	-0.1172	-0.2094	-1.0968	-1.0023*	-0.7821**	-1.2235**
	(0.0733)	(0.0790)	(0.2375)	(0.2143)	(0.1251)	(0.1402)	(0.1607)	(0.1702)	(0.6826)	(0.5637)	(0.3230)	(0.4816)

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent variable = ln_expmR (Natural log of real adult equivalent consumption expenditure at 2021)						Dependent variable =y5_poor (1 if poor at 2021 but zero if nonpoor at 2021)					
Observations	2,483	2,278	302	266	1,160	937	2,483	2,278	288	266	1,160	899
R-squared	0.1447	0.1126	0.2112	0.3173	0.2914	0.2592						
Pseudo R-squared							0.0720	0.0573	0.192	0.166	0.229	0.184
chi2							193.8	135.7	40.24	41.04	136.6	63.11
F	26.74	16.55	4.479	6.967	27.21	19.85						
p	0	0	6.14e-08	0	0	0	0	0	0.000418	0.000548	0	7.29e-08

Notes: (1) Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 8: Effect of cross-sector labor movement on welfare transitions - Probit regression results

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Positive transition in poverty status		Negative transition in poverty status					
sex_y4	0.0460	0.0994	-0.0795	-0.0668	0.0794	0.2079	0.0190	0.1030
	(0.0960)	(0.0999)	(0.0661)	(0.0686)	(0.3424)	(0.2718)	(0.1212)	(0.1599)
age_y4	0.0085**	0.0072**	-0.0086***	-0.0083***	0.0012	0.0001	-0.0128**	-0.0135*
	(0.0034)	(0.0034)	(0.0023)	(0.0024)	(0.0133)	(0.0097)	(0.0054)	(0.0075)
married_y4	-0.1663	-0.1215	0.0684	0.0449	0.0706	0.3318	-0.0895	-0.1174
	(0.1141)	(0.1175)	(0.0815)	(0.0843)	(0.2645)	(0.2551)	(0.1409)	(0.1839)
primary_y4	0.1400	0.1522	-0.0189	-0.0848	0.4462	0.3291	0.1499	0.0300
	(0.0990)	(0.1016)	(0.0721)	(0.0747)	(0.3561)	(0.3093)	(0.1451)	(0.1935)
secondary_plus_y4	0.5301	0.3512	-0.2329	-0.3138*	0.2673	-0.1739	-0.4346**	-0.3512
	(0.3362)	(0.3484)	(0.1700)	(0.1874)	(0.4062)	(0.4227)	(0.2216)	(0.2522)
rural	0.1473	0.0265	0.2183	0.2502	-0.0669	-0.1796	0.0370	0.3020
	(0.2702)	(0.3061)	(0.1438)	(0.1559)	(0.3239)	(0.3042)	(0.1606)	(0.1955)
y4_hhsize	0.0023	0.0001	0.0271***	0.0294***	0.0397	0.0318	0.0656***	0.0977***
	(0.0109)	(0.0111)	(0.0090)	(0.0095)	(0.0367)	(0.0360)	(0.0238)	(0.0290)
y5_dist_5_migrat	0.4192	0.5992	-0.1855	-0.2787	-0.1949	-0.3633	-0.3260	-0.4962
	(0.4346)	(0.5354)	(0.2377)	(0.2697)	(0.5093)	(0.5404)	(0.4098)	(0.4556)
y5_reg_5_migrat	-0.0747	-0.1989	-0.3040	-0.1431			0.5552	
	(0.5783)	(0.7070)	(0.3095)	(0.3412)			(0.4643)	
y4_electricity	0.2363	0.1737	-1.5143***	-1.5214***	-0.2450	-0.4177	-0.2271	-0.2549
	(0.5979)	(0.6152)	(0.3935)	(0.4036)	(0.3245)	(0.3838)	(0.1622)	(0.1945)
y4_basicsanit	-0.0246	-0.0364	0.0865	0.1537*	-0.5607	-0.1326	-0.2224	-0.2763
	(0.1104)	(0.1113)	(0.0879)	(0.0898)	(0.4282)	(0.3681)	(0.2352)	(0.3643)
y4_safewaterdry	-0.1226	-0.0878	-0.0152	-0.0101	-0.0323	-0.1078	-0.2976**	0.0313
	(0.0962)	(0.0989)	(0.0688)	(0.0718)	(0.3039)	(0.2747)	(0.1344)	(0.2050)
y4_walls	0.1420	0.0884	-0.0768	-0.1233	0.1881	-0.3999	0.0958	0.0944
	(0.1265)	(0.1310)	(0.0825)	(0.0849)	(0.3120)	(0.2713)	(0.1488)	(0.1901)
y4_floor	0.2172	0.1963	-0.2496***	-0.1777*	-0.4797	-0.2965	-0.5589***	-0.5962***
	(0.2126)	(0.2155)	(0.0912)	(0.0938)	(0.3245)	(0.2979)	(0.1526)	(0.1984)
y4_roof	0.0780	0.0890	-0.0383	-0.0300	-0.9175**	-0.3547	0.2846	0.0821
	(0.1011)	(0.1050)	(0.0792)	(0.0821)	(0.3724)	(0.3451)	(0.2099)	(0.3144)
agr_ser	0.6541***		-0.4830***					
	(0.1619)		(0.1109)					
agr_ind		-0.2296		-0.4819***				
		(0.2477)		(0.1859)				
ind_ser					0.1350			
					(0.2645)			
ind_agr						0.1829		
						(0.2460)		
ser_agr							0.6627***	
							(0.1433)	
ser_ind								0.1121
								(0.2679)
Constant	-0.6835**	-0.5631	-0.4075**	-0.4828**	-0.5727	-0.8209	-0.9612***	-1.1121**
	(0.3329)	(0.3673)	(0.1922)	(0.2049)	(0.7896)	(0.6646)	(0.3578)	(0.5049)
Observations	751	706	1,732	1,572	264	210	1,089	867
r2_p	0.0363	0.0166	0.0730	0.0635	0.174	0.143	0.213	0.173
chi2	38.25	16.08	113.1	89.05	34.88	28.04	109.4	56.89
p	0.00139	0.447	0	0	0.00256	0.0213	0	8.55e-07

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Table 9: Effect of cross-sector labor movement on welfare transitions – IV LIML results

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable = positive poverty transition		Dependent variable=Negative poverty transition					
agr_ser	0.5365**		-0.5903***					
	(0.2231)		(0.1464)					
agr_ind		-0.9661***		-0.4571*				
		(0.3025)		(0.2379)				
ind_ser					0.0431			
					(0.0704)			
ind_agr						0.1605		
						(0.2193)		
ser_agr							0.1581**	
							(0.0709)	
ser_ind								0.0880
								(0.1047)
Control variables included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.1679	0.3434**	0.4747***	0.3663***	0.3093**	0.2127	0.1866**	0.1698*
	(0.1322)	(0.1644)	(0.0701)	(0.0670)	(0.1468)	(0.1553)	(0.0742)	(0.0967)
Observations	751	706	1,732	1,572	278	227	1,089	902
R-squared	0.0199	-0.1049	-0.0265	0.0494	0.1237	0.0937	0.1338	0.0689
Test for endogeneity:								
Endogeneity Stat.	1.952	11.98	12.44	1.982	1.167	0.381	0.332	0.592
P value	0.162	0.000537	0.000421	0.159	0.280	0.537	0.565	0.442
Test for under identification:								
Kleibergen-Paar rk LM Stat	28.46	14.96	57.17	32.11	44.44	11.40	84.38	27.39
P value	9.57e-08	0.000110	0	1.45e-08	2.23e-10	0.000735	0	1.13e-06
Test for weak identification								
Kleibergen-Paar rk F Stat	34.02	23.25	31.46	35.52	24.84	11.58	58.31	17.38
Test for over identification:								
Hansen's J Stat.			0.000807		3.768		0.0506	0.0387
P value			0.977		0.0522		0.822	0.844
Second stage F Stats.	1.910	1.503	12.27	15.17	1.208	1.815	5.403	2.105
P value for F Stat.	0.0169	0.0924	0	0	0.262	0.0308	0	0.00672

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Table 10: Determinants of cross-sector labor movements – Probit regression results

Independent variables	(1) Agric to services	(2) Services to agric	(3) Agric to industry	(4) industry to agric	(5) Industry to services	(6) Services to industry
ser_share_y5	0.0170**	-0.0192***			0.0026	-0.0065
	(0.0068)	(0.0052)			(0.0060)	(0.0040)
agr_share_y5	-0.0123**	0.0123**	-0.0067	0.0228***		
	(0.0058)	(0.0049)	(0.0043)	(0.0060)		
ind_share_y5			0.0669***	0.0184	-0.0601***	0.0344***
			(0.0090)	(0.0112)	(0.0121)	(0.0059)
y4_poor	0.0474	0.1322	0.1551	-0.0730	0.2507	0.4664
	(0.0824)	(0.1784)	(0.1233)	(0.2596)	(0.2911)	(0.3127)
sex_y4	-0.0166	0.1441	-0.6576***	-0.0766	0.5756***	-0.4691***
	(0.0710)	(0.1001)	(0.1360)	(0.2227)	(0.2214)	(0.1376)
age_y4	-0.0123***	0.0180***	-0.0078*	-0.0011	0.0106	-0.0086
	(0.0027)	(0.0042)	(0.0042)	(0.0093)	(0.0080)	(0.0067)
married_y4	0.0740	0.0586	-0.1036	0.8796***	-0.4947**	0.0630
	(0.0870)	(0.1103)	(0.1382)	(0.2181)	(0.1971)	(0.1407)
primary_y4	0.3970***	-0.0631	0.2722**	0.1930	-0.3653*	0.4489***
	(0.0830)	(0.1123)	(0.1290)	(0.2328)	(0.2198)	(0.1668)
secondary_plus_y4	0.7448***	-0.3179**	0.6824***	-0.6192*	-0.5449**	0.1988
	(0.1559)	(0.1500)	(0.2334)	(0.3171)	(0.2601)	(0.1904)
rural	-0.3530*	0.2729	0.5600	0.4884	-0.2558	-0.2389
	(0.2053)	(0.1796)	(0.4399)	(0.4012)	(0.4039)	(0.2246)
y4_hhsize	-0.0073	-0.0046	0.0134	-0.0338	0.0075	0.0040
	(0.0104)	(0.0180)	(0.0122)	(0.0313)	(0.0288)	(0.0218)
y5_dist_5_migrat	0.7125***	-0.0638	0.6490**	0.0517	0.2479	-0.2257
	(0.1905)	(0.2834)	(0.3261)	(0.3520)	(0.3278)	(0.2999)
y5_reg_5_migrat	-0.0683	0.6760**	-0.1649	0.3800	0.8301*	0.4120
	(0.2641)	(0.3422)	(0.4098)	(0.4960)	(0.4743)	(0.3922)
y4_electricity	-0.1848	0.0083	-0.1835	0.5854*	-0.2871	-0.0051
	(0.1791)	(0.1269)	(0.2696)	(0.3177)	(0.2246)	(0.1441)
y4_basicsanit	0.1806*	-0.3006	-0.1175	0.0860	-0.4116	-0.3667
	(0.1008)	(0.2195)	(0.1399)	(0.2763)	(0.3001)	(0.4130)
y4_safewaterdry	-0.0172	0.1427	0.2109*	0.1860	-0.1064	-0.0575
	(0.0748)	(0.1111)	(0.1101)	(0.2031)	(0.2023)	(0.1662)
y4_walls	-0.0570	0.1915	-0.1128	-0.1549	0.2074	0.2154
	(0.0871)	(0.1225)	(0.1501)	(0.2291)	(0.2088)	(0.1933)
y4_floor	-0.0031	-0.3192**	0.1903	-1.1717***	0.3287	0.3137
	(0.1051)	(0.1300)	(0.1572)	(0.2729)	(0.2397)	(0.1963)
y4_roof	-0.0210	0.1493	-0.0785	0.6359**	-0.2161	0.1088
	(0.0863)	(0.1626)	(0.1328)	(0.2792)	(0.2946)	(0.3106)
2.strata	-0.0270	-0.1763	0.3777	-0.2803	0.4708	-0.0157
	(0.3176)	(0.1561)	(0.4720)	(0.3563)	(0.2905)	(0.1659)
3.strata	0.6672*	-0.4479**	-0.1621	-0.3491	-0.0644	0.4021
	(0.3527)	(0.2284)	(0.6285)	(0.5122)	(0.4817)	(0.2762)
4.strata	0.1422	-0.2129	-0.9555	1.0004**	-0.6950**	-0.2083
	(0.3365)	(0.1882)	(0.5892)	(0.4668)	(0.3047)	(0.2083)
Constant	-0.8500	-0.7068	-1.8367***	-2.1363***	1.3037**	-1.4631**
	(0.6147)	(0.5332)	(0.5758)	(0.6900)	(0.5747)	(0.5772)
Observations	2,483	1,160	2,278	266	302	937
Pseudo R-squared	0.152	0.307	0.245	0.313	0.278	0.142
chi2	270.6	336.0	171.5	106.1	66.82	91.17
p	0	0	0	0	1.13e-06	1.01e-10

Notes: (1) Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 11: Relationship between migration and sectoral transitions

Variables	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent variable = y5_dist_5_migrat			
agr_ser	0.5183***					
	(0.1187)					
agr_ind		0.4143**				
		(0.1955)				
ind_ser			0.5047**			
			(0.2178)			
ind_agr				0.3604		
				(0.2467)		
ser_agr					0.3225**	
					(0.1379)	
ser_ind						0.0131
						(0.1919)
Constant	-1.3316***	-0.9645**	0.0503	-0.2018	-0.8510*	-1.0246*
	(0.4412)	(0.4361)	(0.8970)	(0.8621)	(0.4751)	(0.5633)
Observations	2,483	2,278	302	266	1,160	937
Pseudo R-squared	0.0981	0.0699	0.199	0.175	0.0667	0.0759
chi2	81.36	57.95	44.13	39.14	61.05	56.72
p	4.94e-10	4.37e-06	0.000553	0.00273	1.38e-06	6.85e-06
			Dependent variable = y5_reg_5_migrat			
agr_ser	0.3839**					
	(0.1591)					
agr_ind		0.3517				
		(0.2365)				
ind_ser			0.5037			
			(0.3450)			
ind_agr				0.6079**		
				(0.2871)		
ser_agr					0.5327***	
					(0.1561)	
ser_ind						0.0846
						(0.2206)
Constant	-0.5182	-0.1990	1.3382	0.4489	-1.8547***	-1.1810*
	(0.4589)	(0.4539)	(1.5498)	(1.0362)	(0.5785)	(0.6413)
Observations	2,312	2,191	302	266	1,160	913
Pseudo R-squared	0.119	0.117	0.365	0.201	0.0679	0.0852
chi^2	73.52	72.66	2984	45.92	43.31	44.12
p	2.39e-09	7.48e-09	0	0.000305	0.000724	0.000329

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Online Appendix

Table A1: Effect of cross-sector labor movements on dietary diversity at 2021

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = y5_diet_diversity (food diversity score)					
sex_y4	0.0552	-0.0326	0.7995**	0.4651	0.4465***	0.5202***
	(0.0705)	(0.0721)	(0.3099)	(0.2818)	(0.1213)	(0.1375)
age_y4	-0.0011	-0.0015	-0.0139	0.0029	0.0036	0.0013
	(0.0025)	(0.0026)	(0.0123)	(0.0108)	(0.0055)	(0.0067)
married_y4	-0.0349	-0.0623	0.6051*	-0.1657	0.5002***	0.6096***
	(0.0874)	(0.0905)	(0.3439)	(0.2912)	(0.1499)	(0.1713)
primary_y4	0.0574	0.0684	0.0997	0.1140	-0.0634	-0.1552
	(0.0754)	(0.0763)	(0.3781)	(0.3035)	(0.1393)	(0.1594)
secondary_plus_y4	0.2540	0.2890	0.0518	-0.2535	0.1170	-0.0429
	(0.1881)	(0.1849)	(0.4444)	(0.4737)	(0.1776)	(0.1947)
rural	0.0034	-0.1653	0.3772	0.6475	0.2792**	0.1777
	(0.1559)	(0.1548)	(0.3159)	(0.3947)	(0.1397)	(0.1541)
y4_hhsize	0.0196**	0.0186**	0.0282	0.0530	0.0287	0.0431*
	(0.0079)	(0.0080)	(0.0436)	(0.0416)	(0.0222)	(0.0256)
y5_dist_5_migrat	-0.1922	0.0431	-0.7321	0.6872	-0.1234	-0.1957
	(0.3504)	(0.3300)	(0.9618)	(0.4580)	(0.3970)	(0.4336)
y5_reg_5_migrat	0.3275	-0.0521	0.5976	-0.5270	0.1042	0.1514
	(0.4160)	(0.4030)	(0.9787)	(0.5247)	(0.4692)	(0.5152)
y4_electricity	1.0718***	1.0428***	0.8508**	1.0923**	0.6542***	0.6879***
	(0.1580)	(0.1589)	(0.3932)	(0.4843)	(0.1639)	(0.1740)
y4_basicsanit	0.2492***	0.2681***	-0.5498	-0.2523	0.0778	0.1002
	(0.0884)	(0.0916)	(0.3358)	(0.2892)	(0.2830)	(0.4183)
y4_safewaterdry	0.1720**	0.2493***	0.0983	0.2937	0.3328**	0.1978
	(0.0756)	(0.0768)	(0.2634)	(0.2852)	(0.1338)	(0.1557)
y4_walls	0.0364	0.0769	-0.2100	0.1581	-0.4859***	-0.4384***
	(0.0871)	(0.0908)	(0.3330)	(0.3178)	(0.1267)	(0.1482)
y4_floor	0.2241**	0.2218**	0.0603	0.4215	0.2586	0.1179
	(0.1067)	(0.1073)	(0.4337)	(0.4272)	(0.1624)	(0.2027)
y4_roof	0.2442***	0.1991**	0.6735	0.0558	0.5426**	0.5192*
	(0.0830)	(0.0857)	(0.4587)	(0.3522)	(0.2126)	(0.2799)
agr_ser	0.0789					
	(0.1239)					
agr_ind		-0.0389				
		(0.1830)				
ind_ser			-0.0368			
			(0.2991)			
ind_agr				-0.1195		
				(0.3000)		
ser_agr					-0.2344	
					(0.1428)	
ser_ind						0.1277
						(0.1889)
Constant	6.8055***	7.0056***	7.2080***	6.3669***	6.4149***	6.6070***
	(0.2097)	(0.2078)	(0.7804)	(0.6916)	(0.4349)	(0.5989)
Observations	2,483	2,278	302	266	1,160	937
R-squared	0.0499	0.0553	0.0663	0.0851	0.0786	0.0696
F	14.05	13.49	2.237	2.095	6.770	4.814
p	0	0	0.00461	0.00908	0	1.59e-09

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Table A2: Effect of cross-sector labor movements on transitions in poverty status – IV LIML (including all controls variables)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	Dependent variable = positive poverty transition		Dependent variable=Negative poverty transition					
sex_y4	0.0271	-0.0020	-0.0162	-0.0363	0.0102	0.0462	-0.0001	0.0163
	(0.0376)	(0.0417)	(0.0232)	(0.0259)	(0.0540)	(0.0553)	(0.0171)	(0.0153)
age_y4	0.0036***	0.0025*	-0.0036***	-0.0029***	0.0001	-0.0004	-0.0022***	-0.0011*
	(0.0013)	(0.0014)	(0.0008)	(0.0007)	(0.0019)	(0.0022)	(0.0008)	(0.0007)
married_y4	-0.0650	-0.0760	0.0213	0.0097	0.0123	0.0236	-0.0124	-0.0116
	(0.0437)	(0.0472)	(0.0274)	(0.0279)	(0.0370)	(0.0746)	(0.0190)	(0.0168)
primary_y4	0.0360	0.0655	0.0168	-0.0241	0.0564	0.0395	0.0153	-0.0092
	(0.0404)	(0.0422)	(0.0265)	(0.0265)	(0.0403)	(0.0568)	(0.0213)	(0.0218)
secondary_plus_y4	0.1731	0.1458	0.0359	-0.0727	0.0334	-0.0205	-0.0330*	-0.0269*
	(0.1230)	(0.1362)	(0.0595)	(0.0564)	(0.0404)	(0.0587)	(0.0183)	(0.0158)
rural	0.0959	0.0226	-0.0243	0.0400	-0.0055	-0.0615	0.0007	0.0331
	(0.1052)	(0.1352)	(0.0439)	(0.0418)	(0.0432)	(0.0823)	(0.0288)	(0.0220)
y4_hhsize	0.0018	-0.0002	0.0085**	0.0115***	0.0058	0.0079	0.0093**	0.0106***
	(0.0044)	(0.0045)	(0.0033)	(0.0035)	(0.0063)	(0.0077)	(0.0037)	(0.0040)
y5_dist_5_migrat	0.0498	0.2165	0.0338	-0.0779	-0.0133	-0.0412	-0.0293	-0.0197
	(0.1656)	(0.1936)	(0.0855)	(0.0893)	(0.0561)	(0.0775)	(0.0329)	(0.0250)
y5_reg_5_migrat	-0.0071	0.0822	-0.1387	-0.0447	-0.0823	-0.0902	0.0584	-0.0286
	(0.1972)	(0.3409)	(0.0997)	(0.1093)	(0.0542)	(0.0820)	(0.0535)	(0.0269)
y4_electricity	0.1773	-0.0274	-0.1646***	-0.2198***	-0.0067	-0.0425	-0.0142	-0.0138
	(0.2272)	(0.2570)	(0.0369)	(0.0310)	(0.0279)	(0.0533)	(0.0170)	(0.0145)
y4_basicsanit	-0.0231	-0.0129	0.0429	0.0542*	-0.0944	-0.0067	-0.0482	-0.0571
	(0.0445)	(0.0443)	(0.0327)	(0.0319)	(0.1007)	(0.0946)	(0.0659)	(0.0860)
y4_safewaterdry	-0.0492	-0.0149	-0.0018	0.0071	-0.0024	-0.0317	-0.0520**	0.0044
	(0.0372)	(0.0403)	(0.0246)	(0.0264)	(0.0417)	(0.0617)	(0.0244)	(0.0219)
y4_walls	0.0621	0.0433	-0.0260	-0.0472*	0.0319	-0.0612	0.0216	0.0127
	(0.0491)	(0.0551)	(0.0279)	(0.0278)	(0.0465)	(0.0616)	(0.0259)	(0.0224)
y4_floor	0.0642	0.1977*	-0.0734**	-0.0615**	-0.0711	-0.0334	-0.1093***	-0.0873***
	(0.0836)	(0.1041)	(0.0305)	(0.0310)	(0.0519)	(0.0883)	(0.0319)	(0.0314)
y4_roof	0.0285	0.0161	-0.0067	-0.0054	-0.2278**	-0.1007	0.0687	-0.0126
	(0.0390)	(0.0429)	(0.0297)	(0.0300)	(0.0987)	(0.0920)	(0.0505)	(0.0630)
agr_ser	0.5365**		-0.5903***					
	(0.2231)		(0.1464)					
agr_ind		-0.9661***		-0.4571*				
		(0.3025)		(0.2379)				
ind_ser					0.0431			
					(0.0704)			
ind_agr						0.1605		
						(0.2193)		
ser_agr							0.1581**	
							(0.0709)	
ser_ind								0.0880
								(0.1047)
Constant	0.1679	0.3434**	0.4747***	0.3663***	0.3093**	0.2127	0.1866**	0.1698*
	(0.1322)	(0.1644)	(0.0701)	(0.0670)	(0.1468)	(0.1553)	(0.0742)	(0.0967)
Observations	751	706	1,732	1,572	278	227	1,089	902
R-squared	0.0199	-0.1049	-0.0265	0.0494	0.1237	0.0937	0.1338	0.0689
Test for endogeneity:								
Endogeneity Stat.	1.952	11.98	12.44	1.982	1.167	0.381	0.332	0.592
P value	0.162	0.000537	0.000421	0.159	0.280	0.537	0.565	0.442
Test for under identification:								
Kleibergen-Paar rk LM Stat	28.46	14.96	57.17	32.11	44.44	11.40	84.38	27.39
P value	9.57e-08	0.000110	0	1.45e-08	2.23e-10	0.000735	0	1.13e-06
Test for weak identification								
Kleibergen-Paar rk F Stat	34.02	23.25	31.46	35.52	24.84	11.58	58.31	17.38
Test for over identification:								
Hansen's J Stat.			0.000807		3.768		0.0506	0.0387
P value			0.977		0.0522		0.822	0.844
Second stage F Stats.	1.910	1.503	12.27	15.17	1.208	1.815	5.403	2.105

P value for F Stat.	0.0169	0.0924	0	0	0.262	0.0308	0	0.00672

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Table A3: Impact of initial welfare status on cross-sector labor movements – Probit regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	agr_ser	agr_ser	agr_ind	agr_ind	ind_ser	ind_ser	ind_agr	ind_agr	ser_agr	ser_agr	ser_ind	ser_ind
y4_poor	0.0406	0.0474	0.1502	0.1551	0.3532	0.2507	-0.0622	-0.0730	0.1436	0.1322	0.4985	0.4664
	(0.0821)	(0.0824)	(0.1227)	(0.1233)	(0.2894)	(0.2911)	(0.2626)	(0.2596)	(0.1802)	(0.1784)	(0.3122)	(0.3127)
ser_share_y5	0.0305***	0.0170**			0.0117**	0.0026				-0.0192***		-0.0065
	(0.0028)	(0.0068)			(0.0051)	(0.0060)				(0.0052)		(0.0040)
agr_share_y5		-0.0123**		-0.0067			0.0178***	0.0228***	0.0278***	0.0123**		
		(0.0058)		(0.0043)			(0.0052)	(0.0060)	(0.0027)	(0.0049)		
ind_share_y5			0.0770***	0.0669***		-0.0601***		0.0184			0.0379***	0.0344***
			(0.0075)	(0.0090)		(0.0121)		(0.0112)			(0.0054)	(0.0059)
sex_y4	-0.0105	-0.0166	-0.6606***	-0.6576***	0.5340**	0.5756***	-0.0553	-0.0766	0.1286	0.1441	-0.4750***	-0.4691***
	(0.0709)	(0.0710)	(0.1361)	(0.1360)	(0.2180)	(0.2214)	(0.2215)	(0.2227)	(0.0997)	(0.1001)	(0.1373)	(0.1376)
age_y4	-0.0124***	-0.0123***	-0.0075*	-0.0078*	0.0071	0.0106	-0.0015	-0.0011	0.0170***	0.0180***	-0.0093	-0.0086
	(0.0027)	(0.0027)	(0.0042)	(0.0042)	(0.0081)	(0.0080)	(0.0093)	(0.0093)	(0.0041)	(0.0042)	(0.0067)	(0.0067)
married_y4	0.0810	0.0740	-0.1035	-0.1036	-0.4867**	-0.4947**	0.8646***	0.8796***	0.0661	0.0586	0.0782	0.0630
	(0.0872)	(0.0870)	(0.1381)	(0.1382)	(0.1905)	(0.1971)	(0.2165)	(0.2181)	(0.1094)	(0.1103)	(0.1414)	(0.1407)
primary_y4	0.3901***	0.3970***	0.2664**	0.2722**	-0.2511	-0.3653*	0.1981	0.1930	-0.0487	-0.0631	0.4516***	0.4489***
	(0.0831)	(0.0830)	(0.1280)	(0.1290)	(0.2020)	(0.2198)	(0.2304)	(0.2328)	(0.1119)	(0.1123)	(0.1675)	(0.1668)
secondary_plus_y4	0.7474***	0.7448***	0.6940***	0.6824***	-0.4036	-0.5449**	-0.6460**	-0.6192*	-0.3148**	-0.3179**	0.2124	0.1988
	(0.1565)	(0.1559)	(0.2348)	(0.2334)	(0.2465)	(0.2601)	(0.3130)	(0.3171)	(0.1481)	(0.1500)	(0.1908)	(0.1904)
rural	-0.3405*	-0.3530*	0.4707	0.5600	-0.1351	-0.2558	0.6024	0.4884	0.2920	0.2729	-0.1723	-0.2389
	(0.2046)	(0.2053)	(0.4365)	(0.4399)	(0.3832)	(0.4039)	(0.3912)	(0.4012)	(0.1781)	(0.1796)	(0.2342)	(0.2246)
y4_hhsize	-0.0071	-0.0073	0.0109	0.0134	0.0271	0.0075	-0.0376	-0.0338	-0.0026	-0.0046	0.0037	0.0040
	(0.0103)	(0.0104)	(0.0124)	(0.0122)	(0.0293)	(0.0288)	(0.0311)	(0.0313)	(0.0181)	(0.0180)	(0.0218)	(0.0218)
y5_dist_5_migrat	0.7154***	0.7125***	0.6530**	0.6490**	0.3391	0.2479	-0.0988	0.0517	-0.0269	-0.0638	-0.2248	-0.2257
	(0.1898)	(0.1905)	(0.3268)	(0.3261)	(0.3569)	(0.3278)	(0.3472)	(0.3520)	(0.2842)	(0.2834)	(0.2974)	(0.2999)
y5_reg_5_migrat	-0.0738	-0.0683	-0.1658	-0.1649	0.5920	0.8301*	0.5039	0.3800	0.6680*	0.6760**	0.4155	0.4120
	(0.2638)	(0.2641)	(0.4103)	(0.4098)	(0.5295)	(0.4743)	(0.4964)	(0.4960)	(0.3442)	(0.3422)	(0.3922)	(0.3922)
y4_electricity	-0.1768	-0.1848	-0.1286	-0.1835	-0.3937*	-0.2871	0.5475*	0.5854*	-0.0275	0.0083	-0.0268	-0.0051
	(0.1810)	(0.1791)	(0.2696)	(0.2696)	(0.2034)	(0.2246)	(0.3095)	(0.3177)	(0.1252)	(0.1269)	(0.1409)	(0.1441)
y4_basicsanit	0.1763*	0.1806*	-0.1039	-0.1175	-0.5282*	-0.4116	0.0395	0.0860	-0.3131	-0.3006	-0.3758	-0.3667
	(0.1005)	(0.1008)	(0.1374)	(0.1399)	(0.2950)	(0.3001)	(0.2713)	(0.2763)	(0.2236)	(0.2195)	(0.4272)	(0.4130)

y4_safewaterdry	-0.0102	-0.0172	0.2096*	0.2109*	-0.0683	-0.1064	0.1781	0.1860	0.1593	0.1427	-0.0510	-0.0575
	(0.0745)	(0.0748)	(0.1098)	(0.1101)	(0.1846)	(0.2023)	(0.2054)	(0.2031)	(0.1120)	(0.1111)	(0.1683)	(0.1662)
y4_walls	-0.0456	-0.0570	-0.0953	-0.1128	0.1100	0.2074	-0.1761	-0.1549	0.2257*	0.1915	0.1620	0.2154
	(0.0862)	(0.0871)	(0.1498)	(0.1501)	(0.2139)	(0.2088)	(0.2308)	(0.2291)	(0.1223)	(0.1225)	(0.1902)	(0.1933)
y4_floor	-0.0111	-0.0031	0.1864	0.1903	0.3300	0.3287	-1.1586***	-1.1717***	-0.3338**	-0.3192**	0.2860	0.3137
	(0.1052)	(0.1051)	(0.1573)	(0.1572)	(0.2388)	(0.2397)	(0.2712)	(0.2729)	(0.1299)	(0.1300)	(0.2017)	(0.1963)
y4_roof	-0.0141	-0.0210	-0.0660	-0.0785	-0.2801	-0.2161	0.6380**	0.6359**	0.1601	0.1493	0.0807	0.1088
	(0.0860)	(0.0863)	(0.1313)	(0.1328)	(0.3008)	(0.2946)	(0.2802)	(0.2792)	(0.1630)	(0.1626)	(0.3175)	(0.3106)
2.strata	-0.1117	-0.0270	0.4125	0.3777	0.6968***	0.4708	-0.2774	-0.2803	-0.1413	-0.1763	0.0173	-0.0157
	(0.3232)	(0.3176)	(0.4717)	(0.4720)	(0.2494)	(0.2905)	(0.3428)	(0.3563)	(0.1546)	(0.1561)	(0.1630)	(0.1659)
3.strata	0.5271	0.6672*	-0.1756	-0.1621	0.5599	-0.0644	-0.4035	-0.3491	-0.4305*	-0.4479**	0.5700**	0.4021
	(0.3502)	(0.3527)	(0.6194)	(0.6285)	(0.4254)	(0.4817)	(0.5082)	(0.5122)	(0.2288)	(0.2284)	(0.2571)	(0.2762)
4.strata	0.0676	0.1422	-0.9073	-0.9555	-0.5011*	-0.6950**	0.8712*	1.0004**	-0.1892	-0.2129	-0.2137	-0.2083
	(0.3426)	(0.3365)	(0.5935)	(0.5892)	(0.2875)	(0.3047)	(0.4483)	(0.4668)	(0.1832)	(0.1882)	(0.2052)	(0.2083)
Constant	-1.9239***	-0.8500	-2.3407***	-1.8367***	-0.3212	1.3037**	-1.6100***	-2.1363***	-2.2799***	-0.7068	-1.8364***	-1.4631**
	(0.3434)	(0.6147)	(0.4951)	(0.5758)	(0.5612)	(0.5747)	(0.6083)	(0.6900)	(0.3264)	(0.5332)	(0.5214)	(0.5772)
Observations	2,483	2,483	2,278	2,278	302	302	266	266	1,160	1,160	937	937
r2_p	0.150	0.152	0.243	0.245	0.159	0.278	0.305	0.313	0.299	0.307	0.138	0.142
chi2	264.5	270.6	168.8	171.5	63.95	66.82	107.1	106.1	339.6	336.0	84.96	91.17
p	0	0	0	0	1.71e-06	1.13e-06	0	0	0	0	5.56e-10	1.01e-10

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1

Table A4: Drivers of internal migration

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Dependent variable = y5_dist_5_migrat							Dependent variable = y5_reg_5_migrat						
sex_y4	0.0455	0.1899*	0.2379**	0.1307	0.2375	0.0367	0.0770	-0.0153	0.0677	0.0666	0.3145	0.2332	0.0712	0.0948
	(0.0633)	(0.0976)	(0.1051)	(0.2625)	(0.2369)	(0.1081)	(0.1228)	(0.0776)	(0.1239)	(0.1288)	(0.3839)	(0.2862)	(0.1292)	(0.1504)
age_y4	-0.0046	-0.0006	-0.0008	-0.0521***	-0.0284	-0.0073	-0.0247***	-0.0029	0.0005	0.0018	-0.0816***	-0.0567**	0.0014	-0.0257**
	(0.0029)	(0.0035)	(0.0037)	(0.0181)	(0.0205)	(0.0069)	(0.0086)	(0.0035)	(0.0044)	(0.0044)	(0.0294)	(0.0235)	(0.0078)	(0.0120)
primary_y4	-0.0879	-0.1933*	-0.1032	0.0437	-0.3387	0.0057	0.1368	-0.2170**	-0.3790***	-0.3664***	-0.0817	-0.3157	-0.0981	-0.1893
	(0.0719)	(0.1045)	(0.1151)	(0.2632)	(0.2515)	(0.1316)	(0.1634)	(0.0859)	(0.1309)	(0.1419)	(0.3508)	(0.3057)	(0.1499)	(0.1973)
secondary_plus_y4	0.1983*	0.1597	0.2016	-0.0272	-0.3167	0.2954**	0.4626***	0.0693	0.0672	0.1019	0.0419	0.0873	0.1532	0.1914
	(0.1015)	(0.2081)	(0.2457)	(0.3554)	(0.3517)	(0.1491)	(0.1755)	(0.1188)	(0.2698)	(0.2914)	(0.4406)	(0.4045)	(0.1711)	(0.2004)
married_y4	-0.1573**	-0.3795***	-0.3609***	0.5255**	0.3765	-0.1049	0.0124	-0.1489*	-0.4709***	-0.4717***	0.7094**	0.3510	-0.0195	0.0397
	(0.0685)	(0.1064)	(0.1169)	(0.2271)	(0.2535)	(0.1186)	(0.1393)	(0.0808)	(0.1340)	(0.1436)	(0.3378)	(0.2678)	(0.1394)	(0.1820)
youth_y4	0.2792***	0.2538**	0.1592	0.2665	0.3067	0.1933	0.0877	0.2055**	0.2996**	0.2703**	-0.0772	-0.1358	0.2270	-0.0265
	(0.0734)	(0.1072)	(0.1190)	(0.3044)	(0.3530)	(0.1572)	(0.1654)	(0.0875)	(0.1269)	(0.1376)	(0.4016)	(0.4226)	(0.1892)	(0.2105)
rural	-0.2766	-0.5629**	-0.4274	0.4643	0.0313	-0.2467	-0.4906	-0.2075	-0.4994	-0.5627	0.6114	-0.6213	-0.1410	-0.9938***
	(0.2024)	(0.2646)	(0.3483)	(0.4460)	(0.4710)	(0.3106)	(0.4200)	(0.2388)	(0.3544)	(0.4140)	(0.8212)	(0.4196)	(0.3126)	(0.3833)
y4_hhsize	-0.0031	0.0053	0.0133	-0.0401	-0.0134	-0.0128	-0.0116	-0.0021	-0.0127	-0.0055	-0.0135	0.0191	0.0154	0.0540**
	(0.0082)	(0.0098)	(0.0100)	(0.0387)	(0.0354)	(0.0214)	(0.0235)	(0.0100)	(0.0137)	(0.0135)	(0.0620)	(0.0453)	(0.0246)	(0.0252)
y4_electricity	0.1314	-0.5663	-0.1650	0.1066	0.0904	0.2748**	0.2782**	0.1395		-0.2855	-0.2231	-0.0606	0.2507	0.2909
	(0.0945)	(0.3774)	(0.3293)	(0.2681)	(0.3125)	(0.1300)	(0.1362)	(0.1127)		(0.3707)	(0.3902)	(0.3626)	(0.1534)	(0.1852)
y4_basicsanit	0.0356	-0.0524	-0.0193	-0.2525	-0.3958	0.3624	0.4471	-0.1101	-0.2307*	-0.2106	-1.0335*	-0.3833	0.3491	
	(0.1015)	(0.1195)	(0.1258)	(0.3797)	(0.3319)	(0.3530)	(0.4718)	(0.1141)	(0.1388)	(0.1427)	(0.5509)	(0.3854)	(0.4266)	
y4_safewaterdry	-0.0278	-0.0036	0.0681	0.2226	0.1918	-0.1949	0.0012	-0.0188	0.0774	0.1238	-0.5273	-0.2593	-0.1104	0.0107
	(0.0720)	(0.0997)	(0.1054)	(0.2909)	(0.2680)	(0.1323)	(0.1629)	(0.0883)	(0.1153)	(0.1205)	(0.3614)	(0.3257)	(0.1571)	(0.2056)
y4_walls	-0.0904	-0.0213	0.0660	0.1923	-0.5719**	-0.0665	-0.0839	-0.1523	-0.4091**	-0.4370**	0.4170	-0.3904	0.1267	0.2579
	(0.0838)	(0.1315)	(0.1390)	(0.3155)	(0.2916)	(0.1259)	(0.1489)	(0.0993)	(0.2037)	(0.2165)	(0.4833)	(0.2817)	(0.1375)	(0.1803)
y4_floor	0.2091**	0.3313**	0.1997	0.1096	1.1476***	-0.1488	-0.2670	0.2760**	0.3509	0.3342	11.9060***	1.5849***	-0.1493	-0.1297
	(0.0975)	(0.1511)	(0.1719)	(0.3615)	(0.3458)	(0.1505)	(0.1819)	(0.1176)	(0.2149)	(0.2300)	(1.0933)	(0.4499)	(0.1555)	(0.2351)
y4_roof	-0.2691***	-0.4349***	-0.4831***	-0.1826	-0.2033	-0.1586	0.1069	-0.3174***	-0.3831***	-0.4148***	-11.8309***	-0.7732	-0.2265	-0.2715
	(0.0865)	(0.1069)	(0.1143)	(0.4383)	(0.3966)	(0.2149)	(0.3061)	(0.1057)	(0.1267)	(0.1343)	(0.8544)	(0.5592)	(0.2566)	(0.4057)
2.strata	-0.3338***	-0.4757	-1.0992*	-0.3988	-0.1798	-0.4092***	-0.1098	-0.2328*			0.3122	0.1536	-0.3011*	0.1589
	(0.1177)	(0.5274)	(0.5802)	(0.3044)	(0.3420)	(0.1576)	(0.1697)	(0.1396)			(0.3955)	(0.4172)	(0.1799)	(0.1984)
3.strata	-0.3127	0.3421	-0.2931	-0.9734*	-0.5486	-0.4056	0.3233	-0.3270	-0.3979	-0.7662	-1.6978**	0.1478	-0.4120	0.9660**
	(0.2162)	(0.4836)	(0.5212)	(0.5205)	(0.5608)	(0.3227)	(0.4159)	(0.2560)	(0.5286)	(0.5676)	(0.8418)	(0.5085)	(0.3561)	(0.4139)
4.strata	-0.7288***	0.0429	-0.4865	-0.7560*	-0.5602	-0.7142***	-0.5008**	-0.7778***	-0.7109	-1.0551*	-5.0307***	-0.6132	-0.7671***	-0.5052*
	(0.1515)	(0.4883)	(0.4926)	(0.4481)	(0.5860)	(0.1911)	(0.2004)	(0.1972)	(0.5576)	(0.5445)	(0.6193)	(0.5238)	(0.2530)	(0.2643)
agr_ser		0.5183***							0.3839**					
		(0.1187)							(0.1591)					
agr_ind			0.4143**							0.3517				

			(0.1955)							(0.2365)				
ind_ser				0.5047**							0.5037			
				(0.2178)							(0.3450)			
ind_agr					0.3604							0.6079**		
					(0.2467)							(0.2871)		
ser_agr						0.3225**							0.5327***	
						(0.1379)							(0.1561)	
ser_ind							0.0131							0.0846
							(0.1919)							(0.2206)
	-	-						-					-	
Constant	0.8168***	1.3316***	-0.9645**	0.0503	-0.2018	-0.8510*	-1.0246*	0.9420***	-0.5182	-0.1990	1.3382	0.4489	1.8547***	-1.1810*
	(0.1799)	(0.4412)	(0.4361)	(0.8970)	(0.8621)	(0.4751)	(0.5633)	(0.2093)	(0.4589)	(0.4539)	(1.5498)	(1.0362)	(0.5785)	(0.6413)
Observations	4,266	2,483	2,278	302	266	1,160	937	4,266	2,312	2,191	302	266	1,160	913
Pseudo R-squared	0.0664	0.0981	0.0699	0.199	0.175	0.0667	0.0759	0.0620	0.119	0.117	0.365	0.201	0.0679	0.0852
chi2	147.2	81.36	57.95	44.13	39.14	61.05	56.72	110.7	73.52	72.66	2984	45.92	43.31	44.12
p	0	4.94e-10	4.37e-06	0.000553	0.00273	1.38e-06	6.85e-06	0	2.39e-09	7.48e-09	0	0.000305	0.000724	0.000329

Notes: (1) Robust standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.1