Malawi | Poverty Assessment

Poverty Persistence in Malawi: climate shocks, low agricultural productivity and slow structural transformation

Germán Caruso
Lina Cardona Sosa

WORLD BANK GROUP

Malawi | Poverty Assessment

Poverty Persistence in Malawi: climate shocks, low agricultural productivity and slow structural transformation

Table of contents

List of Figures

List of Tables

List of Boxes

Acknowledgments

This Poverty Assessment is the work of a team led by Germán Caruso (Senior Economist, EAEPV) Lina Cardona Sosa (Economist, EAEPV) under the guidance of Mara K. Warwick (Country Director), Hugh Riddell (Country Manager, AEMMW), Pierella Paci (Practice Manager, EAEPV), William Battaile (Lead Country Economist, EAEDR) and Nobuo Yoshida (Lead Economist, EAEPV). Substantial contributions to the final version of this document were received from Emmanuel Skoufias (Lead Economist, EAEPV), María Edo (Consultant, EAEPV), Santiago Garganta (Consultant, EAEPV), Melanie Gross (Consultant, EAEPV), Marcos Puig Insua (Consultant, EAEPV), Juan Fernando Duque Giraldo (Consultant, EAEPV), Laura Prada (Consultant, EAEPV), Margaret Triyana (Economist, SARCE), and Tawanda Chingozha (Consultant, EAEPV). Miriam Muller (Social Scientist, EAWPV) worked with the team on a background paper on gender. In addition, the team is grateful for inputs from Rob Swinkles (Senior Economist, EAEPV), Dhiraj Sharma (Senior Economist, EAEPV), Boban Varghese (Senior Social Protection Specialist, HAES2) and Arti Grover (Senior Economist, ETIIC) and her team. The team also extends many thanks to Martin Limbikani Mwale who won the call for proposals addressed to local agencies and to the peer reviewers Maria Davalos (Senior Economist, ELCPV) and Leonardo Ramiro Lucchetti (Senior Economist, EECPV). The team also thanks Martin Buchara (Program Assistant, EAEPV) and Anitza Guillén (Consultant, EAEPV) for their assistance provided during the preparation and graphic design of this report, respectively.

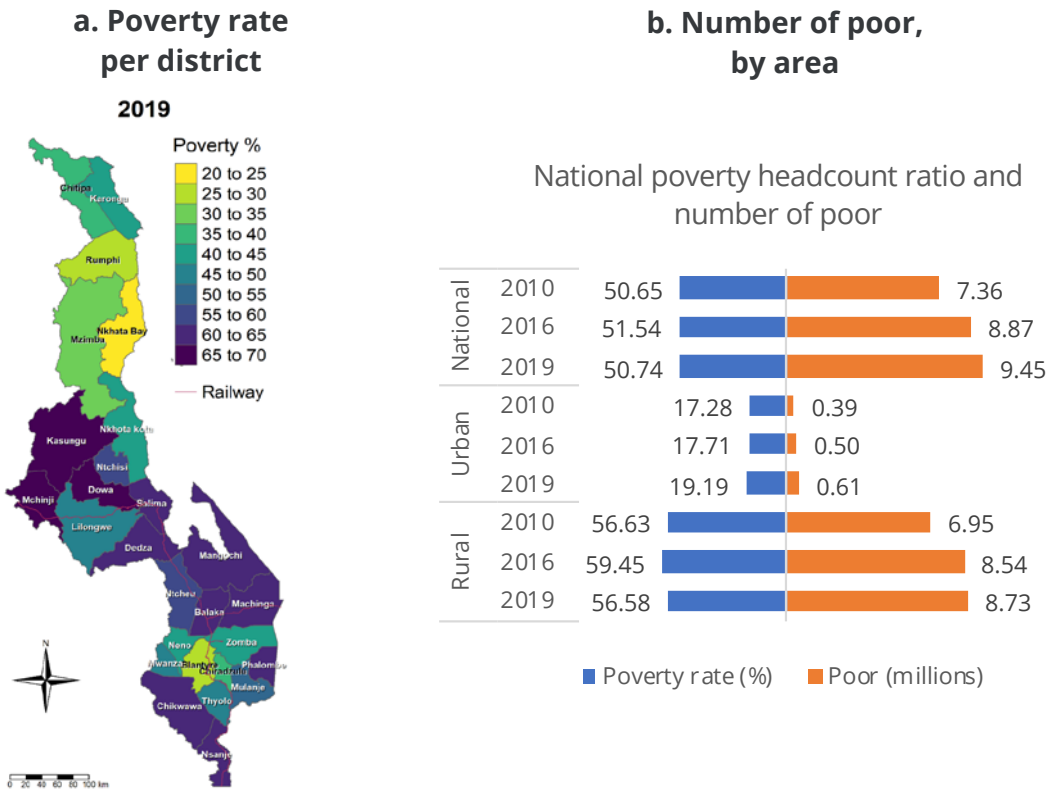
Executive Summary

Poverty in Malawi is high, persistent and exhibits important heterogeneity across the country. In the last decade, while some people escaped poverty, others fell into poverty, in part due to recurring climate shocks. Weak economic growth and a continuous increase of the population have contributed to the stagnation of the farm sector. Slow growth of the nonfarm sector, which was unable to absorb the surplus of labor resulting from the population growth, also contributed to the deceleration of migration to urban areas.

Poverty reduction in Malawi was uneven during the decade between 2010-2019, resulting in a high, stable national poverty rate. In 2019, the poverty rate of the country was 50.7 percent, virtually unchanged from a decade earlier. With an average annual population growth of 2.8 percent, the absolute number of poor increased by 2 million over ten years, leaving 9 million people in poverty in 2019 (Figure 1). Equally alarming, the distance of the poor to the basic-needs poverty line was larger. Urban poverty also increased, while the trend of rural poverty changed depending on the region. Poverty fell considerably in Rural North and the Rural South, though the share of poor people in the latter region is still, at 57 percent, above the average of the country. The poverty rate rose in the Central Region. During this period, GDP growth per capita has been low, averaging 1.5 percent per year between 2010 and 2019 and has done little to reduce poverty.

Inequality fell in the first half of the decade before flattening out, but the change, due to lower consumption by better-off Malawians, reflected the weakness rather than strength of growth. Consumption grew two percent for the poorest 40 percent while decreasing for the top 60 percent. (The average Malawian's consumption decreased one percent in this same period.) So, the Gini coefficient decreased from 45 in 2010 to 38 in 2016, remaining at this level by 2019, putting Malawi below the average of the region. These dynamics would have reduced poverty, but the low consumption growth, plus population growth, offset this change. During the 2016-19 period, inequality didn't decline: consumption decreased for the poorest 40 percent while it increased for the top 60 percent but absolute changes were small. Urban areas have become more unequal than rural areas.

Figure 1. Poverty incidence in Malawi in 2010, 2016, 2019

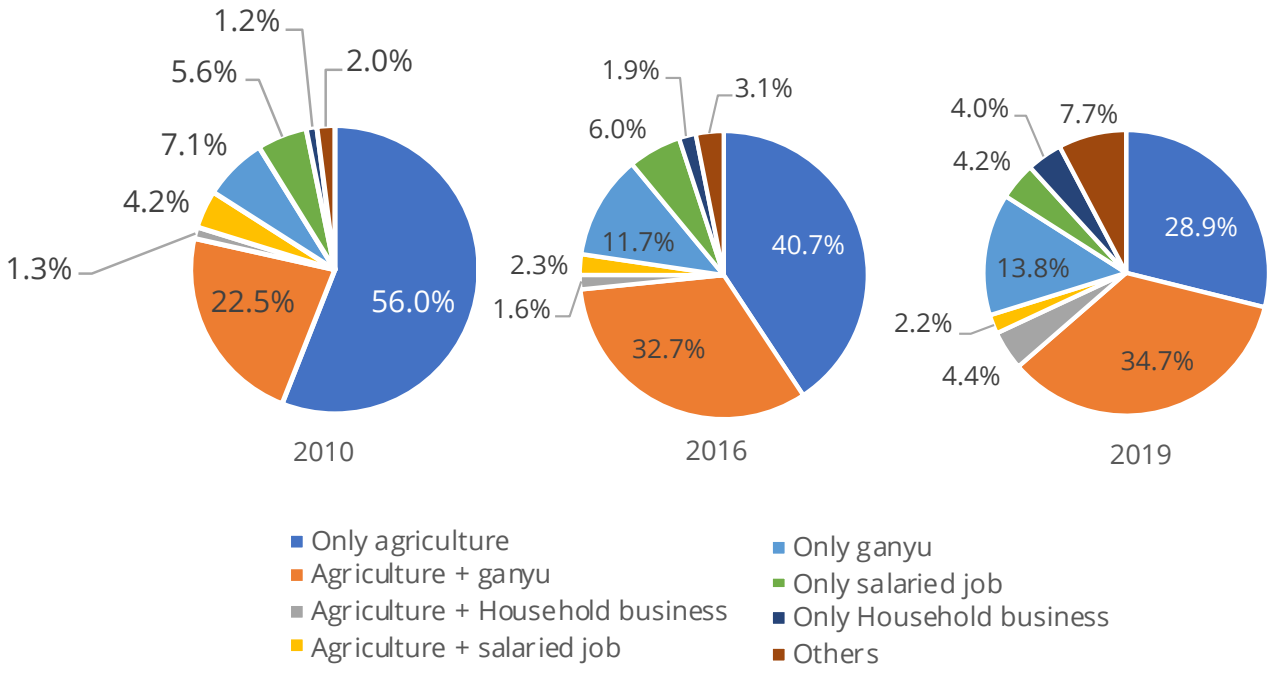


Source: World Bank calculations using Integrated Household Survey Data 2019/2020 (IHS5)

Sources of household income have diversified away from only agriculture to sources like *ganyu* but it was not enough to bring a significant number of households out of poverty. Between 2010 and 2019 the contribution of agriculture as the main source of income of a household declined from 70 percent to below 50 percent; the *ganyu* (short-term labor hired on a daily or other short-term basis)[1] contribution to household income increased from 18 percent to 37 percent. In the same way, income from household businesses increased its contribution to 11 percent. This is the result of the diversification of the household sources of livelihoods. While in 2010, 56 percent of people received income only from agriculture, in 2019, this proportion fell to 29 percent. Instead, the number of people complementing agricultural income with income from *ganyu* increased from 23 to 35 percent (Figure 2).

1 *Ganyu labor is short-term labor hired on a daily or other short-term basis. Most commonly, piecework weeding or ridging on the fields of other smallholders or on agricultural estates. However, ganyu labor can also be used for non-agricultural tasks, such as construction and gardening.*

Figure 2 Sources of households' livelihoods, 2010, 2016, 2019

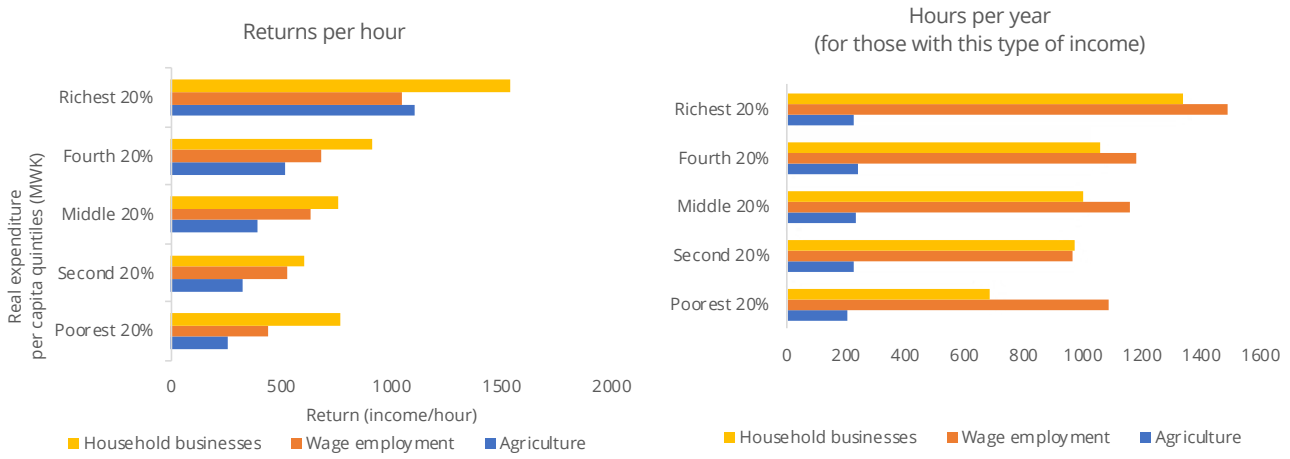


Source: World Bank calculations using IHS5

Agriculture, still the main source of household income, is a particularly low-return activity with little sign of improvement. The latest household survey data shows that the return per hour in agriculture changed little between 2010 and 2019, partly the result of population growth. Among the poorest 20 percent of households, the income per hour in agriculture is one-third of what is earned in a household business. For the richest 20 percent, returns in agriculture are still below earnings in household businesses or wage employment (excluding *ganyu*)[2], but they are larger than among poor individuals, reaching 70 percent of the return in household business. Within a year, the average household allocates around 230 hours of work to agriculture, equivalent of one month of labor. In contrast, those in wage employment work full time (Figure 3). The contribution of the value added in agriculture to GDP has also fallen over time and was especially low during years when the country has experienced heavy droughts or floods, showing the vulnerability of the poor to climate related shocks.

2 *In this report, unless otherwise specified, wage employment excludes ganyu.*

Figure 3. Returns per hour in agriculture, household businesses and salaried jobs by welfare quintile – 2019



Source: World Bank calculations using data from IHS5.

For every three Malawians that moved out of poverty between 2010 and 2019, four fell back in due to the impact of weather shocks. Around 60 percent of individuals in Malawi experienced at least one episode of poverty either in 2010, 2019 or in both years, a figure that demonstrates the persistence of poverty. Furthermore, there was a slow movement out of poverty. Among all individuals observed in 2010, 15 percent moved out of poverty by 2019, 18 percent moved into poverty, 30 percent remained poor and 40 percent remained non-poor in the same period (Table 1). During this period, the Rural Central was the region with the largest movements into poverty (30 percent) while the Rural North the lowest (8 percent). In contrast, in Rural North and South, 20 percent of people left poverty. People who escaped poverty included those who moved from agriculture into *ganyu*, household businesses, and salaried employment, and those that improved their levels of education. Conversely, those who fell into poverty were households in higher-return activities that switched back to agriculture. Climate shocks drove many people into poverty.

Table 1. People moving in and out of poverty between 2010 and 2019

		Poverty status in 2019		
		Poor	Non Poor	Total
Poverty status in 2010 (no lean season)	Poor	27%	15%	43%
	Non poor	18%	39%	57%

Source: World Bank calculations using the panel of the Integrated Household Survey of 2010 and 2019/20.
Note: Data for the panel surveys is collected during the no lean season, when the poverty rate is lower.

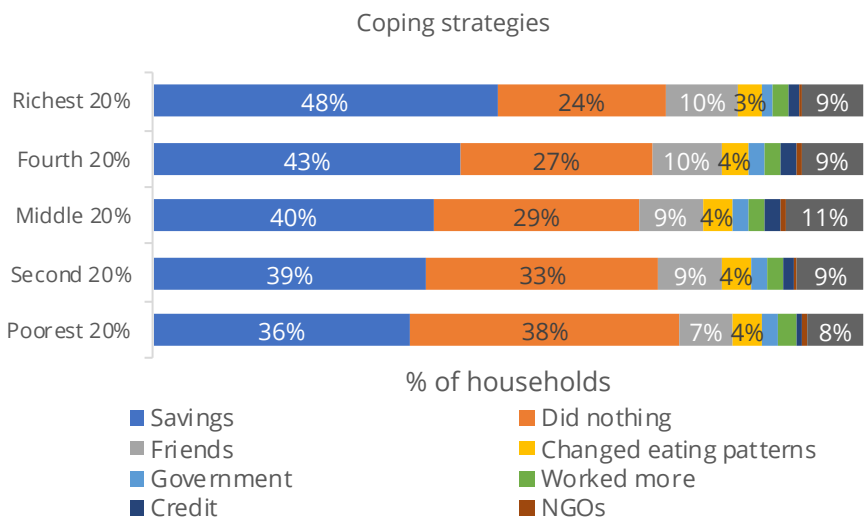
Malawi is exceptionally vulnerable to many forms of climate shocks. Malawi is one of the most vulnerable countries to climate change, ranking 161 out of 181 in the ND-Global Adaptation Initiative Index. The latest weather shocks to hit Malawi were Tropical Storms Ana and Gombe in early 2022 and Cyclone Idai in March 2019. All these events caused large damages to the agricultural sector, and Ana severely damaged the Kapichira hydroelectric power station, which will require at least six months to restore its generation capacity. In 2016, a severe drought resulted in poor harvests and prompted a humanitarian emergency in the aftermaths of the once in 500-year flood of January 2015.

Climate shocks have large effects on the agricultural sector, housing, and living conditions which has contributed to the persistence of poverty. Data from the household survey shows that the probability of a household being poor increases by 14 percentage points after experiencing a climate shock. Similarly, household income from agriculture decreases 17 percentage points after a flood and 14 percentage points after a drought. Regions that are more exposed to climate shocks, the Central and South, exhibit larger poverty rates than the North. Less affected by these shocks, the North has achieved productivity levels that make it the region with the highest returns in agriculture.

Limited options for smoothing the negative impacts of climate shocks deepen vulnerability. Fewer than two percent of Malawians obtained help from the government or from NGOs, while half of them used their own savings to cope with a shock;

more than 30 percent were unable to shift to less vulnerable livelihoods, and almost none accessed credit. The poorest households got the least help (Figure 4). Even relatively small shocks hinder the capacity of poor households to save, rendering them unable to accumulate the assets necessary to increase their productivity and enjoy a higher standard of living. In the absence of full and well-functioning credit and insurance markets, households continuously exposed to climate shocks typically engage in investments and day wage activities like *ganyu*, that reduce their risk exposure rather than maximize their income through raising agricultural productivity and increase the returns from their land, their main asset.

Figure 4. Household's source of support after suffering a climate shock



Source: World Bank calculations using data from IHS5.

Structural transformation is a well-understood path toward economic growth, higher income and poverty reduction but the ingredients for transformation remain elusive in Malawi. The transition from agriculture to higher- return activities such as household businesses is proceeding slowly at best. By 2019, the share of households with the main source of income coming from household businesses was still only 11 percent. The opportunity to move into household businesses is very low due to a lack of financing at the start-up phase as few households have savings. The lack of access to markets constrains the establishment and growth of businesses and low levels of education

and lack of training and skills affect also the survival of the businesses. Half of all new businesses are not observed in operation in a given month during the first year of operation, especially if the owner doesn't have an education certificate or if is a woman. All these challenges have persisted over time.

Consistent with the slow pace of structural transformation, the degree of urbanization in Malawi is low and changing only slowly, as the city-centered non-farm sector is unable to absorb surplus labor resulting from continuous population growth. Urbanization is not only low in contrast to other countries in the region, but it has slowed down in the last decade, increasing only 1 percentage point between 2010 and 2019. During this period, the share of people in urban areas that were living in poverty also increased from 17 percent to 19 percent. In the same period, the proportion of internal migrants or individuals migrating within the country, decreased from 25 percent of the total population to 17 percent and rural-urban migration has fallen sharply, especially in the Central Region. The decline in migration also limits its role in poverty reduction because post-migration households tend to improve their income and consumptions levels.

Low human capital endowments have also played a role in limited opportunities in more productive economic activities. Seven in ten Malawians do not have any formal education. This deficit is especially pronounced for women (70 percent), compared to men (63 percent), and for the Rural Center (75 percent) and the Rural South (76 percent), the two regions with the higher poverty rates in the country. Educational attainment is increasing, but very slowly. Comparing those aged 60-69 years old with those aged 20-29, the share of individuals with a primary or secondary education has increased from 25.8 percent to 40.2 percent. The completion rate in primary education, at about 80 percent, is above the sub-Saharan average, but for lower secondary education, it is around 20 percent, far below the 40 percent elsewhere on the continent.

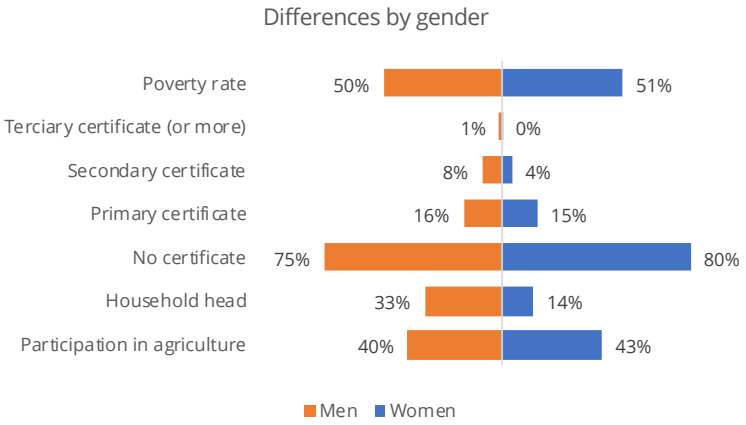
Challenges in completing at least secondary education reflect financial difficulties, while pupils' expectations are beyond the low levels of education they typically receive. Having no money for fees or a school uniform is cited as the main reason for almost 60 percent of those who never attended or

have dropped out of school, following by not being interested, which highlights the perceptions of the low utility of school's curricula. In contrast, for those attending primary education, 37 percent expect to finish secondary school while more than half of them expect to pursue a university degree. In the same line, eight out of 10 children in secondary school expect to go to university, and very few (1 in 10) assume that completing secondary school is the maximum level they will reach.

Constraints for income generation are notably worse for women than for men. The first limitation for income growth among women is their starting points. Women have lower education levels than men – 55 percent of women are literate in contrast to the 70 percent of men – and lower completion rates (Figure 5). Low educational attainment is partly caused by early marriage and teenage pregnancies which in turn limit their opportunities to raise their income and improve their living standard. Among all girls aged 15-19, 1 in 5 are married and do not attend school, and a third in that age group already have children.

Women face disproportionate disadvantages accessing inputs and resources, affecting their performance in different economic activities. Female productivity in agriculture is lower than for men, mainly due to differences in the use of inputs, the smaller size of land women have access to and the fewer farm assets that they own. Furthermore, time allocated to productive activities like agriculture is lower than for men due to a high share of their time allocated to domestic duties, and care-giving work. Similarly, in the presence of low access to electricity and water, women also tend to spend more time than men collecting firewood and water. In the case of household businesses, female owners are more likely to interrupt their business operation in a given month. Fewer women have lower access to financial services for their households business than men, and 30 percent of women have a bank account compared to 38 percent of men. Also, the average female-headed household borrows more frequently at high interest rates, from village banks and money lenders than men.

Figure. 5. Women experience large disparities in education and economic activities



Source: World Bank calculations using data from IHS5.

The global increase in food and fuel prices, due to the Ukraine war, will harm Malawians through lowering their purchase power of consumption goods while increasing production costs of their farm or nonfarm business. Higher food prices affect poverty mainly through the combination of the reduction in consumption of those that are net buyers of food while increasing income of net producers (sellers). Fuel prices will increase the share of the household's budget for public transport. An increase in food prices by 10 percent will increase poverty rate by 1.8 percentage points and to 4 percentage points when the food price increases by 20 percent. Poverty increases following food price rises will be larger in urban areas and in Rural South and it will increase the poverty levels of people in household businesses as they buy a larger share of the food they consumed in contrast to people working in agriculture. The increase in the fares of public transport, keeping everything else constant, will have a lower effect on poverty, 0.3 percentage points when prices are raised 20 percent, and 0.6 when they increased 50 percent. Increased transport costs will also slow the commercialization of agricultural products.

These findings point to the importance of prioritizing polices for growth and social support that have the largest impact on the poor. Malawi has longstanding challenges to boost economic growth, including frequent external and policy-induced shocks. As policymakers consider the gamut of policy areas that can boost the economy, this work suggests prioritizing on the following:

Improving livelihood options for the poor, both in the agriculture sector where most of the poor currently work and in other sectors:

- **Increasing agricultural productivity to enhance the earnings of rural households.** Efforts to enhance agricultural productivity could include strategies such as diversification of crops and enabling access to value chains. The latter goal would be served by improving the connection of poor farmers to intermediaries and adopting 'disruptive' agricultural technologies (DATs) that use digital platforms and other low-cost systems (text messages) that connect farmers to buyers and suppliers and provides technical information on raising productivity. Similarly, implementing mitigation strategies such as adopting climate smart agriculture including planting crops that are more climate change resilient, would overcome part of the effects of the climate change.

- **Improving non-farm employment options, for example by redoubling on-going Government efforts to support the private sector to create jobs and pull labor out of agriculture and incentivize rural-urban migration.** Government is pursuing a number of measures to improve the business environment by lowering the cost of regulatory compliance, removing barriers to financial literacy and inclusion, and designing tailored support to small- and medium-sized enterprises during their start-up and growth phases. These efforts could have large poverty reduction impacts. Increasing the rate of job creation in urban areas, strengthening the business environment as well as improving basic infrastructure such as roads and housing, will facilitate migration from rural to urban areas into more productive jobs. Attracting FDI will facilitate linking Malawian businesses to global markets.

Addressing determinants of unequal opportunity, especially low completion rates for secondary education. The government should help families to alleviate financial constraints that drive their children out of the school system. Similarly, it should consider those constraints when targeting cash transfers to households. In the same way, more secondary schools and teachers are needed in the country to absorb the share of those already attending primary education. There should be a focus on

keeping girls in school much longer e.g., through improved water sources and sanitation facilities at schools.

Redirecting or adapting existing social programs to target households that are highly exposed to climate shocks. Current social transfer programs reach fewer than 5 percent of households affected by shocks. The government should identify low-income households exposed to climate shocks and redirect existent support. To identify those households, Malawi needs timely data and continuous monitoring of the impact of unexpected events. The government conducts its integrated household survey every three years, but shocks can happen when data are not collected. Short surveys collecting monthly data using local enumerators such as through the Rapid Frequent Monitoring System (RFMS)[3] has shown to produce rapid and frequent monitoring would provide real-time tracking of poverty, food security, livelihoods, coping strategies (including humanitarian aid), and shocks.

3 The World Bank has co-designed with USAID, FCDO, Catholic Relief Services (CRS), Cornell University, and the Malawi National Statistics Office (NSO) a Rapid Frequent Monitoring System (RFMS) to collect household-level data every month in the rural South.

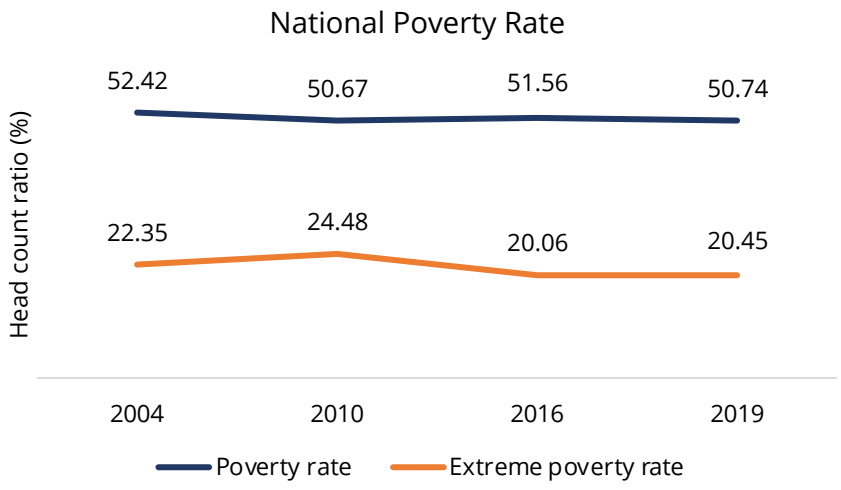
1. Persistently High Poverty: Low Incomes, Weak Growth, and Few Ways Out

Malawi remains a country of grinding, existential poverty that has shown none of the meaningful progress its sub-Saharan peers have demonstrated over the last 15 years. About half the population of 19.1 million people lives in poverty, and nearly three-quarters live on less than $1.90 per day. The picture is not uniformly grim, since northern regions have achieved some reductions in poverty. But an impoverished Malawian still lives a tough life of low incomes, precarious dwellings, minimal education and very little ability to handle shocks. And even the economic growth has achieved does not translate into lower poverty rates.

Poverty reduction has been minimal over the last decade

The poverty rate was 50.7 percent in 2010 and has remained broadly unchanged during the last decade. The last poverty measure (See Annex 1), in 2019, shows that 50.7 percent of the country's population – nine million people – is living in poverty (Figure 1.1). In 2016, the number of poor people was 8.4 million, with almost four million extremely poor. The poverty gap (17 percent) and poverty severity (7.6 percent), which consider the extent to which individuals fall below the poverty line and the inequality among poor households, respectively, also remained unchanged over the same period (See Annex 2).

Figure 1.1: National poverty rate has been stagnant for more than 15 years



Source: World Bank calculations based on IHS poverty estimates

The proportion of Malawians living on less than $1.90 a day is 73 percent, the second highest rate among the poorest countries of Sub-Saharan Africa in 2020. Mozambique, Zambia, Rwanda, Tanzania, and Zimbabwe all had lower poverty rates. (Table 1.1) That said, the country is less unequal than countries grappling with extremely high poverty rates. The country is very densely populated, even by Sub-Saharan standards) and its GDP per capita is low by comparison.

Table 1.1: Distributive statistics for Malawi and neighbor countries

	Population (Mil.)	Population density (people per sq. km)	GDP per capita, PPP	$/Month (Mean)	Poverty headcount ratio at $1.90 a day (2011 PPP)	Poverty headcount ratio at $3.20 a day (2011 PPP)	Gini index
Malawi	18.63	192.44	1514.66	62.79	73.52	90.37	38.54
Burundi	11.53	435.18	751.66	53.37	72.8	89.64	38.62
Mozambique	30.37	37.51	1281.51	78.97	63.68	82.37	54
Zambia	17.86	23.34	3470.45	87.16	58.75	75.4	57.14
Rwanda	12.63	498.66	2227.52	77.17	56.52	80.26	43.71
Tanzania	58.01	63.57	2660.42	82.69	49.37	76.8	40.49
Zimbabwe	14.65	37.32	3027.66	121.61	39.53	63.81	50.26

Source: PovcalNet, World Bank, http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx
Note: most recent available data for each country. Poverty statistics correspond to last updated in PovcalNet: Burundi (2013), Mozambique (2014), Zambia (2015), Rwanda (2016), Tanzania (2017), Zimbabwe (2019), Malawi (2019).

The geographical distribution of poverty is uneven

Poverty concentrates in the rural areas of the country's south and center. The vast majority (94 percent) of poor Malawians live in rural areas, making the rural poverty rate (57 percent) almost three times higher than the poverty rate in urban areas (19 percent), where only 6 percent of poor households live. The probability of being poor in the Rural North is much lower (36 percent) than in the Rural South and Rural Center (57 and 63 percent, respectively) (Table 1.2). Low poverty rates in the Rural North are present across all districts (Figure 1.2). In contrast, the Rural Center and Rural South face higher poverty rates and are much more populated. Consequently, 86 percent of all poor households are concentrated in the central and southern parts of

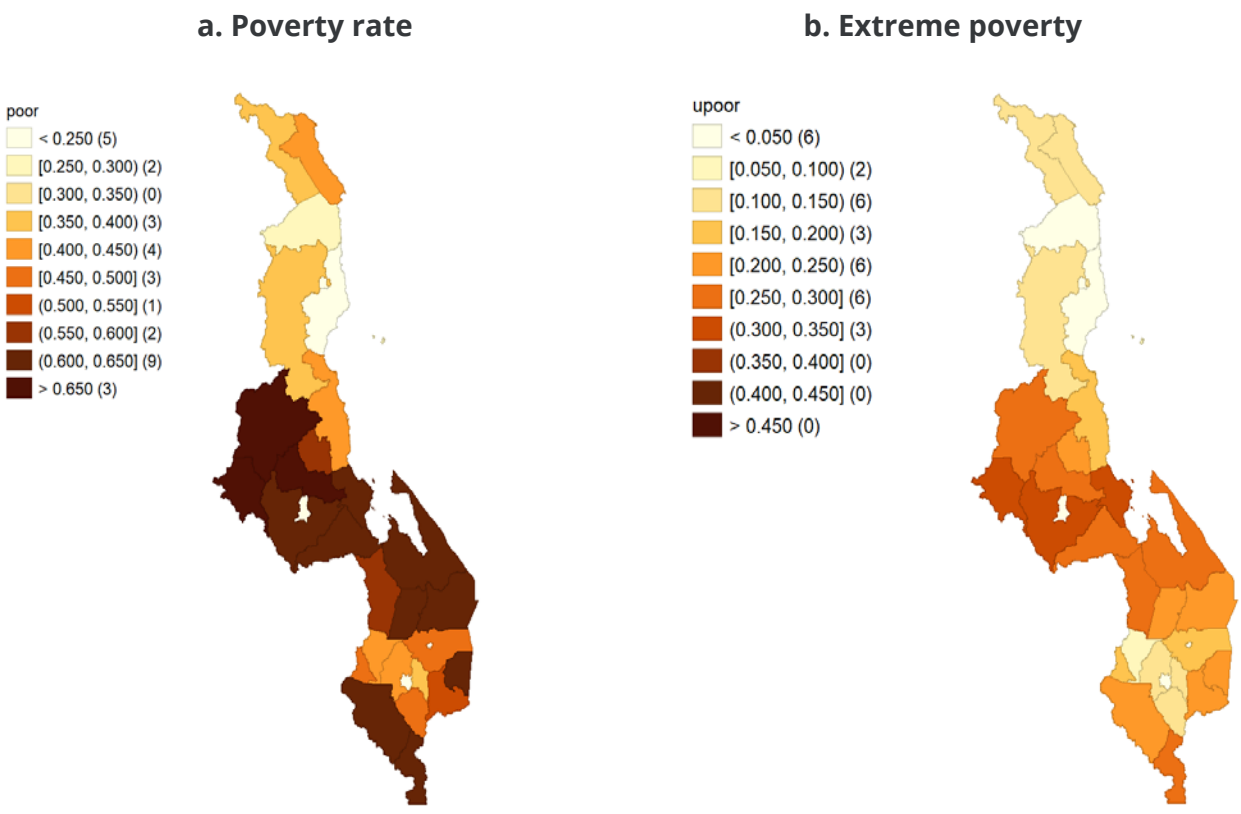
the country. These areas are also home to 92 percent of those in extreme poverty. Over time, poverty rates in the Rural North and the Rural South have decreased, while poverty rates in the Rural Center have increased.

Table 1.2: Poverty by regions, 2019/2020

Region	Extreme poor	Poor	Number of extreme poor	Number of poor	Total population	% of extreme poor	% of poor	% of total population
Urban	3.3	19.2	94,328	542,880	2,829,047	2.5	5.9	15.6
Rural North	9.8	35.9	195,593	716,923	1,997,062	5.3	7.8	11.0
Rural Centre	29.5	62.8	1,928,282	4,096,000	6,526,604	52.0	44.5	36.0
Rural South	22.0	56.7	1,488,611	3,842,850	6,781,388	40.2	41.8	37.4
Total	20.4	50.7	3,706,816	9,198,654	18,134,102	100.0	100.0	100.0

Source: World Bank calculations based on IHS5 poverty estimates.

Figure 1.2: Northern regions experiences lower poverty rates across all districts, while not all districts in the South have high poverty rates



Source: World Bank calculations based on IHS5 poverty estimates.

Two in every three people cannot meet their basic needs. To explore further how poverty is distributed in the country, Table 1.3 shows the share of households per district with per capita expenditure under the national poverty line, with some Unmet Basic Needs (UBN) and with income lower than a fixed fraction of the median. Moderate UBN is defined as meeting one of the following five conditions: Children (aged 7-12) not in school; 3+ People per Bedroom; Precarious Dwelling; No Connection Water or Sewage; or 3+ Members per Employed Member. Extreme UBN is defined as meeting three or more conditions. In general, the probability of not meeting basic needs (moderate UBN) is higher than the probability of being poor by expenditure. In other words, measuring poverty only by expenditure does not portray the entire picture (see Annex 2).

Some regions stand out for having a poverty rate below the national rate but also being home to Malawians who often cannot meet basic needs. Likoma and Nkhotakota have poverty rates of 26 and 43 percent, respectively, but exhibit a high probability of not meeting basic needs (83 percent and 77 percent, respectively), which is above the national share (51 percent). The big cities (Mzuzu, Lilongwe, Zomba, and Blantyre) stand out as districts with small shares of UBN, particularly Mzuzu (north) and Zomba (south). Likoma, Kasungu, Lilongwe rural, and Machinga are the poorest districts in terms of basic needs, with more than 80 percent of households failing to meet their basic needs. Finally, analysis of the share of households that lie below 60 percent of the median per capita expenditure indicates that the poorest districts are located in the Center (Salima, Lilongwe rural, Mchinji), with probabilities of poverty of over 30 percent. These are followed by districts in the South (Mangochi and Nsanje), where probabilities of poverty are 27 percent.

Table 1.3: Monetary poor and the share of people not meeting their basic needs by region, 2019/2020

		Poverty rate		UBN		Below X% of Median income pc	
		Moderated	Extreme	Moderated	Extreme	30%	60%
	National	51%	20%	69%	6%	1%	19%
North	Chitipa	39%	14%	54%	3%	0%	14%
	Karonga	41%	11%	60%	4%	0%	9%
	Nkhata Bay	22%	0%	68%	10%	0%	0%
	Rumphi	26%	3%	61%	3%	0%	2%
	Mzimba	39%	12%	58%	3%	0%	11%
	Likoma	26%	5%	83%	19%	0%	5%
	Mzuzu City	11%	0%	29%	1%	0%	0%
Center	Kasungu	67%	26%	80%	4%	2%	24%
	Nkhotakota	43%	20%	77%	12%	1%	18%
	Ntchisi	55%	21%	75%	6%	1%	19%
	Dowa	65%	27%	78%	7%	2%	25%
	Salima	62%	32%	74%	8%	3%	30%
	Lilongwe	63%	33%	81%	6%	1%	31%
	Mchinji	68%	34%	77%	10%	3%	32%
	Dedza	62%	29%	79%	11%	5%	26%
	Ntcheu	57%	27%	71%	9%	3%	24%
	Lilongwe City	16%	2%	55%	2%	0%	2%
South	Mangochi	64%	29%	76%	11%	2%	27%
	Machinga	62%	24%	80%	10%	2%	22%
	Zomba	49%	17%	70%	6%	1%	14%
	Chiradzulu	38%	13%	58%	5%	2%	12%
	Blantyre	44%	13%	59%	3%	1%	11%
	Mwanza	47%	20%	69%	4%	0%	17%
	Thyolo	49%	15%	63%	3%	0%	13%
	Mulanje	55%	22%	58%	4%	0%	21%
	Phalombe	64%	25%	73%	7%	2%	24%
	Chikwawa	61%	23%	73%	6%	1%	22%
	Nsanje	63%	28%	66%	9%	2%	27%
	Balaka	63%	23%	69%	6%	2%	20%
	Neno	40%	8%	72%	11%	1%	6%
	Zomba city	13%	3%	36%	3%	0%	3%
	Blantyre city	15%	1%	49%	2%	0%	1%

Source: World Bank based on IHS5

Expenditures on food, as well as housing and furnishing tell a striking story about differences in poverty between urban and rural areas. About half the gap in poverty between the Rural Center and Rural South compared to the urban region is explained by food expenditure (Table 1.4). For the Rural North, the contribution of food expenditure to poverty is lower, at 35 percent. Meanwhile, the contribution of the expenditure on housing and furnishing to the gap between the Rural North and urban areas stands at 49 percent. The contribution of this component is below 30 percent for the Rural Center and Rural South. Other categories such as transport and education are less relevant and more homogeneous across regions.

Table 1.4: Shapley decompositions all regions compared to urban areas

Region	Food	Furnishing	Transport	Education	Others
Rural North	35%	49%	2%	2%	12%
Rural Centre	49%	29%	4%	3%	15%
Rural South	51%	26%	4%	4%	15%

Source: World Bank calculations based on IHS poverty estimates.
Note: The basic idea of the Shapley decomposition is to "switch" each of the components of region j's household per capita expenditure for its urban region's counterpart and then re-calculate the share of households living below poverty rate under the synthetic household per capita expenditure of region j. The Shapley decomposition weights all the different possible changes in poverty resulting by switching each of the components. Its outcome is a set of contributions of each component to the total poverty gap between region j and Andina region. By construction, all the contributions add up to one.

Poor households suffer in multiple ways

Poor households suffer across many dimensions, including higher dependency ratios and overcrowded dwellings (Table 1.5). On one side, demographic structure is relevant as households in the poorest quintile are, on average, larger than households in the richest quintile. Dependency ratios are also much higher among the poor. In addition, access to good quality public services for vulnerable households is lacking, their dwellings are precarious and overcrowded, and their ownership of assets is limited. Social assistance is more frequent among households in the poorest quintiles, but its coverage is still low. School attendance for children aged 4-15 is high across all quintiles, while secondary completion rates of household heads are high-

er among the richest quintiles. Finally, occupation rates are high and homogeneous across the adult population, although occupation rates are very low when classified as at least ten hours of work per week.

Poor households have larger families and high dependency ratios

Families in the poorest quintile have, on average, two more members per family than those in the richest quintile (6.4 vs 4.3). Household dependency ratios (the proportion of children and retirement-age members by household) are particularly high in the poorest households; the ratio is 1.6 in the first quintile, compared to 0.84 in the fifth. High dependency rates are mainly attributable to high youth dependency rates (1.5 among the poorest; 0.76 among the richest) rather than to the presence of many seniors in the household, a function of a very young age structure, in which 43 percent of the population is under the age of 15 and only 2.6 percent aged 65 or over[4]. No major differences arise between quintiles regarding age and marriage status of the head of households, nor regarding the share of female headship. On average, the head of household is between 42-45 years old, and is married or in a civil union in three out of four households. Female heads of households are somewhat more frequent in the poorest households (37 percent) than in the richest (26 percent). Women's vulnerability reflects huge inequalities in different areas[5].

Poor households lack assets and live in precarious dwellings

Vulnerable households lack access to good public services, and live in precarious, crowded homes. Overcrowding (four or more people per room) affects 27 percent of households in the poorest quintile, while it only affects 3 percent of households in the richest quintile. Access to basic services also shows disparities across the population. While 59 percent of the richest families have proper sanitation, only 24 percent of the poorest do. Connection to electricity grids seems to be a problem even for some rich families; 38 percent of the richest and 0.4 percent of the poorest families have access to electricity. Safe water access is somewhat

4 *World Development Indicator (WDI), 2020.*

5 *World Bank, Gender Assessment of Malawi. Forthcoming.*

homogeneous across quintiles, although it still favors the richest quintiles (75 percent in the fifth quintile have access to safe water vs. 66 percent in the first quintile). The richest households are more likely to be renters (60 percent are owners) than the poorest households, where almost all are owners (87 percent). (The richest households are much more concentrated in urban areas, where most households rent.) Also, vulnerable families' dwellings are made to a greater extent of precarious or inadequate material (52 percent). Finally, poor households own far fewer assets. Almost no households in quintiles 1, 2, or 3 own refrigerators or computers (less than 1 percent). Only 0.3 percent of households in the poorest quintile own a television, compared to 41 of households in the richest quintile. Huge differences between the poorest and richest also arise in the ownership of cell phones (26 percent vs. 82 percent), beds (9 percent vs. 69 percent), and radios (17 percent vs. 31 percent).

Social assistance provides only limited relief

In-kind assistance as well as school feeding programs have the highest coverage among all quintiles. About 22 percent of the households in the first quintile receive free maize and food, while only 11 percent of households in the richest quintile benefit from them. School feeding programs are present across all expenditure quintiles (15 percent in the lowest, 12 percent in the highest), as well as Malawi's Public Works Program (a short-term, labor-intensive employment program). Direct cash transfers from the government are more frequent among the most vulnerable households (7 percent), but coverage is still low considering that every other Malawian is poor.

Table 1.5: Poverty profile at household level

	Poorest	Q2	Q3	Q4	Richest
Household characteristics					
Demographic dependency (child/working age)	1.5	1.3	1.1	1.0	0.7
Demographic dependency (child+seniors/working age)	1.6	1.3	1.2	1.1	0.8
Age of head of household	45.1	43.5	43.8	43.3	42.5
Female head of household (%)	36.9	33.6	31.1	30.8	26.1
Married or in civil union (head of household) (%)	72.5	76.0	79.3	78.1	76.9
Household size	6.4	5.8	5.4	4.9	4.3
Dwelling characteristics					
Ownership (%)	87.3	83.2	80.6	77.7	59.7
Overcrowding (%)	27.3	16.2	10.3	7.2	3.1
Access to electricity (%)	0.4	2.3	4.1	10.9	38.5
Precarious/inadequate material (%)	52.0	37.6	28.8	22.2	11.1
Save water access (%)	65.6	63.4	64.1	64.5	74.6
Sewage access (%)	23.8	28.2	31.9	39.4	59.3
Asset ownership					
Cell phone (%)	25.8	40.0	53.3	63.6	81.7
Radio (%)	16.7	24.1	26.0	29.7	30.8
Television (%)	0.3	2.4	5.0	11.2	41.1
Refrigerator (%)	0.0	0.2	0.7	2.8	21.8
Computer equipment & accessories (%)	0.0	0.0	0.1	0.4	10.2
Solar panel (%)	11.6	17.5	23.8	28.3	24.0
Bed (%)	9.0	16.7	27.9	42.9	68.5
Bicycle (%)	29.2	35.5	41.4	45.4	41.9
Social assistance					
Free Maize (%)	17.7	16.1	18.5	15.7	8.3
Free Food (%)	4.6	3.7	3.7	3.7	2.5
School Feeding Program (%)	15.3	17.8	15.9	16.1	11.6
Direct Cash Transfers from Government (%)	6.9	6.3	5.0	4.2	2.4
MASAF - Public Works Program (%)	3.5	4.7	4.3	5.6	3.4

Source: World Bank calculations based on IHS poverty estimates.

Very few poor households benefit from secondary education

Education is a major differentiator between the poorest and richest households. Although school attendance among children aged 4-15 is high across all quintiles, fewer than 2 percent of household heads in the first quintile have completed secondary education, compared to 35 percent of heads in the fifth quintile (Table 1.6). Consequently, the heads of the richest households accumulate, on average, four more years of education than the heads of the poorest households. Considering that half of all the population are poor, one could argue that low-income individuals have similar access to education as those in the third and fourth quintiles, who are above the poverty line. (This analysis does not account for possible differences in quality.)

Labor participation differs little across income levels

Overall occupation rates as well as labor force participation are both high (75 percent) and constant across quintiles. The unemployment rate is close to zero, considering that only a small number of people are actively searching for a job. However, such rates might not be representative of the overall labor market. Although most people participate in the labor market either as employees, farmers, self-employed, or *ganyu* workers, most people only work for a few hours per week. Taking a working week of at least ten hours as occupied, the occupation rate in the poorest quintile measures 25 percent, versus 41 percent in the richest quintile. Similarly, when agricultural activities are not considered, differences across quintiles rise again. In the first quintile, 20 percent are occupied, but 34 percent in the fifth quintile are. Female participation and occupation rates are also high, although fewer rich women than poor women are engaged in occupied work (68 percent vs. 76 percent).

Nationwide metrics of poverty obscure clear progress made in the Rural North and in urban areas and backsliding elsewhere. In the Rural North, the poverty rate fell 24 percentage points between 2016 and 2019. There, various elements contributed to progress: more people being educated, higher farm productivity, fewer climate shocks, and an urbanization process that slowed, but not as much as elsewhere.

Table 1.6: Poverty profile at individual level

	Poorest	Q2	Q3	Q4	Richest
Education and individual characteristics					
Cohabiting (married or in civil union) (%)	55.0	59.4	60.2	62.3	58.4
School attendance (ages 4-15)(%)	75.7	82.6	85.2	85.7	91.7
Head of the HH with completed secondary education (%)	1.6	4.2	5.4	10.4	35.5
Years of education of the head	5.6	6.2	6.6	7.2	9.6
Labor force					
Unemployment rate (%)	0.3	0.5	0.5	0.5	1.0
Labor force participation (%)	77.5	76.5	76.1	75.6	74.2
Female labor force participation (%)	75.9	73.8	73.1	70.7	67.6
Occupation rate (%)	77.2	76.0	75.7	75.1	73.2
Female occupation rate (%)	75.8	73.3	72.7	70.3	66.2
Occupation rate (excluding agriculture) (%)	20.1	21.4	21.5	24.0	33.9
Female occupation rate (excluding agriculture) (%)	18.6	20.2	19.6	20.6	28.4
Occupation rate if worked >10 hours per week (%)	25.1	30.7	29.9	32.2	40.6
Female occupation rate if worked >10 hours per week (%)	21.3	24.8	24.8	24.9	32.2
Disease prevalence					
Any disease (%)	25.0	25.7	27.9	29.0	26.7
Respiratory disease (%)	5.7	6.2	7.7	7.9	7.6
Malaria/Fever (%)	9.4	9.8	9.1	9.8	8.3
Diarrhea (%)	0.8	1.0	1.0	1.1	0.9
Heart problem (%)	0.3	0.2	0.3	0.3	0.3
Infant aged 0-1 years died in last 12 months in HH (%)	0.3	0.7	0.7	0.5	0.8
Child aged 1-4 years died in last 12 months (%)	0.8	1.1	0.6	0.6	0.4

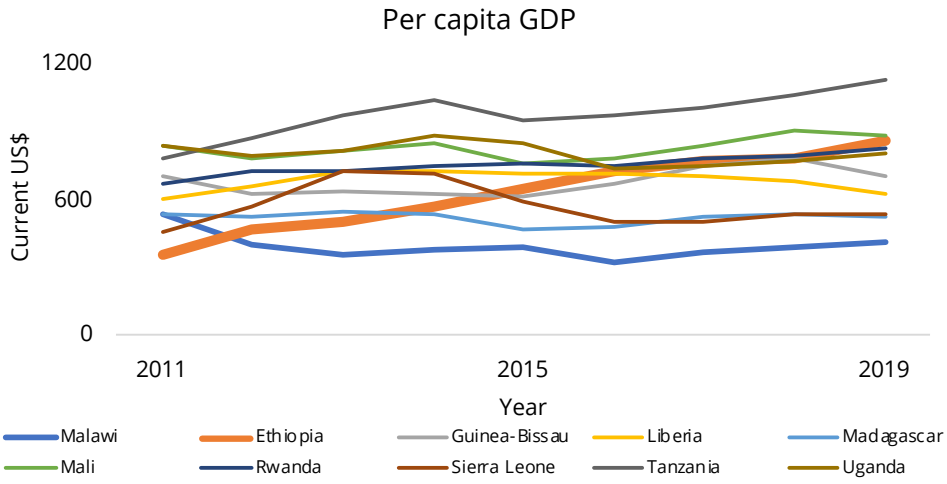
Source: World Bank calculations based on IHS poverty estimates.
Note: Labor force participation and occupation rates are based on self-reported activities during a reference period. Therefore, figures may differ from those in other chapters.

Economic growth has little impact on poverty

Per capita GDP growth overall is low, and Malawi remains one of the worst-performing economies in Sub-Saharan Africa. The country's GDP per capita, which was $411 in 2019 (WDI, 2021), ranks as the second lowest in the world. The country's GDP per capita is also considerably lower than the regional average (Figure 1.3). Annual growth has averaged a mere 1.6 percent for the last two decades. Over the same period, the population grew almost three percent, which is similar to other countries in the

region although high in global terms. Over the last decade, the country's total population has increased from 13 million to 17.5 million.

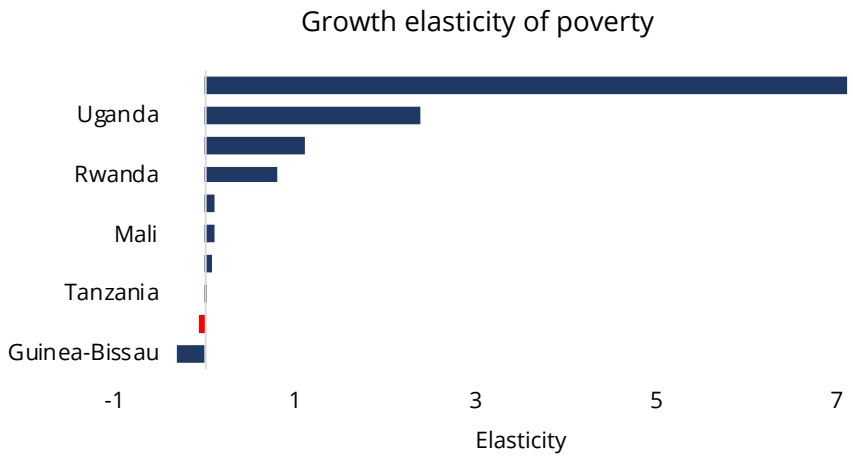
Figure 1.3: Malawi is among the worst-performing economies



Source: World Bank calculations based on WDI.
Note: Refer to annex 2 for comparable countries selection criteria.

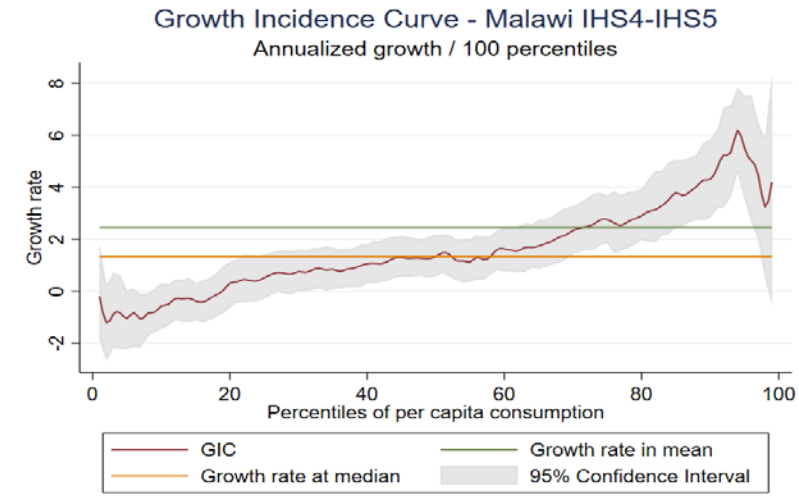
Even the modest growth the country has experienced has contributed little to poverty reduction. Its poverty-GDP per capita growth ratio indicates an elasticity rate close to zero. Malawi performs poorly in comparison to countries with similar economic structures, growth rates, and levels of private-sector development (Figure 1.4). Many factors may lie behind this low elasticity, such as the low return of household assets (human and physical) and the migration of poor households to areas with undynamic labor markets. Other pertinent factors include the presence of shocks and the lack of income diversification for poor households, which collectively undermine their potential for income growth.

Figure 1.4: Low poverty-growth GDP per capita elasticity



Source: World Bank production based on WDI (2021).
Note: Estimations for all counties' latest poverty headcount ratio set at $1.90 a day (2011 PPP). Comparison countries selected based income, poverty, and economic structure proximity. Full selection criteria in annex 2.

Figure 1.5: Annualized income growth shows a decrease in income among the poorest and an increase in income among the richest



Source: World Bank calculations with IHS4 and IHS5

Growth has not been pro-poor and has in fact contributed to greater inequality within the country. Annualized income growth data between 2016 and 2019 show that income for the bottom 20 percent decreased during this period while it grew for the richest 20 percent of the population. (Figure 1.5) Modifying the relationship between growth and poverty by addressing the country's low agricultural productivity and tackling its lack of economic transformation are therefore key to poverty reduction.

Box 1: Poverty transitions between 2010 and 2019.

Poverty dynamics are explored using the Integrated Household Panel Survey (IHPS) for the years of 2010 (IHPS3) and 2019 (IHPS5). As with the IHS, the panel survey collects information on consumption but in only half of the calendar period, between April and September with a very few households interviewed in October and November. By not collecting information during the lean season when poverty usually is higher, poverty rates computed with the panel are lower than the ones based on cross-sectional data, are not comparable to other methods, and should be understood as a lower bound for the poverty rate. Indeed, in contrast to the aggregate poverty rate of 50 percent, in non-lean periods, poverty rate is slightly above 40 percent.

For every three people that moved out of poverty, four became poor. After comparing the welfare status of individuals that are followed in both periods, 2010 and 2019 (Table 1.7), it is possible to see that around 60 percent of individuals in Malawi experienced at least one episode of poverty either in 2010, 2019 or in both years, a figure that demonstrates the persistence of poverty. Furthermore, there was a slow movement out of poverty. Among all individuals observed in 2010, 15 percent moved out of poverty by 2019, 18 percent moved into poverty, 30 percent remained poor and 40 percent remained non-poor in the same period. People who escaped poverty included those who moved from agriculture into ganyu, household businesses, and salaried employment, and those that improved their levels of education. Conversely, those who fell into poverty were households in higher-return activities that switched back to agriculture. Climate shocks drove many people into poverty.

Between 2010 and 2019, the central region has shown the largest movement into poverty. Then, 30 percent of people became poor in central region, compared to 8 percent in the Rural North. Moreover, in Rural North and Rural South around 20 percent of the population left poverty (Table 1.8). The movement into poverty observed in the Central Region was already clear during the period 2010-2013 (World Bank, 2017[6]).

Poverty is chronic and persistent in the country. In 2019, 30 percent of Malawians lived poverty since 2010, for a poverty rate close to 44 percent, suggesting that more than 70 percent of the poverty is chronic and also persistent.

6 *World Bank Group. 2017. Republic of Malawi Poverty Assessment. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/26488 License: CC BY 3.0 IGO.*

Moving out of agriculture helped people escape poverty while movements into poverty were mainly due to a climate shock. Poor individuals who were able to switch into activities with higher return than agriculture (including *ganyu*), were able to move out from poverty. Conversely households that moved into agriculture would see their circumstances worsen. Droughts and floods, either in 2010 or between 2016 and 2019, explains movements into poverty.

Table 1.7: Poverty transition matrix between 2010 and 2019/20

		Poverty status in 2019		
		Poor	Non Poor	Total
Poverty status in 2010	Poor	27%	15%	43%
	Non poor	18%	39%	57%

Source: World Bank calculations using information from the Integrated Household Panel Survey (IHPS).

Table 1.8: Movements in/out of poverty between 2010 and 2019/20 by area and region

		Became non-poor	Became poor	Total	Chronic poverty
2010 - 2019	National	15%	18%	33%	27%
	Rural Center	9%	29%	38%	29%
	Rural North	21%	8%	28%	20%
	Rural South	20%	15%	35%	35%
	Urban	15%	8%	23%	9%

Source: World Bank calculations using information from the Integrated Household Panel Survey (IHPS).

2. Agriculture as a Defining Challenge: Low, Stagnant Productivity Hinders Poverty Reduction

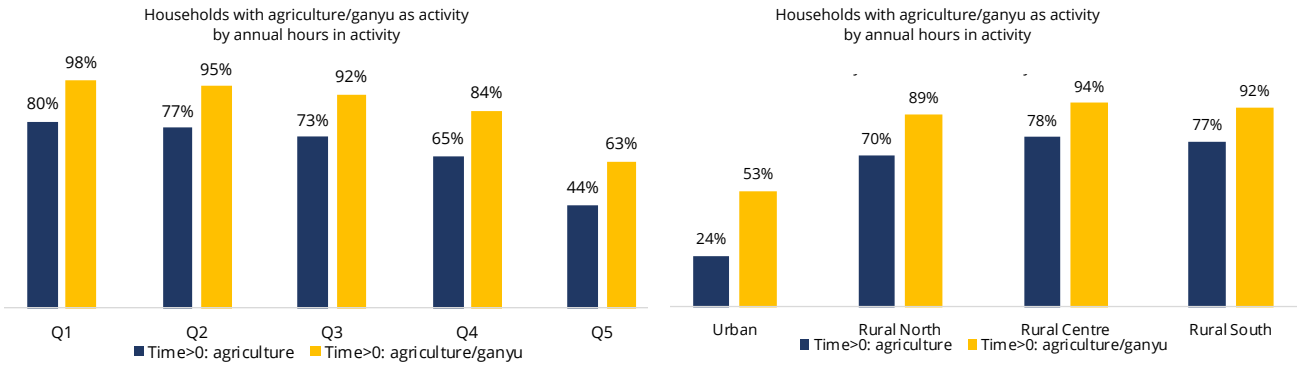
Agriculture defines the economic existence of the vast majority of poor households, but this sector is an ineffective path out of poverty. The more a household focuses on agriculture, the more likely it is to be poor. The available evidence suggests that Malawians have not meaningfully raised agricultural productivity either through greater inputs or more efficient use of existing resources. Distance to markets, gender, and education levels all bear on productivity. Rural areas of northern regions show higher productivity but no meaningful signs of structural change that would ensure this success endures.

Agriculture dominates economic life among the poor

Agriculture is overwhelmingly the main economic activity of poor households. As shown in Figure 2.1 larger proportion of the poorest households (80 percent) allocate at least a few hours to agriculture in contrast to the richest households (44 percent). Most of the poorest households in agriculture combine it with *ganyu* labor, a type of labor hired for the day or another short-term period. It can have the form of piecework weeding or ridging on other people's farms, or it can be used to work in non-farm sectors, such as construction or gardening. Remuneration in *ganyu* can be in cash or kind (e.g., food). While the practice is mainly observed among poor agricultural households, its use also extends beyond poor households and unskilled workers. By region, the Rural Center and Rural South report more households with some agricultural activity (and with a larger proportion of households combining it with *ganyu*).

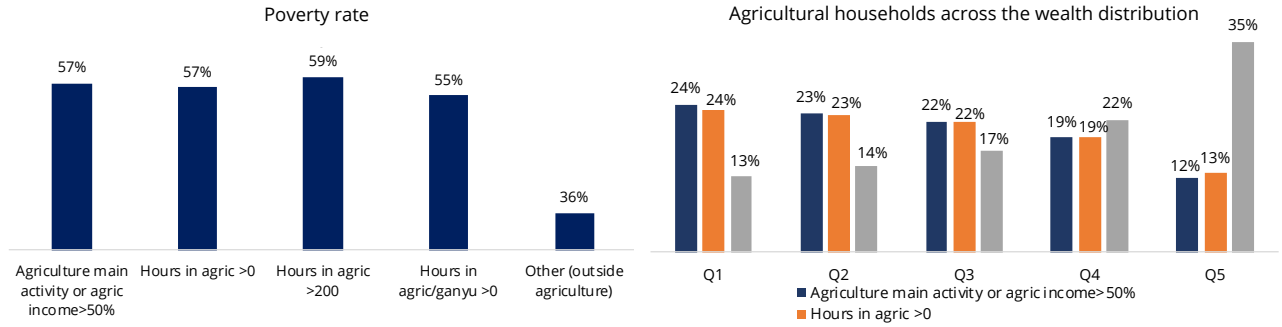
Among those households practicing some form of agricultural activity, the poverty rate is higher than the country as a whole. Agriculture-practicing households have a 57 percent poverty rate, six percentage points higher than the nation. The poverty rate is larger for households allocating more hours to agriculture (59 percent for those with more than 200 hours of work in a year) than for those allocating less hours to this activity (and possibly more to other activities). In contrast, only a third of households outside agriculture are poor (Figure 2.2) and half of the richest households (top 40 percent) are outside agriculture.

Figure 2.1: Time allocated to agriculture and ganyu activities is higher among poor people



Source: World Bank calculations using data from IHS5.
Note: Q1 corresponds to the Poorest 20%; Q2 to the second 20%; Q3 to the middle 20%; Q4 to the fourth 20% and Q5 to the Richest 20%

Figure 2.2: More than half of households working in agriculture are poor, while most agricultural workers are in the first quintiles of the income distribution

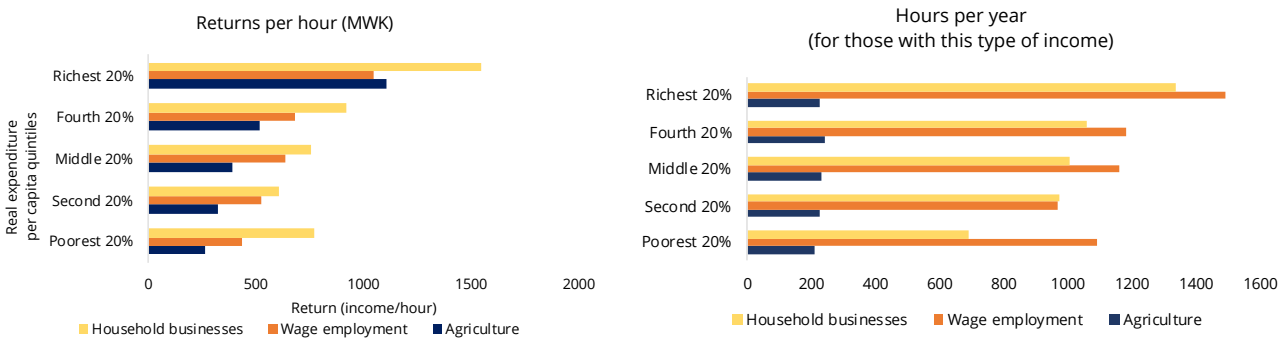


Source: World Bank calculations using data from IHS5.

The number of hours allocated to agriculture contrast with the amount of work that is allocated into other activities. Within a year, the average household allocates around 230 hours of work to agriculture, equivalent of one month of labor. In contrast, those in wage employment (excluding *ganyu*)[7] work full time (Figure 2.3). Poor households systematically allocate fewer hours of work to any economic activity.

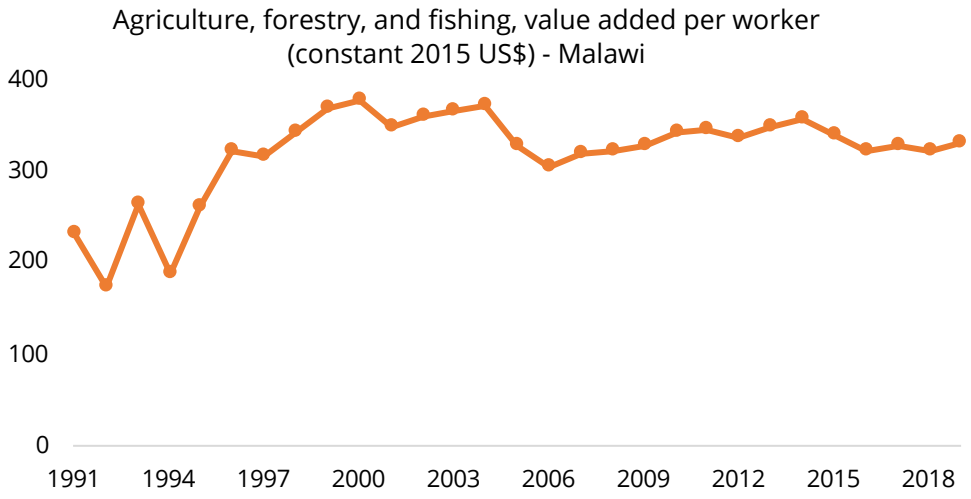
7 *In this report we refer to wage employment excludes always ganyu unless otherwise specified. Hence it refers to salaried jobs.*

Figure 2.3: Returns per hour in agriculture, household businesses and paid jobs



Source: World Bank calculations using data from IHS5.

Figure 2.4: Value-added per worker has not changed significantly in more than a decade



Source: World Bank Data

Stagnant productivity in the agricultural sector, so vital for most of the population, underlies the challenges in reducing poverty. Productivity has not shown any meaningful changes in the last 25 years and the contribution of each worker to the final output is below the average of Sub-Saharan countries (Figure 2.4). An examination of the productivity of all factors of productivity, not only workers, indicates that the growth in real agricultural productivity has simply stalled in recent years (see Box below).

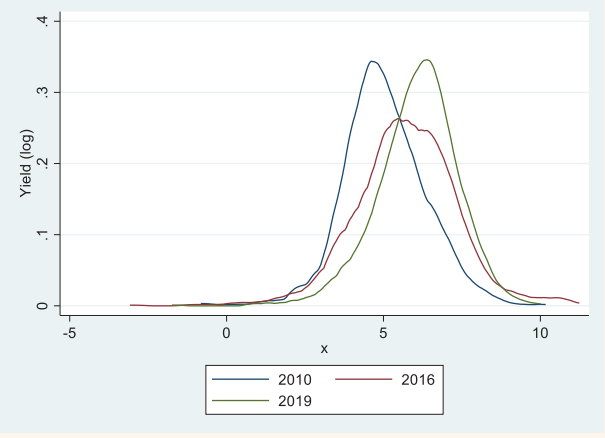
Box 2: Determinants of farm-level total factor productivity in recent years

This section explores the key determinants of agricultural productivity and how they relate to poverty. It estimates farm-level total factor productivity (TFP), as in Restuccia and Santaeulalia-Llopis (2017), exploiting the panel component of the Integrated Household Survey (see the Annex 3 for a description of the method).

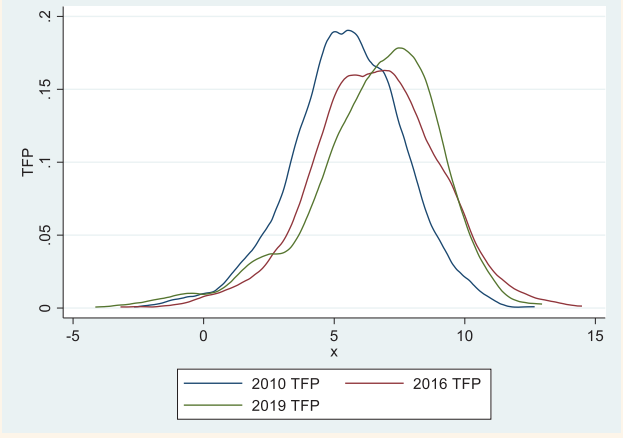
The value-added yield in agriculture has increased between 2010 and 2019, and was accompanied by an increase in agricultural productivity, as measured by TFP (Figure 2.5)[8]. The differences in value-added yield and TFP between 2016 and 2019 are not statistically significant, suggesting the possibility real agricultural productivity growth has stalled in recent years. The aggregate differences may mask subgroup differences over time, and these comparisons are explored below.

Figure 2.5: Farm-level productivity 2010-2019

Panel A. Value-added yield (log)



Panel B. Total factor productivity (TFP)



Source: World Bank calculations based on IHS poverty estimates.
Notes: Value-added yield is defined as the sum of production value for all plots for the household minus costs. Production value is given by the total production multiplied by the median crop price. Costs include fertilizer and seeds at the non-subsidized median price. TFP is expressed in hours of labor and is estimated based on value-added yield, weather, soil quality, land area, and value of capital.

8 *Value-added yield is given by the value of the harvest minus total costs. The value of the harvest is given by the total production in kilograms multiplied by the median price of the crop. Total costs include the cost of fertilizer and seeds at the median unsubsidized price.*
The Kolmogorov Smirnov test fails to reject equality of distribution and the t-test fails to reject equality of the mean.

Farms in the Central and South regions have similar productivity as measured by TFP (Table 2.1) but a lower productivity than that observed in the North region. Higher productivity correlates to growing tobacco as opposed to maize, which is the main staple food. Groundnuts are also positively associated with productivity. While these results are not causal, cash crops instead of staple food may promote productivity in the agriculture sector.

Table 2.1: The relationship between TFP, region, and crops

	(1) TFP	(2)	(3)	(4)	(5)
Central	-1.101			-1.101	-1.367
	(1.40)			(1.40)	(0.94)
South	-0.569			-0.568	-0.899
	(1.60)			(1.60)	(1.13)
year=2016	1.717***	1.716***	1.971***	1.718***	1.972***
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
year=2019	1.133***	1.140***	1.150***	1.134***	1.143***
	(0.21)	(0.21)	(0.20)	(0.21)	(0.20)
Maize		0.815		0.815	
		-0.883		-0.884	
Tobacco			1.323***		1.327***
			(0.29)		(0.30)
Groundnuts			0.750***		0.749***
			(0.22)		(0.22)
No. observations	2694	2694	2694	2694	2694
R-sq	0.666	0.666	0.682	0.666	0.683
Char. Mean	6.39	6.39	6.39	6.39	6.39

Source: World Bank calculations based on IHS poverty estimates.
Notes: Household and year fixed effects included. Standard errors clustered at the level of enumeration area.

Several measures of poverty are used to examine the relationship between productivity and poverty (Table 2.2). Using indicators for households in the bottom 20 and 40 percent of the distribution, poor households are more likely to have lower yields, although the relationship with TFP shows no clear pattern. Conversely, households in the top quintile are more likely to have a higher yield, while the relationship with TFP is positive but imprecisely estimated. These results suggest that poor households are more likely to have lower yields, but poverty does not appear to be a strong predictor of residual TFP.

Table 2.2: The relationship between productivity and poverty
Panel A. Value-added yield (log)

	(1)	(2)	(3)	(4)	(5)
			Yield(log)		
Q1 PCE in 2010	-0.276***				
	(0.068)				
year=2016	2.067***	2.036***	2.035***	2.034***	2.033***
	(0.082)	(0.097)	(0.097)	(0.097)	(0.096)
year=2019	1.978***	1.981***	1.987***	1.984***	1.984***
	(0.064)	(0.073)	(0.074)	(0.074)	(0.074)
Q1 PCE		-0.322***			
		-0.059			
Bottom 40 pctile PCE			-0.183***		
			(0.046)		
Below median PCE				-0.186***	
				(0.045)	
Q5 PCE					0.203***
					(0.066)
No. observations	4469	4793	4793	4793	4793
R-sq	0.413	0.738	0.735	0.735	0.734
Char. mean	11.01	11.02	11.02	11.02	11.02

Source: World Bank calculations based on IHS poverty estimates.
Note: The first indicator (Q1 PCE in 2010) takes the value one if the household was in the bottom quintile of per capita expenditure (PCE) in 2010. The second takes the value one if the household was in the bottom PCE quintile in a survey year (Q1 PCE). The third takes the value one if the household was in the bottom 40 percentile of PCE in a survey year (bottom 40 percentile PCE). The fourth uses the median PCE in a survey year (below median PC). The fifth takes the value of one if the household is in the top PCE quintile in a survey year.

Panel B. TFP

	(1)	(2)	(3) TFP	(4)	(5)
Poor in 2010	0.18				
	(0.117)				
year=2016	1.800***	1.724***	1.729***	1.736***	1.737***
	(0.142)	(0.199)	(0.198)	(0.200)	(0.198)
year=2019	1.160***	1.140***	1.147***	1.147***	1.155***
	(0.146)	(0.200)	(0.199)	(0.199)	(0.200)
Q1 PCE		-0.244			
		(0.208)			
Bottom 40 pctile PCE			-0.192		
			(0.144)		
Below median PCE				-0.289**	
				(0.135)	
Q5 PCE					0.349
					-0.264
No. observations	2500	2686	2686	2686	2686
R-sq	0.202	0.669	0.669	0.67	0.669
Char. mean	6.46	6.4	6.4	6.4	6.4

Source: World Bank calculations based on IHS poverty estimates.
Notes: District and year fixed effects included in col. 1. Household and year fixed effects included in cols. 2-5. Standard errors clustered at the level of enumeration area.

Table 2.3 also explores the relationship between TFP, poverty and crops. This analysis confirms that poor households in the Center and South regions are more likely to have lower TFP, and this relationship remains when controlling for crops. However, the interaction effect between crops and poverty is not significant, suggesting that crop choice is not a strong predictor of TFP among poor households.

Table 2.3: The relationship between TFP, region, crops, and poverty

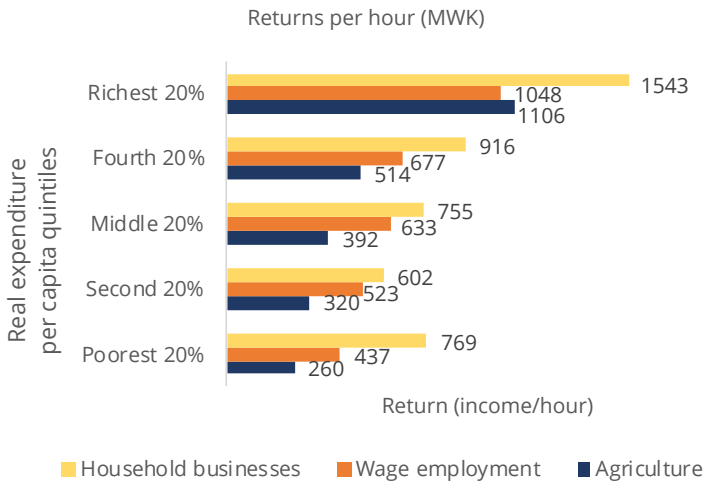
	(1)	(2)	(3)	(4)	(5)
			TFP		
Q1 PCE	0.900**	1.395	-0.36	2.478	0.321
	(0.351)	(1.518)	(0.224)	(1.541)	(0.529)
Central	-0.897			-0.879	-1.082
	(1.410)			(1.429)	(1.065)
South	-0.433			-0.474	-0.723
	(1.584)			(1.599)	(1.204)
Central X PCE in Q1	-1.646***			-1.656***	-1.303**
	(0.461)			(0.461)	(0.553)
South X PCE in Q1	-0.907**			-0.935**	-0.425
	(0.429)			(0.432)	(0.555)
year=2016	1.759***	1.728***	1.978***	1.762***	2.003***
	(0.198)	(0.199)	(0.191)	(0.198)	(0.191)
year=2019	1.182***	1.139***	1.133***	1.181***	1.176***
	(0.195)	(0.199)	(0.187)	(0.195)	(0.183)
Maize		1.224		1.191	
		(1.012)		(1.010)	
Maize X PCE in Q1		-1.658		-1.577	
		(1.524)		(1.503)	
Tobacco			1.202***		1.170***
			(0.305)		(0.309)
Groundnuts			0.710***		0.627***
			(0.225)		(0.222)
Tobacco X PCE in Q1			0.645		0.734
			(0.639)		(0.607)
Groundnuts X PCE in Q1			0.257		0.493
			(0.416)		(0.437)
No. observations	2686	2686	2686	2686	2686
R-sq	0.673	0.671	0.687	0.674	0.691
Char. mean	6.4	6.4	6.4	6.4	6.4

Source: World Bank calculations based on IHS poverty estimates.
Notes: Household and year fixed effects included. Standard errors clustered at the level of enumeration area.

Poor households demonstrate low agricultural productivity

Poor households in agriculture experienced even lower levels of productivity than the average household. Indeed, the hourly return from agriculture is five times higher for rich households compared to poor households (Figure 2.6). Also, the returns from agriculture for rich households are similar to what these households earn additionally in wage employment.

Figure 2.6: Returns per hour in agriculture are below the returns from activities like wage employment

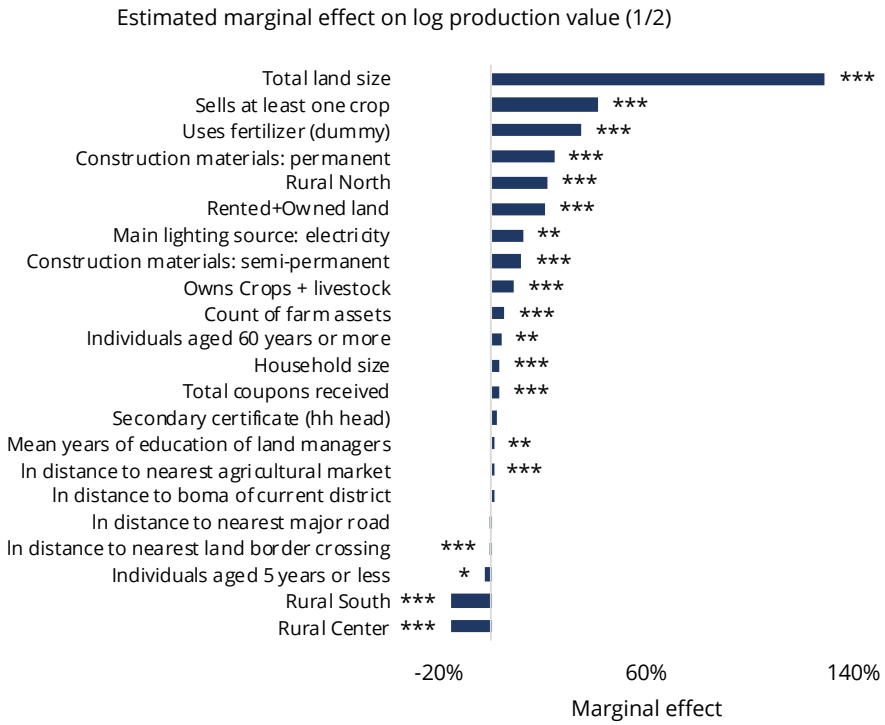


Source: World Bank calculations using data from IHS5.

Factors such as land characteristics, household compo¬-sition, and the use of input can dramatically affected value generated by agricultural activity. Using the results from a re-gression of the value harvested on a set of inputs and household characteristics, it is possible to characterize the key factors that positively contribute to increases in harvest values. Land is one of the most important inputs contributing to higher levels of pro-duction. Larger parcel size explains a greater value of the harvest, and the same is true for owning rather than renting land. Selling a portion of the crops planted and the use of fertilizers are also related with higher levels of production. Better amenities, such as electricity, and better construction, such as the use of permanent materials, both increase the value of production. Households with more members overall, with members who are older, and with heads of household and land managers who are better edu-cated all tend to deliver higher value.

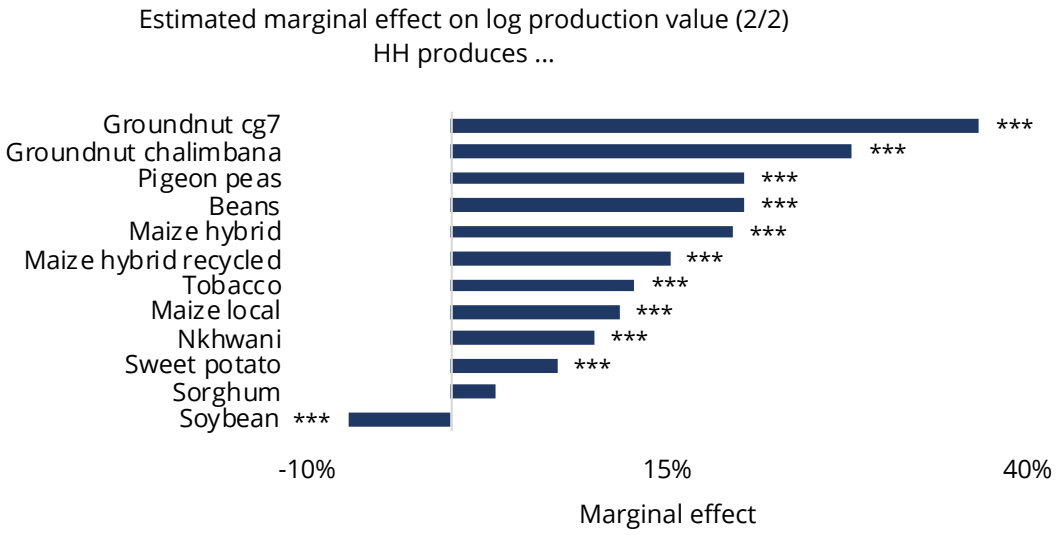
Combining activities such as planting crops and keeping livestock increases the value of the harvest. Groundnuts are the crop that most contribute to increasing harvest values, followed by pigeon peas, beans, and maize hybrid (Figure 2.7). Sweet potato and sorghum exhibit relatively lower increases, while soybeans have a negative effect. The same is true for those slightly far from agricultural markets and boma (district market) but closer to a border crossing. Planting "local maize" also increases the harvest value but to a lesser extent than the crops previously mentioned. When focusing on the determinants of the value of maize, important factors for increasing value include land size, the combination of crops with livestock, the use of fertilizers, and the number of farm assets. Finally, larger harvests of maize were observed for larger households with older members and with heads of household with some level of education[9].

Figure 2.7: Households' characteristics, agricultural inputs, and the type of crops planted are important determinants of the value of the harvest



Source: World Bank calculations based on the IHS5.
Note: The reported marginal effects correspond to statistically significant estimates from a regression of the value of the production harvested (in logarithms) on households' demographic characteristics and agricultural inputs. For the whole set of variables included, please see the online appendix.

9 The results correspond to the estimates from a regression of the value of the maize produced in logarithms on a set of controls that include household characteristics and



Source: World Bank calculations based on the IHS5.
Note: The reported marginal effects correspond to statistically significant estimates from a regression of the value of the production harvested (in logarithms) on households' demographic characteristics and agricultural inputs. For the whole set of variables included, please see the online appendix.

Households with larger lands exhibit higher values for their final product. Most households (90 percent) working in agriculture have their own land, with less than 5 percent renting. The average land size is below one hectare (0.65 hectares), of which 0.6 hectares are usually planted and 0.4 hectares are usually harvested (Table 2.4). Both the size of the land owned and the size of the land harvested increase with households' level of wealth. Rich households harvest 0.15 hectares more than poor households (Figure 2.8).

Agriculture is mainly a subsistence activity, something Malawians do simply to stay alive. On average, those working in subsistence agriculture work in plots of half a hectare (0.5 ha), while households selling a portion of what they produce work in larger plots (0.8 ha on average). An average household harvests about 0.5 ha, while poor households harvest 0.1 ha less. Almost half of households (44 percent) do not sell anything of what they produce, while another 20 percent sell small quantities of their final produce (up to 20 percent). Few households (10 percent) sell more than 60 percent of their total production (Figure 2.9).

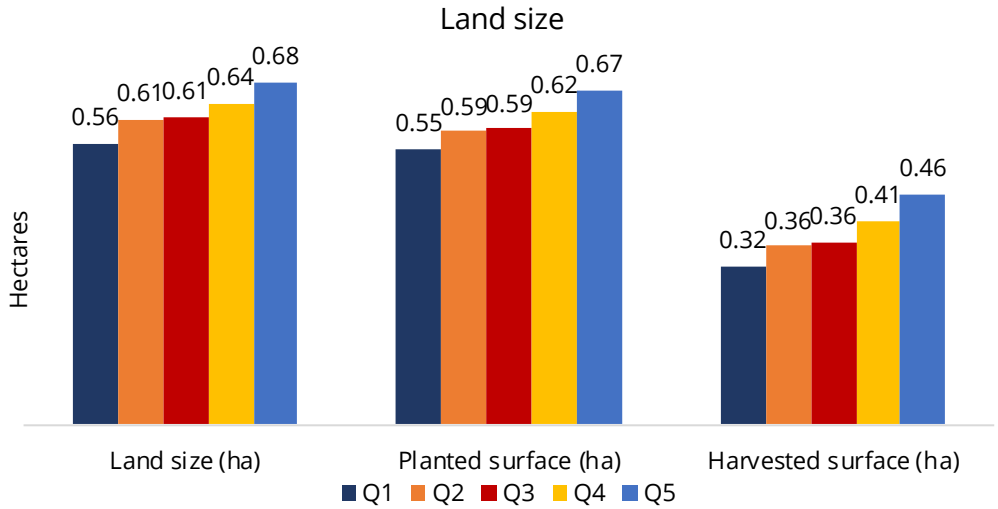
agricultural inputs. The complete set of estimates can be found in the online appendix.

Table 2.4: Land size in agriculture by region

Region	Rents land	Owns land	Owns part of land	Land size (ha)	Planted surface (ha)	Planted surface (ha)
Urban	12%	82%	6%	0.5	0.49	0.35
Rural North	4%	90%	6%	0.69	0.68	0.5
Rural Center	3%	88%	9%	0.74	0.72	0.48
Rural South	4%	92%	4%	0.5	0.49	0.25
Total	4%	90%	6%	0.62	0.6	0.37

Source: World Bank calculations using data from IHS5.

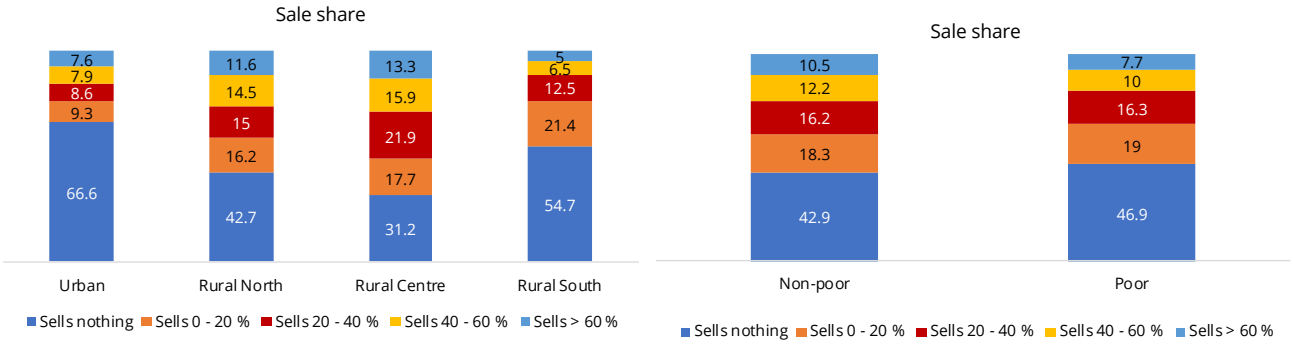
Figure 2.8: Richer households work on larger plots and harvest more hectares than poor households



Source: World Bank calculations using data from IHS5.

More than half of poor households plant only crops, while non-poor households also keep livestock. Most households working in agriculture plant crops, especially if they are poor or if they live in the Rural Center or in the Rural South. Livestock, on the other hand, is kept by half of households and is more common among non-poor people (45 percent) or those living in the Rural North (Figure 2.10).

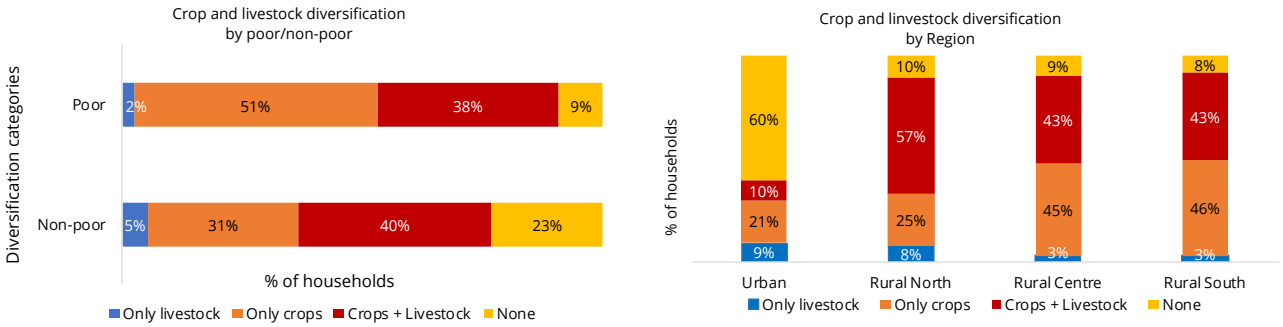
Figure 2.9: An important proportion of households do not sell any of their produce



Source: World Bank calculations using data from IHS5.

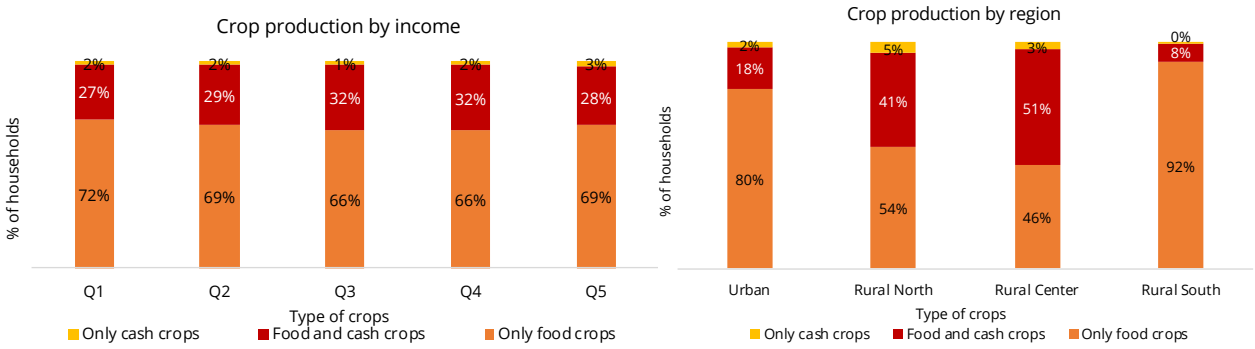
While people grow some crops for consumption, others are exchanged for cash. Almost all crop-producing households produce food crops, which are defined as those consumed by most households. Around 70 percent of households allocate their time only to food crops and 30 percent also produce cash crops. (Figure 2.11) Food crops include maize, potato, sorghum, beans, pigeon peas, nkhwani, peas, and finger millet. Poor households produce mainly food crops, especially in the Rural South. Only one in five households that grow food crops also sell some. Cash crops or crops that could be potentially exchanged for cash (such as tobacco, groundnut CG 7, groundnut chalimbana, rice, soy-bean, and sunflower) are sold by 32 percent of these households. The composition of food/cash crops does not change by income but does differ by region; cash crops are rare in the Rural South but more than half of households produce cash crops in the Rural Center. The few urban households who practice agriculture focus mainly on crops for consumption.

Figure 2.10: Households in agriculture plant crops and keep livestock



Source: World Bank calculations using data from IHS5.

Figure 2.11: Type of crops produced by households



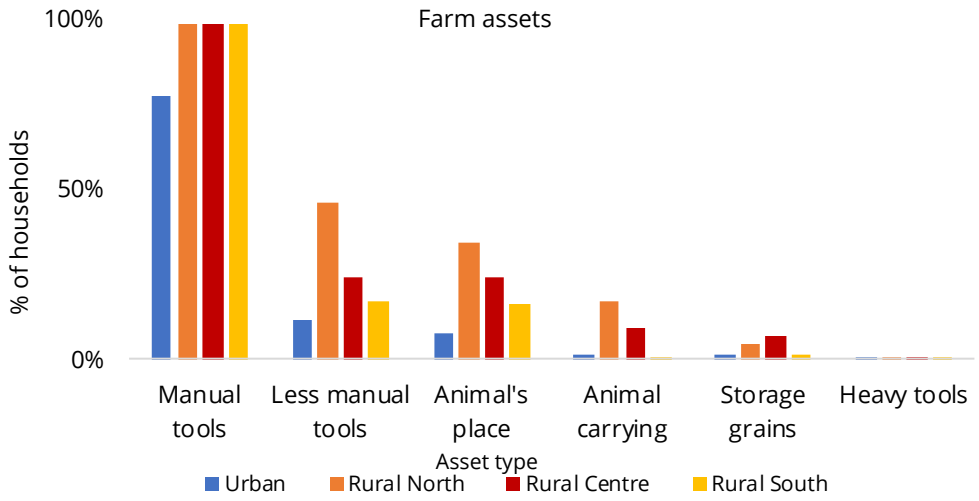
Source: World Bank calculations using data from IHS5.
Note: Crops which are sold by at least 60 percent of households that produce them are considered cash crops. Crops which are sold by less than 60 percent are considered food crops. A household is considered to sell a crop if it sells at least some part of the production.

Unequal access to inputs by gender negatively affect the level of farm productivity among women

Manual tools are, overwhelmingly, the main instruments available to most households for cultivation. Most households have at least one tool to work the land and raise livestock. These tools include hand hoes, slashers, axes, sickles, cultivators, and watering cans. Almost no-one owns tractors, generators, or motorized pumps, all of which are important in generating higher value. Fewer than 10 percent of households in the country own an ox cart or an ox plough, although the figure is closer to 20 percent in the Rural North. Other more mechanized tools like sprayers and grain mills are owned on average by one in five households. Such tools are more common in the North region (Figure 2.12), which has the largest economic return from agriculture. A

similar proportion of households possess chicken houses, poultry kraal, pigsties, or livestock kraals. Again, the Rural North tends to predominate here. Finally, grain storage is kept by fewer than 5 percent of households.

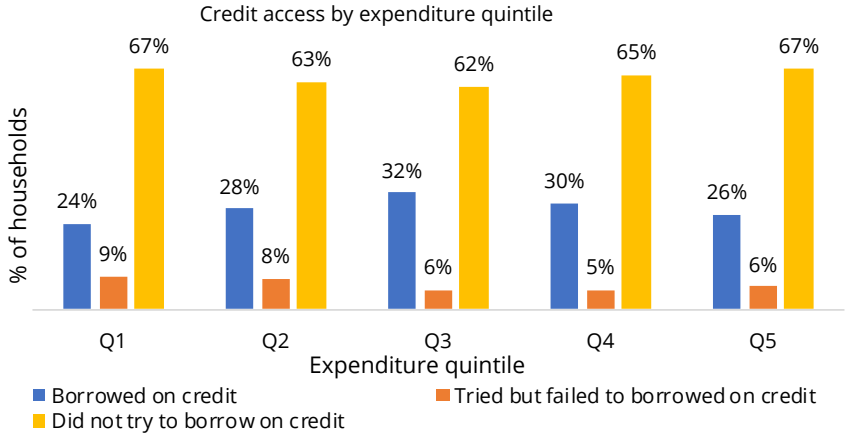
Figure 2.12: Manual tools are present in all households in rural areas, although heavy machinery to help with production is absent in most households



Source: World Bank calculations using data from IHS5.
Note: farm assets are classified as followed: Manual tools: hand hoe, slasher, axe, sickle, cultivator, and watering can. Animals carrying include ox cart or ox plough. Heavy tools: tractor, tractor plough, generator, and motorized pump. Less manual tools include sprayer, ridge, grain mill, and treadle pump. Animal's place: chicken house, poultry kraal, barn, pigsty, and livestock kraal. Storage grains: storage house and granary.

Access to credit eases combining grain and livestock production but most households do not try to borrow. On average, one-third of the population has access to credit, which is not enough to help farmers to invest more. For those working in agriculture, the proportion is slightly lower (28 percent), while fewer than 10 percent have tried to borrow and failed to do so (Figure 2.13). The proportion in this last group is the same between agriculture and other activities. By income quintiles, failure to obtain credit disproportionally affects the poor.

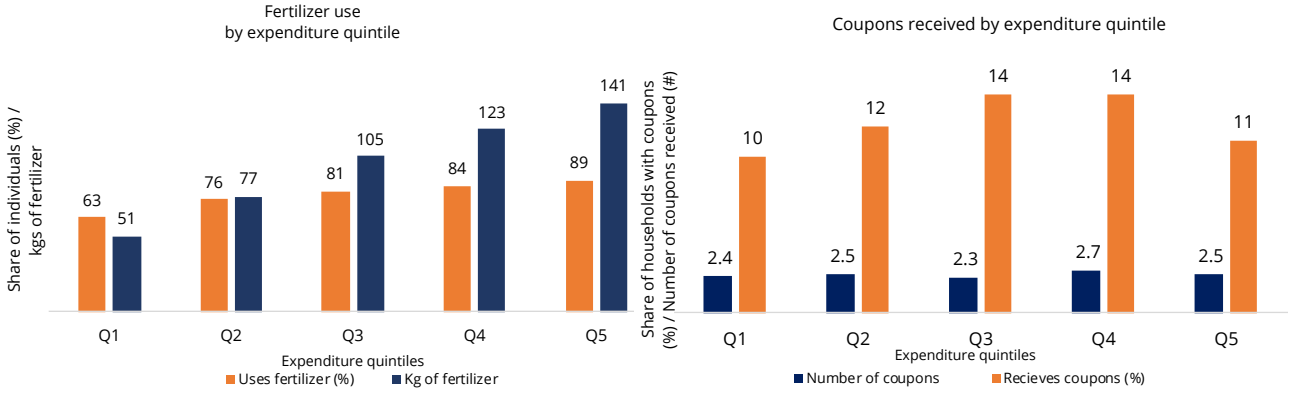
Figure 2.13: A third of households have accessed credit



Source: World Bank calculations using data from IHS5.
Note: Q1 corresponds to the Poorest 20%; Q2 to the second 20%; Q3 to the middle 20%; Q4 to the fourth 20% and Q5 to the Richest 20%

Using fertilizers increases households' production and coupons for this input increases its use. About 80 percent of households use fertilizers, especially if they produce a mix of cash and food crops. On average they use 197 kilograms of fertilizer per hectare (kg/ha). Food crops use more fertilizer per hectare (217 kg/ha). By income quintiles, a larger percentage of richer households use fertilizers compared to poorer households. (Figure 2.14) Similarly, richer households use larger amount of fertilizer than poorer households (141 kg/ha in contrast to 51 kg/ha). Beneficiary households receive two or three coupons, each of which can be exchanged for 50 kg of fertilizer or 5 kg of seeds. While coupons should be focused on poorer households, the evidence shows that is evenly distributed across the income distribution.

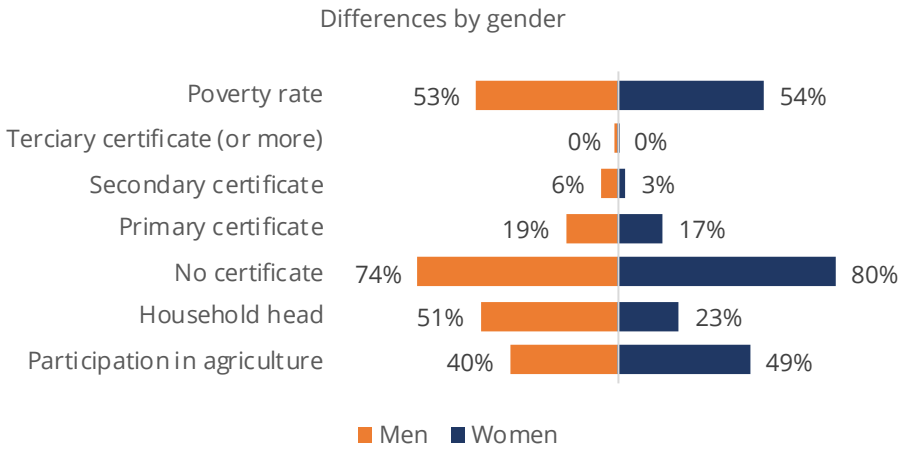
Figure 2.14: Access to fertilizers and coupons increase with households' wealth



Source: World Bank calculations using data from IHS5.

Among women, agricultural productivity is especially low. 43 percent of all women participate in agriculture, while a slight¬ly lower proportion of men do so. Women's lower educational level is a particular disadvantage (Figure 2.15). Four in five women aged 15 or over who allocate at least one hour of their time to agriculture have no education certificate, compared to 75 percent of men in the same category. Completion rates in education (ages 15+, participating in agriculture) are also lower for women. Just over one in six (17 percent) have a primary certif¬icate (19 percent of men), and only 3 percent having a secondary certificate (six percent of men). Women allocate 6 percent more time to agricultural activities than men during the year. Finally, 54 percent of women in agriculture are poor, compared to 53 per¬cent of their male peers.

Figure 2.15: Women experience large disparities, including in education, poverty, and participation in agriculture



Source: World Bank calculations using data from IHS5.

Access to inputs that enhance production is limited for women and the value of the final agricultural product is lower for female agricultural workers (Table 2.5). First, most land main workers are men (60 percent). Interestingly, a larger proportion of female workers than male workers work on land that is owned by the household. By region, most men work in the Rural Center, while most females work in the Rural South where there is a stronger presence of the matrilineal tradition (63 percent of the married individuals in the Rural South married under the matrilineal tradition).

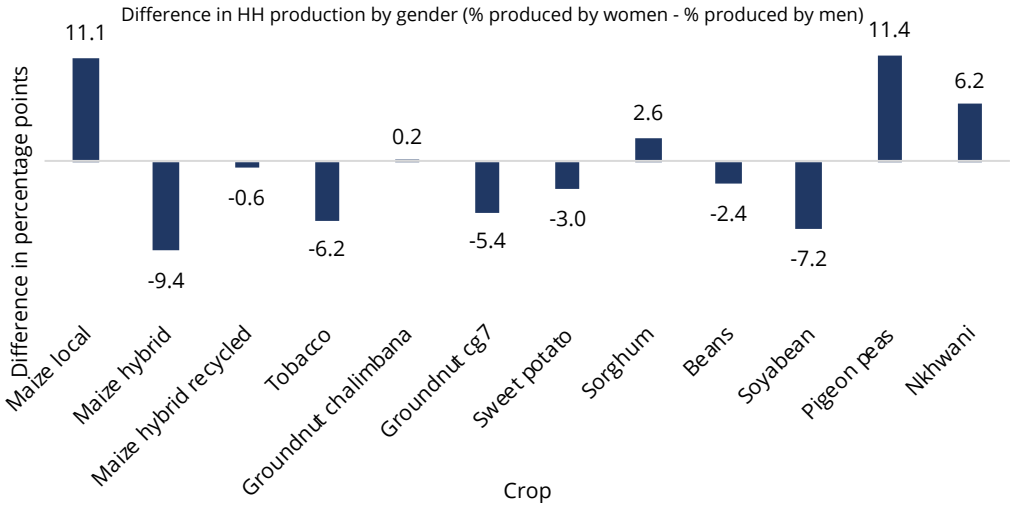
Female workers have fewer of the key inputs into agriculture than their male counterparts. Men are more likely to access credit; women less likely to seek it. Males cultivate larger parcels (0.7 ha) compared to female managers (0.5 ha). Males use larger amounts of fertilizers. While men and women have access to basic tools to work in agriculture, males tend to have more access to non-manual tools, tractors, generators, and work animals such as plough oxen Sixty percent of female managers are subsistence farmers versus 47 percent of male managers, and women tend to produce maize for consumption (Figure 2.16). More males divide their land to include two crops of more. It is notable that matrilineal societies experience larger disadvantages in agriculture as male household heads usually invest less in farming if their wife owns the land (Limbikani and Mwenda, 2022).

Table 2.5: Land manager's characteristics by gender

	Men	Women	Difference Women - Men	Significance	SE
Rented land	5%	4%	-1%	*	0.00
Owned land	88%	92%	5%	***	0.01
Owned+rented land	8%	4%	-4%	***	0.01
Urban	6%	7%	1%	***	0.01
Rural North	14%	8%	-6%	***	0.01
Rural Center	44%	33%	-11%	***	0.01
Rural South	36%	53%	16%	***	0.01
Plot size	0.67	0.51	-0.16	***	0.01
Fertilizer use (dummy)	77%	72%	-5%	***	0.01
Fertilizer use (kg)	98	64	-34	***	2.59
Fertilizer use (kg/ha)	198	184	-15		13.88
Receives coupons	10%	13%	3%	***	0.01
Count of coupons	2.5	2.5	0.0		0.08
Count of farm assets	3.6	2.9	-0.8	***	0.04
Manual tools	99%	99%	0%		0.00
Animal carrying	8%	4%	-5%	***	0.01
Heavy tools	1%	0%	0%	***	0.00
Less manual tools	26%	18%	-8%	***	0.01
Animal's place	26%	12%	-14%	***	0.01
Storage grains	5%	3%	-2%	**	0.00
Borrowed on credit	31%	29%	-3%	**	0.01
Tried but failed to borrow on credit	7%	6%	-1%		0.01
Did not try to borrow on credit	61%	65%	4%	*	0.01
Subsistence farming	47%	59%	12%	***	0.01
Sells at least some part of production	53%	41%	-12%	***	0.01
Median annual agricultural hours	202	178	-23		44.25
Median harvested value	163,893	107,100	(56,793)	***	4,417
Diversification: produces more than one crop	89%	91%	2%		0.01
Diversification: produces more than one crop (main crop less than 70%)	45%	40%	-5%	***	0.01
Count of crops	2.9	3.0	0.0		0.03
Count of sold crops	0.8	0.6	-0.2	***	0.02
Median harvested kgs over plot size	325,819	268,128	(57,691)	***	5,980
Poverty rate	45%	51%	5%	***	0.11
Median annual real per capita expenditure	178,079	164,000	(14,078)	***	3,466

Source: World Bank calculations using data from IHS5.

Figure 2.16: Crops produced when the land is managed by women as opposed to men



Source: World Bank calculations using data from IHS5.

Gender does not correlate to harvest values once farm inputs, household characteristics, and location are considered. Differences in production levels between men and women may be due to the differences in the level of the inputs used and other endowments. The Oaxaca-Blinder decomposition supports this conclusion (Blinder, 1973; Oaxaca, 1973), which also suggests that most of the difference in production between men and women (76 percent) and between female and male household heads (78 percent) comes down to differences in the level of assets, fertilizers, land size, and type of crops planted, as well as individual characteristics such as education levels. The remaining 23 percent of the difference relates to unobserved factors that are not included in the model or differential returns between men and women for the same input (Table 2.6). Nevertheless, there is a large scope to increase women's productivity by first increasing their access to value-enhancing inputs.

Table 2.6: Oaxaca decomposition

	Coeff.	St.error
Land managers		
Female-Male raw differential (logs)	-0.36	0.025
Decomposition		
Explained (76%)	-0.271	0.023
Unexplained (23%)	-0.085	0.027
Household heads		
Female-Male raw differential (logs)	-0.33	0.030
Decomposition		
Explained (78%)	-0.258	0.029
Unexplained (22%)	-0.073	0.035

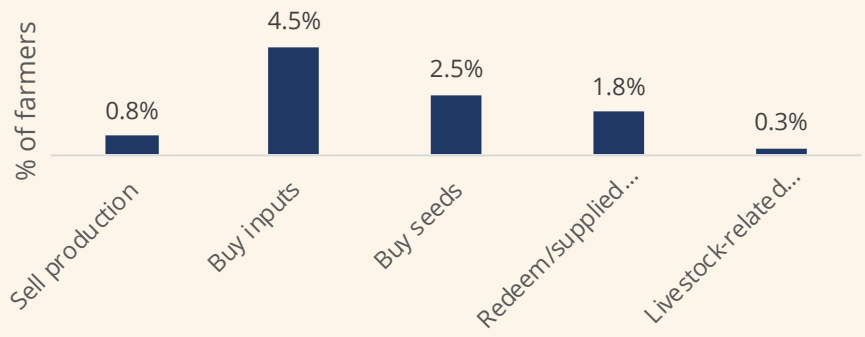
Source: World Bank calculations using data from IHS5.

Box 3: Farmers associations support farmers through commercialization of agriculture

Farmers association help farmers access markets and commercialize production. Many farmers lack access to markets as they are far from main roads, population centers or local markets. Through farmers associations, they can access buyers to sell their harvest, often at a more competitive price. They can also obtain inputs such as fertilizers and seeds more cheaply. Similarly, through an association farmers can share a warehouse to keep crops for longer periods of time.

Very few farmers have commercialized their product through a farmers' association. According with the household survey of 2019 (IHS5), less than one percent of all farmers have sold their product to a farmer's association, while five percent have used the club to obtain inputs such as fertilizers and three percent for seeds. Associations also redeem fertilizers coupons for a very small share of farmers (Figure 2.17).

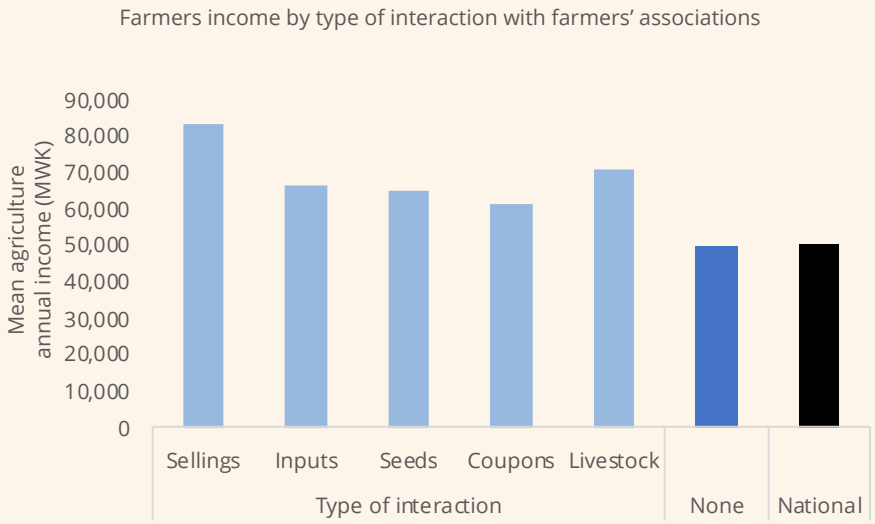
Figure 2.17: A low share of farmers sells their product or obtains inputs via a farmer association



Source: World Bank calculations using data from IHS5

Farmers selling their product through a farmer's association or trading inputs have larger income than the average farmer. Households selling their product to a farmer association receive income 50 percent higher than the household that do not sell their product to a particular club. Also, for those obtaining inputs, income is 20 percent higher than for farmers that do not work with farmers associations (Figure 2.18).

Figure 2.18: Income for farmers interacting through farmers association is higher than for those who do not interact with them.



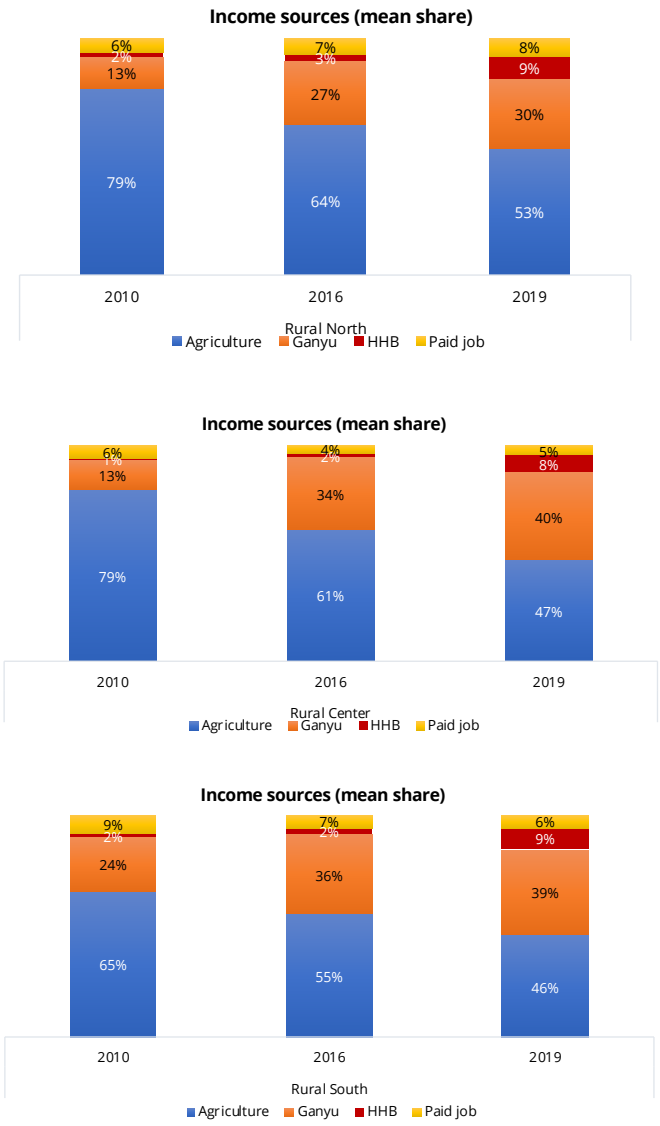
Source: World Bank calculations using data from IHS5.

The Rural North has shown some success in raising agricultural productivity

The Rural North has reached a considerably lower poverty rate than the rest of the country, achieving marked progress between 2016 and 2019. The regional disparities between the Rural North and other rural areas extend to household demographics. The share of people with secondary and primary education is not only higher in Rural North, but it has grown faster than in all other rural areas. The Rural North is also the region with the lowest proportion of female-headed households, almost half that of the Rural South. Households in the Rural North reported an increase in food security between 2016 and. Over the same period, concerns among households regarding food consumption in the Rural Center and the South either increased or remained unchanged. Besides, the Rural North has attracted twice as many migrants as the South. That said, the South's population is four times greater than that of the Rural North. Finally, the number of climate shocks experienced in the North is much lower the number experienced in the rest of the country.

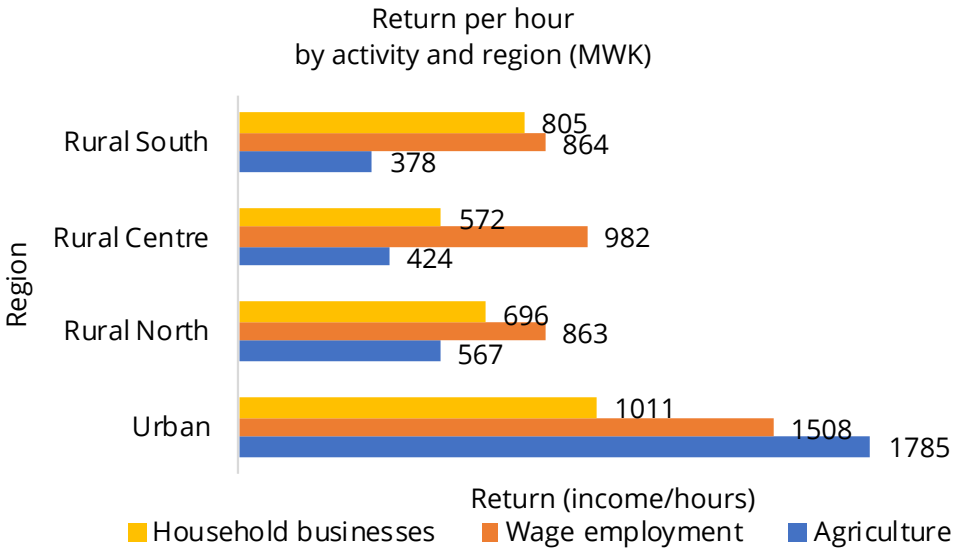
The Rural North is show no sign of structural transformation moving faster than in the Center and South. By 2019, more than half of the income of the average household in the Rural North came from agriculture (Figure 2.19). Nevertheless, the region exhibits a high level of productivity with the highest return per hour across the country (Figure 2.20).

Figure 2.19: The share of income coming from high-return activities such as household businesses and wage employment has increased slowly over time



Source: World Bank calculations using data from IHS5.

Figure 2.20: The Rural North exhibits the highest return per hour in agriculture

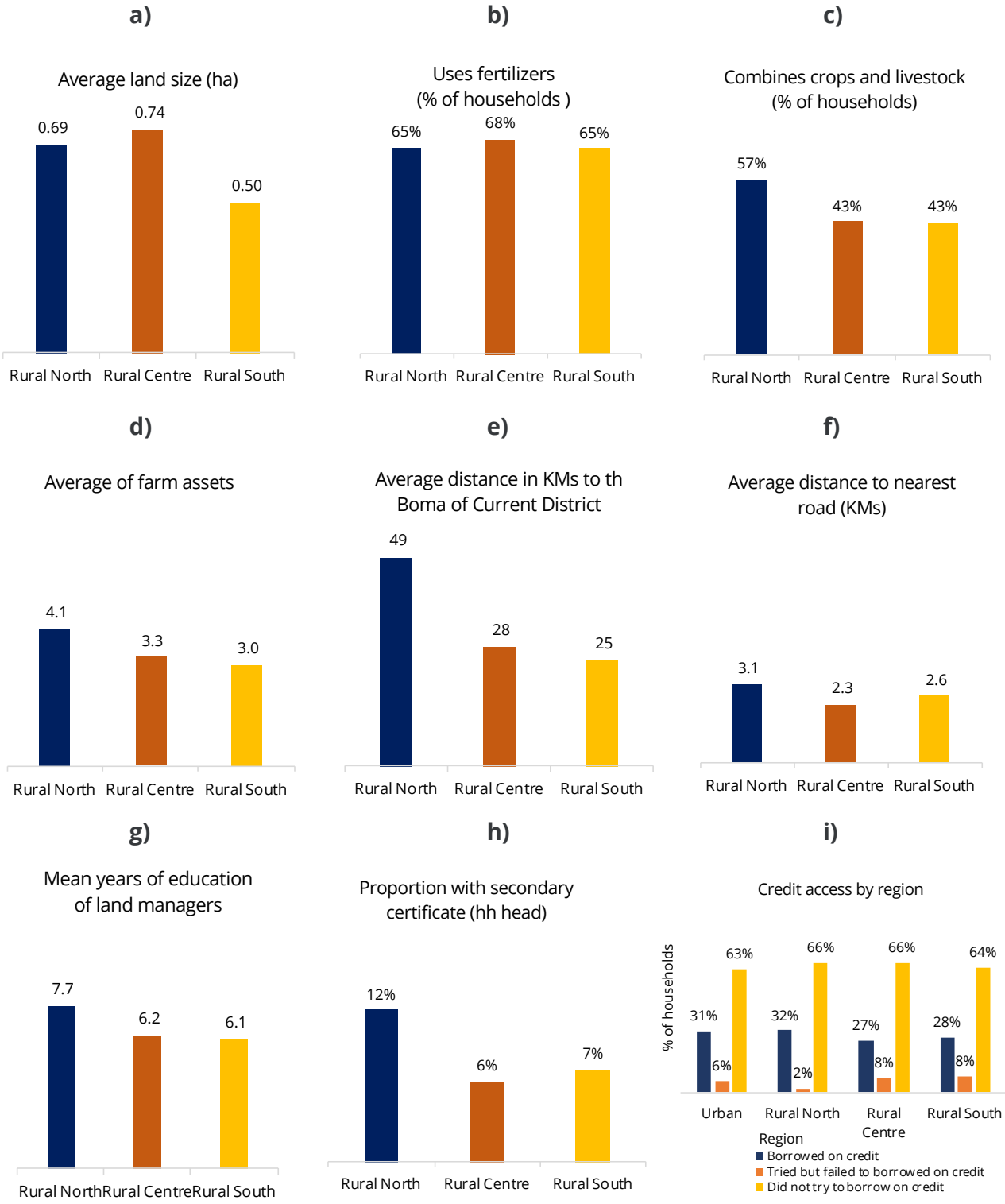


Source: World Bank calculations using data from IHS5.

Farmers in the Rural North might have advantages in the agricultural process that could be contributing to more productive harvests. By comparing the factors contributing to higher levels of productivity as previously identified (e.g., land size, selling crops, fertilizer use, combination of crops and livestock, education of the manager, and better living conditions of the household) across regions, we see important advantages in the proportion of households that combine crops and livestock as well as the number of assets used in the production process (Figure 2.21) Similarly, the Rural North counts more educated managers. In contrast, the data indicate that no significant advantages exist in terms of the average land size in the North. Notably, the North does not use considerably more fertilizers than other regions. Being less exposed to shocks and avoiding the effect of Cyclone Idai remain important additional factors when explaining the region's higher levels of agricultural productivity between 2016 and 2019. The region's soil quality is also better thanks to a gradual shift in rainfall from the South to the North.

Households in the Rural North has advantages in terms of access to credits. While one third of households manage to borrow on credit, the Rural North reports an advantage in this respect, with slightly more households borrowing money in contrast to other regions. This allows the region to access additional assets and inputs that increase the value of the harvest.

Figure 2.21: Key factors explaining agricultural productivity show some advantage for the Rural North



Source: World Bank calculations using data from IHS5

The effects of the Cyclone Idai in the agricultural sector were not experienced in the North. The effects of Cyclone Idai, which hit the country in March 2019, were mainly felt in 15 districts and two cities in the South and Center,[10] while the North was unaffected. Using data for the year after Cyclone Idai took place (March 2019), we use the event as a natural experiment in which being in the South and Center corresponds to households affected by the cyclone; households in the Rural North act as the counterfactuals – households not affected by the cyclone. After controlling by household's characteristics, agriculture inputs, and region, the South and Center regions show a reduction in the value of the harvest. In contrast, being in the North is related with a positive return. This would suggest that being unaffected by Cyclone Idai benefitted agricultural production in the Rural North.

10 *The 15 districts that were affected are: Balaka, Blantyre, Chikwawa, Chiradzulu, Machinga, Mangochi, Mulanje, Mwanza, Neno, Nsanje, Phalombe, Thyolo, and Zomba districts in the Southern Region, and Dedza and Ntcheu in the Central Region. The two cities were Zomba City and Blantyre City (Government of Malawi, 2020. Malawi 2019 Floods Post Disaster Needs Assessment Report).*

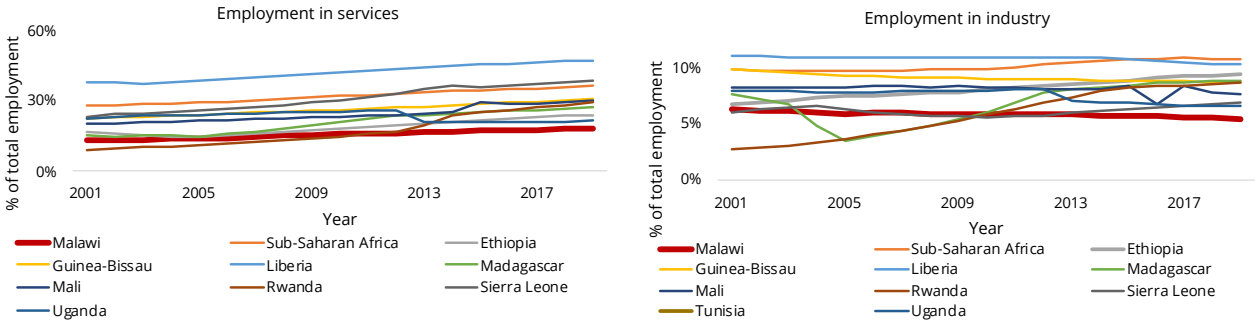
3. A Dearth of Industry and Services: Slow Structural Transformation Limits Income Growth

Growth in non-agricultural employment is low and is the slowest in Sub-Saharan Africa. Service-sector and industry employment are stable or even falling even though farming has declined in importance as the sole source of income for poor Malawians. *Ganyu*, the practice of hiring people for short-term tasks or piecework, has made up the difference. Household business and wage-compensated work result in higher household incomes, even when controlling for other factors, such as gender, age, education, and family size. But its prevalence is too small to effect structural change.

Non-agricultural work raises incomes but is too limited to reduce poverty sharply

Even though employment in the service sector increased slightly in the last decade, it did so at a much slower pace than in other countries in the region. As a result, Malawi to have the lowest rate of growth among its regional peers in 2019. Over the same period, the country showed an actual decrease in the employment share of industry, which was also the lowest rate in the region (Figure 3.1).

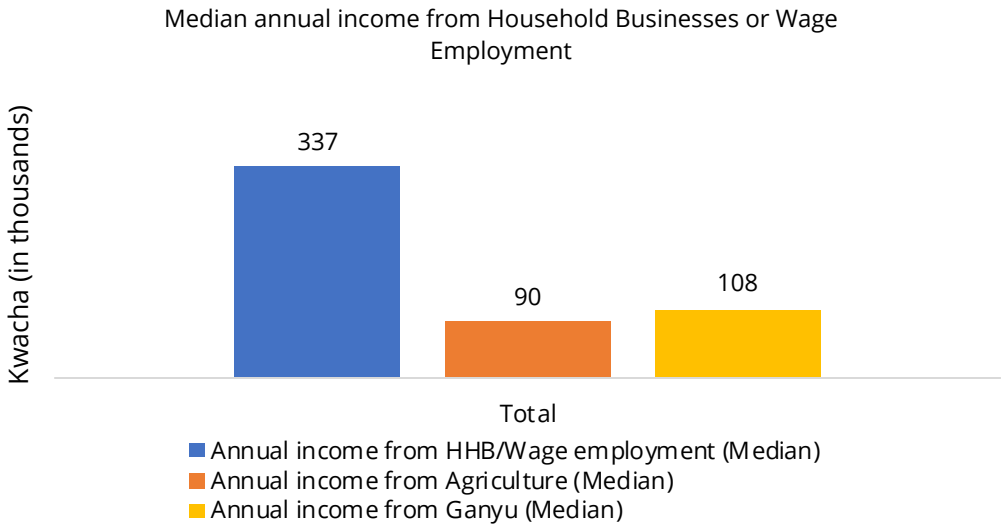
Figure 3.1: Employment in non-agricultural sector has been stagnant



Source: World Development Indicators based on ILO projection model

Though participation rates are low, income that households derive from household business or wage employment is three times higher than agriculture or *ganyu* (Figure 3.2). On average, 17 percent of individuals aged 15 or older are involved in household business activities, while fewer than 10 percent work for a wage.

Figure 3.2: Income from household businesses and wage employment is higher while poverty rate is lower

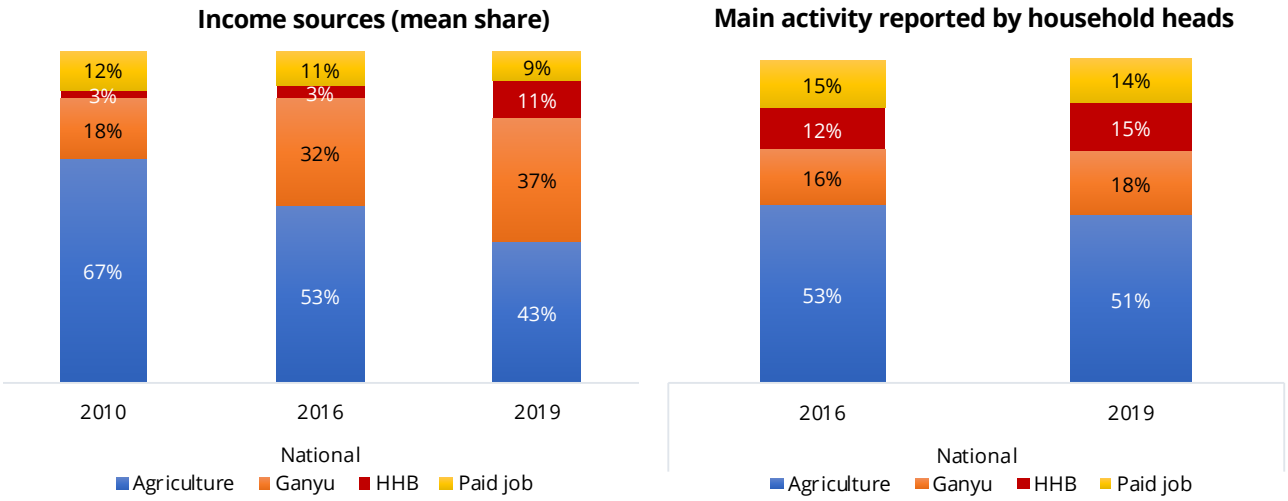


Source: World Bank calculations based on IHS poverty estimates. Wage employment (excludes ganyu)

Reliance on farming as Malawians' only source of income has fallen over time. The share of income from the agricultural sector has declined from almost 70 percent to less than 50 percent since 2010 (Figure 3.3). This reduction is filled by *ganyu*, which has increased its share from 18 percent to 37 percent over the same period. The share of income from household businesses and wage income has increased from 3 percent to 11 percent since 2010, but it remains low.

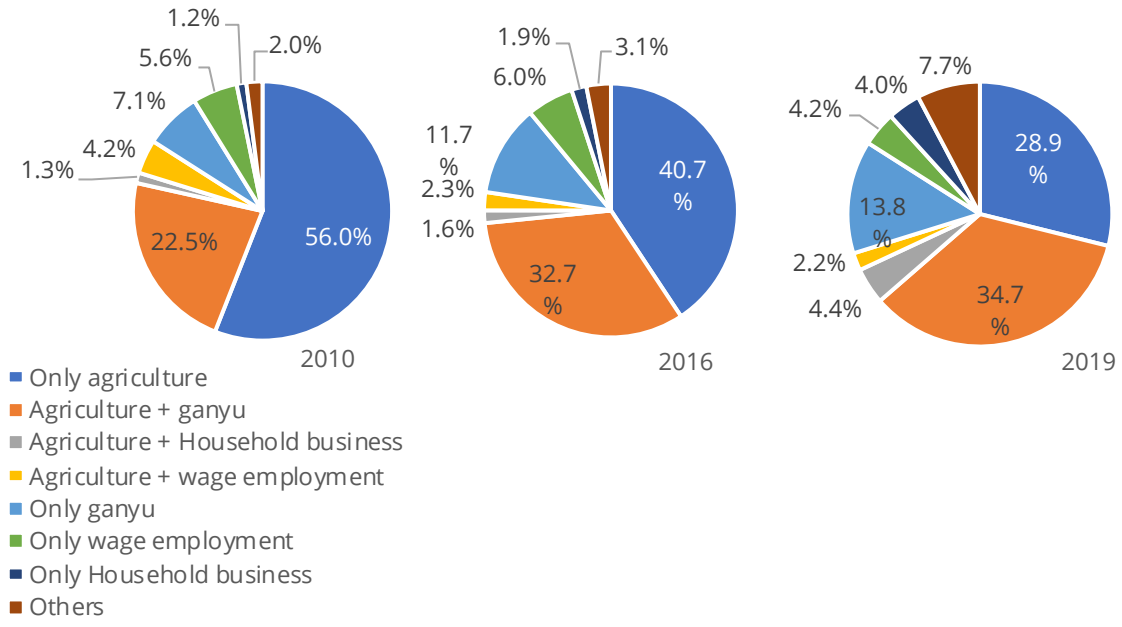
Though households have diversified their sources of live¬lihood away from agriculture, the effect has been too mini¬mal to reduce poverty. In 2010, more than half of households received income only from agriculture, by 2019, the proportion of those household relying only in farming activities was almost 30 percent. Instead, households relying on agriculture and ganyu, in¬creased from 23 percent to 35 percent (Figure 3.4). Furthermore, those making income only from ganyu and household businesses have increased over time. While households relying on ganyu in¬creased from 7 to 14 percent, relying on household businesses only increased from 1 percent to 4 percent.

Figure 3.3: The share of income coming from high-return activities such as household business has increased over time, but it remains low



Source: World Bank calculations based on IHS poverty estimates.

Figure 3.4 Sources of households' livelihoods, 2010, 2016, 2019

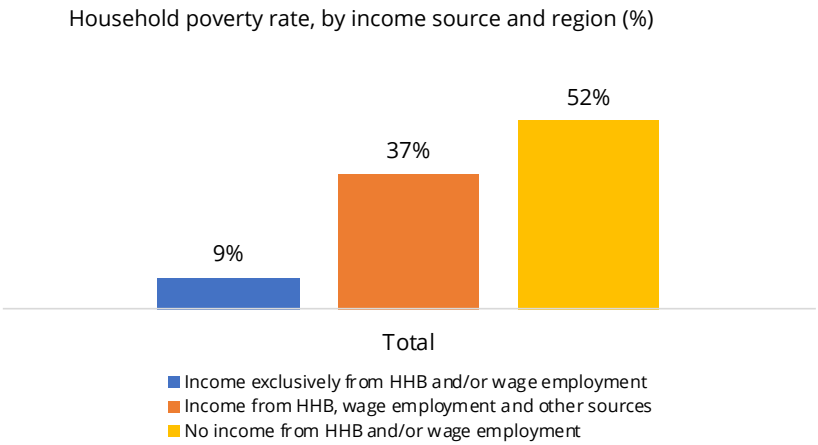


Source: World Bank calculations using IHS5. Wage employment excludes ganyu.

Many households perform *ganyu* in addition to labor on their own farms. Among those working in *ganyu*, 75 percent also do some form of agricultural work. *Ganyu* has been identified by previous studies as a coping strategy for poor households, especially to cover the shortage of food observed between December and February[11]. References to *ganyu* in the 1990s characterize it as an informal and shameful activity as it implied a household was running out of food, and it has not been considered a sustainable source of income. While some food is offered for work, in some cases *ganyu* is observed in large commercial estates where owners pay the rural minimum wage and workers are under short-term contracts. Similarly, it is present in the non-farm sector with unskilled tasks such as making bricks, digging wells, or building houses.

While *ganyu* and agriculture correlate with greater poverty, household business and wage employment with higher income. One in every two households that do not derive income from either wage employment or household businesses are poor, which is a similar proportion to the national poverty rate. Poverty rates of less than 10 percent prevail among households that rely exclusively on income from these sources (Figure 3.5). Combining sources implies a reduction in poverty rates of around 15 percentage points on average.

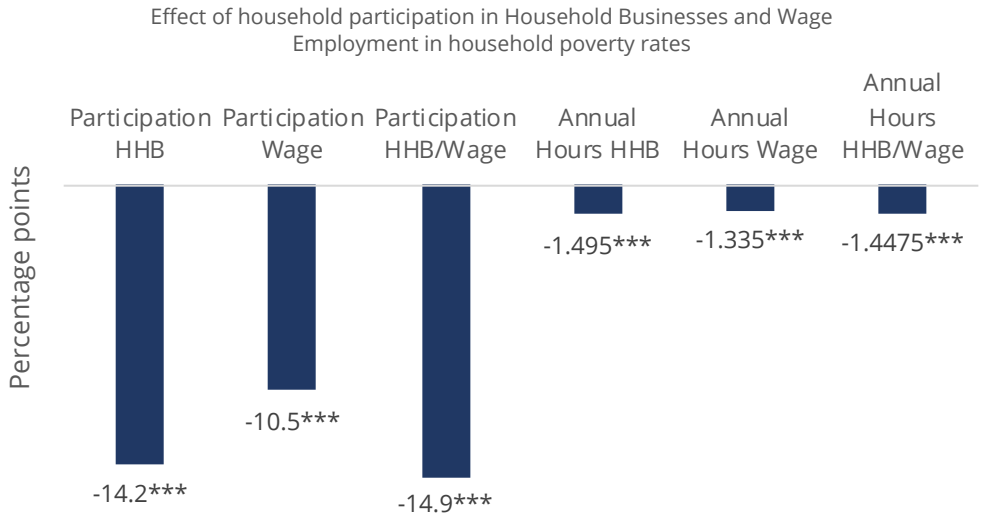
Figure 3.5: Poverty rates are lower in households that participate in household business



Source: World Bank calculations based on IHS5.
Note: For details on income aggregate calculations refer to methodological notes. HHB: "Household Businesses".

11 *Whiteside, Martin, 2000. "Ganyu Labour in Malawi and its implications for livelihood security interventions – an analysis of recent literature and implications for poverty alleviation." Agricultural Research & Extension Network, ODI. Network Paper No. 99.*

Figure 3.6: Household participation in household businesses and wage employment lowers poverty rates



Source: World Bank calculations based on IHS5.
*Note: estimated coefficients when regressing poverty status of household against participation (extensive and intensive margins), controlling for characteristics of household head, household characteristics, and region fixed effects. Coefficients for annual hours are reported as the effect of increasing by 250 annual hours of work (an equivalent of one daily hour). ***p-value<0.01; **p-value<0.05; *p-value<0.1*

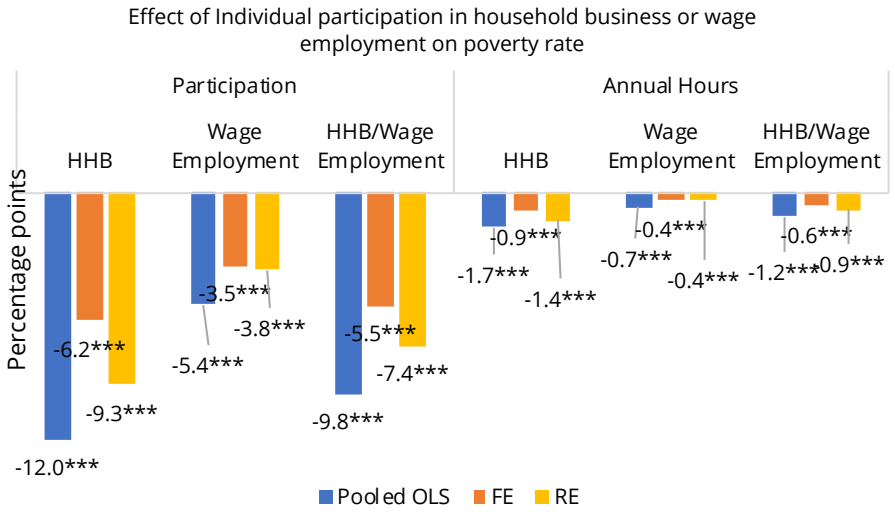
The positive effects of household business and wage income hold true even when controlling for household characteristics. Gender, age, and education level of heads of household, as well as for household size and region all show little effect on this positive relationship[12]. In fact, households' participation in household business and wage employment reduces poverty by 14 and 11 percentage points, respectively (Figure 3.6). Similarly, when considering participation in both wage employment and household businesses, participating in one or both of these activities is shown to reduce the probability of a household being poor by almost 15 percentage points. Results demonstrate that by increasing daily work by one hour in any of these activities or in both causes the probability of being poor to fall by around 1.5 percentage points. (All results are statistically significant at 1 percent.)

Individuals also benefit from non-farming work, thought at a smaller magnitude than for households. We can conduct this same analysis at the individual level rather than at the household level thanks to the precision of the panel available in the data (Figure 3.7), which reinforces previous findings (Figure 3.6).

12 *Complete regression results available in online Appendix.*

Increasing participation in household businesses or wage employment lowers individual poverty rates and increases expenditure. Magnitudes are smaller when considering individuals rather than households; poverty rates reduce between 5.5 and 10 percentage points.

Figure 3.7: Individual participation in household business and wage employment reduces poverty rates



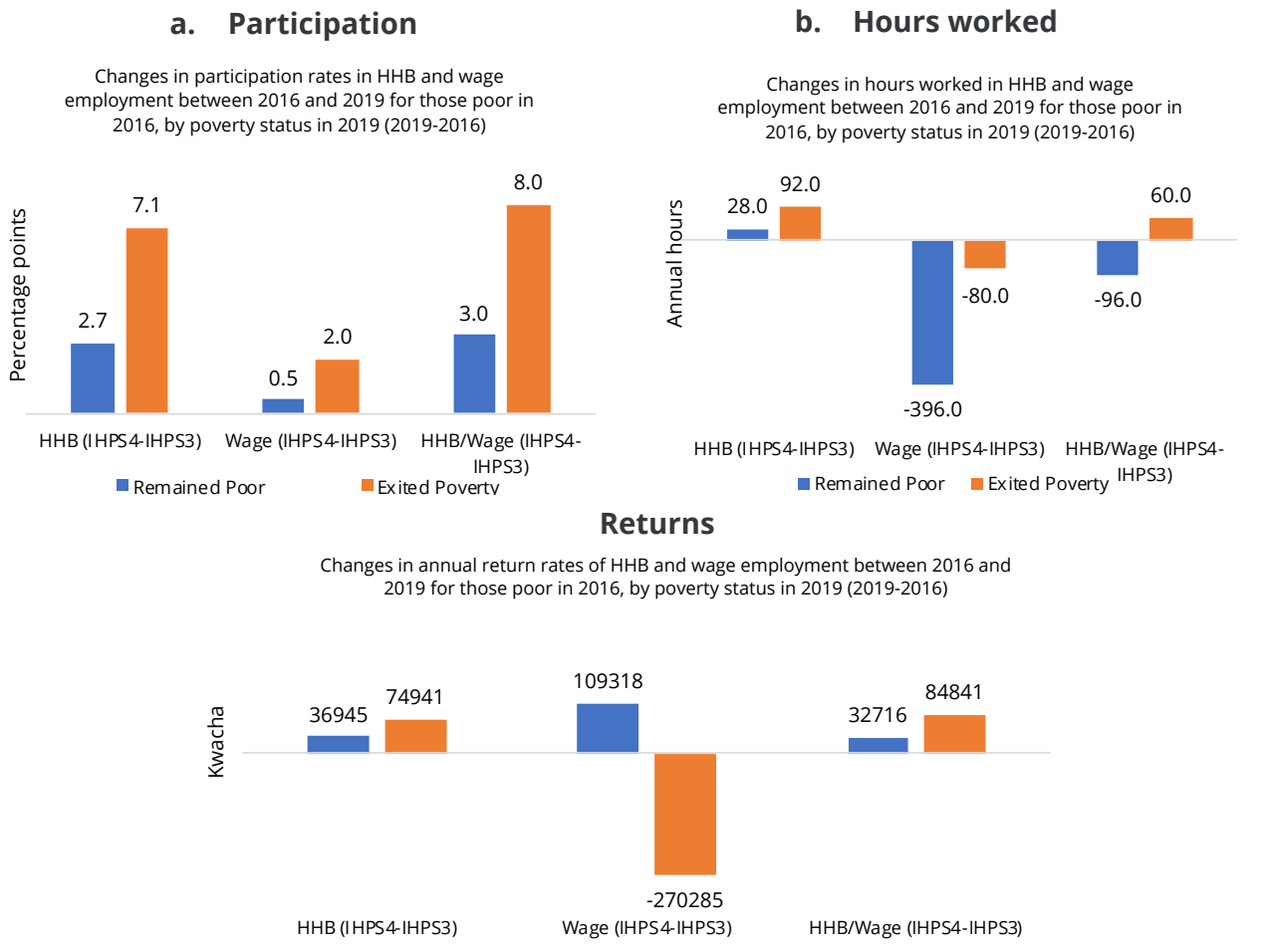
Source: World Bank calculations based on IHS5.
*Note: estimated coefficients when regressing poverty status of individual against participation (extensive and intensive margins), controlling for characteristics of household head, household characteristics, and region fixed effects. Coefficients for annual hours are reported as the effect of increasing by 250 annual hours of work (an equivalent of one daily hour). ***p-value<0.01; **p-value<0.05; *p-value<0.1*

Despite comprising a small proportion of households, participation in wage employment and household businesses is relevant in escaping poverty. Taking advantage of the panel information in the IHS5 survey, changes in participation in wage employment and household businesses were analyzed for the subsample identified as poor in the previous round. Figure 3.8 shows that individuals who escaped poverty between rounds increased their participation in non-agricultural employment, both in the extensive and intensive margins. They also received higher return rates. The most significant change between rounds was the increase in participation rates. In fact, even though participation rates increased both for those who escaped poverty and for those who remained poor in the following round, the increase was much larger among the former groups; namely, 8 percentage points for those who escaped poverty compared to 3 percentage points among those who remain poor, when considering

both activities jointly. The increase was mainly concentrated in household businesses rather than in wage employment.

Those who escaped poverty increased their hours worked in household businesses; hours decreased for those who remained poor. The increase in hours worked combines a positive effect in employment in household businesses with a smaller negative effect in wage employment, resulting in only a small rise overall: 60 annual hours, which is equivalent to increasing work by 7.5 days a year. Importantly, those who remained poor show a large decrease in hours worked in wage employment (almost 400 hours per year, an equivalent of 50 days). Changes in return rates follow a very similar pattern, slightly increasing for both groups in household business jobs and decreasing in wage employment.

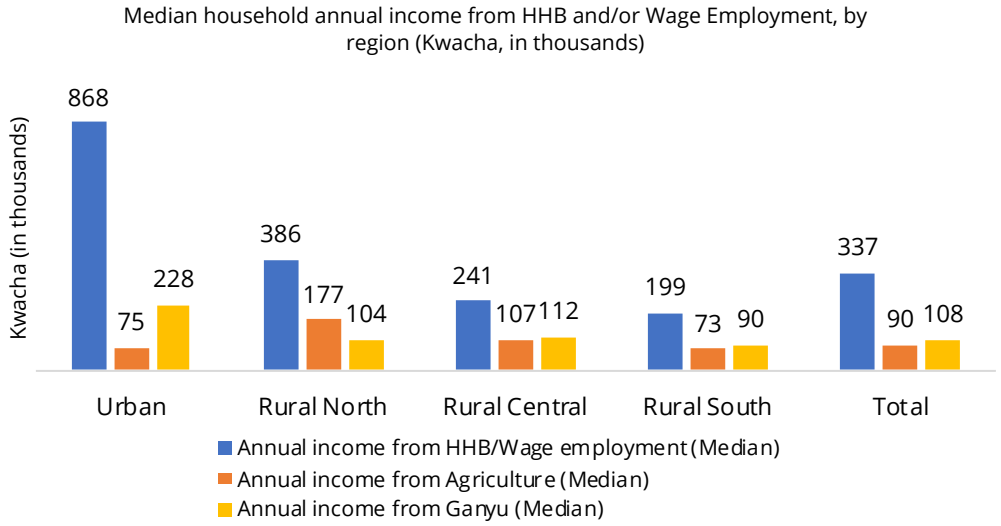
Figure 3.8: Participation rates, hours worked, and returns in household businesses and in wage employment increased more for individuals escaping poverty



Source: World Bank calculations based on IHPS3 and IHPS4

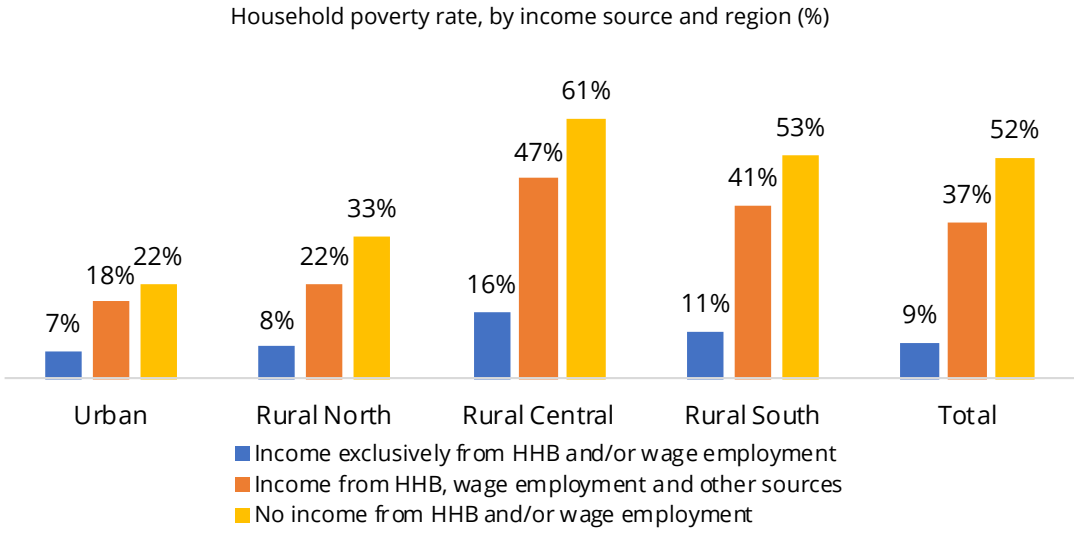
The efficacy of paid jobs and household businesses in raising incomes beyond what agriculture would deliver extends to all regions. The differences are even larger in urban areas as income derived from agricultural activities is understandably lower. Even so, income from employment in urban areas is almost three times higher than the national average (Figure 3.9). Combining sources of income implies a reduction in poverty rates of around 15 percentage points on average. This pattern prevails in all regions, although the difference is milder in urban regions because poverty rates for all urban households, irrespective of their income sources, are already significantly lower. Surprisingly, the Rural North shows a very similar pattern of lower poverty rates and higher income among households in household business or wage employment (Figure 3.10).

Figure 3.9: Income from household businesses and wage employment is higher



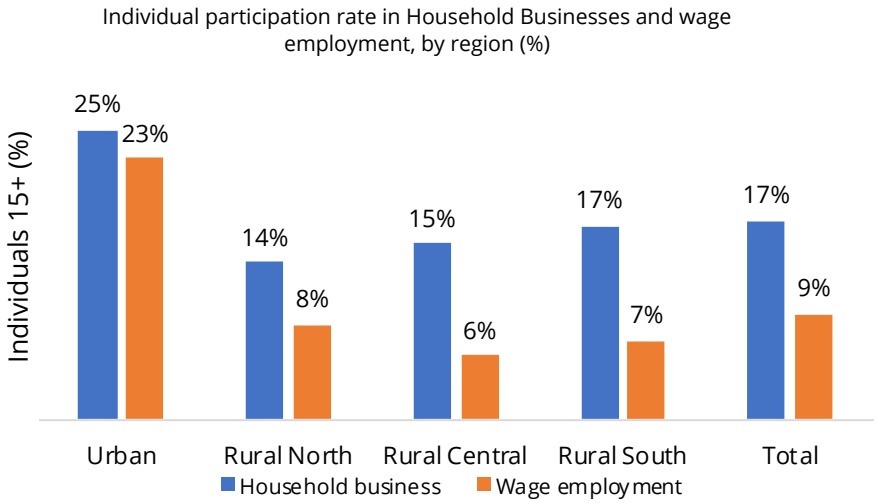
Source: World Bank calculations based on IHS5.
Note: For details on income aggregate calculations refer to methodological notes. HHB: "Household Businesses".

Figure 3.10: Poverty rates are lower in households that participate in household businesses and wage employment



Source: World Bank calculations based on IHS5.
Note: For details on income aggregate calculations, refer to methodological notes.
HHB: "Household Businesses".

Figure 3.11: Individual participation rates in household businesses and wage employment are low

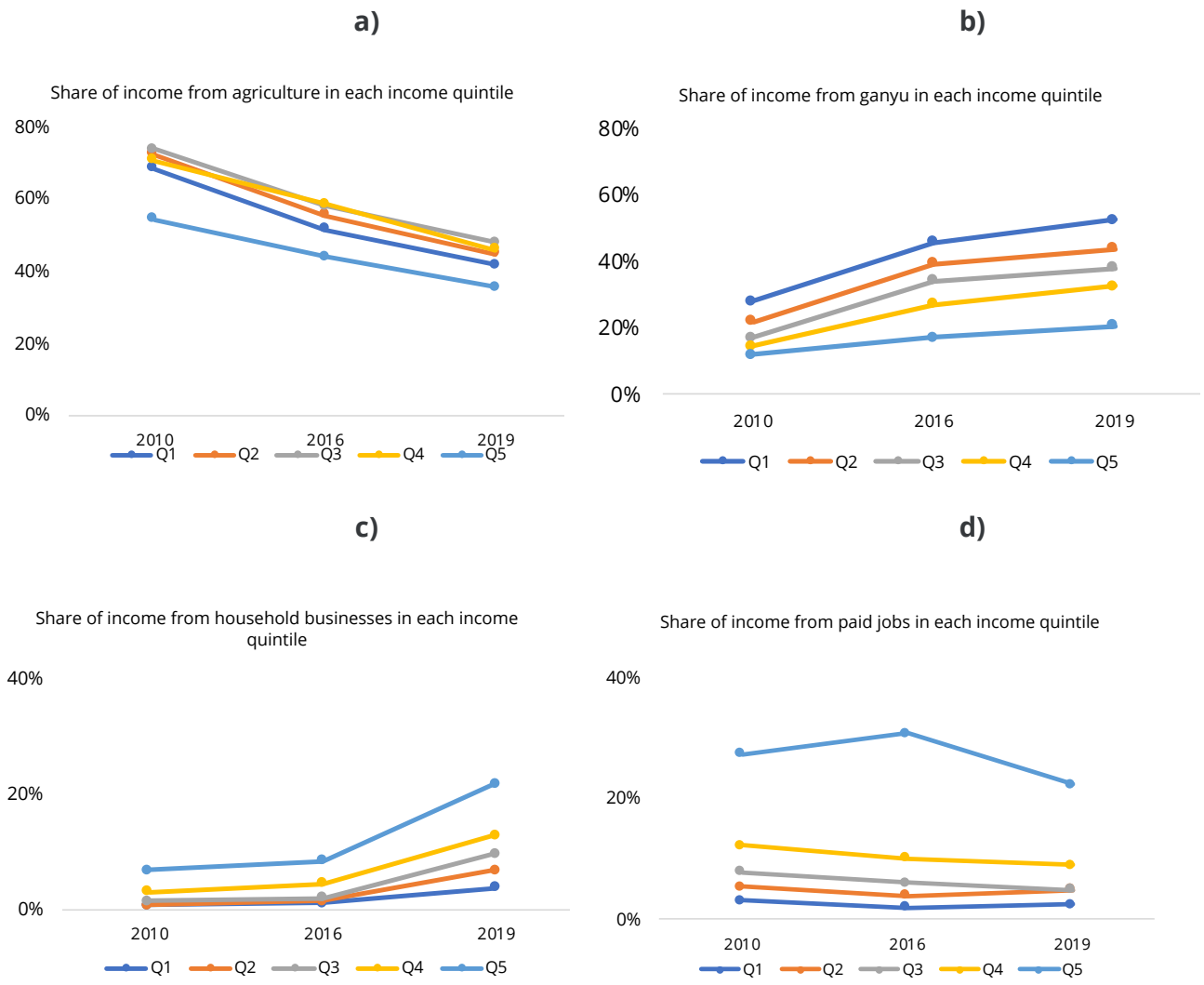


Source: World Bank calculations based on IHS5 data.

Low individual participation rates in household businesses and wage employment are observed across all rural areas but not in urban areas. In urban areas, 25 percent of individuals participate in household businesses and 23 percent in wage employment (Figure 3.11). However, urban areas account for a very small fraction of the population, which mutes the aggregate effects of this diversification of income sources.

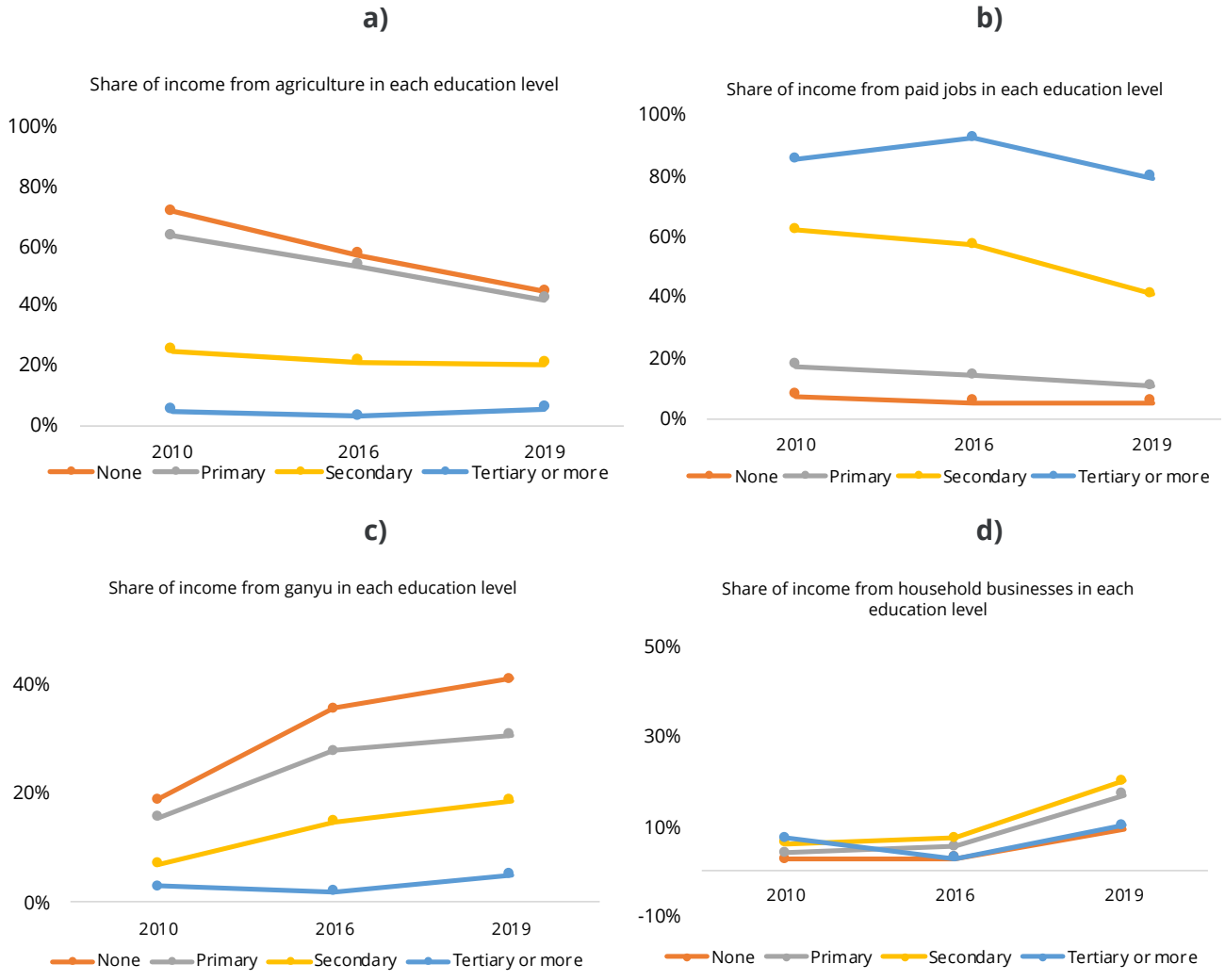
For the last decade, Malawi's poorest 20 percent have received 90 percent of their income from low-return activities. In 2010, 68 percent of the household incomes were coming from agriculture and 28 percent from *ganyu*. By 2019, the balance between agriculture and *ganyu* had shifted to 50 percent and 40 percent, respectively (Figure 3.12). By that same year, the richest households were receiving almost half of their income from household businesses and paid jobs, up from 35 percent a decade earlier. Whatever slow structural transformation that is taking place is not benefiting poor households.

Figure 3.12: Income for the poorest households is increasing from ganyu, while the richest households are receiving more income from household businesses



Source: World Bank calculations based on IHS poverty estimates.

Figure 3.13: The share of income from agriculture has been falling, especially among low-educated people



Source: World Bank calculations based on IHS poverty estimates.

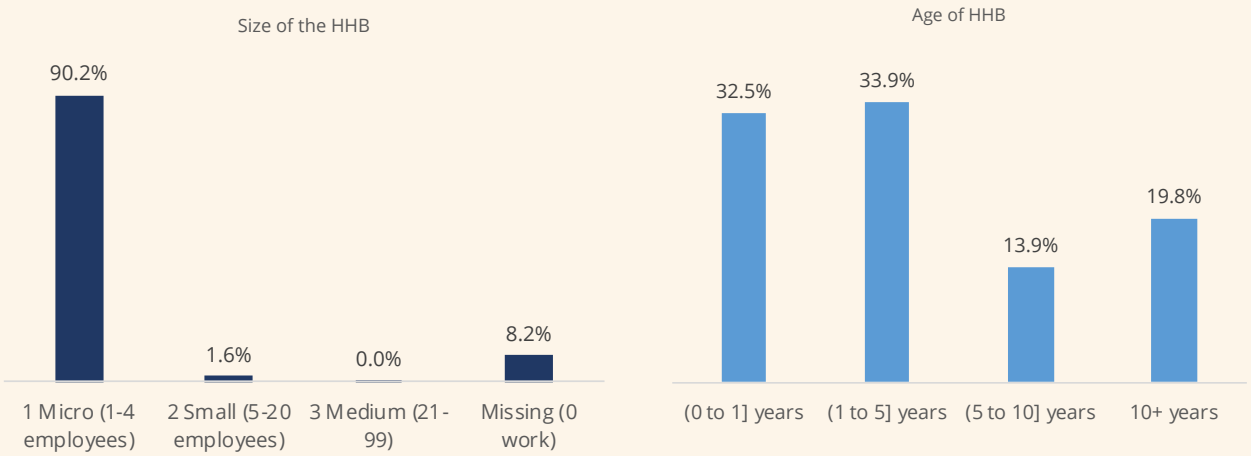
Non-educated household heads show little sign of benefiting from any shift toward business income or paid work. At the start of this decade, non-educated households received 70 percent of their income from agriculture, 20 percent from *ganyu*, and less than 10 percent from household businesses and paid jobs. By 2019, income from low-return activities (agriculture and *ganyu*) still accounted for about 80 percent of non-educated households' income, with only 10 percent coming from household businesses and 5 percent from paid jobs (Figure 3.13). In contrast, the share of income from household businesses increased among heads of households with some primary education, passing from 4 percent in 2010 to 17 percent in 2019.

More educated people, such as those with secondary education or higher, have always received a high proportion of their income from paid jobs. In 2010, people with secondary education depended heavily on paid jobs (60 percent) for their income, with only 6 percent coming from household businesses. By 2019, income from high-return activities still accounted for about 60 percent of households' income, with an increase in the share of income from household businesses and a slightly reduction in the share from paid jobs. Finally, households with heads who completed tertiary education (around 1 percent of the population) were concentrated mainly in paid jobs.

Box 4: Household business characteristics and monthly activity

Most businesses in the country are truly small. The Integrated Household Survey 2019/2020 (IHS5) reveals that most businesses in the country – 92 percent — are individual entrepreneurs or micro businesses, with fewer than five employees. Also, the more of the businesses are fewer than five years of old (Figure 3.14).

Figure 3.14: Individual entrepreneurs and start-ups characterize the business environment in the country

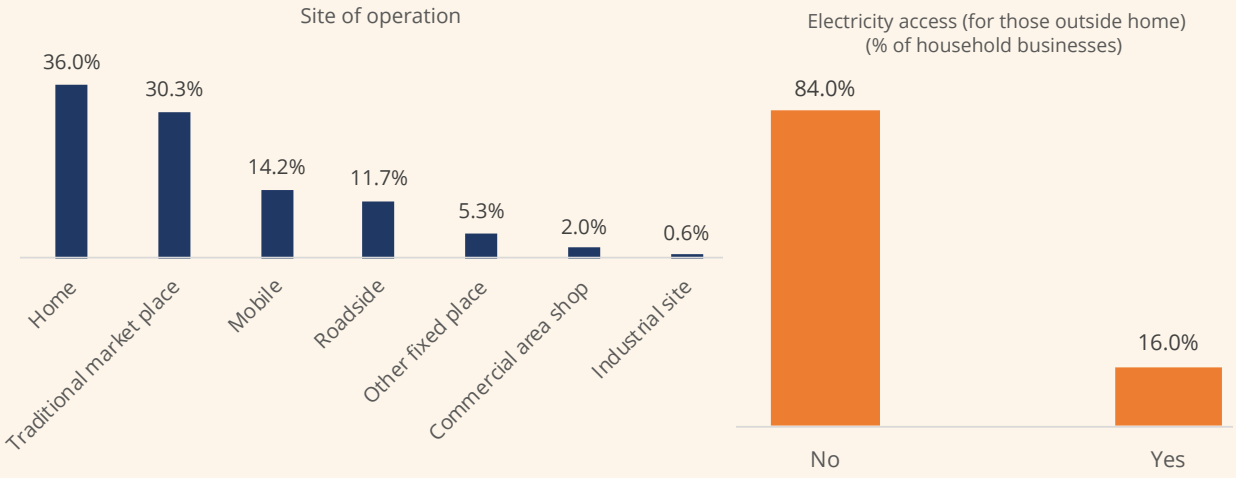


Source: World Bank using data from IHS5

Lack of electricity is a difficulty facing not only home-based businesses but also those in industrial zones. In those areas, 8 in 10 businesses lack electricity and the low access to electricity in the country as a whole threatens the operation of home-based businesses (Figure 3.15), which accounts for more than half of them. Another third of businesses are mobile, at the roadside or in another fixed place.

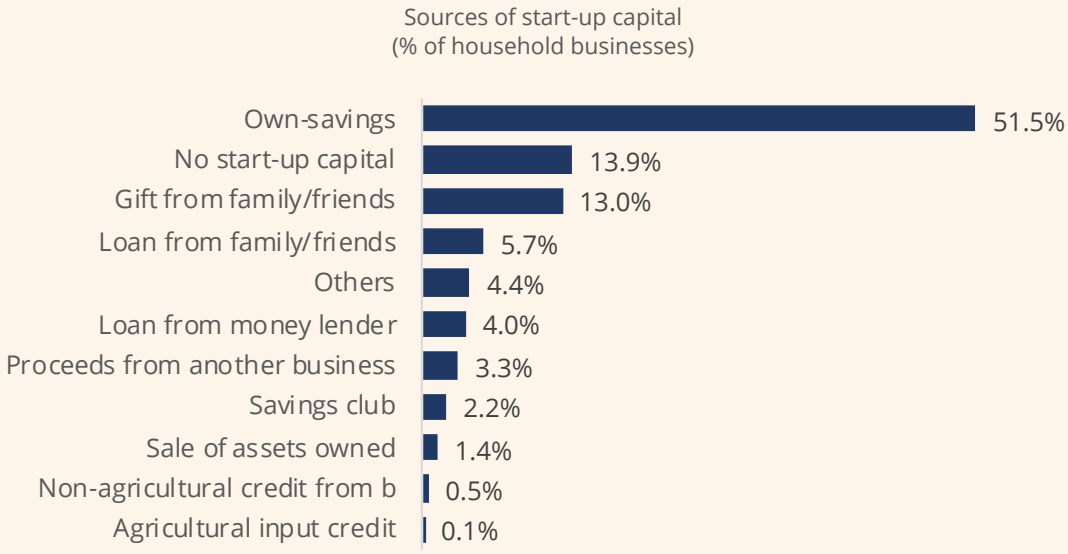
The predominance of household businesses that start with their own resources highlights the lack of access to credit. Half of businesses started the business with their own savings and almost 20 percent got support (gifts/loans) from family or friends. Less than 1 percent obtained formal credit (Figure 3.16).

Figure 3.15: Lack of electricity and working from home characterize the business environment in the country.



Source: World Bank using data from IHS5

Figure 3.16: Household businesses start work with their own savings, limiting their options



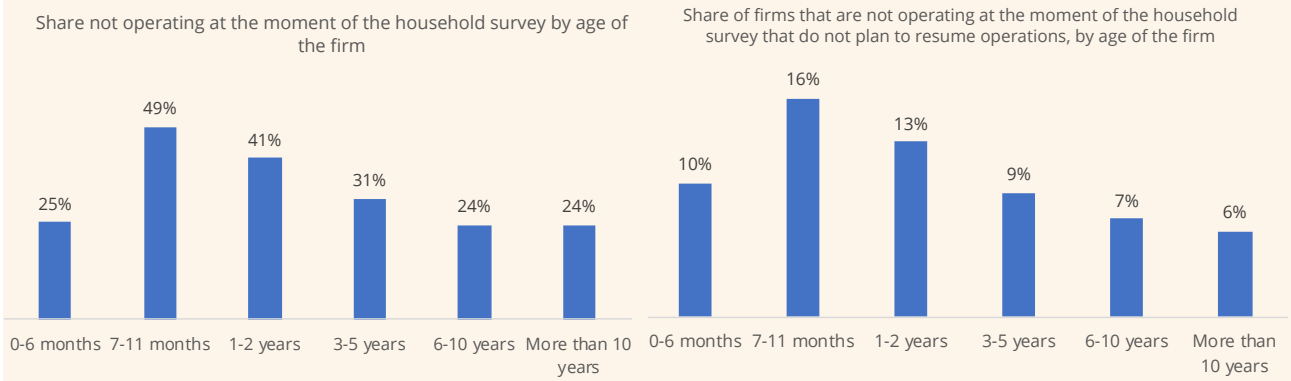
Source: World Bank using data from IHS5

Young firms find it more difficult to operate in the first months after its creation and few businesses resume activities after stopping them. Now, 34 percent of the business that have been created in the last year are not observed in operation during the month of the household survey interview, and this is especially the case when the owner is a woman. Furthermore, for businesses one to two years of age, 40 percent were not operating

in the month of the interview (Figure 3.17). Around 17 percent of those who stopped operation will not resume activities within the next year. Furthermore, the start-ups with less than one year functioning are less likely to resume operation after stopping (74 percent) in contrast to those with more years of operation, (89 percent).

Education and experience matter when managing a business. Younger owners (below age 30) are more likely to interrupt operation than more experienced owners within the first year after the creation of the business. Similarly, more interruptions are observed among owners without any education certificate than when the owner is more educated. Once operation has been interrupted, middle-age (between 31 and 50 years old) owners as well as those with higher levels of education are more likely to resume operation in contrast to young business owners and those without any education certificate, respectively. Finally, those interruptions in the operation correlate to lower returns or losses from the business.

Figure 3.17: Many firms are not observed in operation after few months of creation



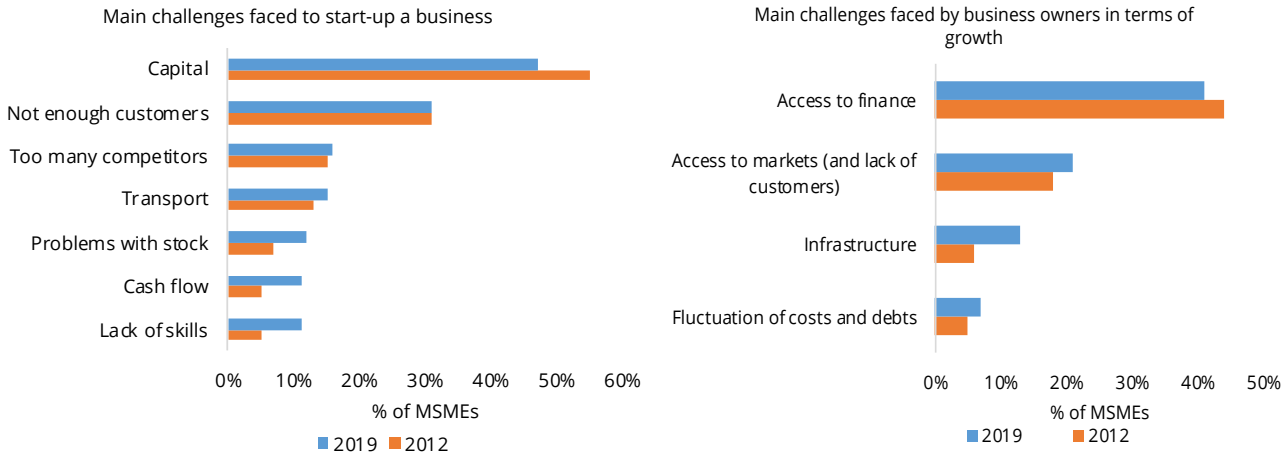
Source: World Bank calculations using IHS5.
Note: The universe of firms is restricted to those in operations in at least one month within the last year.

Household shift towards business orientation faces low access to credit, markets, and training skills

Many factors limit the already slow trend of moving away from low-return activities, notably agriculture into, higher-return activities such as household businesses. Moving away from agriculture implies an ability to overcome three key barriers to creating and growing a non-farm business: lack of capital, lack of mar-

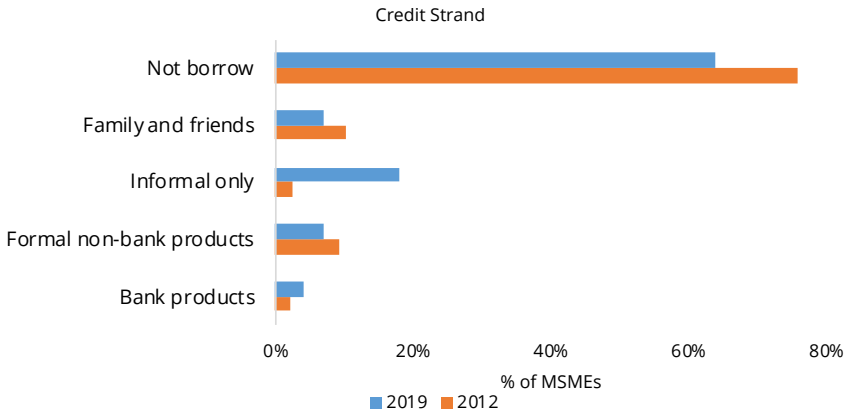
kets, and lack of skills (Figure 3.18). The main difficulty faced by households when seeking to start a business is lack of initial capital. Almost 50 percent of businesses reported this limitation in 2019. Thus, it is not surprising that the main source of capital comes from household savings, an option that is still limited to very few households.

Figure 3.18: Lack of finance and poor access to markets are the main challenges faced by households to starting and growing a business



Source: FinScope 2019, 2012.

Figure 3.19: Sources of finance among businesses



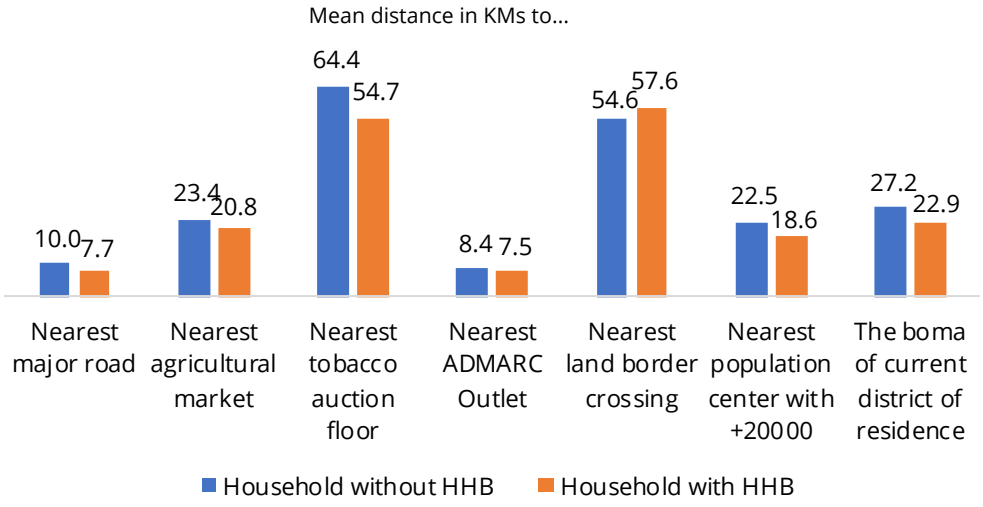
Source: FinScope 2019, 2012.

The level of financial exclusion among households makes it difficult for businesses to access formal credits, which leads them to rely on informal lenders. More than 60 percent of businesses do not borrow. Informal credits have gained importance for households over alternatives such as borrowing from

family and friends (Figure 3.19). Yet, formal credits are very limited, with only 5 percent of households borrowing from banks and 7 percent from formal, non-bank institutions.

A lack of access to markets limits both business creation and ongoing growth. On average, households are located far from main roads, markets, and population centers. Household businesses have an average journey of 10 kilometers to the closest main road. The average distance to the nearest agricultural market, major population center, or district boma (market) is over 20 kilometers (Figure 3.20).

Figure 3.20: Most households are far from major roads, markets, and population centers. Households with household businesses are on average between one and four kilometers closer to roads than those without household businesses



Source: World Bank calculations using data from IHS5.

Table 3.1: Distance to markets is inversely related to participation and return rates in household businesses and wage employment

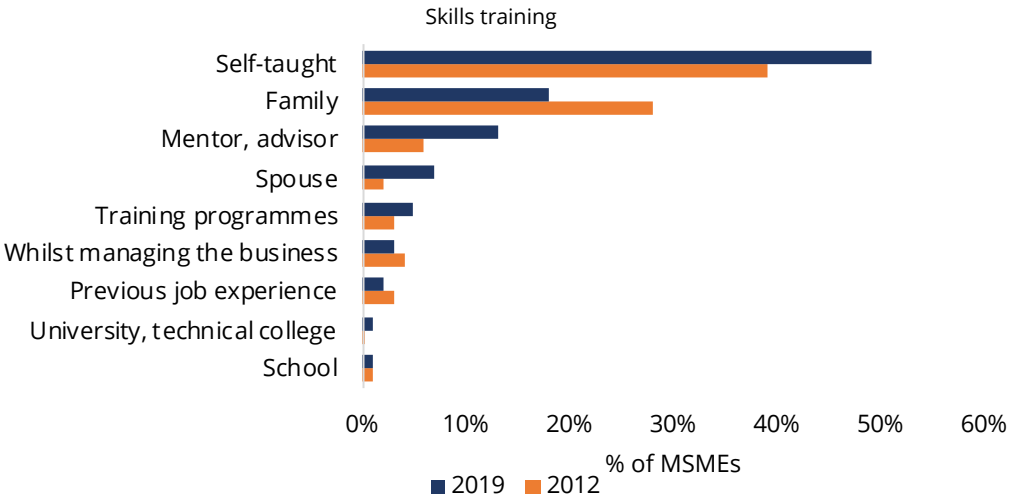
	Participation	Wage
Log Distance to nearest railway (KM)	*-0.00428****	*-33.38****
	(0.00108)	*(11.68)*
Log Distance to nearest road (KM)	*-0.00397****	*-77.69****
	(0.00150)	*(18.42)*
Log Distance to the district bomba	*-0.0183****	*72.52**
	(0.00367)	*(41.01)*
Log Distance to Population Center with +20,000	*-0.0246****	*-132.9****
	(0.00391)	*(40.98)*
Log Distance to Agricultural Market	*-0.000720****	*-2.496*
	(0.000153)	*(2.066)*
Constant	*0.242****	*1,103****
	(0.00618)	*(59.22)*
FX	*NC*	*NC*
Observations	*28,010*	*2,770*
R-squared	*0.028*	*0.027*

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: World Bank calculations using data from IHS5.

Extremely limited access to transport infrastructure hampers business creation, as well as wage employment. Table 3.1 shows the results of a regression exercise that explores the link between participation in household businesses and/or wage employment, as well as the returns obtained from those jobs. In addition, it reflects the distance to infrastructure that is relevant for business development, such as railways, roads, and large population centers. The results show an inverse relationship: the farther away from this basic infrastructure, the smaller the participation in household businesses and wage employment, plus the lower the return. It is important to note that the coefficients are rather small, even though results are statistically significant.

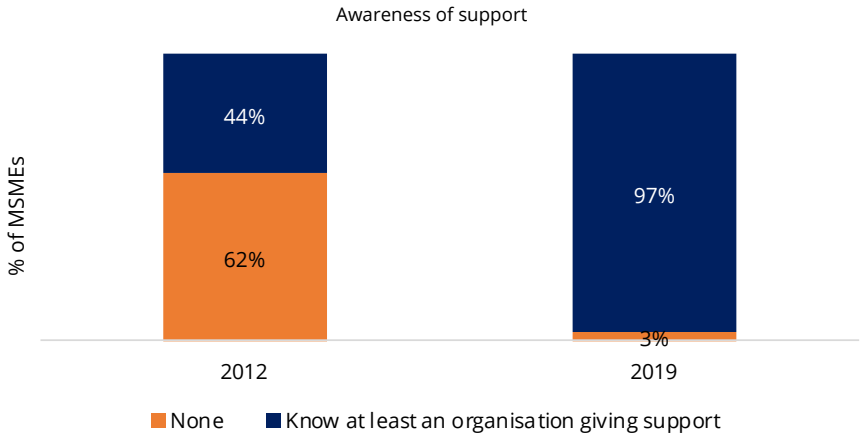
Figure 3.21: Most business owners do not have any formal training or education to operate their business



Source: FinScope 2019, 2012.

Limited access to training and skills also hinders the creation and future success of a household business. Many household businesses do not keep formal records, nor do they register their enterprises. Their operations also exhibit frequent interruptions. The promotion of good practices and tailored management could be provided with some training. Most household businesses do not have any formal training or education in business management. By 2019, half of business owners were self-taught, with guidance from family or mentors representing the next most important source of instruction (Figure 3.21). Only 5 percent reported obtaining skills' training from formal programs, while a mere 1 percent received training from a university or technical education. Fewer than 20 percent of household businesses have accessed business support, despite being aware of its availability. (Figure 3.22)

Figure 3.22: Most household businesses know about support mechanisms offered by different institutions, yet very few use them



Source: FinScope 2019, 2012.

Businesses with high growth prospects rely on educated owners and credit

Only a very small proportion of enterprises seem to have high growth prospects. These are the firms that have employees, above-average income, and a perception of growth in the previous year[13]. Since 88 percent of firms comprise individual entrepreneurs, only 12 percent of businesses in the country potentially fall into this group. However, only 3 percent of the businesses interviewed by FinScope 2019 reported both employees and growth prospects.

The segment of firms with growth prospects differs starkly from the average enterprise in the country. Firms with growth prospects have older owners and are usually in the mature phase of the business or have been active for about 10 years. However, the average business finds itself in the start-up phase, which is between one to five years, meaning their owners are generally younger (around 35 years old) than in the case of growing firms (around 39 years old). These data suggest that young owners face difficulties expanding from a micro enterprise to a small enterprise, and then reaching a mature phase.

Most of individual entrepreneurs in the retail sector are women, whereas growing and mature firms tend to be more dominated by men. By geographical location, most successful

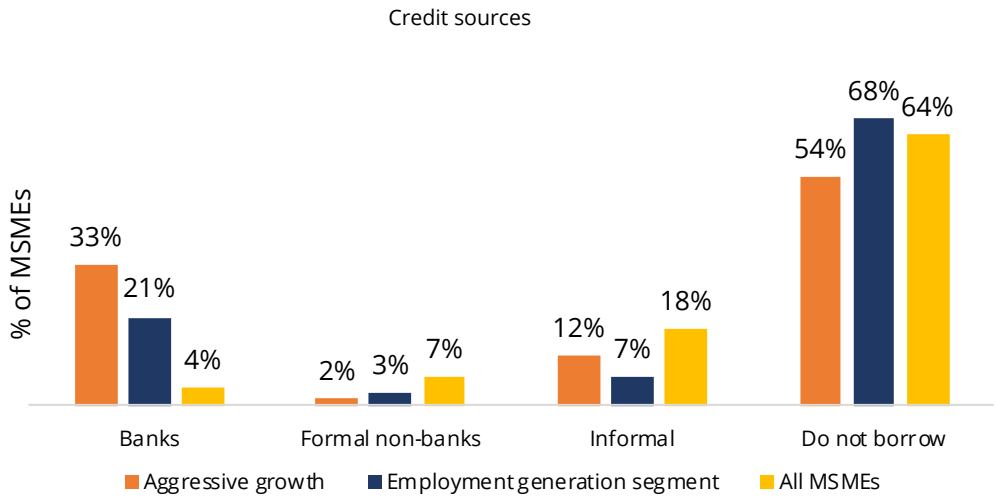
13 FinScope Report 2019

firms are located in urban areas of the Center and South, while most small businesses are in rural areas. Another advantage observed among those firms in the growth stage is access to electricity, which is available to more than 60 percent in this segment compared to the average of 25 percent for all firms.

More than 80 percent of firms in the growth segment use financial products, in contrast to an average of 24 percent for small firms. Similarly, loans from banks are accessed by a third of firms on a growth path, compared to an average across all businesses of only 4 percent. Informal borrowing is an alternative for average businesses as well as those on a growing path (Figure 3.24). The start-up capital used by growing businesses comes mainly from capital from other businesses, while a slightly lower proportion comes from their own savings. Among those small businesses that do access credit, non-banks or microfinance institutions play the most important role. (Figure 3.23). In contrast, the average firm typically uses mainly savings, plus help from family and friends (Figure 3.25).

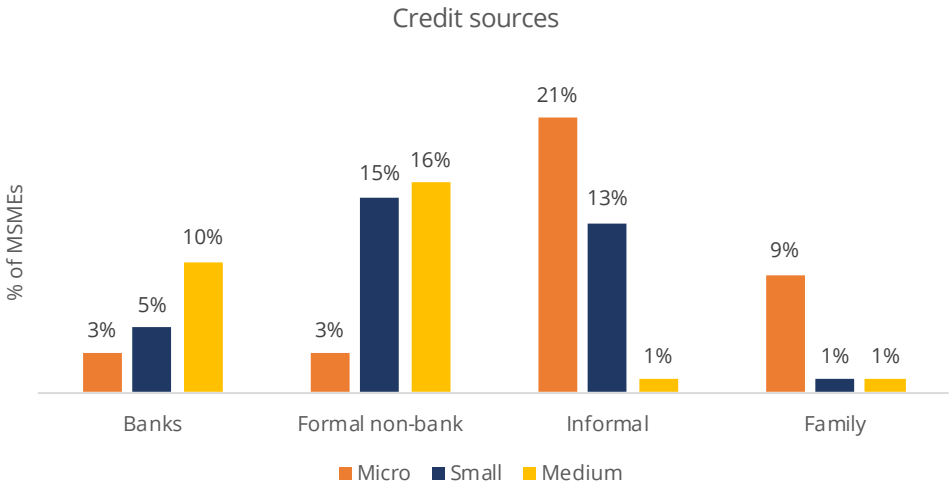
Finally, firms that are growing successfully typically have slightly more educated owners than the average small business. It is notable, for example, that the most successful firms keep financial records, while just one third of micro, small, and medium firms do so on average. In terms of the support available for small businesses, all firms in the growth stage are aware of the existent of business development services (BDS) but only one in five use them. This is due in part to the fact that advisory services are more concentrated in agriculture than in other sectors.

Figure 3.23: Firms on a growth path typically access bank credits, while average businesses generally do not



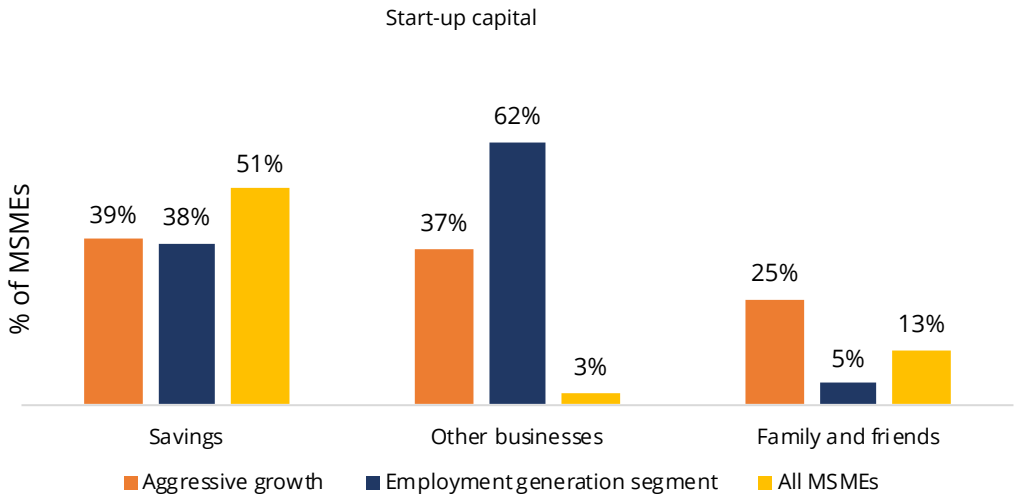
Source: FinScope 2019.

Figure 3.24: Non-banks or microfinance institutions are most likely to lend money to small businesses.



Source: FinScope 2019.

Figure 3.25: Mature firms use money from previous businesses to start a new business, which suggests that they already had access to finance



Source: FinScope 2019.

4. External shocks especially climate shocks increase households' vulnerabilities.

Malawians are ill-prepared to deal with shocks, be they the multifaceted ones associated with climate change, the global pandemic or price spikes. The climate crisis has brought droughts, floods, and irregular rains that all squeeze agricultural productivity and incomes, and often threaten the survival of the most precarious households. Northern Malawai appears to have been the region less affected by climate shocks than other regions. Through the country, household savings, rather than any outside assistance, are the main means by which people cope with the unexpected. The COVID-19 reducted economic activity at the start of the outbreak. More recently the Russia-Ukraine war and its effects on prices has revealed the high vulnerability of households to food and fuel price shocks.

The recurrence of climate shocks has reduced productivity levels

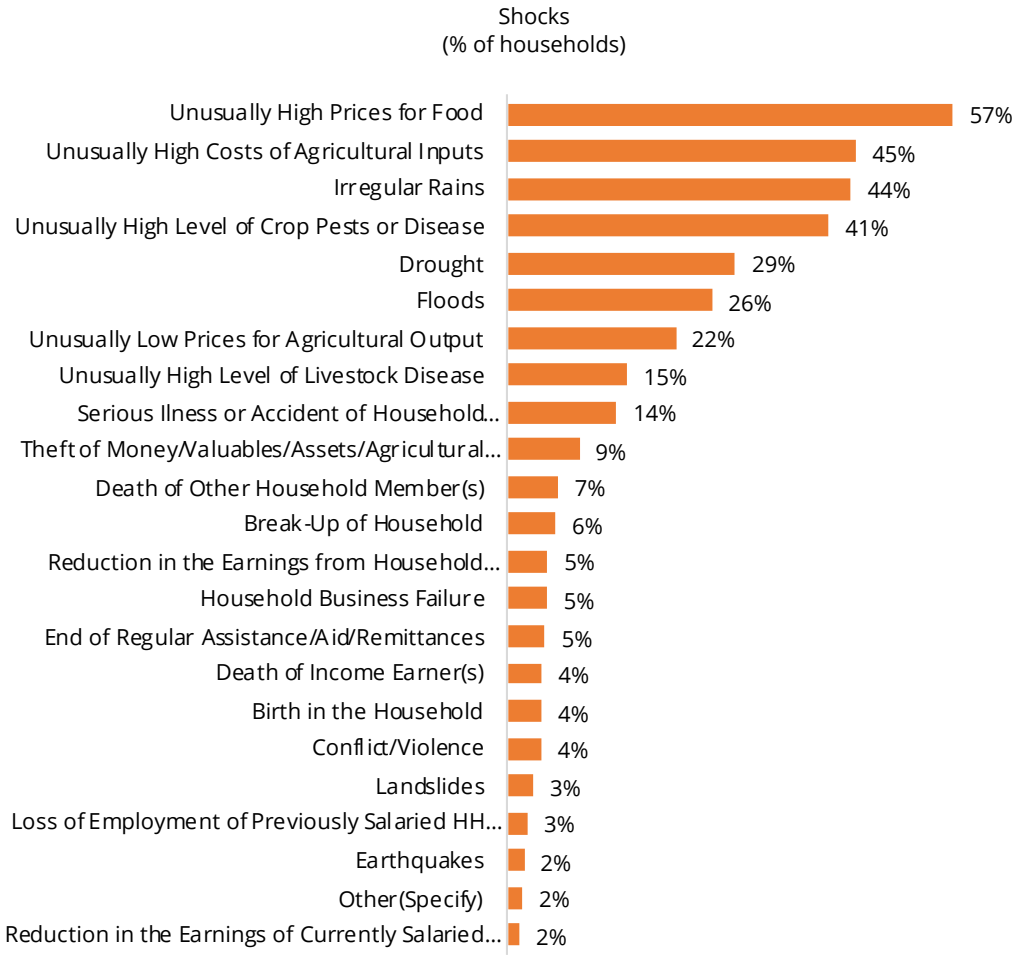
Data on weather events confirms that climate shocks reduce agricultural productivity. Most households experience some form of shock, usually in the form of higher costs for food or more expensive agricultural inputs, both effects that jeopardize an average household's ability to satisfy basic needs. These shocks also affect poor households, who are overwhelmingly reliant on subsistence agriculture, to a greater degree than non-poor households.

Households report experiencing events such as droughts and floods, or irregular rains as significant climate shocks. Though they are experienced by fewer households than higher costs for food or inputs, weather-related events rank high among the shocks experienced by Malawian households (Figure 4.1). Other shocks include crop pests and diseases, low prices for output, and the death of a household member.

The economic effects of shocks show a reduction of households' income. Nevertheless, climate-related shocks reduce farmers' production and food stocks for almost all affected households. This is also true with increased input costs, crop pests, and droughts. Among the various types of climate shocks, floods threaten household food security most, with the majority of affected households reporting insufficient food as a result.

The correlation between self-reported drought and inflation for food is 31 percent. For example, in the past fifteen years, 45 percent of households reported unusually high food prices. Approximately 26 percent of households did so in the 2004 and 2010 IHS rounds. This figure grew to 71 percent in 2016, most likely reflecting the adverse weather conditions of that period. Reports of high food prices fell back again in 2019, to 57 percent.

Figure 4.1: The main shocks experienced by households are related with high prices of food and costs of inputs.



Source: World Bank calculations from IHS5.

Cyclone Idai, which hit Malawi in March 2019, affected mainly the agricultural sector, which accounted for almost 60 percent of GDP losses. The construction sector represents the next main area of losses, at 22 percent[14]. Information for 2019, just after Idai, reveals that households that reported a drought or flood event between 2016 and 2019, had lower economic returns

14 *Malawi Government. Malawi 2019 Floods Post Disaster Needs Assessment Report.*

from agriculture (Table 4.1). In contrast, household businesses reported reductions in economic activity mainly when floods happened (Table 4.2), suggesting the effects of the disruptions due to infrastructure and transport damages. (The effects of Storm Ana, which hit in February 2022, remain under analysis.)

Table 4.1: Effect of droughts on economic returns

	Log of agricultural hour return	Log of ganyu hour return	Log of paid job hour return	Log of HHB hour return
Droughts	*-0.134****	*-0.008*	*0.073*	*-0.117*
	(0.000)	*(0.596)*	*(0.247)*	*(0.073)*
Constant	*5.416****	*6.989****	*5.563****	*6.143****
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Observations	*20189*	*14765*	*2837*	*4126*
R-squared	*0.058*	*0.061*	*0.152*	*0.041*
Adjusted R-squared	*0.058*	*0.061*	*0.149*	*0.038*
F	*129.223*	*141.238*	*34.001*	*10.520*

Source: World Bank calculations using data from IHS5.
Note: Controls include regions and sectors for non-farm activities.

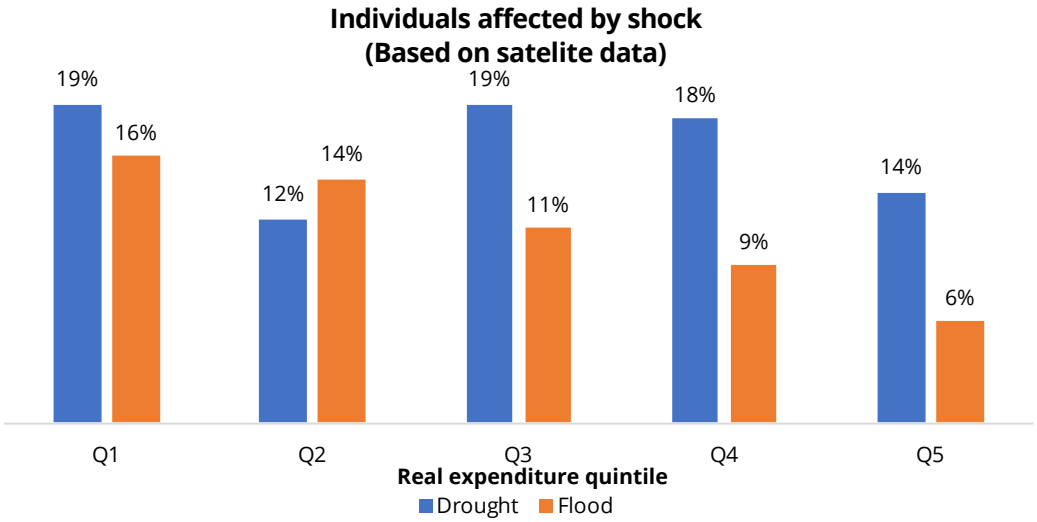
Table 4.2: Effect of floods on economic returns

	Log of agricultural hour return	Log of ganyu hour return	Log of paid job hour return	Log of HHB hour return
Floods	*-0.170****	*0.020*	*0.056*	*-0.233****
	(0.000)	*(0.211)*	*(0.407)*	*(0.000)*
Constant	*5.419****	*6.985****	*5.564****	*6.165****
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Observations	*20189*	*14765*	*2837*	*4126*
R-squared	*0.059*	*0.061*	*0.152*	*0.044*
Adjusted R-squared	*0.059*	*0.061*	*0.148*	*0.041*
F	*134.191*	*141.276*	*33.350*	*11.035*

Source: World Bank calculations using data from IHS5.
Note: Controls include regions and sectors for non-farm activities.

Weather shocks affect more poor households than non-poor households, though in the case of droughts, not by much. Around one in six (16 percent) households in the first quintile of the consumption distribution were affected by droughts. Similarly, 19 percent were affected by floods. On the contrary, 14 percent and 6 percent of the individuals at the upper end of the consumption distribution were affected by these shocks, respectively (Figure 4.2).

Figure 4.2: Poor individuals are more exposed to shocks



Source: World Bank calculations based on IHPS3.

To estimate the impact of the most recent shocks, the team linked geographic data to the latest household survey. For the case of droughts, this was done at the enumerator area level using the official geovariables module. In respect of floods, a greater desegregation was needed both in temporal and spatial terms. Daily precipitation estimates from NASA's IMERG project (which were formatted as a 0.1-degree square raster layer) were therefore transformed into vector of the same dimensions and merged to households based on their GPS coordinates.

Droughts are found to increase poverty by 14 percentage points. Women are much more vulnerable to these shocks (Table 4.3). The ability of individuals to adapt from farm jobs to off-farm jobs seems to play a role in the effects of droughts. Individuals with secondary education or higher appear to be less affected than those who have only completed primary education. Finally, pre-existing illness within a household amplifies the probability of being impoverished by drought.

Table 4.3: The impact of droughts on poverty

	All individuals	Male	Female	Primary education	Higer than primary education	Preexisting chronic illnes
Drought	*0.138****	*0.114****	*0.157****	*0.255****	*0.0896**	*0.142****
	(0.0272)	*(0.0241)*	*(0.0336)*	*(0.0692)*	*(0.0499)*	*(0.0497)*
Constant	*0.216***	*0.208***	*0.224****	*-0.0564*	*0.151****	*0.228*
	(0.0850)	*(0.0977)*	*(0.0780)*	*(0.235)*	*(0.0503)*	*(0.179)*
Observations	*44,607*	*21,462*	*23,145*	*5,243*	*11,226*	*12,472*
R-squared	*0.021*	*0.017*	*0.025*	*0.047*	*0.013*	*0.042*
Number of pid	*18,130*	*8,814*	*9,316*	*2,120*	*4,833*	*5,036*

Source: World Bank calculations using data from IHS5.
*Notes: Errors clustered at shock level. *** p<0.01, ** p<0.05, * p<0.1. PID refers to the identification of unique individuals.*

As with droughts, the presence of floods increase poverty by 14 percentage points (Table 4.4). The gender gap is narrower in the case of floods. But again, those with higher education levels are less likely to become poor after experiencing this shock, as compared to those only holding a primary certificate.

Table 4.4: The impact of floods on poverty

	All individuals	Male	Female	Primary education certificate	Higer than primary education	Preexisting chronic illnes
Flood	*0.139****	*0.133****	*0.144****	*0.300****	*0.156***	*0.195****
	(0.0360)	*(0.0328)*	*(0.0422)*	*(0.102)*	*(0.0701)*	*(0.0505)*
Constant	*0.219***	*0.211***	*0.227****	*-0.0418*	*0.152****	*0.233*
	(0.0849)	*(0.0977)*	*(0.0781)*	*(0.236)*	*(0.0502)*	*(0.179)*
Observations	*44,589*	*21,452*	*23,137*	*5,237*	*11,222*	*12,467*
R-squared	*0.019*	*0.017*	*0.022*	*0.037*	*0.016*	*0.041*
Number of pid	*18,120*	*8,808*	*9,312*	*2,118*	*4,830*	*5,033*

Errors clustered at shock level
*** p<0.01, ** p<0.05, * p<0.

Source: World Bank calculations from IHS5.

Box 5: The Welfare Impacts of Droughts and Floods

This box presents estimates of the extent to which droughts affect poverty and child nutrition by merging satellite data to the 2010-11, 2015-16 and 2019-20 rounds of the Integrated Household Survey and the 2010 and 2016 Demographic Household Survey (DHS). Given that there is no systematic approach in the measures of drought used in the literature, a variety of hazard measures are used based on Africa-wide data on rainfall (CHIRPS) aggregated to seasonal rainfall anomalies (using seasonal timing data from FAO), the Standardized Precipitation Index (SPEI), Soil Moisture Index (SWI), the Normalized Difference Vegetation Index (NDVI), and the Water Requirements Satisfaction Index (WRSI), which is based on the FEWSNET maize crop-model.

Considering that the results varied depending on the different hazard measures used, on whether a linear or non-linear specification is employed, Table 4.5 below reports estimates of the impact on consumption per capita at the household level and child stature measured by the height for age z-score (HAZ), based on the soil moisture index as a measure of drought. Soil moisture had a consistent effect for both linear and no linear specification and for both consumption and child HAZ.

Table 4.5: The impacts of soil moisture anomalies on different dimensions of welfare

	Consumption per capita		Child HAZ-score	
Soil moisture anomaly	*0.063****		*0.077***	
	[5.736]		*[2.006]*	
Negative soil moisture anomaly (abs. value)		*-0.018*		*-0.214***
		[-1.057]		*[-2.557]*
Positive soil moisture anomaly		*0.104****		*0.002*
		[5.636]		*[0.040]*
R-squared	*0.245*	*0.246*	*0.144*	*0.145*

*Notes: t-value in brackets. *** p<0.01, ** p<0.05, p<0.1. Anomaly is defined as (level - mean for local area) / sd for local area over a 20-year period. For the analysis of the impact of hazards on per capita consumption, the hazard anomaly is matched with the of first three months of the most recent growing season to the time of interview of the household. For the analysis of the impact of hazards on child HAZ, the hazard anomaly is matched with the period that the child was in utero. Additional control variables used in the regressions included: Female head of household (HOH), age of HOH, years of education of HOH, child dependency ratio, type of house, type of roof, has electricity, type of sanitation, drinking water source, and district and year fixed effects.*

Higher-than-usual rainfall during the first three months of the growing season in the local area of the household as captured by an increase in the positive value of the soil moisture index by 1 standard deviation (SD), is associated with a 10.4 percent increase in consumption per capita, while negative anomalies in the soil moisture index have a much smaller effect on consumption per capita, one that is not statically insignificant (Table 4.5). This finding is likely a reflection of the relative absence of any substantial droughts in the years of covered by the IHS. In contrast, the incidence of droughts during the period that a child is in utero appears to have a significant negative effect on their stature at a later age. For example, a decline in soil moisture by 1 sd while a child is in utero, is associated with a 0.214*sd decrease in the child's HAZ in later ages (less than 5 years old).

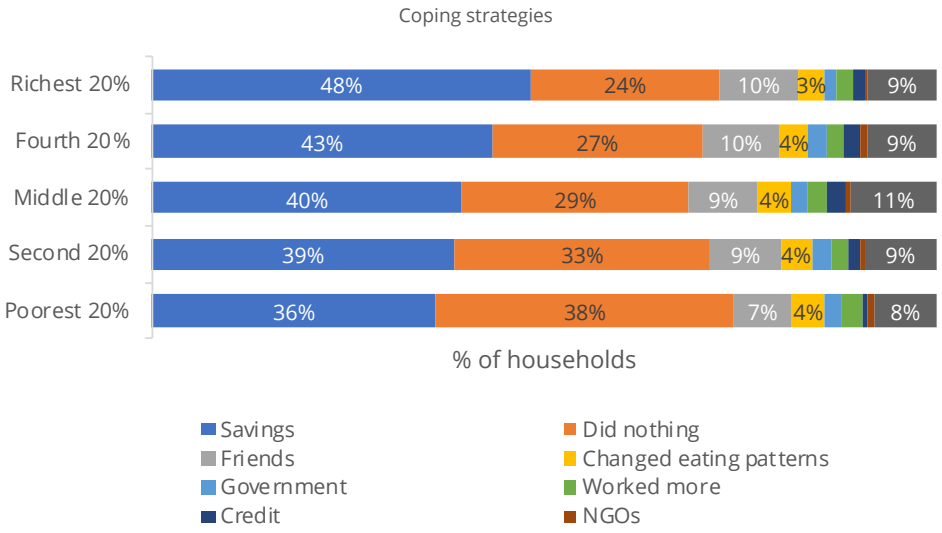
These estimates presented above are essential for the identifying the households vulnerable to poverty[15] or the children at risk of stunting, as well as for the planning and design of more effective disaster response systems.

15 *Baquie, S. and Fuje, H, (2020) "Vulnerability to Poverty Following Extreme Weather Events in Malawi." Policy Research Working Paper No. 9435, October 2020. Washington D.C.: World Bank Group*

Households' vulnerability increases in the presence of limited coping strategies

The main source of support among households experiencing shocks are their savings. Nevertheless, an important fraction of households does nothing to cope with the shock, while one in 10 households rely on family and friends (Figure 4.3). Government support is scarce and mainly observed among households suffering floods, although total recipients are still low as a proportion of overall households (5 percent). For their part, NGOs and other organizations offer support for fewer than 1 percent of affected households.

Figure 4.3: In the presence of climate shocks and other natural disasters, household savings are the main source of support, with government assistance reaching fewer than 5 percent of households



Source: World Bank calculations using data from IHS5.

Box 6: Recent estimates using a Rapid Frequent Monitoring System (RFMS)

Monitoring the impact of unexpected events like cyclones and droughts is challenging in the country. The government collects the integrated household survey (IHS) every three years. But shocks can also occur when data are not collected. To fill this gap, the World Bank has co-designed[16] a Rapid Frequent Monitoring System (RFMS) to collect household-level data every month in the Rural South of Malawi to provide real-time tracking of poverty, food security, livelihoods, coping strategies, and shocks.

RFMS uses a simplified questionnaire to collect data quickly from local enumerators, including a rapid poverty monitoring approach called SWIFT, which can produce reliable poverty estimates from only 10 to 15 simple questions using a machine learning technique which replaces the consumption module.

Recent RFMS data shows that the poverty headcount rate in the Rural South increased by 17 percent within a year (Yoshimura et al., 2021)[17], reinforcing the importance of measuring the impact of climate shocks when they hit the country, and monitoring the effects over time.

Furthermore, the main findings from the RFMS data collected in January 2022[18] are consistent with assessments conducted by the Department of Disaster Management Affairs (DoDMA) and other stakeholders. Overall, 34 percent of all respondents reported to have been impacted by Cyclone Ana, and the two hardest-hit districts were Chikwawa (74 percent) and Nsanje (61 percent). In Chikwawa and Nsanje, more than 80 percent of households reported crop damage due to Cyclone Ana and more than 40 percent lost the whole harvest. Also, more than 30 percent of households reported some damage in their houses (complete destruction of houses was observed for 20 percent of households in Chikwawa). Many households also reported asset damages and lost connections to other cities and markets.

16 *The World Bank has co-designed the RFMS together with USAID, FCDO, Catholic Relief Services (CRS), Cornell University, and the Malawi National Statistics Office (NSO)*

17 *Yoshimura, K., Aron, D., Campbell, J., Li, X., Upton, J., Yoshida, N., Zhang, K. 2021. Poverty projections and profiling from the Rapid and Frequent Monitoring System (RFMS) in Malawi's Rural South. Mimeo.*

18 *CRS-USAID 2022 Report on Main Findings.*

RFMS-SWIFT can track also alternative coping mechanisms to the limited savings and family support reported by households after suffering a shock in the IHS. This includes *ganyu* (short-term, low-paid piecework) as a secondary income source to alleviate the risk of extreme poverty and severe food insecurity as well as the cultivation of new crops to take advantage of the humidity of the lands.

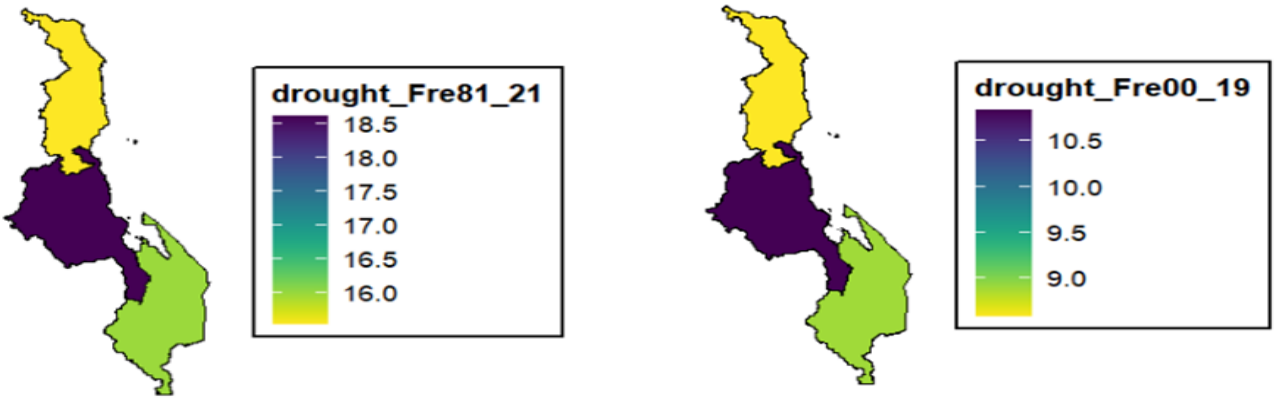
Similarly, the RFMS is helpful also to monitor the inflow of humanitarian aid and social assistance to households in rural South, including cash transfer, food supply, coupons for fertilizers and improved seeds. Currently, households report little support by the government as answered to professional enumerators. By using local enumerators, the RFMS will contribute to the understanding of the type and timing of aid.

Regional variations are evident in impacts of climate-related shocks

The Center is one of the driest regions while the North experience less extreme dryness. Using the average Vegetation Health Index (VHI) for the last 40 years, it is possible to see that the North, which has the lowest poverty rate, typically experiences fewer droughts than the rest of the country (Figure 4.4). In contrast, the Center (which now qualifies as the poorest region) has historically experienced the majority of the country's droughts (see Annex 5 for a whole explanation of the index).

Figure 4.4: The North has been exposed to fewer droughts than the rest of the country, while the Center region reports a high frequency of droughts

a. Average VHI of 1981 to 2021 **b. Average VHI of 2000 to 2019**

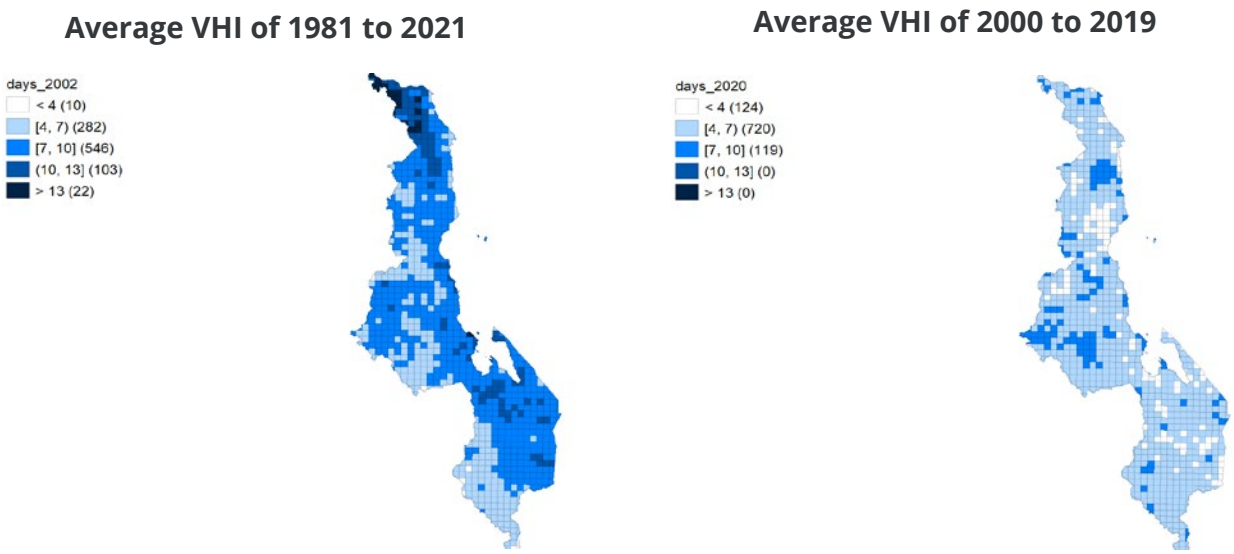


Source: Vegetation Health Index (VHI) during November and January of each year. Data taken from National Oceanic and Atmospheric Administration (NOAAs) Center for Satellite Applications and Research.

The location of the weather shocks has been changing in the last two decades, probably because of climate change. Using satellite data to determine the severity of weather shocks, the team identified the areas more affected by natural disasters and analyzed whether or not this had changed over the years. While the North has historically been more affected by floods, this was not the case in 2018, 2019, and 2020 (Figure 4.5). The mode of the number of days with excess rainfall on growing season has dropped from category 7-10 to 4-6 in the past five years, according to the spatial and temporal distribution for rainfall across the country. Moreover, during this same period, no region experienced more than 13 days of excess rainfall and very few places registered between 11-13 days of excess rainfall.

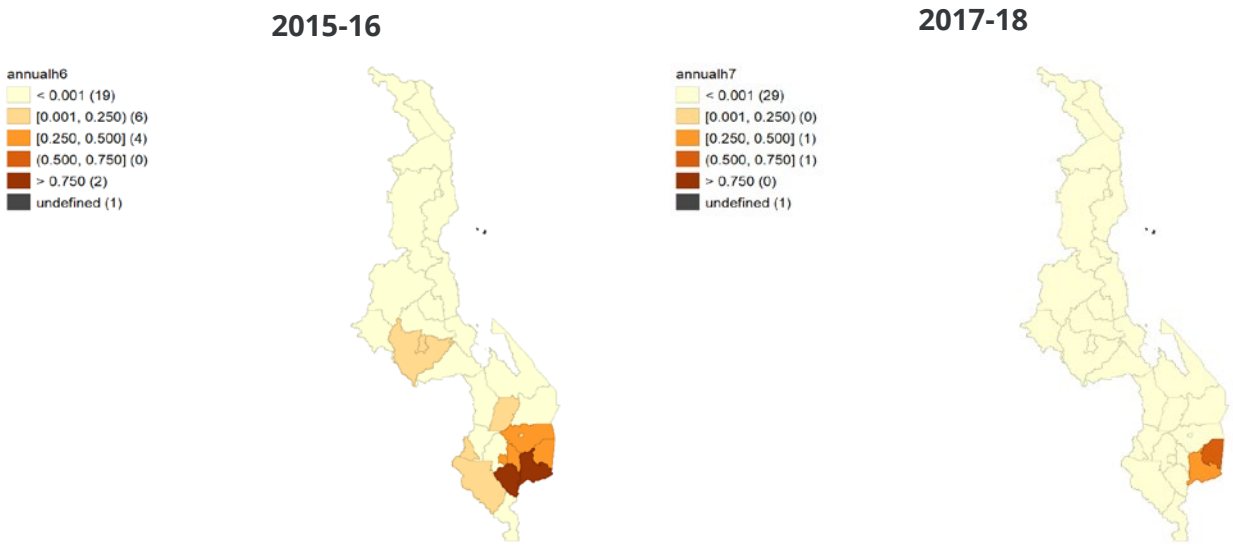
Regional rain patterns revealed excess rain was most frequent in the North by the beginning of the century, followed by the Center. This was the case for the years 2002 and 2007 through 2011. On the other hand, spatial distribution of droughts has not changed in recent years, as droughts typically affected districts in the South and occasionally some of those in the North. Since the last major drought in the 2015-16 season, almost no districts have been affected. The exception is Mulanje and Phalombe, where 26 percent and 54 percent of their respective populations resided in locations that received less than their historic annual mean precipitation (Figure 4.6).

Figure 4.5. Excess rainfall



Source: World Bank production based on NASAs IMERG data.
Note: Maps display the spatial distribution of the total number of days with excess rainfall in growing seasons for the years 2002 and 2020. Excess rainfall is defined as rainfall above the 98th percentile of the distribution of the grid. No excess rainfall is indicated by 0 on the map.

Figure 4.6: Droughts



Source: World Bank production based on UC Berkeley and National Oceanic and Atmospheric Administration Climate Prediction Center.

Note: Droughts were identified as an annual accumulation lower than half of the historic mean for an exact location. Figures show the share of the district population that has been affected by a drought according to this definition.

Natural disasters can aggravate poverty traps because households with fewer assets are more vulnerable to the negative effects of such disasters. Households with a high stock of productive assets are often more able to move into higher consumption paths by taking up more profitable economic opportunities. They can also withstand negative shocks by taking out loans, selling assets, or obtaining insurance. The prospects are different among vulnerable, credit-constrained households with traditionally lower asset holdings. Even a relatively small shock can hinder the accumulation capacity of these households.

The mere prospect of natural disasters has the perverse effect of locking some households into low-income paths, and the society into inequalities. In the absence of well-functioning credit and insurance markets, these households typically organize their economic lives to reduce risk exposure rather than to maximize profits. For example, farmers who are on low incomes and vulnerable to risks are often reluctant to invest in fertilizers that would boost their expected returns; they prefer to retain savings as a cushion against bad weather or other shocks. Similarly, aggregate shocks can impact household welfare through the negative distorting effects on markets, prices, and the allocation of resources.

Box 7: COVID-19 and the challenge of another crisis COVID-19 and the challenge of another crisis

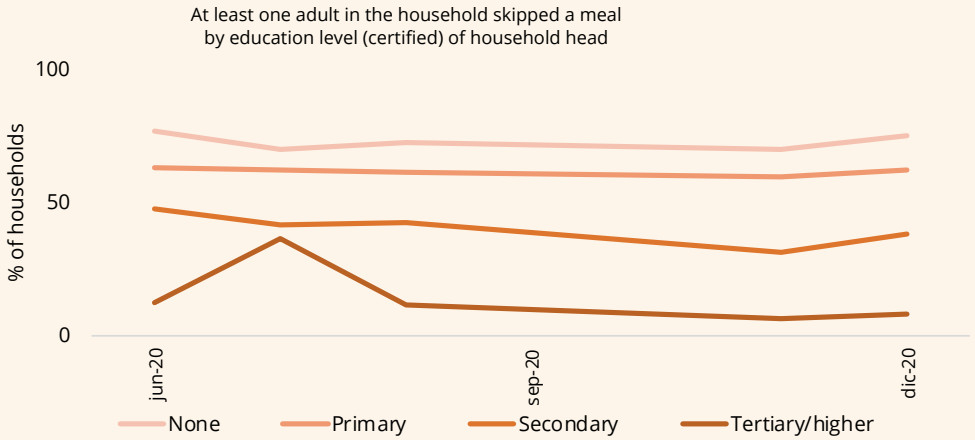
The COVID-19 pandemic, coming atop climate shocks, is most recent challenge affecting Malawian households, both due to illness among household members and the disruption of economic activities. In addition to the negative health effects of COVID-19, the pandemic has caused disruptive economic impacts that have led to production and logistical challenges, generating economic slowdowns. In this context, COVID-19 poses a threat to the wellbeing of a considerable proportion of the population. Using data from high-frequency phone surveys (HFPS), this part of the report assesses the impact of COVID-19 on income, labor market outcomes, food security, and human capital investments.

The first COVID-19 case in the country was confirmed on April 2, 2020, shortly after the declaration of state of disaster on March 20. Early measures included redeploying health personnel to all border posts, screening people at all entry points, closing all schools and colleges, and restricting public gatherings to fewer than 100 people. On August 8, 2020, the government introduced further safety measures. Guidelines required masks to be worn in public and banned public gatherings. Restrictions on hospitality and recreation were also imposed. Schools reopened for the new school year in September. Initially, only "candidate classes" were allowed to resume in-person studies, with the remaining classes starting the following month. COVID-19 testing was free for nationals only if recommended by a health official. Otherwise, it cost 35,000 Malawian kwacha (around $50).

During the first months of the pandemic, poor households faced more challenges than non-poor households as their basic needs were more likely to be limited. High prevalence of food insecurity (72 percent moderate and 31 percent severe) was observed by June 2020 (Figure 4.7). In the following month, 66 percent of households reported at least one adult in the household skipping a meal. A further 52 percent of households said they ran out of food, while 23 percent revealed that at least one adult went without eating for an entire day. The incidence of at least one adult skipping a meal was higher in July 2020 among poor households than among non-poor households (77 vs. 56 percent). The same is true for those who ran out of food (58 vs. 41 percent) and those with an adult who went without eating for a day (25 vs. 17 percent). Overall, food insecurity hit 72 percent in June 2020 before moderating to 58 percent in October 2020.

Access to non-food essentials was also a major challenge. Almost one in four (23 percent) households reported not being able to purchase cleaning supplies, and 45 percent of households reported having insufficient soap to wash their hands.

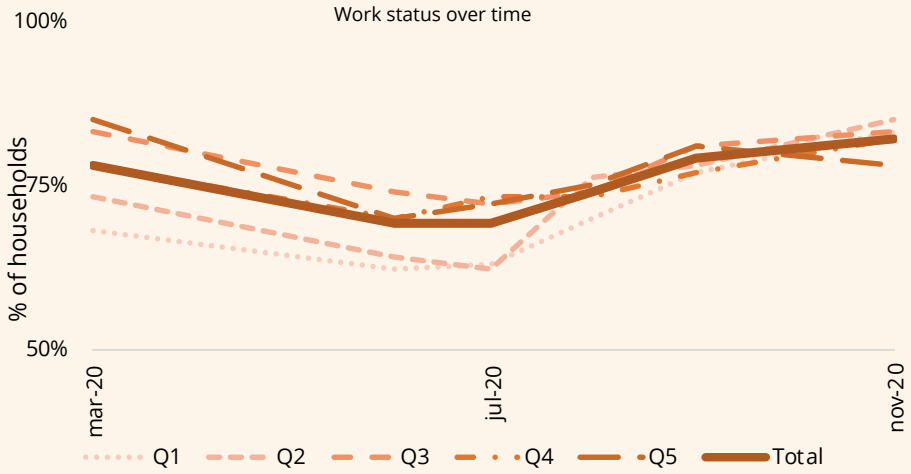
Figure 4.7: Less food insecurity among households with more educated household heads



Source: World Bank calculations based on HFPS and IHPS4

The proportion of employed people declined between mid-March and June 2020 (5 percent of survey respondents stopped working), in subsequent months, employment reached its precovid levels. In this same period, 68 percent of workers in rural areas and 73 percent of those in urban areas reported continuing with their usual economic activities. Labor volatility remained high, nevertheless (Figure 4.8). Between June and July 2020, for instance, around 16 percent of workers changed jobs. This figure grew to 23 percent during July and August 2020, before slightly decelerating to 19 percent by September of the first year of the pandemic.

Figure 4.8: Initial decrease in work status rapidly reverted as of July 2020



Source: World Bank findings from the Fifth Round of the High Frequency Phone Survey.

School closures as of March 23, 2020, affected almost six million students, roughly equally, across income quintiles. More than 94 percent of households with children between 6 and 18 years of age had at least one child attending school at this time. Yet, by June 2020, only 17 percent of households had children engaged in learning activities. Even in the wealthiest quintile, the figure was no higher than 28 percent. It dropped to as low as 12 percent for households in the bottom quintile.

However, richer households with children recovered more quickly than poorer ones. By July of 2020, children in the richest households increased their engagement more than those in the poorest households. Among the children in the fifth quintile, for instance, 34 percent engaged in learning activities. This compares to 19 percent of children in the poorest quintile. Schools across the country began reopening for the new school year in September 2020 and by the following November engagement in learning activities rose to 97 percent in rural and urban areas.

The pandemic generated both physical damage and psychological stress that manifested itself in multiple dimensions, especially in the economic sphere. Fear of COVID-19 spread quickly among the population. By June 2020, 94 percent of HFPS respondents reported being "very worried" or "somewhat worried" about themselves or their immediate family members becoming seriously ill. This figure did not change for subsequent follow-up rounds. Similarly, 23 percent of respondents had experienced varying levels of depression by the end of the year. Income reduction also became a

significant concern as 96 percent of respondents considered that this crisis posed a substantial or moderate threat to their household's finances.

Uncertainty generated by the pandemic could also be illustrated by the spread of misconceptions. For example, by February 2021, over half (53 percent) of respondents who knew of the existence of a COVID-19 vaccine reported having heard at least one false belief about it. Over one third (35 percent) reported that the vaccine was developed to reduce the African population, while a similar proportion (31 percent) believed that vaccination led to death. Due to such beliefs, willingness to be vaccinated dropped from 85 to 52 percent between November 2020 and March 2021.

Access to health services, on the other hand, was not widely compromised. Although 10 percent of households that needed medical treatment reported not being able to access it in June 2020, this figure declined soon after. Five months later, it dropped to only 2 percent. Similarly, only 1 percent of the households who reported needing a check-up or preventative care visit were not able to acquire such care in August 2020 and only 3 percent of households who needed medicine were not able to buy it by November.

Between March and July 2020, 83 percent of households experienced at least one negative consequence associated with the pandemic, while 48 percent experienced two or more. The most reported consequence was a fall in the price of farming/business outputs (66 percent), followed by an increase in the price of farming/business inputs (30 percent) and disruption to farming, livestock, and/or fishing activities (29 percent). Resilience remained low; 78 percent of affected households reported doing nothing when asked how they coped. More households in the poorest quintile did nothing to cope than in the fifth quintile (a gap of 7 percentage points). The most popular coping mechanisms adopted by affected households were relying on savings (20 percent), reducing food consumption (10 percent), and engaging in additional income-generating activity (6 percent).

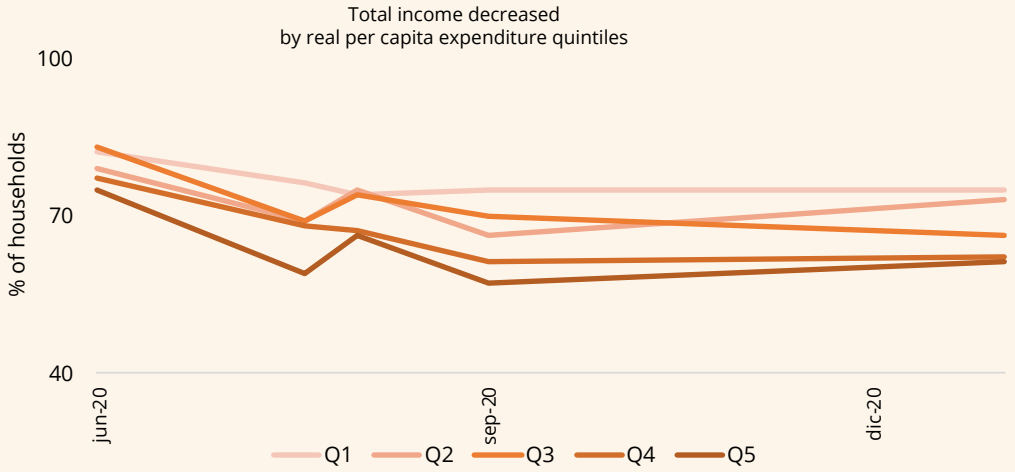
A small portion of Malawians had access to safety nets during the first year of the pandemic. Only 10 percent of households reported receiving any type of public assistance during the first two months after the outbreak, falling to around 6 percent in the months that followed. By August 2020, assistance was slightly higher in poor households (6 percent) than in non-poor households (5 percent). Coverage has increased over time, especially in poor households (11 percent in March 2021), although it still remains very limited.

Credit constraints limited the response of households during the pandemic. By August 2020, 40 percent of households reported that they needed to borrow money or to take a loan. This share was somewhat constant across expenditure quintiles. However, nearly half (46 percent) of these households were unable to access a loan, despite 52 percent reporting that they needed the money to get working capital for non-farm enterprises. Other reasons included buying food (19 percent), purchasing farm inputs such as seed and fertilizer (5 percent), and paying for other non-food consumption goods and/or services (4 percent). The ability of individuals to repay loans was fragile as well. For instance, 75 percent of indebted households were either "very worried" or "somewhat worried" about not paying back the loan in time.

Following the COVID-19 outbreak, two-thirds of households with non-farm enterprises reported either temporary or permanent closures due to restrictions related to the pandemic. Profitability was highly affected for 88 percent of urban enterprises that reported lower or no sales revenue in June 2020. Among the most recurrent reasons for discontinuing operations were closures of places of business, lack of customers, difficulties in getting inputs, problems with traveling, and falling ill with COVID-19. By March 2021, a year on from the declaration of the pandemic, 35 percent of businesses were temporarily closed, 5 percent permanently.

Although losses were not as substantial, households engaged in agricultural activities faced challenges in their operations. For example, for 8 percent of the sampled households that reported that COVID-19 had affected their crop harvest decisions; delay of the harvest was cited as the chief problem. The proportion of households that engaged in dimba (dry) season crop farming increased from 13 to 34 percent between 2019 and 2020. By June 2020, agricultural income decreased more in the poorest quintiles (79 and 69 percent for Q1 and Q2) than in the richer quintiles (67, 60, and 61 percent for the remaining quintiles). Households in the lower tail of the distribution also faced decreases in total income more frequently. The same trend was seen in family business income, wage employment income, and *ganyu* income (Figure 4.9). Finally, the recovery was faster within the wealthiest quintiles. For instance, the share of households where total income decreased fell from 75 to 61 percent between June 2020 and January 2021. In households in the first quintile, meanwhile, this share only fell from 82 to 75 percent over the same period.

Figure 4.9: Poorest households' total income recovered at a slower pace



Source: World Bank calculations based on HFPS and IHPS4.

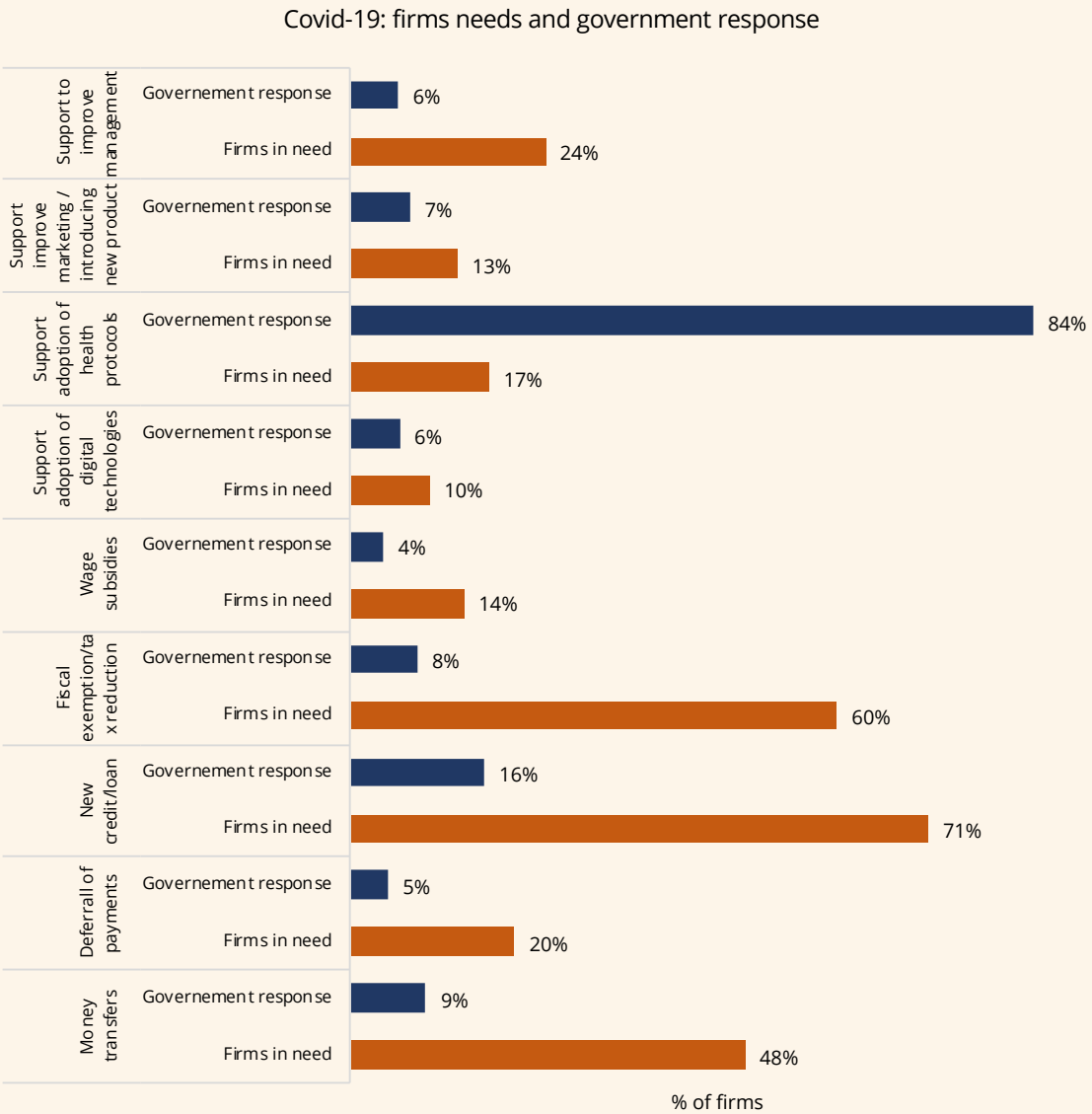
The COVID-19 pandemic particularly harmed firms that were already weak. According to the Business Pulse Survey[19], the pandemic had almost no impact on firm closures, but it caused sales to fall almost 90 percent. Operating hours also dropped by around 25 percent. The median decrease in sales amounted to 40 percent on average. Also, more than 25 percent of firms had to cancel orders due to the lack of inputs, which represented a loss in sales of around 30 percent. The impact was felt in all enterprises, regardless of their size and sector. Micro firms suffered the negative consequences of the pandemic slightly more than the rest. The reduction in the number of operating hours and sales was larger along with the number of orders that were cancelled due to lack of inputs. Even so, firms in manufacturing, transportation, and construction were the most affected. Firms in manufacturing experienced larger effects from reduced operating hours and increased cancellations. The transportation and construction sectors show the largest decrease in sales when compared to 2019.

In the estimation of Malawian firms, the government responses fell short. The strongest need during the pandemic was the possibility of accessing new credit or loans (Figure 4.10). The majority (70 percent) of firms cited

19 *The first Business Pulse Survey (BPS) in Malawi was implemented in November-December 2020. The BPS provides critical information on five distinct channels through which the COVID-19 pandemic may affect businesses: lockdown effects, supply shocks, demand shocks, financial shocks, and uncertainty. The survey covered a sample of 2003 firms, representative of the Malawian private sector. It was stratified across size, sector, and region.*

access to finance as one of their three most important needs. The other two were tax reduction and money transfers, with 60 percent and 50 percent of firms referring to them, respectively. These responses are consistent with the main constraints that enterprises signaled before the pandemic, based on data from the Firm's Survey in 2014; the pandemic seems to have exacerbated existing problems. Enterprises demanded more support not only on management but also on the adoption of digital technologies and marketing methods. The only area where the government satisfied – and even exceeded – firms' needs was with the adoption of health protocols.

Figure 4.10: Access to new credit and loans was the main need for firms during the pandemic



Source: World Bank calculations based on HFPS and IHPS4.

Box 8: Food, and fuel prices shocks slow progress out of poverty

Global prices for some commodities have increased since the Russia-Ukraine war started. In Malawi, food price inflation has grown rapidly in the country in 2022, reaching 17.1 percent[20] in March, the highest level since February 2017. Also, in April 2022, the Malawi Energy Regulatory Authority Board (MERA) adjusted upwards pump prices of petrol (20 percent), diesel (31 percent), and paraffin (14 percent) following the international trends[21]. This translated into an increase of public fares up to 50 percent. Increases in prices like those seen so far this year without greater nominal income could reduce some people's consumption to a point below the poverty line.

Using a simulation exercise, we examine the effects of price changes on poverty using different price shocks on food and public transport. To simplify, the simulation relies on the following assumptions: first, households do not change their consumption patterns; second, inflation affects everyone equally; third, food prices do not affect the food produced by families to be consumed in-house; and fourth, the increase in prices translates into an equivalent reduction of household consumption. Additionally, we define two scenarios. In the first, inflation only affects consumption, so price increases only affect people through the cost of good themselves. Thus, after a price increase, the new per capita consumption level is given as follows:

$$\tilde{y} = y - \sum \Delta p c_i \, s_i \quad (1)$$

Where $\tilde{y}$ represents the new consumption level, y is the initial consumption, Δp is the percentage change in price, c_i is the value consumed in item i, and s_i is the share of each item that is purchased. In the second scenario, used only for shocks in food prices, households selling their food products at a higher price increases agricultural income. For this new scenario, another assumption is needed: the increase in agricultural income translates into an equivalent increase in consumption. Thus, the new consumption level is represented by:

$$\tilde{y} = y - \sum \Delta p \, c_i \, s_i + \Delta p u z \quad (2)$$

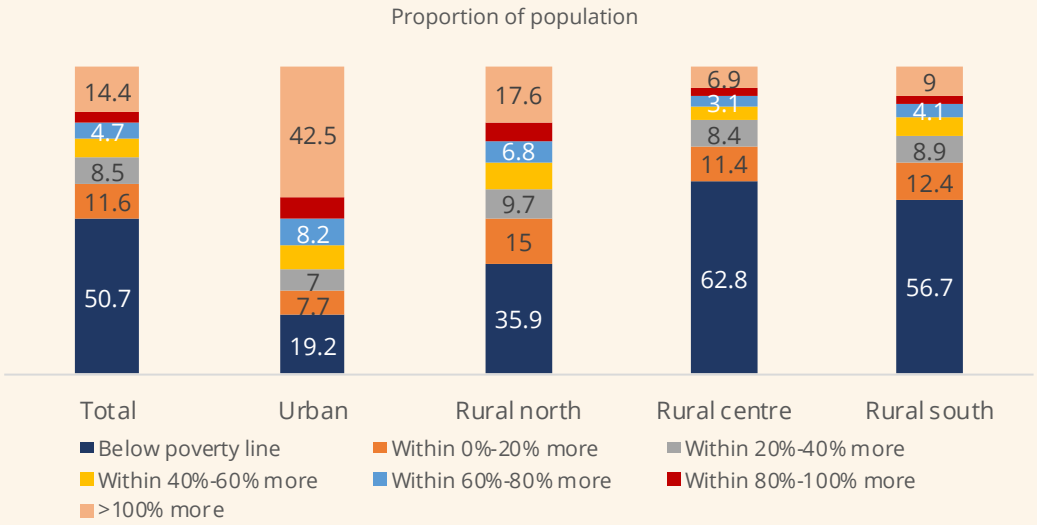
with u representing the agricultural income and z the share of harvested available products that are sold.

20 *Year-on-year inflation*

21 *The Malawi Energy Regulatory Authority, 2022. Review of Prices of Petrol, Diesel and Paraffin for the month of April. Press Release April 9th, 2022.*

The baseline poverty scenario for comparison is the one that leads to the current national poverty rate of 50.7 percent and an average consumption of 17 percent below the poverty line. Given the consumption level of the baseline scenario, we estimate that almost 12 percent of people nationwide have a consumption between the poverty line and 20 percent higher. (Figure 4.11). This group captures the people most vulnerable to falling into poverty due to its proximity to the poverty line. The greatest proportion of people in this category within each region is observed in rural north and south regions.

Figure 4.11: Consumption with respect the poverty line (% of people)



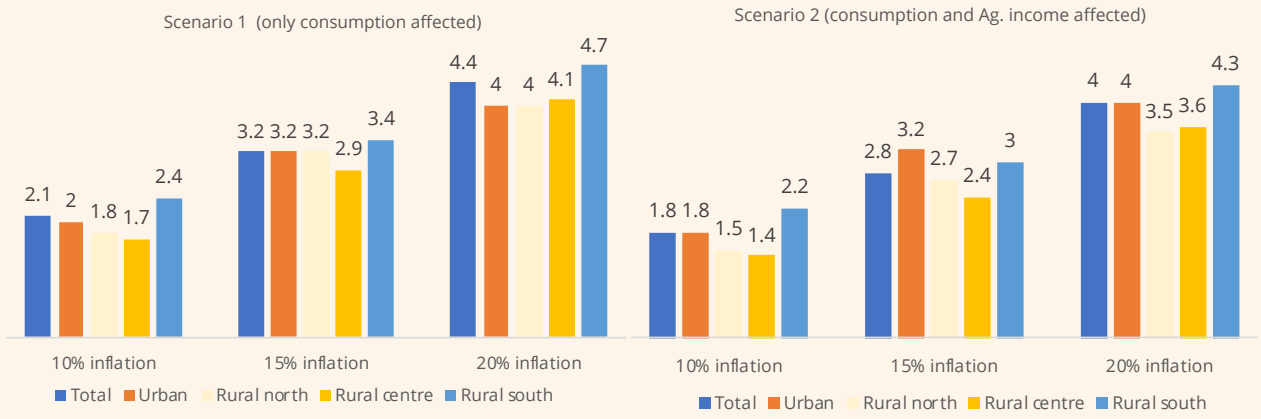
Source: World Bank calculations using data from IHS5

The effect on poverty depends on the size of the shock, the region, and whether it affects consumption or agricultural income, according to the simulations. Considering only effects on consumption (scenario 1), an increase of 20 percent in food prices would increase the poverty rate by 4.4 percentage points (Figure 4.12). This effect on poverty eases once the reduction in consumption is adjusted by the increase in agricultural income (scenario 2). However, this attenuation effect is bigger for rural regions, given that people in those areas are more likely to have income from agriculture. In this scenario, inflation hit urban and Rural South regions hardests, where an increase of 20 percent in food prices rises poverty by 4 and 4.3 percentage points, respectively.

Change to the poverty rate also depend on the main source of income of the household. Hence, for the exercise in Figure 4.13, people are classified according to the biggest source of income in the household. With a 20 percent inflation – the second scenario – the poverty rate rises more for people

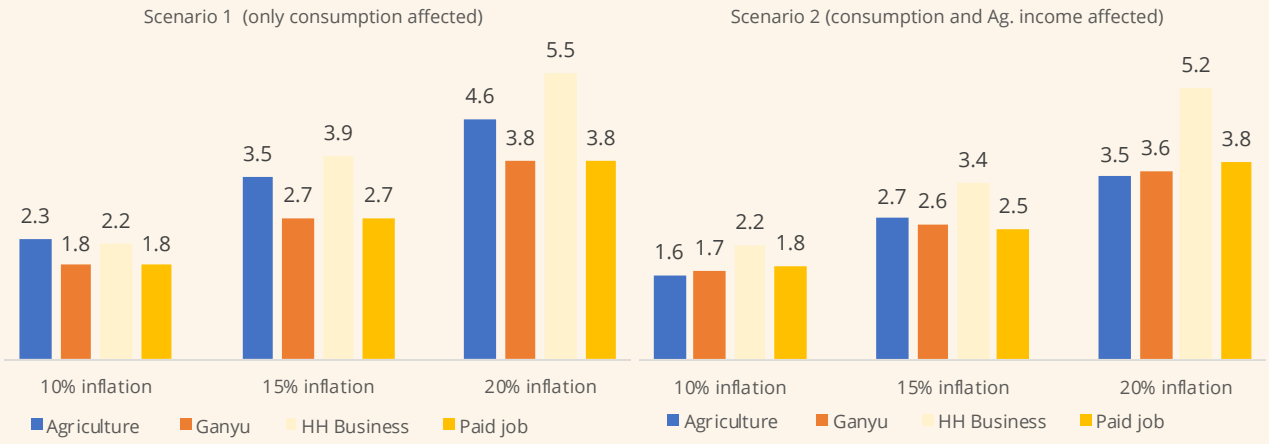
in households with household businesses as their primary source of income, while people in households whose main source of income is agriculture would see the smallest increase (3.5 percentage points).

Figure 4.12: Change in poverty headcount ratio, percentage points



Source: World Bank calculations using data from IHS5

Figure 4.13: Change in poverty ratio by main source of household income, percentage points



Source: World Bank calculations using data from IHS5

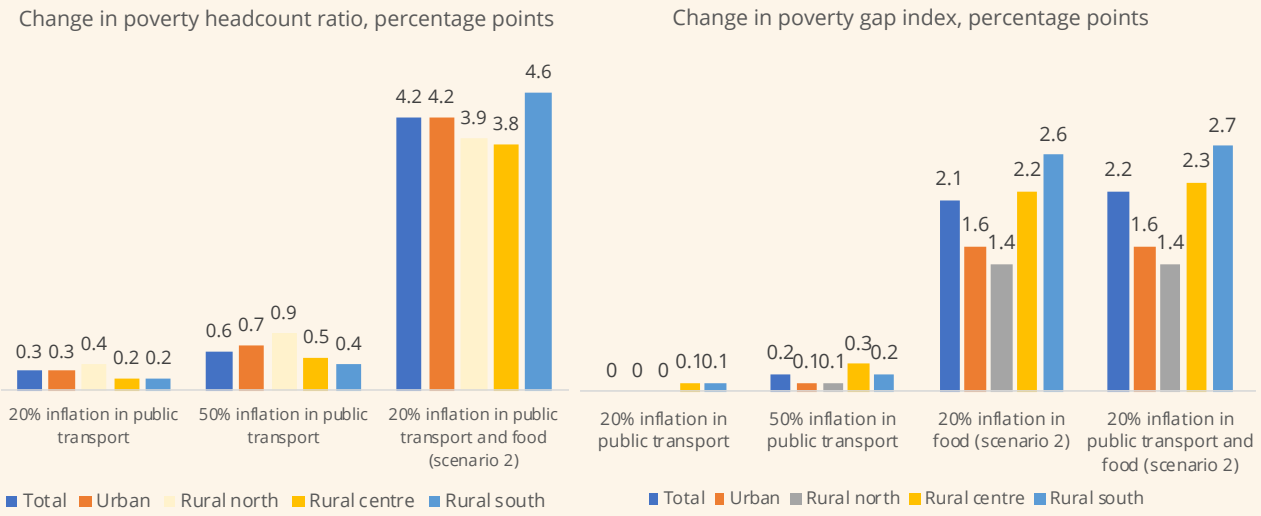
With inflation in public transport (primarily bus and minibus) costs only, the largest increase in the poverty rate would take place in the Rural North (Figure 4.14), the rural region with the highest proportion of people with expenditure on public transport. For instance, an increase of 50 percent in public transport fares might result in poverty rising by 0.9 percentage points in this region. However, inflation of public transport and food costs (scenario

2), the poverty rate would increase more in the Rural South and urban regions, mainly due to food inflation.

As for the depth of poverty, it is in the poorest regions (Rural Center and Rural South) where the poverty gap becomes more acute, regardless of the shock analyzed (Figure 4.14). These results could be explained by more people in these rural areas being under the poverty line, which implies that more people are vulnerable to worsening their already existent consumption shortfall. This analysis also shows that under the assumptions made, the inflation in food has the greatest potential to push people below the poverty line.

Finally, these effects are higher than Ivanic and Martin's (2014)[22] . While the authors estimated an increase in poverty of 0.7 percentage points for a 10 percent food inflation, we report increases as large as 1.8 percentage points for a similar price increase. However, these numbers are calculated using data from the second Integrated Household Survey in 2004 (IHS2) which finds a poverty rate of 52.4 percent. In contrast, the current exercise using IHS5, estimates a poverty rate of 50.7 percent. Hence, one possible explanation for our bigger result is the possibility that many of the people who have overcome poverty in these years are still very vulnerable to falling into it; their level of consumption is still close to the poverty line. However, it is important to notice that the results presented here are subject to the assumptions and simplifications imposed. Thus, a change in them is expected to lead to different effects on poverty.

Figure 4.14: Change in poverty due to public transport and food inflation, percentage points



Source: World Bank calculations using data from IHS5

22 *Ivanic, Maros & Martin, Will, 2014. "Short- and long-run impacts of food price changes on poverty," Policy Research Working Paper Series 7011, The World Bank.*

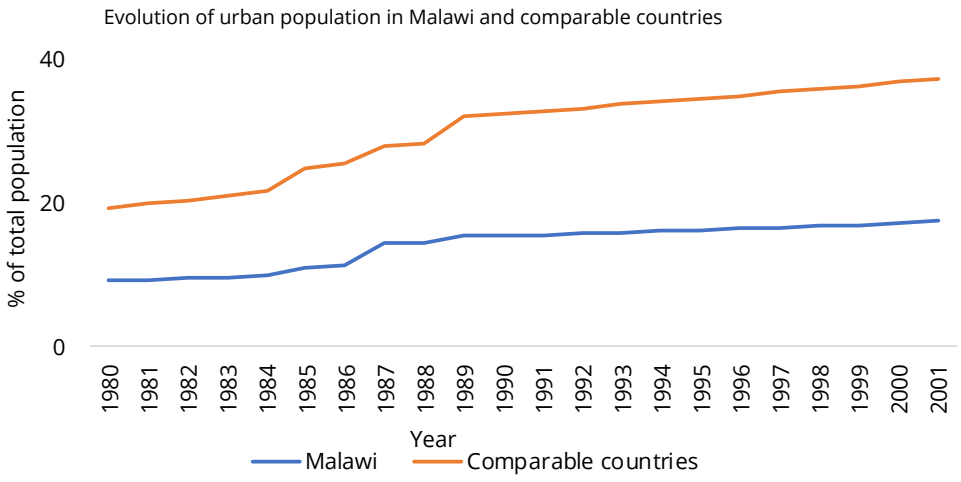
5. Stagnating Urbanization: Poverty Persists as Growth of Cities Stalls

The deceleration of urbanization – a hallmark of economic transformation – is a potent indicator of the country's slow progress. People move to cities for employment opportunities, entrepreneurs seek labor, and economically useful knowledge accumulates to foster greater aggregate productivity. But this process has largely stalled in the country, and the slow pace of urbanization correlates to a poverty rate that remains stubbornly high. Rural-to-urban migrants in 2019 represented a lower proportion of total population in 2019 than in 2010. That said, there are noteworthy heterogeneities at regional levels. The migratory flow in the last decade correlated with the decline in poverty in the North, where migrants with relatively higher productivity joined the existing urban population.

Slow urbanization limits a traditional escape from poverty

Urbanization is low and is progressing slowly – and haltingly – compared to similar countries. The proportion of urban population is markedly lower – roughly half the – relative to comparable countries (Figure 5.1). The deceleration in the country's urbanization during the last decades, in contrast to the continued growth elsewhere, has also widened this urbanization gap. According to WDI data, the country's urban population went from a growth rate of 0.3 percentage points per year in 1980s and 1990s to a rate of around 0.2 percentage points in the last decade.

Figure 5.1: Urbanization in Malawi is significantly low relative to similar countries, and it has decelerated over the last few decades



Source: World Bank elaboration based on WDI (World Bank)
Note: comparable countries comprise Ethiopia, Guinea-Bissau, Liberia, Madagascar, Mali, Rwanda, Sierra Leone, and Tanzania.

Other sources confirm the country's slow process of urbanization. According to the most recent national census and population projections reflected in the country's main household survey (IHS), the urban population has registered a minimal increase in the last decade. The proportion of urban inhabitants was 15 percent at the beginning of the period (2010) and reached only 16 percent by the end of the decade (Table 5.1). No major changes arise from a more disaggregated geographic classification.

Table 5.1: Slight increase in urban population during the last decade

	Population distribution			
	Census		IHS	
	2008	2018	2010	2019/2020
Urban	**15%**	**16%**	**15%**	**16%**
Main cities	12%	12%	12%	12%
North main city (Mzuzu)	1%	1%	1%	1%
Center main city (Lilongwe)	5%	6%	5%	6%
South main city (Blantyre)	5%	5%	5%	5%
South main city (Zomba)	1%	1%	1%	1%
Urban rest (other cities, towns)	3%	4%	3%	4%
Urban rest (North)	1%	1%	1%	1%
Urban rest (Center)	1%	2%	1%	1%
Urban rest (South)	1%	1%	1%	2%
Rural	**85%**	**84%**	**85%**	**84%**
North rural areas	11%	11%	11%	11%
Center rural areas	36%	35%	36%	36%
South rural areas	38%	38%	38%	37%

Source: World Bank elaboration based on Malawi's national census and IHS5.

The slowdown in urbanization correlates with the stagnation of poverty reduction in recent years. Poverty is predominantly rural with a rate of 56.6 percent in 2019 versus urban poverty of 19.2 percent (Table 5.2). Only 6 percent of total poor households are in urban areas, while rural families comprise the remaining 94 percent. There are additional heterogeneities. Poverty in the four main cities (14.8 percent in 2019) is significantly

lower than the corresponding rate in the country's other urban areas (34.3 percent in 2019). These four main cities represent more than 75 percent of the total urban population, but they account for less than 60 percent of urban poverty. Both in urban and rural areas, the North was the least poor in 2019.

The distribution of poverty has shifted over the last decade, with increases in enough heavily populated urban areas to boost the nationwide rate. Urban rose almost 2 percentage points, while the poverty rate in rural areas remained unchanged (Table 5.2). The increase in the overall urban rate stems from changes in small cities and towns, where poverty increased by more than 6 percentage points. Three of the country's four main cities (Lilongwe, Zomba, and Mzuzu) collectively registered a slight drop in poverty, but in Blantyre, the poverty rate almost doubled over the last decade. In that same period, the strong increase of poverty in the Rural Center was offset by a significant fall in the level of deprivation in the rest of the rural population, particularly in the North.

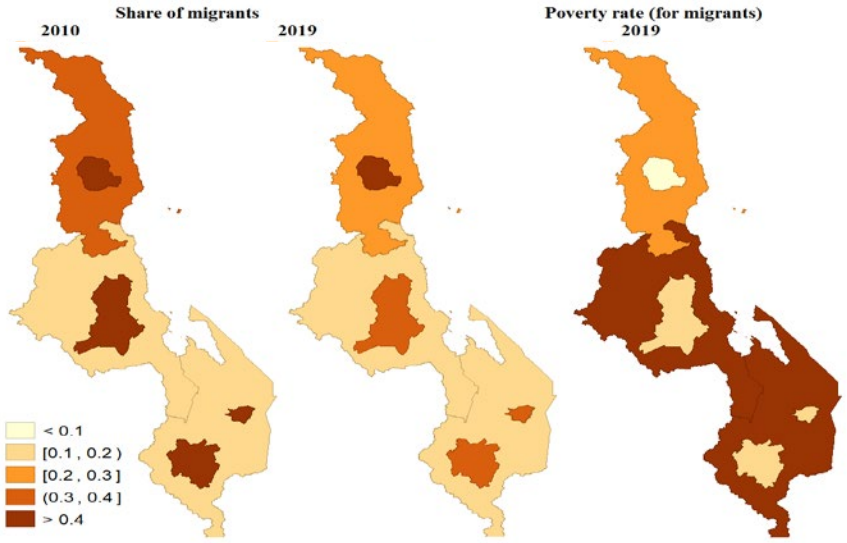
Table 5.2 The evolution of poverty has been heterogeneous across regions

	2010		2019/2020	
	Poverty rate	Poverty distribution	Poverty rate	Poverty distribution
National	**50.7%**	**100.0%**	**50.7%**	**100.0%**
Urban	*17.5%*	*5.2%*	*19.2%*	*5.9%*
Main cities	15.3%	3.8%	14.8%	3.5%
North main city (Mzuzu)	16.2%	0.4%	11.5%	0.3%
Center main city (Lilongwe)	22.3%	2.4%	15.6%	1.8%
South main city (Blantyre)	7.5%	0.8%	14.9%	1.3%
South main city (Zomba)	16.3%	0.2%	13.5%	0.2%
Urban rest (other cities, towns)	27.9%	1.4%	34.3%	2.4%
Urban rest (North)	27.4%	0.4%	25.2%	0.3%
Urban rest (Center)	20.6%	0.4%	38.7%	0.9%
Urban rest (South)	36.2%	0.6%	34.7%	1.1%
Rural	*56.6%*	*94.8%*	*56.6%*	*94.1%*
North rural areas	59.9%	13.2%	35.9%	7.8%
Center rural areas	48.5%	34.7%	62.8%	44.5%
South rural areas	63.3%	46.9%	56.7%	41.8%

Source: World Bank elaboration based on Malawi's national census and IHS5.

Internal migration over the last decade seems to have contributed to the deceleration in urbanization. Internal migrants in 2019 represented a lower proportion of total population than in 2010, while the urban area registered a particularly sharp drop (Figure 5.2). Migration also correlates to the differential evolution of poverty between regions in the country, with the Center and the South seeing notable increases (Table 5.2).

Figure 5.2: The share of migrants in main cities has fallen in the Center and the South.



Source: World Bank elaboration based on IHS5.
Notes: Main cities are composed of Mzuzu (north), Lilongwe (center), Blantyre (south) and Zomba (south). Main cities were scaled for better contrast (urban rest omitted), making them look bigger than they are.

The poverty rate of migrants during the last decade remained relatively stable at the national level but it contains relevant heterogeneities. The relative stagnation in the poverty rate of migrants, together with the dynamic of migration flow, caused the incidence of migrants in poverty to fall. In 2019, for example, only 12 percent of all poor households were migrants, while in 2010 they accounted for almost 18 percent of the country's total poverty (Table 5.3). Again, there are differences across regions. In urban areas and in the Rural North and the southern city of Zomba – and only in those areas – the poverty rate of migrants has fallen. The evidence suggests these migrants either has relatively higher productivity or by the better opportunities.

Table 5.3: Migration during the last decade has contributed to the differential poverty evolution between regions

	2010				2019/2020			
	Poverty rate (Total)	Poverty rate (Migrants)	% Migrants	Migrants' incidence on Total Poverty	Poverty rate (Total)	Poverty rate (Migrants)	% Migrants	Migrants' incidence on Total Poverty
National	**51%**	**36%**	**25%**	**17.6%**	**50.7%**	**35.7%**	**17%**	**12.0%**
Urban	17%	13%	51%	38.1%	19.2%	15.3%	33%	26.4%
Main cities	15%	12%	51%	39.7%	14.8%	12.5%	34%	28.8%
North main city (Mzuzu)	16%	15%	64%	58.4%	11.5%	8.0%	54%	37.5%
Center main city (Lilongwe)	22%	14%	52%	32.9%	15.6%	15.8%	31%	31.2%
South main city (Blantyre)	7%	7%	48%	44.7%	14.9%	11.3%	32%	24.4%
South main city (Zomba)	16%	14%	49%	42.8%	13.5%	9.8%	39%	28.2%
Urban rest (other cities, towns)	28%	20%	49%	35.4%	34.3%	27.0%	28%	22.1%
Urban rest (North)	27%	24%	43%	37.6%	25.2%	16.2%	38%	24.4%
Urban rest (Center)	21%	14%	58%	39.2%	38.7%	28.3%	27%	19.8%
Urban rest (South)	36%	27%	44%	32.5%	34.7%	32.9%	24%	22.7%
Rural	57%	46%	21%	17.2%	56.6%	44.4%	14%	11.0%
North rural areas	60%	53%	33%	29.3%	35.9%	27.0%	24%	18.0%
Center rural areas	49%	39%	19%	15.2%	62.8%	51.4%	15%	12.3%
South rural areas	63%	49%	19%	14.8%	56.7%	46.4%	11%	9.0%

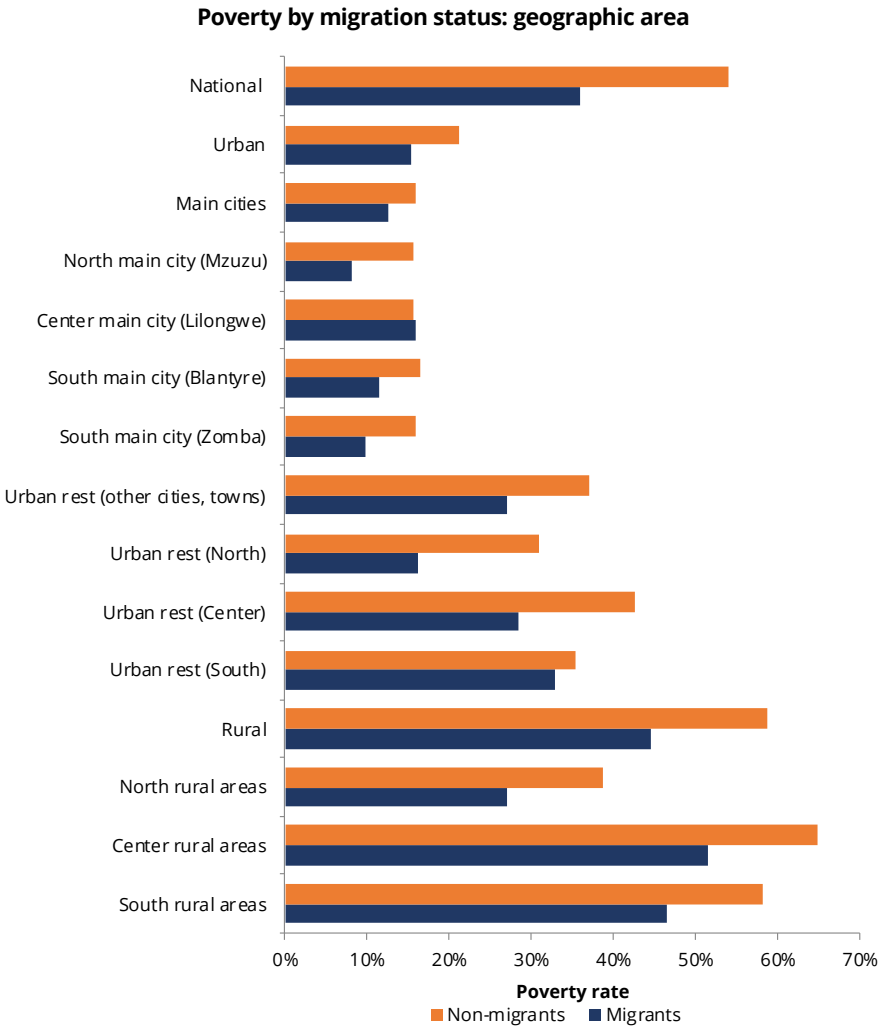
Source: World Bank elaboration based on IHS5.

Regional differences suggest migration's role in reducing poverty

Migrants tend to be less poor than non-migrants, so internal migration probably changed the poverty profile by region because (Figure 5.3). This result holds for all the country's different regions and cities, often by a very significant margin. In fact, the poverty differences between groups are considerable, particularly in the towns and cities of the Urban North.

The higher the population share of migrants in any given region, the lower the poverty rate tends to be. In 2019, migrants represented 17 percent of the total population. This share differs significantly among regions and is negatively correlated with the poverty rate (Figure 5.4). For instance, the country's main cities showed the largest share of migrants and the lowest poverty levels. In rural areas, the opposite result trend prevails. The North shows the best performance within each major geographic area of the country (main cities, urban rest, and rural). The relatively high share of migrants in the Rural North is noteworthy as this coincides with it having the lowest poverty rate of all rural areas.

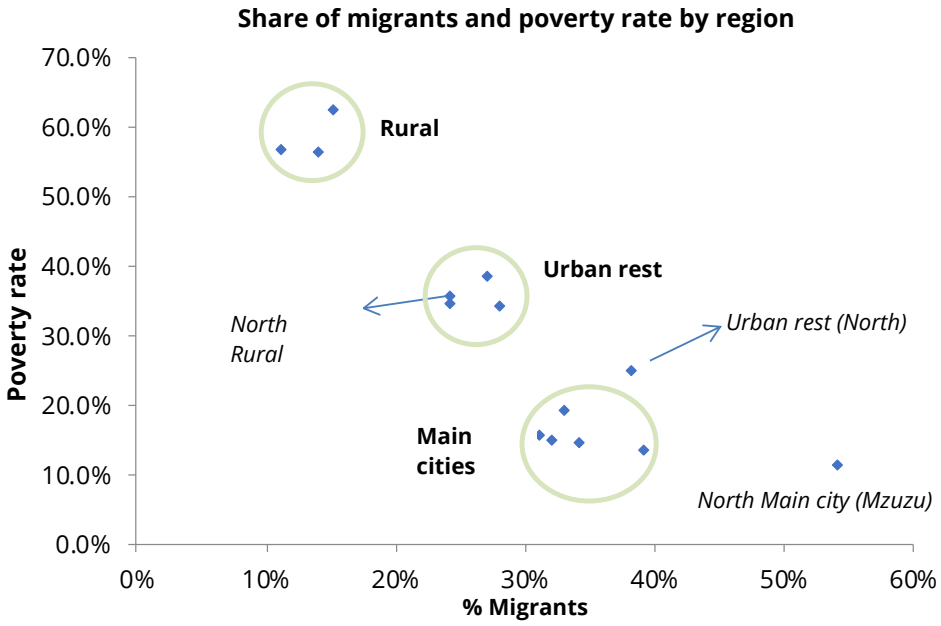
Figure 5.3: Migrants are less poor than non-migrants



Source: World Bank elaboration based on IHS5.

The differential poverty level between migrants and non-migrants probably has multiple reasons. Migrants are distributed more in urban areas and more among the highest expenditure quintiles (Table 5.4). In addition, on average, migrants show a higher educational level, live in smaller households, have fewer children, and engage in work outside of agriculture or *ganyu*.

Figure 5.4: The North shows the lowest poverty rate and the highest share of migrants within each area of the country (main cities, urban rest and rural)



Source: World Bank elaboration based on IHS5.

Table 5.4: Migrants have on average a better socioeconomic profile than non-migrants

Socioeconomic Characteristics	Migrants	Non-migrants
Poverty Status		
Poverty rate	36%	54%
Regions		
Urban	*30%*	*13%*
Main cities	24%	10%
North main city (Mzuzu)	4%	1%
Center main city (Lilongwe)	10%	5%
South main city (Blantyre)	8%	4%
South main city (Zomba)	1%	0%
Urban rest (other cities, towns)	6%	3%
Urban rest (North)	1%	0%
Urban rest (Center)	2%	1%
Urban rest (South)	2%	1%

Socioeconomic Characteristics	Migrants	Non-migrants
Rural	*70%*	*87%*
North rural areas	15%	10%
Center rural areas	31%	37%
South rural areas	24%	40%
National expenditure quintiles		
Poorest 20%	12%	22%
Second 20%	16%	21%
Middle 20%	17%	21%
Fourth 20%	21%	20%
Richest 20%	34%	17%
Age groups		
0-14	20%	49%
15-29	33%	26%
30-64	41%	21%
65+	6%	4%
Education level (Remanent: No info)		
None	10%	15%
Some Primary	48%	62%
Complete Primary/Some Secondary	37%	22%
Complete Secondary or more	4%	1%
Household Head gender		
% Female Household Head	20%	29%
Household Composition		
number of members	5.02	5.42
number of children	2.58	3.03
Main activity		
Ganyu	31%	40%
HHB	17%	11%
Paid	17%	8%
Agriculture	35%	41%

Source: World Bank elaboration based on IHS5.

Most residents in main cities are migrants, while in the rest of the country a large majority of residents were born in the same district. According to the most recent national census (2018), there are significant regional differences in the incidence of migration. As shown in Table 5.5, almost 60 percent of total inhabitants of main cities are migrants who moved either from other main cities or from non-main cities of the country. In contrast, most residents of the population in non-main cities are non-migrants.

Table 5.5: The share of migrant in main cities is considerably higher than in the rest of the country

	Born				
Residence	Same Main City District	Other Main City District	Same Non-Main City District	Other Non-Main City District	Outside Malawi
Main City District	43%	6%		50%	1%
Non-Main City District		2%	86%	11%	1%

Source: World Bank elaboration based on NSO 2018 National census.

Residence and migration status correlates strongly to Malawian's socioeconomic achievement. The 2019 IHS survey reveals that decisions by individuals to migrate and to live in the main cities is generally associated with a better socioeconomic profile (Table 5.6). Migrants are invariably better off, particularly those who moved between main cities; the group with the lowest poverty rate are migrants who moved to a major city from another main city. Residing in major cities is also associated with higher levels of education and lower poverty rates than in non-major cities. Put another way, migrants have better economic outcomes than non-migrants, and both their origin and destination also help explain their socioeconomic status.

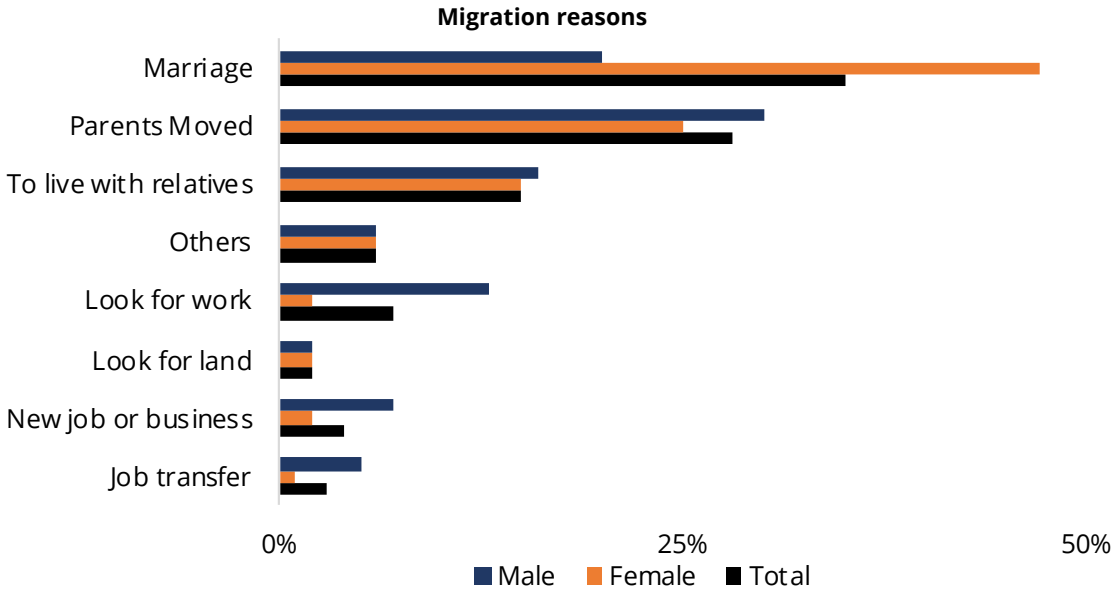
The causes of migration are diverse but are particularly motivated by family reasons. We find that marriage stands as the main reason to migrate (Figure 5.5), followed by other family reasons (e.g., parents moving to live with relatives). Work-related reasons for migration are also important, but much less relevant than other categories. Within each reason, some gender gaps appear. Women are more likely than men to have migrated due to marriage, for instance. In contrast, men are more likely to migrate for work-related reasons.

Table 5.6: Migration to and from the main cities is associated with a better socioeconomic profile

Reside	Migrant Class	Poverty rate	No certificate (ages 15+)	Primary certificate (ages 15+)	Secondary or higher certificate (ages 15+)	Labor force participation (ages 15+)	Labor force participation (excluding agriculture) (ages 15+)
Non major city	Non Migrant	58%	74%	20%	6%	75%	34%
	Migrant (from Non major city)	44%	66%	25%	10%	81%	39%
	Migrant (from Major city)	29%	47%	30%	23%	81%	42%
Major city	Non Migrant	16%	33%	36%	30%	60%	59%
	Migrant (from Non major city)	14%	35%	35%	30%	70%	70%
	Migrant (from Major city)	2%	16%	39%	45%	62%	68%

Source: World Bank elaboration based on IHS5.

Figure 5.5: Although migration is motivated especially by family reasons, a significant gender gap arises in this regard



Source: World Bank elaboration based on IHS5.

The reasons to migrate are also important for understanding additional poverty heterogeneities. Conditional on the place of origin and the destination of migrants, migration for work-related reasons is associated with lower poverty rates than the migratory flow due to family reasons (Table 5.7). Both causes of migration show the same poverty heterogeneities highlighted above. Notably, migrants in main cities who came from another main city show the lowest poverty levels, while migrants moving between non-main cities exhibit the highest poverty rates.

Table 5.7: Migrants' poverty rates differ considerably according to the reason for migration and the type of migratory flow

Reason for Migration	Moved		Poverty rate
	From	to	
Familiar reason	Main Cities	Main Cities	2.6
	Main Cities	Non-Main Cities	29.9
	Non-Main Cities	Main Cities	14.9
	Non-Main Cities	Non-Main Cities	46.3
Work related reason	Main Cities	Main Cities	1.8
	Main Cities	Non-Main Cities	20.3
	Non-Main Cities	Main Cities	14.2
	Non-Main Cities	Non-Main Cities	33.6

Source: World Bank elaboration based on IHS5.

Poverty levels by reasons to migrate also differ at a more disaggregated geographical area (Table 5.8). The poverty rate of migrants is not only lower than that of non-migrants, but also the level of deprivation among those migrating for work is lower than for those who have moved due to family reasons.

Table 5.8: Migration for work is related to lower poverty rates than migration due to family reasons

	Poverty rate				
Region	Total	Non migrants	Migrants	Migrants (familiar reasons)	Migrants (work reasons)
National	51%	54%	36%	39%	23%
Urban	19%	21%	15%	16%	14%
Main cities	15%	16%	13%	13%	12%
North main city (Mzuzu)	11%	16%	8%	10%	5%
Center main city (Lilongwe)	16%	16%	16%	17%	14%
South main city (Blantyre)	15%	17%	11%	11%	15%
South main city (Zomba)	13%	16%	10%	11%	8%
Urban rest (other cities, towns)	34%	37%	27%	28%	23%
Urban rest (North)	25%	31%	16%	19%	14%
Urban rest (Center)	39%	42%	28%	27%	28%
Urban rest (South)	35%	35%	33%	35%	24%
Rural	57%	59%	44%	47%	31%
North rural areas	36%	39%	27%	29%	19%
Center rural areas	63%	65%	51%	54%	37%
South rural areas	57%	58%	46%	48%	35%

Source: World Bank elaboration based on IHS5.

In urban areas, both the share of total migrants and the relative incidence of work migrants are higher than in rural areas. The country's main cities and its remaining urban areas have a higher proportion of total migrants than rural areas (Table 5.9). The relative share of migrants who moved for work-related reasons in urban areas (27 percent) is almost double the corresponding proportion in rural areas (14 percent). Mzuzu, the main city in the North, has received the highest flow of work migrants in relative terms. This group represents 17 percent of the total population in Mzuzu and more than 30 percent of the total migrants living in this main city. In contrast, those who migrated for work in the rural areas of the Center and South represent 13 percent and 9 percent of total migrants, respectively.

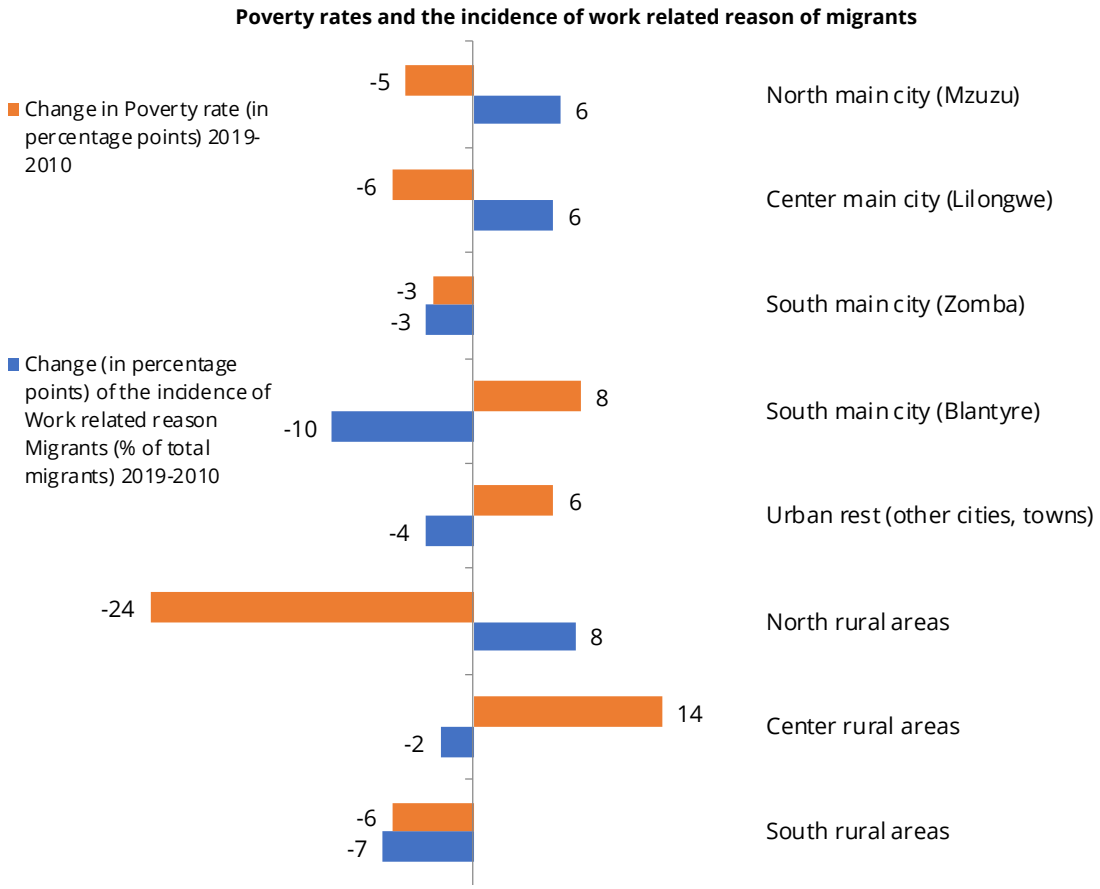
Table 5.9: The migratory flow in urban areas is composed of a significantly greater share of work migrants than in rural areas

Region	% Migrants (Total)	% Migrants (Familiar reason)	% Migrants (Work related reason)	Work related reason Migrants (% of total migrants)
National	17%	13%	3%	18%
Urban	33%	22%	9%	27%
Main cities	34%	23%	10%	29%
North main city (Mzuzu)	54%	33%	17%	31%
Center main city (Lilongwe)	31%	21%	9%	29%
South main city (Blantyre)	32%	22%	8%	25%
South main city (Zomba)	39%	25%	9%	23%
Urban rest (other cities, towns)	28%	20%	7%	25%
Urban rest (North)	38%	26%	11%	29%
Urban rest (Center)	27%	18%	8%	30%
Urban rest (South)	24%	19%	5%	21%
Rural	14%	12%	2%	14%
North rural areas	24%	19%	4%	17%
Center rural areas	15%	12%	2%	13%
South rural areas	11%	9%	1%	9%

Source: World Bank elaboration based on IHS5.

The evolving proportion of work-related migrants in each region is reflects poverty trends during the last decade. In most regions there is a negative relationship between poverty change and the evolution of the incidence of migrants who have moved for work-related reasons (Figure 5.6), notably in Blantyre, the only main city in which poverty grew in the last decade, and in much of the country's rural areas. In the Rural North, the strong reduction in poverty in the last decade has been accompanied by a remarkable increase in the incidence of work-related migrants. Despite this general result, the negative association between poverty trends and the evolution of work-related migration is not strictly evidenced for all regions. This face suggests a need for deeper research into the differential in the profiles of migrants received by each city and area of the country.

Figure 5.6: In most regions, poverty changes are inversely related to the evolution of the incidence of work-related migration



Source: World Bank elaboration based on IHS5.

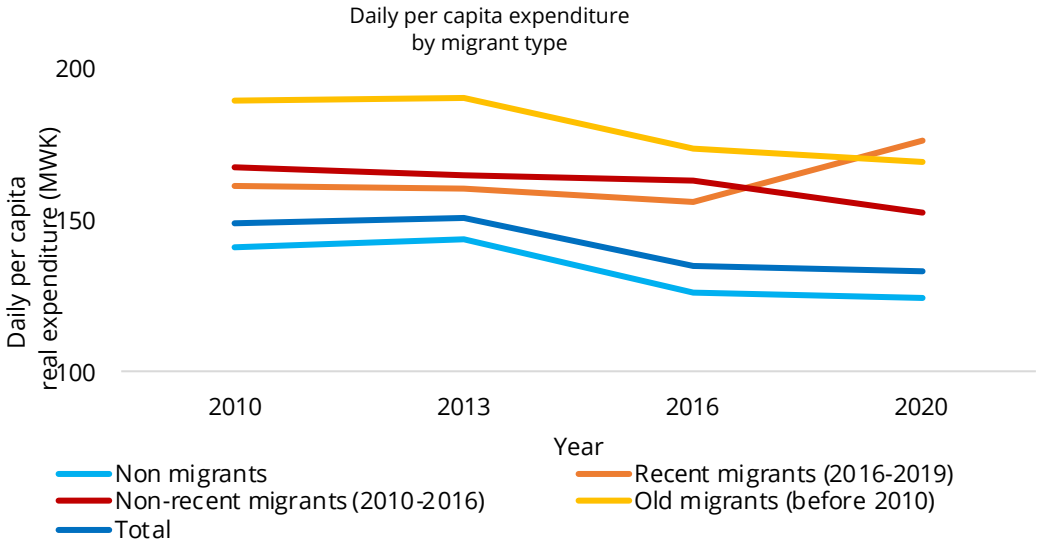
Migration had varied effects by region on poverty evolution in the last decade

The timing of the migratory flow in the last decade may explain further differences between migrants and hence to analyze in greater depth the incidence of migration on poverty in recent years. In this analysis, migrants are categorized into three separate groups depending on when they migrated: (i) recent migrants (i.e., those who migrated between 2016 and 2019); (ii) non-recent migrants (i.e., those who migrated between 2010 and 2016); and (iii) old migrants (i.e., those who migrated before 2010).

The average migrant spends more than a non-migrant. This trend accelerated particularly in the last years of the decade, just after this group of migrants moved. The differences between

non-recent migrants (2010-2016) and non-migrants have narrowed somewhat. Old migrants show the highest levels of expenditure during most of the period in question. Most likely they have achieved a different socioeconomic profile from long-term networks relative to more recent migrants. A strong downward expenditure trend is observed by old migrants in the last decade, which reverts the relative levels of expenditure among migrants in favor of the most recent (Figure 5.7).

Figure 5.7: Daily per capita expenditure evolution differs by migrant type and migration timing



Source: World Bank elaboration based on IHS5.

The thesis of higher spending by migrants than non-migrants is supported by additional evidence. Considering the expenditure trends between the first (2010) and last round (2019) of the household survey panel (IHSP5), a difference-in-difference exercise was conducted where treated individuals are migrants and non-treated individuals are non-migrants. The main results reveal a positive and significant expenditure growth of migrants relative to non-migrants during the last decade (Table 5.10). This is particularly explained by the performance of recent migrants.

Expenditure by work-related migrants increased significantly relative to both non-migrants and migrants for other causes (marriage and family reasons) between 2016 and 2019. Similarly, work migrants recorded the highest level of spending throughout this period (Figure 5.8). This group also ev-

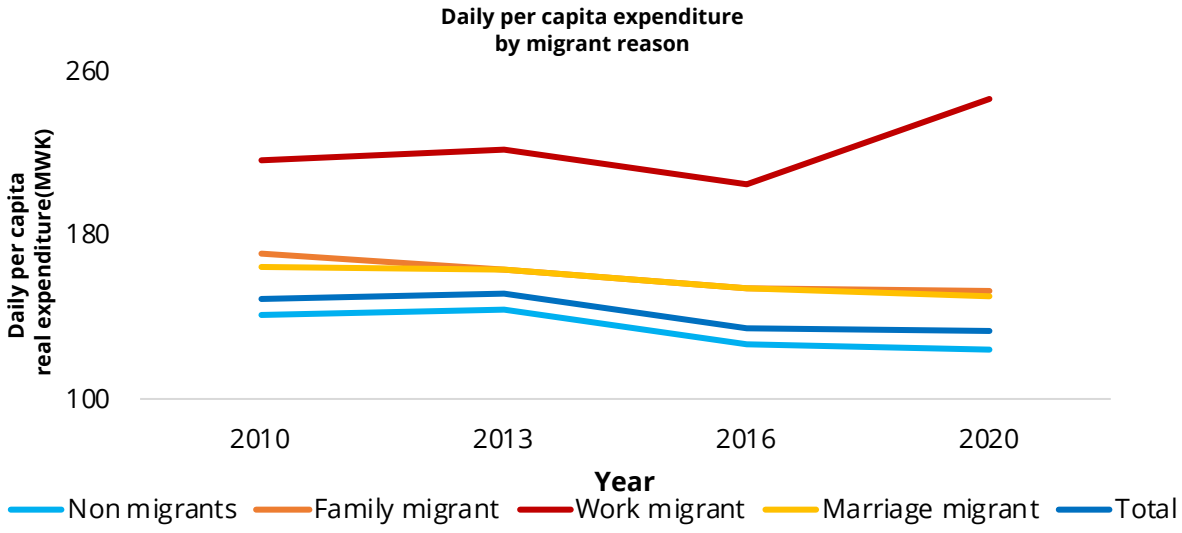
idenced a notable upward trend in expenditure in recent years, exacerbating the gap with the rest of the population. Similarly, a difference-in-difference exercise reveals a positive and significant change in expenditure during the last decade for work-related migrants relative to other migrants and non-migrants (Table 5.10).

Table 5.10: Difference-in-difference estimations evidence a considerable relative growth in real expenditure by recent migrants during the last ten years (2010-2019)

	Dependent variable: daily real per capita expenditure						
VARIABLES	Migrants vs non-migrants	Recent migrants vs non-migrants	Non recent migrants vs non-migrants	Old migrants vs non-migrants	Recent migrants vs non-recent migrants	Recent migrants vs old migrants	Non-recent vs old migrants
Did coefficient, migrants and panel round interaction	9.678**	42.71***	1.132	-5.626	41.58***	48.34***	6.759
	(4.236)	(7.863)	(7.336)	(5.308)	(12.56)	(10.76)	(9.657)
Panel round	-14.24***	-14.24***	-14.24***	-14.24***	-13.11	-19.87***	-19.87***
	(2.200)	(2.104)	(2.051)	(2.100)	(8.667)	(5.828)	(5.408)
Constant	154.4***	146.4***	147.2***	152.1***	166.3***	181.3***	183.4***
	(1.329)	(1.433)	(1.392)	(1.364)	(4.435)	(3.464)	(3.168)
Observations	8,752	6,678	6,778	7,544	1,060	1,826	1,926
R-squared	0.010	0.018	0.015	0.016	0.022	0.023	0.017
Number of pid	4,376	3,339	3,389	3,772	530	913	963

Source: World Bank elaboration based on IHPS survey.
*Note 1: DID = corresponds to the difference-in-difference coefficient. Standard errors in parenthesis. ***p<0.01, ** p<0.05, * p<0.1*

Figure 5.8: Daily per capita expenditure evolution differs by reason for migration



Source: World Bank elaboration based on IHPS surveys.

Table 5.11: Difference-in-difference estimations evidence a considerable relative growth in real expenditure by work migrants during the last ten years (2010-2019)

	Dependent variable: daily real per capita expenditure						
VARIABLES	Migrants vs non-migrants	Family migrants vs non-migrants	Work migrants vs non-migrants	Marriage migrants vs non-migrants	Work migrant vs marriage migrant	Work migrant vs family migrant	Marriage migrant vs family migrant
Did coefficient, migrants and panel round interaction	9.678**	1.391	45.23***	-0.327	45.56***	43.84***	-1.718
	(4.236)	(6.215)	(8.461)	(5.702)	(12.26)	(12.79)	(8.771)
Panel round	-14.24***	-14.24***	-14.24***	-14.24***	-14.57**	-12.85*	-12.85**
	(2.200)	(2.068)	(2.156)	(2.072)	(6.864)	(7.655)	(6.503)
Constant	154.4***	148.5***	149.9***	147.8***	180.6***	189.2***	168.8***
	(1.329)	-1.379	(1.474)	(1.365)	(4.022)	(4.337)	(3.086)
Observations	8,752	7,068	6,728	7,168	1,500	1,400	1,840
R-squared	0.010	0.015	0.017	0.015	0.018	0.017	0.011
Number of pid	4,376	3,534	3,364	3,584	750	700	920

Source: World Bank elaboration based on IHS surveys.
*Note 1: DID = Difference-in-difference coefficient. Standard errors in parenthesis. ***p<0.01, ** p<0.05, * p<0.1*
Note 2: The analysis focuses on individuals over 15 years old. Individuals fixed effects are considered.

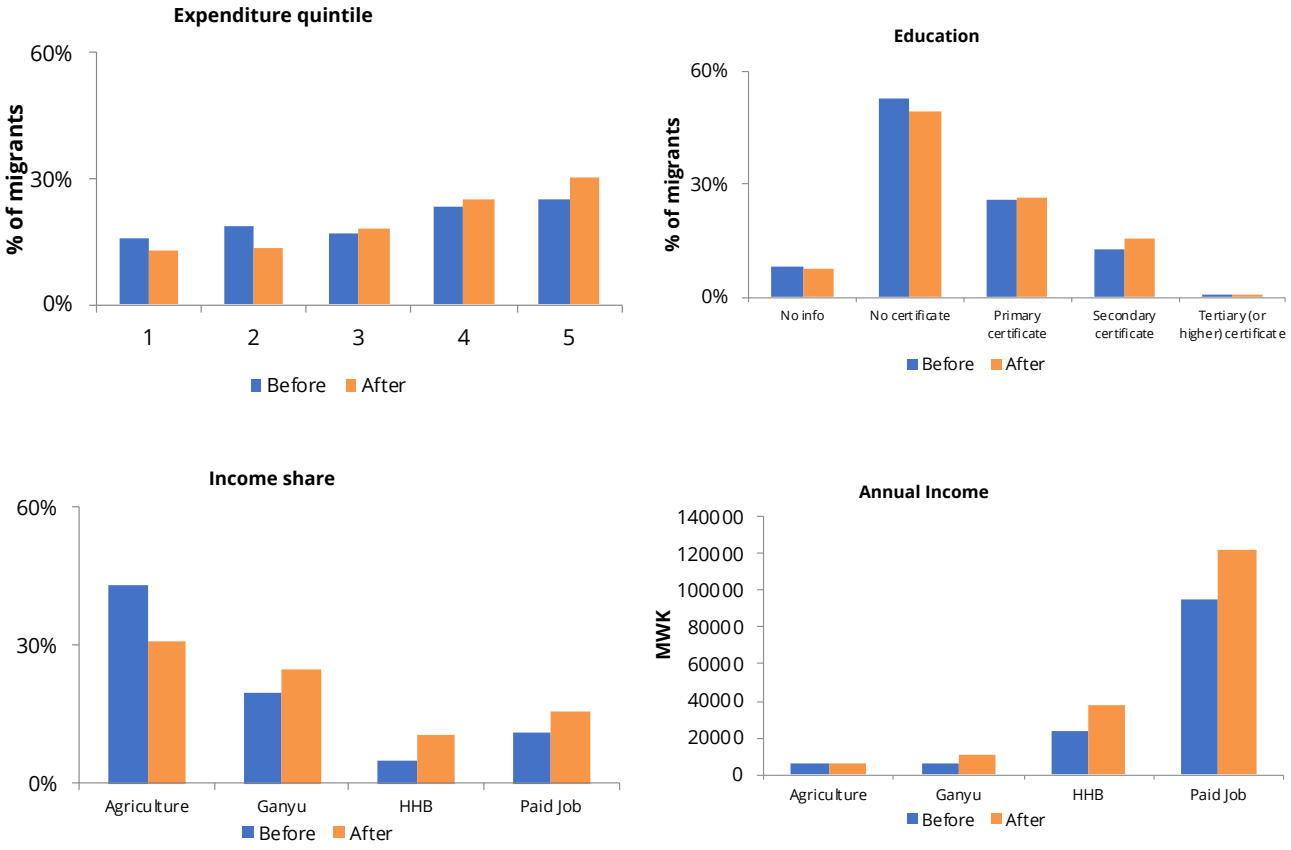
Table 5.12: The real per capita expenditure of migrants increased after migration

	2010 CS deflated daily pc expenditure	2010 CS deflated daily pc expenditure
Before and after	14.51***	13.44***
	((3.823)	((4.563)
Constant	163.7***	165.7***
	((2.895)	((5.46)
Round controls	No	Yes
Sample	All	All
Observations	2766.00	2766.00
R-squared	0.01	0.01
Number of pid	1725.00	1725.00

Source: World Bank elaboration based on IHS surveys.
*Note 1: Standard errors in parenthesis. ***p<0.01, ** p<0.05, * p<0.1. PID corresponds to unique person identifier.*
Note 2: The analysis focuses on migrants over 15 years old. Individual fixed effects are considered.

Individuals who migrate show significant improvements in their initial socio-economic conditions. Migrants see a considerable rise in their levels of real expenditure relative to their initial status (Table 5.12). Similarly, they experience an educational upgrading and better labor outcomes, except when they engage in agriculture (Figure 5.9).

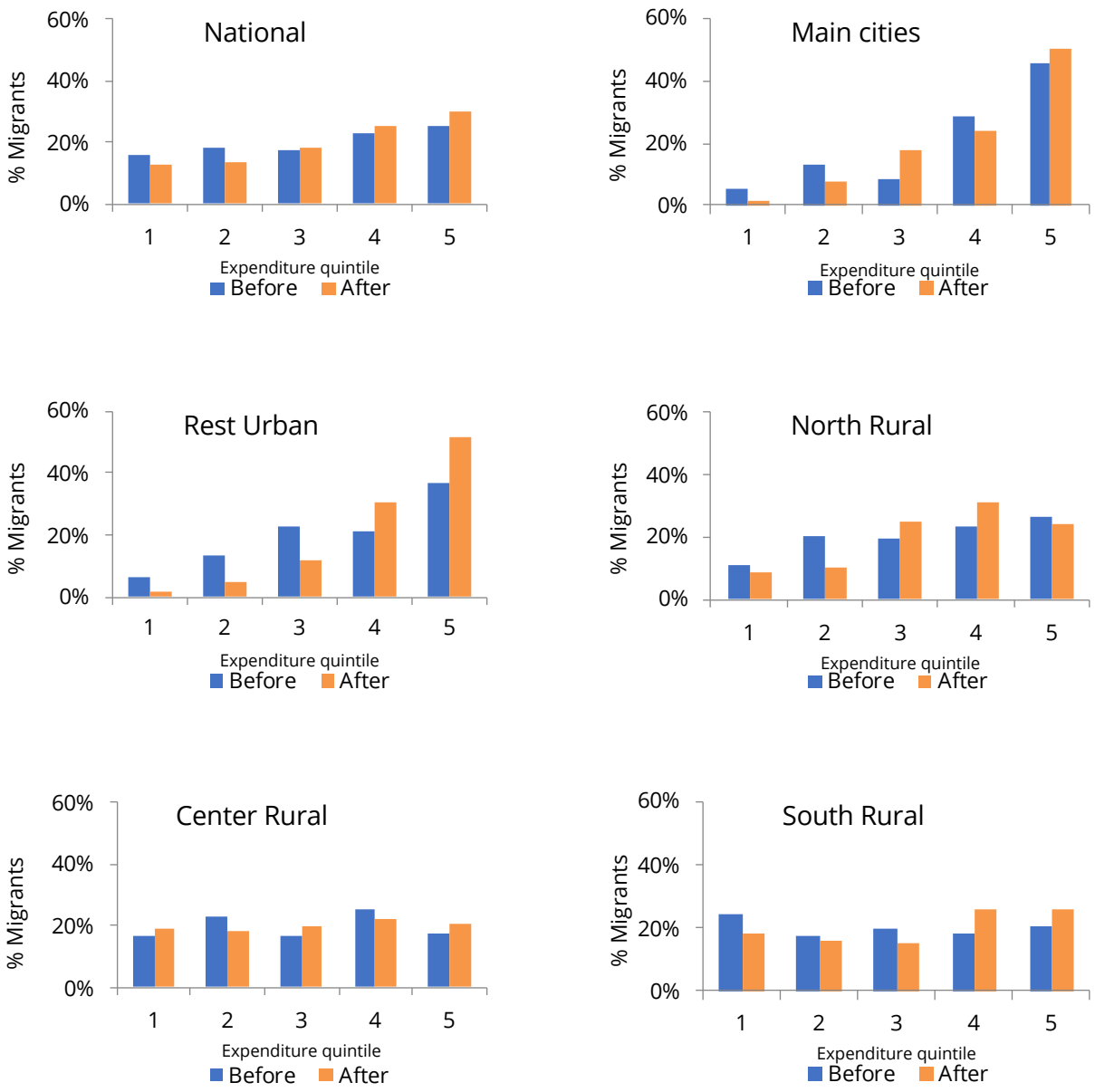
Figure 5.9: Migrants' socioeconomic characteristics improved after migration



Source: World Bank elaboration based on IHS surveys.

The distributive changes of migrants after migration also registered regional disparities. Migrants' welfare gains during the last decade seem to have been more important for individuals moving to urban areas than for those migrants in rural zones (Figure 5.10). Regarding the latter, the highest distributional incidence due to migration is observed in the Rural North.

Figure 5.10: Distribution of migrants before and after migration across national expenditure quintiles by region

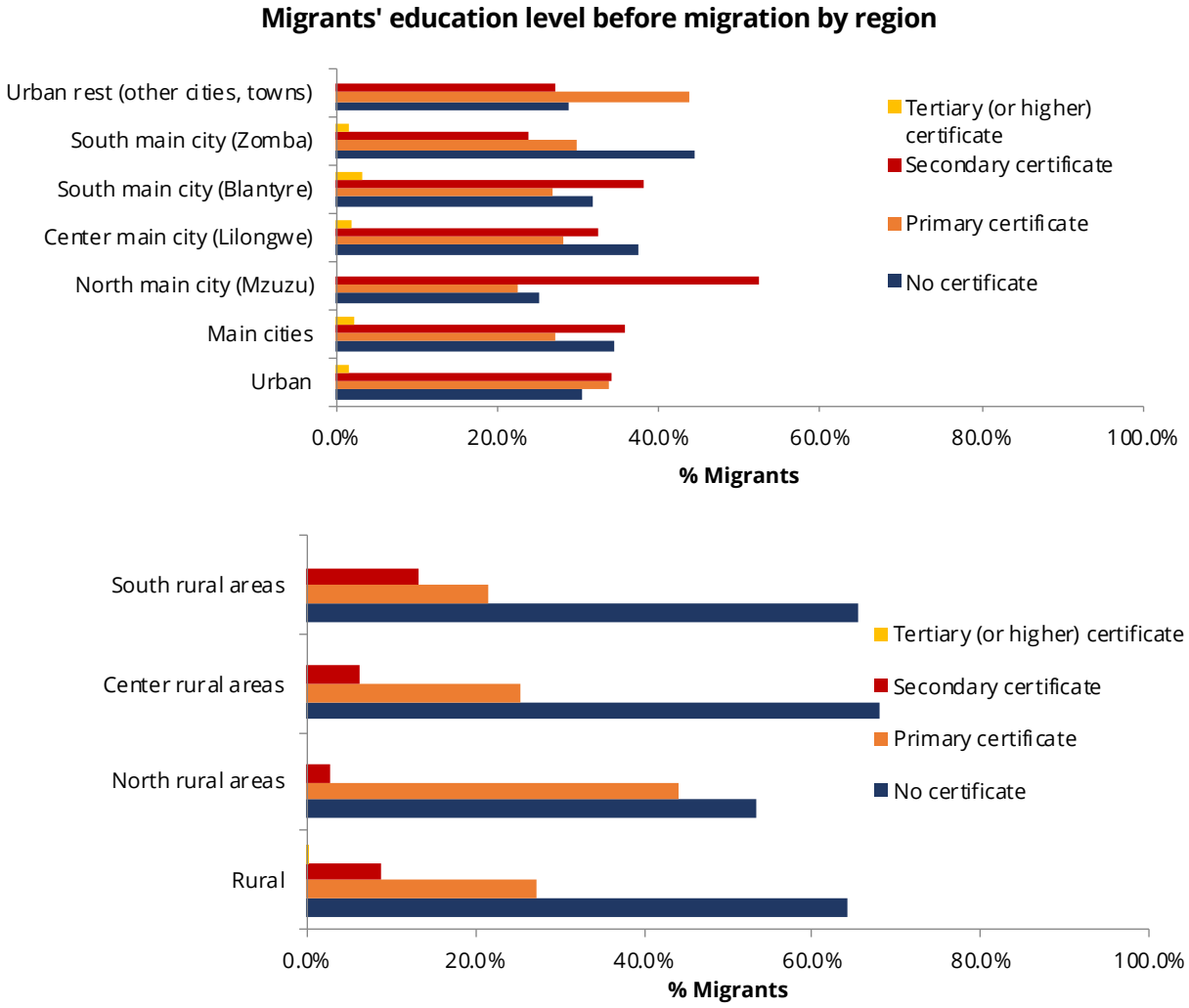


Source: World Bank elaboration based on IHS5.

The Rural North has received more educated migrants than other rural areas. Fewer of the migrants to the Rural North lack a school certificate and more of them have completed primary school. Similarly, the high percentage of individuals with secondary education migrating to Mzuzu (in the North) stands out when compared to the country's other main cities (Figure 5.11).

Workers who chose as their destination Mzuzu (North) show the most notable change in their income share from agriculture to household businesses and wage employment. Similarly, within rural areas, migrants who moved to the North reached the highest incidence in household businesses and the lowest in *ganyu* after migration (Table 5.13)

Figure 5.11: The North received more educated migrants during the last decade



Source: World Bank elaboration based on IHS5.

Table 5.13: Migrants' socioeconomic characteristics, before and after migration

	Before				After			
	Agriculture	Ganyu	HHB	Paid Job	Agriculture	Ganyu	HHB	Paid Job
Urban	40.7%	24.3%	7.6%	27.5%	20.5%	23.5%	20.1%	35.9%
Main cities	36.2%	24.1%	8.8%	31.0%	21.2%	23.4%	20.2%	35.2%
North main city (Mzuzu)	66.7%	5.1%	7.3%	20.9%	17.9%	15.8%	23.8%	42.5%
Center main city (Lilongwe)	37.1%	26.1%	5.4%	31.4%	25.5%	22.3%	17.9%	34.3%
South main city (Blantyre)	28.9%	24.2%	12.6%	34.3%	14.7%	26.0%	23.0%	36.4%
South main city (Zomba)	32.8%	29.6%	14.0%	23.6%	15.2%	28.8%	24.4%	31.7%
Urban rest (other cities, towns)	49.8%	24.5%	5.1%	20.6%	31.9%	25.8%	14.4%	27.9%
Urban rest (North)	57.3%	12.4%	0.0%	30.3%	38.5%	19.3%	19.8%	22.4%
Urban rest (Center)	38.1%	31.3%	0.0%	30.6%	24.3%	37.4%	11.5%	26.7%
Urban rest (South)	57.6%	21.2%	9.9%	11.2%	36.3%	18.0%	15.3%	30.4%
Rural	57.9%	25.4%	5.8%	10.9%	42.0%	32.1%	11.2%	14.8%
North rural areas	57.9%	23.7%	11.3%	7.0%	49.1%	25.2%	19.4%	6.2%
Center rural areas	63.8%	22.7%	4.3%	9.2%	45.4%	33.9%	8.5%	12.3%
South rural areas	51.1%	29.5%	5.4%	14.0%	33.6%	33.1%	11.4%	21.9%

Source: World Bank elaboration based on IHS5.

Non-migrants are relatively more concentrated in rural areas and migrants are relatively skewed towards urban areas. While the average rural area is more likely to have non-recent immigrants, the Rural North demonstrates an overrepresentation of old migrants. According to the reasons for migration, work migrants are relatively more concentrated in main cities, while family/marriage migrants are mainly in rural areas (Table 5.14).

Although the incidence of migrants is particularly important in urban areas, the Rural North has a large proportion of migrants that is higher than in most cities. While the Rural North evidences a large proportion of old migrants (unlike other rural areas), the main cities stand out for their high incidence of recent migrants relative to the Rural North. The proportion of family/marriage migrants is higher than work-related migrants in all rural areas. The incidence of work-related migrants is particularly high in main cities, as well as in small cities and towns in the South and Center (Table 5.15).

Table 5.14: Recent and work migrants are relatively focused on main cities, while in rural areas there is a relative overrepresentation of non-recent migrants and family migrants

Region	Total	Non migrants	All migrants	Recent migrants (2016-2019)	Non-recent migrants (2010-2016)	Old migrants (before 2010)	Family migrant	Work migrant	Marriage migrant
North main city (Mzuzu)	0.7	0.5	1.7	1.2	1.2	2.2	1.8	2.7	1.1
Center main city (Lilongwe)	6.9	6.2	8.8	10.9	4.3	11.1	8.7	16.4	5.4
South main city (Blantyre)	4.4	3.8	6.4	6.3	5.5	6.8	5.3	9.0	6.4
South main city (Zomba)	0.6	0.6	0.6	0.8	0.8	0.7	0.6	0.9	0.5
Urban rest (North)	1.2	1.4	0.7	1.5	0.8	0.3	1.0	0.5	0.6
Urban rest (Center)	0.7	0.4	1.7	1.8	3.1	0.9	1.7	3.1	1.2
Urban rest (South)	2.0	1.6	3.4	1.7	2.6	4.9	3.3	5.8	2.4
North rural areas	11.4	10.0	16.0	12.1	11.2	22.1	14.1	9.5	21.0
Center rural areas	33.1	33.8	30.8	30.8	36.4	27.6	30.9	27.5	32.3
South rural areas	38.9	41.7	29.8	32.9	34.2	23.4	32.6	24.7	29.1
Total	100	100	100	100	100	100	100	100	100

Source: World Bank elaboration based on IHS5.

Table 5.15: Urban areas and main cities stand out for their relative high incidence of recent and work migrants, while the composition of migrants in Rural North differs significantly from other rural areas

	Migrant type					Migration reason		
Regions	Non migrants	All migrants	Recent migrants (2016-2019)	Non-recent migrants (2010-2016)	Old migrants (before 2010)	Family migrant	Work migrant	Marriage migrant
North main city (Mzuzu)	49%	51%	9%	10%	32%	22%	14%	13%
Center main city (Lilongwe)	70%	30%	9%	4%	17%	12%	9%	7%
South main city (Blantyre)	68%	32%	8%	8%	17%	11%	8%	12%
South main city (Zomba)	74%	26%	7%	7%	12%	9%	6%	7%
Urban rest (North)	87%	13%	7%	4%	3%	8%	2%	4%
Urban rest (Center)	45%	55%	14%	27%	14%	22%	17%	15%
Urban rest (South)	62%	38%	4%	8%	26%	15%	11%	10%
North rural areas	68%	32%	6%	6%	21%	12%	3%	16%
Center rural areas	79%	21%	5%	7%	9%	9%	3%	8%
South rural areas	84%	16%	5%	5%	6%	8%	2%	6%
Total	**78%**	**22%**	**5%**	**6%**	**11%**	**9%**	**4%**	**9%**

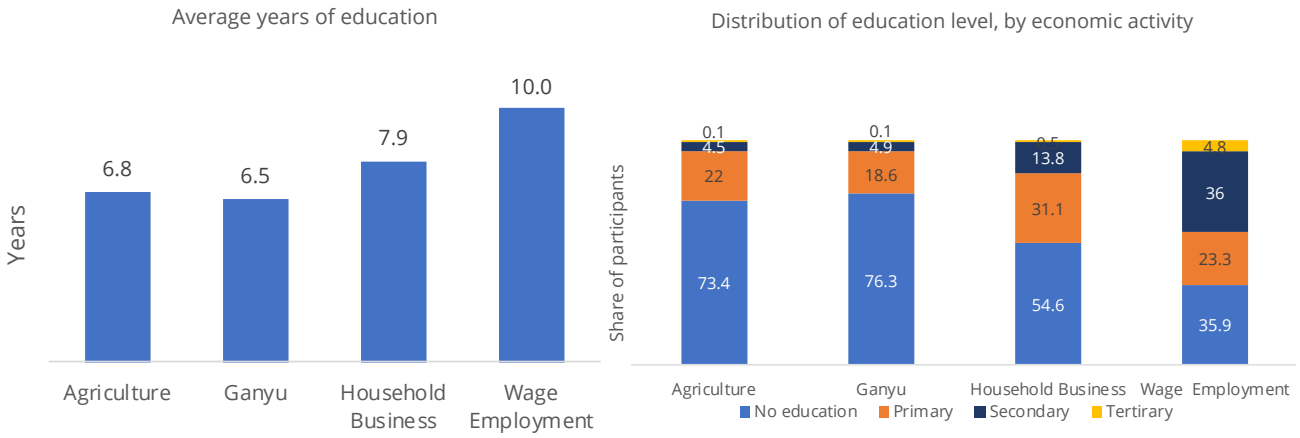
Source: World Bank elaboration based on IHS5.

6. Education as Hurdle: Low Levels of Schooling Hampers Productivity Growth

The dearth of formal education in Malawi is a persistent challenge, though not without signs of progress. More people are educated now than when the current elder generation was of school age. But to women and people in rural areas remain outliers, far less likely to have any formal education. Secondary education is particularly lacking by regional standards. A lack of financial resources accounts for much of deficit.

Nearly eight out of 10 Malawians aged 15 and older have no formal education. Women (70 percent) and people in the Rural Center (76 percent) and Rural South (77 percent) over¬whelmingly lack formal education (Figure 6.2). Only in urban ar¬eas is the trend different, with over 60 percent of the popula¬tion having either a primary or secondary certificate. Education is increasing although at a very slow pace. Comparing those aged 60-69 years old with those aged 20-29, for example, the share of individuals with a primary or secondary education has increased from 26 percent to 40 percent (Figure 6.2).

Figure 6.1: Participating in household businesses and wage employment implies higher levels of education

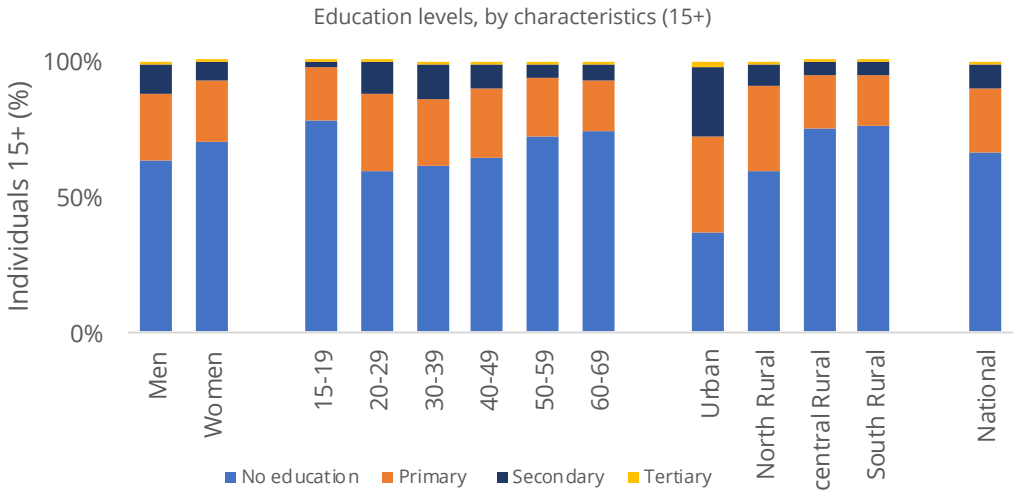


Source: World Bank calculations based on IHS5.

Secondary education shows particularly low levels of attainment, even by regional standards. Completion rates for lower secondary education registered around 22 percent in 2013, a rise of only 5 percentage points over the past decade (Figure 6.3), below comparable countries as well as that of the sub-Saharan region. In contrast, primary completion rates are slightly above the average for a comparable group of countries and for

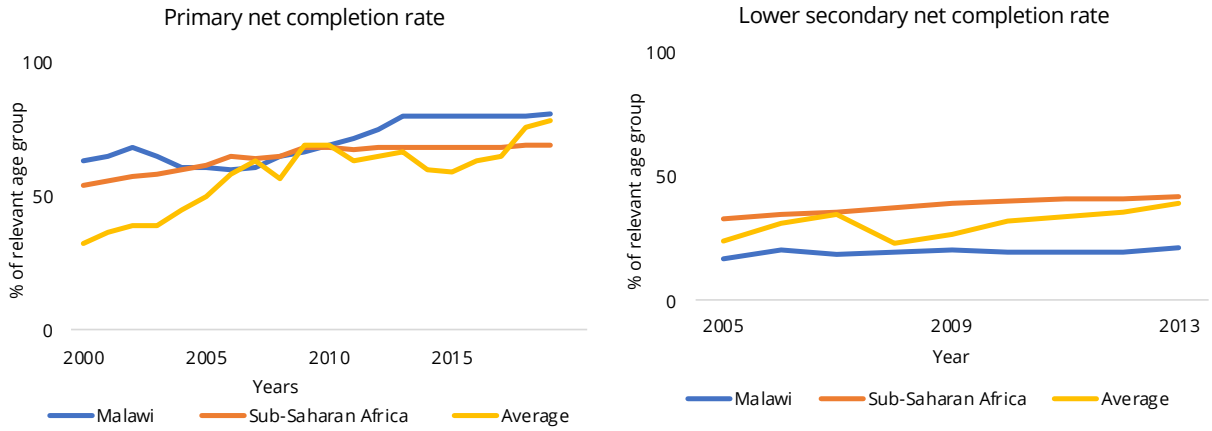
the sub-Sahara. By 2015, these rates stood at around 75 percent, an increase of 10 percentage points over the previous 15 years.

Figure 6.2: Malawi shows very low levels of education



Source: World Bank calculations based on IHS5.

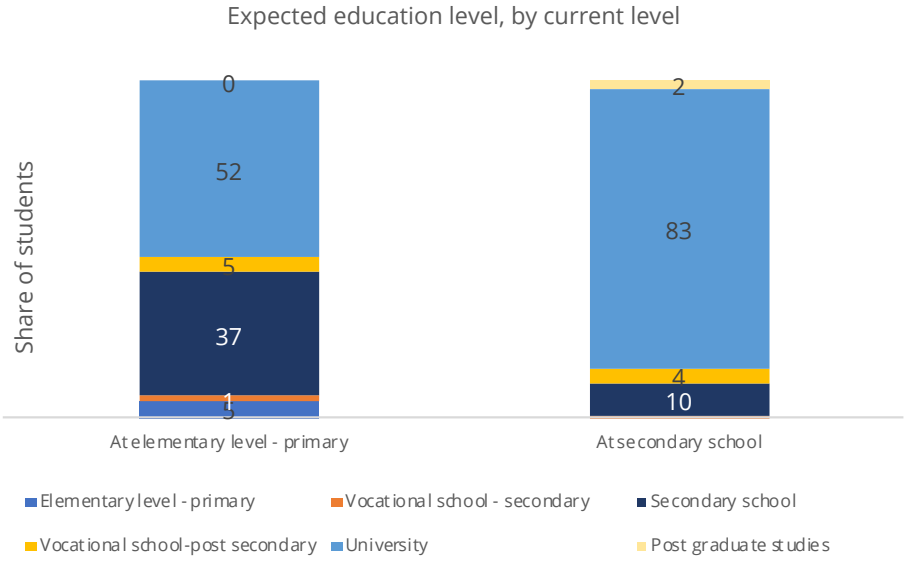
Figure 6.3: Low levels of education attainment



Source: World Bank calculations based on WDI.
Note: "Average" was calculated as the average among comparable countries, which comprise Ethiopia, Madagascar, Sierra Leone, Rwanda, Tanzania, Liberia, Mali, and Guinea-Bissau.

Students expect to go further than the low levels of education they typically receive. According to the School to Work Transition Survey[23], 36.6 percent of children currently in primary school expect to finish secondary school and more than half of them expect to pursue a university degree (Figure 6.4). Eight out of 10 children in secondary school expect to go to university, whereas only one in 10 assume that completing secondary school is the maximum level they will reach. However, children currently attending secondary school are a small proportion of the population.

Figure 6.4: Students show high expectations regarding educational achievement



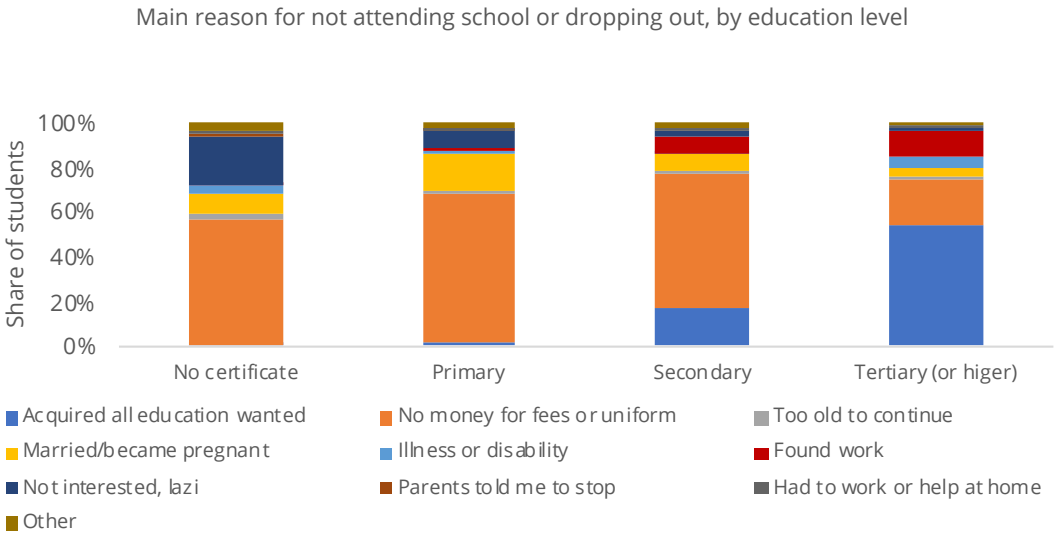
Source: World Bank calculations based on SWTS.

A lack of financial resources drives low education levels. Having no money for fees or uniform is the main reason for never attending school or dropping out (Figure 6.5). Finance is the barrier for 56 percent of individuals never attending school and over 60 percent for individuals dropping out of primary or secondary school. A shift is evident at the tertiary level, when "having acquired all the education wanted" is instead given as the primary reason for dropping out of education. Importantly "getting married or becoming pregnant" represents the second most

23 *The International Labor Organization - School to Work Transition Survey (ILO-SWTS) is a unique survey instrument that generates relevant labor market information about young people aged 15 to 29 years, including longitudinal information on transitions within the labor market. The survey was implemented in 2014 and is nationally representative of the youth population (15–29 years old), covering employed, unemployed, full-time students, and inactive youth.*

relevant reason for leaving school at the primary level. It accounts for 9.6 percent of those never attending school and 7.1 percent of those attending secondary. Finally, among those never attending school, the second most cited reason is that they were "not interested or lazy". This may highlight perceptions regarding the utility of school's curricula.

Figure 6.5: School costs are the main reason for dropping out or never attending school

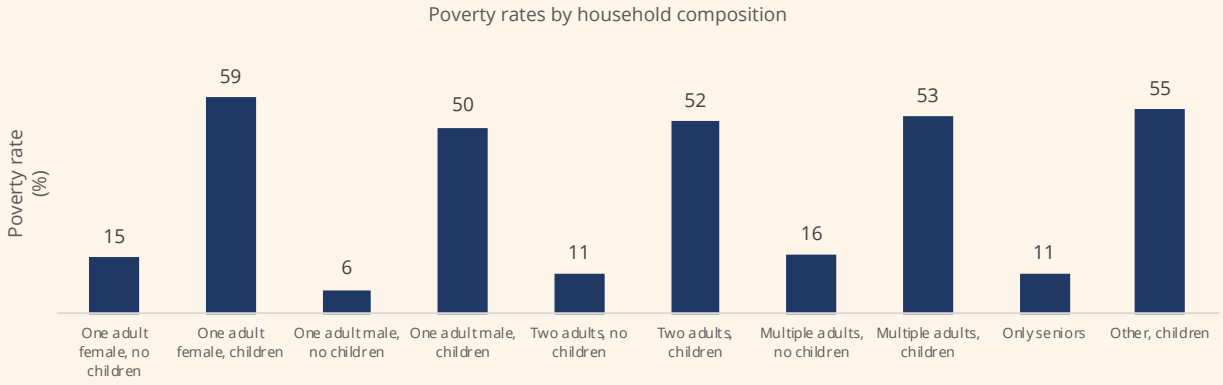


Source: World Bank calculations based on IHS5.

Box 9: Unequal educational achievement of women and gaps in the labor market

A gender assessment[24] shows that the vulnerability of women starts at early stages of life and extends through the life cycle. Currently, 51.4 percent of women live in poor households, while 50 percent of men do. In addition, significant gaps arise when looking at poverty through the life cycle. As in other African countries women are more likely than men to be poor during core productive and – for women – reproductive stages of life. In the same way, female adults with children are the poorest among all household compositions. Households with one female adult are particularly vulnerable to poverty (56 percent) and even more so if there are children in the household (59 percent). Among the elderly population, the poverty rate for women is also higher than for men (Figure 6.6).

Figure 6.6: Poverty rates, by presence of children and household composition



Source: World Bank calculations using IHS5.

Women face lower education levels than men. In 2015, 55.2 percent of women were literate in contrast to 69.8 percent of men (WDI, 2015). There is also a large gap in the secondary completion rates: 20.5 percent for women and 22.7 percent of men. In the same way, the rate out-of-school of youth upper secondary school age is considerably larger for women (75.8) in contrast to men (62.1).

Marriage and pregnancy have a strong impact on girl's educational attainment. Child marriage, even though its frequency has fallen, is still above the regional average. Early marriage and teenage pregnancy are the main

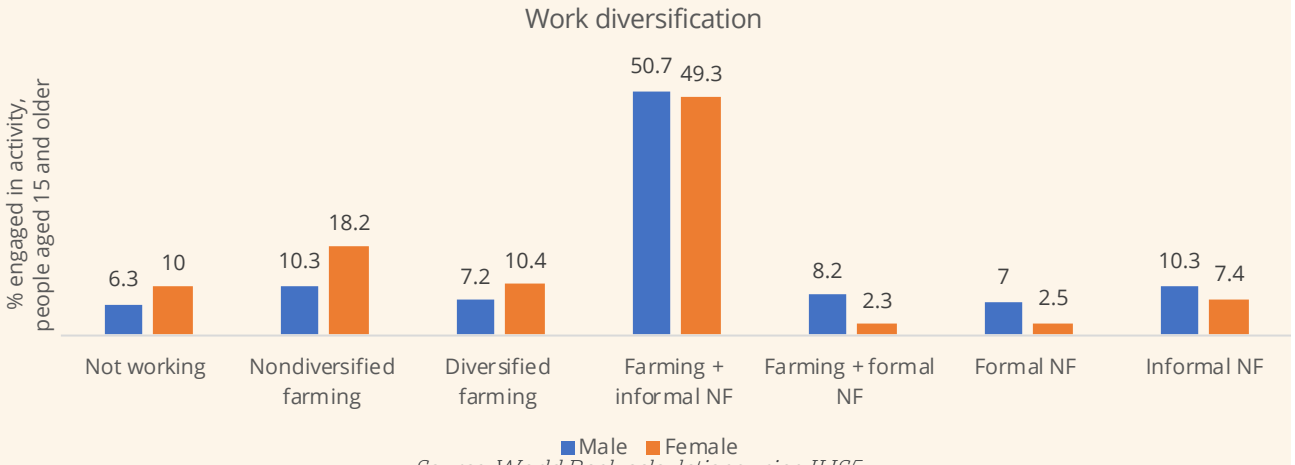
24 *Muller, M., Cardona, L., German, C. 2021. Poverty and Gender in Malawi. A background paper for the 2022 Malawi Poverty Assessment. World Bank.*

reasons why 16.1 percent of girls to drop out of school in contrast to the 2.1 percent of boys. The gender gap in dropout rates is even larger in secondary education (26.9 percent of women and 3.9 percent of men). Furthermore, among all girls age 15-19, 1 in 4 are married and do not attend school, and a third in that age group bear children (World Bank, 2018c). The 2014 School to Work Transition Survey (SWTS) also report that marriage made 24.4 of women to dropped it in contrast to the 7.1 of men. This is especially the case for girls in primary education (29.3 percent) and girls in university (23.7 percent).

Gender inequalities extend to the labor market, with more men working longer hours in economic activities than women. Even with the same education as men, at all levels of education – but especially secondary schooling – women are less likely to be in the labor force than men. While 66 percent of women participate, 76 percent of men do. In activities with larger returns, women work 214 fewer hours per year in wage jobs (4.5 hours less per week) and 405 fewer hours when working in business than men do (about 8.5 hours less per week).

Low quality jobs are more likely to be held by women. Women are more involved in low-paid activities that are also riskier. In contrast to men, women are less likely to diversify farm activities (Figure 6.7). While 12.4 percent of men are salaried workers, only 4.1 percent of women do so. Also, 48.3 percent of female salaried workers do not have a contract, in contrast to the 43 percent of women. While 20.9 of women are offer an old-age pension, 25.7 of men have this opportunity in their jobs. And 10 percent of women are out of jobs in contrast to 6.3 percent of men.

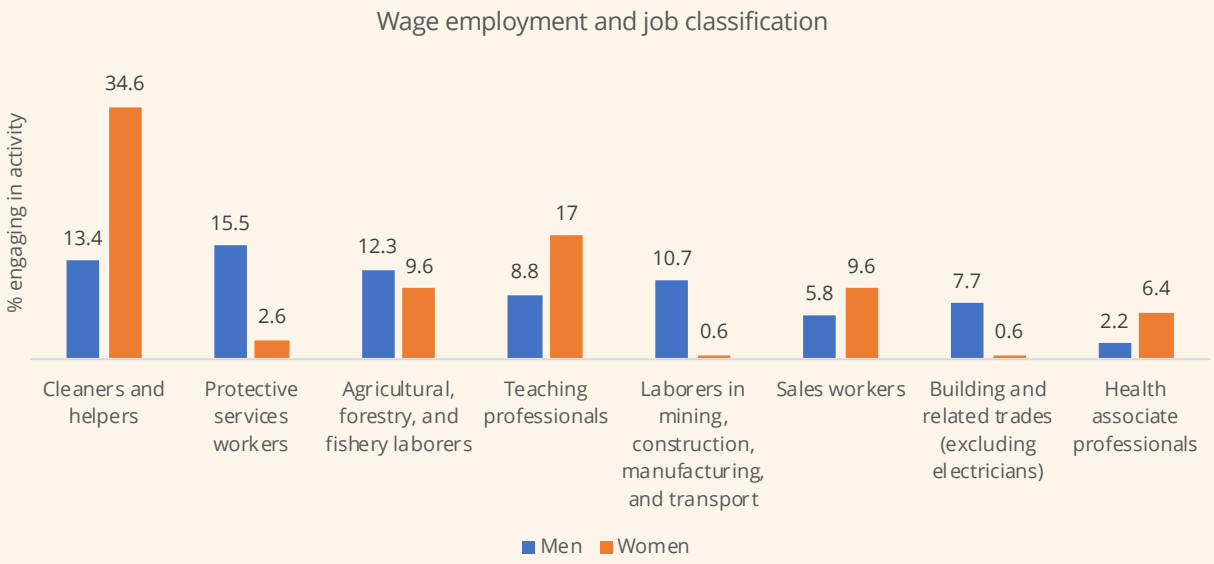
Figure 6.7: Degree of diversification of work, by gender



Source: World Bank calculations using IHS5.
Note: NF = nonfarming

Women are overrepresented in low paid jobs. Currently, 50 percent of women – but only 20 percent of men – are in salaried occupations with low salary: 17 percent are teachers and one third are cleaners or helpers (Figure 6.8). In contrast, men are more likely to be in jobs like manufacturing, transport, mining and construction. Finally, women's median annual income is 16 percent lower than men's (396.000 MKW vs 507.600).

Figure 6.8: Wage employment and job classification, by gender



Source: World Bank calculations using IHS5

7. Policy Recommendations

The findings of this report point to the importance of prioritizing polices for growth and social support that have the largest impact on the poor. Malawi has longstanding challenges to boost economic growth, including frequent external and policy-induced shocks. As policymakers consider the gamut of policy areas that can boost the economy, this work suggests prioritizing on the following:

Improving livelihood options for the poor, both in the agriculture sector where most of the poor currently work and in other sectors:

- **Increasing agricultural productivity to enhance the earnings of rural households.** Efforts to enhance agricultural productivity could include strategies such as diversification of crops and enabling access to value chains. The latter goal would be served by improving the connection of poor farmers to intermediaries and adopting 'disruptive' agricultural technologies (DATs) that use digital platforms and other low-cost systems (text messages) that connect farmers to buyers and suppliers and provides technical information on raising productivity. Similarly, implementing mitigation strategies such as adopting climate smart agriculture including planting crops that are more climate change resilient, would overcome part of the effects of the climate change.

- **Improving non-farm employment options, for example by redoubling on-going Government efforts to support the private sector to create jobs and pull labor out of agriculture and incentivize rural-urban migration.** Government is pursuing a number of measures to improve the business environment by lowering the cost of regulatory compliance, removing barriers to financial literacy and inclusion, and designing tailored support to small- and medium-sized enterprises during their start-up and growth phases. These efforts could have large poverty reduction impacts. Increasing the rate of job creation in urban areas, strengthening the business environment as well as improving basic infrastructure such as roads and housing, will facilitate migration from rural to urban areas into more productive jobs. Attracting FDI will facilitate linking Malawian businesses to global markets.

Addressing determinants of unequal opportunity, especially low completion rates for secondary education. The government should help families to alleviate financial constraints that drive their children out of the school system. Similarly, it should consider those constraints when targeting cash transfers to households. In the same way, more secondary schools and teachers are needed in the country to absorb the share of those already attending primary education. There should be a focus on keeping girls in school much longer e.g., through improved water sources and sanitation facilities at schools.

Redirecting or adapting existing social programs to target households that are highly exposed to climate shocks. Current social transfer programs reach fewer than 5 percent of households affected by shocks. The government should identify low-income households exposed to climate shocks and redirect existent support. To identify those households, Malawi needs timely data and continuous monitoring of the impact of unexpected events. The government conducts its integrated household survey every three years, but shocks can happen when data are not collected. Short surveys collecting monthly data using local enumerators such as through the Rapid Frequent Monitoring System (RFMS)[25] has shown to produce rapid and frequent monitoring would provide real-time tracking of poverty, food security, livelihoods, coping strategies (including humanitarian aid), and shocks.

25 *The World Bank has co-designed with USAID, FCDO, Catholic Relief Services (CRS), Cornell University, and the Malawi National Statistics Office (NSO) a Rapid Frequent Monitoring System (RFMS) to collect household-level data every month in the rural South*

Annex 1 Methodology for Poverty Measurement

1. Introduction

The fifth Integrated Household Survey (IHS5) is a multi-topic survey implemented by the National Statistical Office (NSO) of Malawi between April 2019 to April 2020. Like its predecessor, IHS4 (2016/17), this survey provides socioeconomic indicators that are representative at district level. In IHS5 the sample selection is based on a sampling frame using the 2018 population census. The sampling frame used in both surveys includes the three regions (North, Central, and South) and is stratified into rural and urban strata. The urban stratum includes the four major cities (Lilongwe, Blantyre, Mzuzu, and Zomba). In both surveys, a stratified two-stage sampling design is used. The IHS5 and IHS4 collected information from 11,434 and 12,447 households, respectively. Both surveys were conducted using the Computer-Assisted Personal Interviewing (CAPI).

The purpose of this note is to describe the methodology used to measure monetary poverty using IHS5 data. To conduct poverty analysis, we need two main sets of information: (a) a welfare indicator that ranks individuals and (b) a threshold welfare level (that is, poverty line) below which an individual is considered as poor. To rank the population from the person with the lowest to the highest welfare level, the total expenditure on food and nonfood items is used. Individuals with the welfare indicator below and above the poverty line are classified as poor and nonpoor, respectively.

The rest of the report is organized as follows. Section 2 outlines the steps in the construction of the nominal consumption aggregate and adjustments for living cost differences and household size. Section 3 describes the derivation of the poverty line, and finally Section 4 presents the poverty measures used in this report and the poverty estimates.

2. Welfare indicator

Previous poverty measurement studies have reached some consensus on the use of monetary values as an indicator of welfare/living standard, and this approach is regularly employed for poverty monitoring and analysis. Although the monetary indicator of welfare does not cover all aspects of human well-being, it captures a central component of any assessment of living standards. In developing countries such as Malawi, it is also a common practice to use consumption expenditure as the preferred welfare indicator because it is likely to be a more accurate measure of living standards than income. The following subsections describe the construction of aggregate consumption expenditure by component: food, nonfood, durables, and rent expenditures.

2.1 Consumption aggregate

Food component

Measurement of food consumption is critical for poverty analysis as food is basic for human survival and standard of living. The food module of IHS5 collects data on the food consumed in the household over the past one-week recall period. More specifically, consumption information was collected on 142 food items from the most knowledgeable member of the sampled household. To make the data collection and analysis easier, these food items were organized into 11 categories: cereals, grains, and cereals products; roots, tubers, and plantains; nuts and pulses; vegetables; meat, fish, and animal products; fruits; cooked food from vendors; milk and milk products; sugar, fats, and oil; beverages; and spices and miscellaneous.

During the construction of the food component of total consumption, several considerations and adjustments were made. First, all major sources of food consumption are accounted for. These include purchases, own-production, gifts, and other sources.

Second, the survey has focused on actual consumption of food items as opposed to total purchases or total own-production. This distinction is important as not all purchased and/or own-produced items get consumed over the same period by all households. Indeed, many farm households cultivate crops not just for own consumption but for the market as well.

Third, to get aggregate food consumption, monetary values of both purchased and non-purchased items were calculated. Because the survey collects information on both quantity and expenditure on purchased food items, unit values were constructed by dividing expenditure with quantity consumed. Consumed values, prices and quantities were winzorized at 5th and 95th percentile to deal with exceptionally low or high levels. These unit values are then used to calculate monetary values of non-purchased food items. However, adjustments must be made on unit values as they reflect not only price differences between different items but could also capture quality differences for the same item. This is particularly relevant if the item has many varieties and the IHS survey instrument did not capture these varieties separately. To deal with quality differences in unit values in IHS5, median unit values were calculated for each item at several levels with both geographical and time dimensions. Geographical disaggregation includes district, urban and rural areas, and national. In these disaggregations, the survey month and year are taken into consideration. Thus, if a sampled household consumed a food item that was not purchased, the median unit value from its district and matching survey time would be used to value that consumption. If no other household consumed the same item in that district during the same survey month, or if there are not enough observations to obtain a reliable unit value, the median unit value from the immediate upper level (in this case urban or rural areas) during the same survey month and year would be used to estimate the value of that consumption.

Finally, to reduce cognitive and informational burdens on surveyed households, respondents were allowed to report their quantity consumption in nonstandard and local units such as heaps and pails. These units were transformed into kilograms using new NSO-provided conversion factors that were collected from a supplementary survey. This standardization of consumption information is necessary before unit values were calculated and expenditure on food was aggregated.

Nonfood component

The nonfood consumption modules (Modules I–K) of IHS5 have detailed information on household expenditure on various nondurable nonfood goods and services. We include household expenditure on all nonfood items as described in the interna-

tional standard for Classification of Individual Consumption by Purpose (COICOP). Appendix A shows the COICOP classification of items and the respective questions in the IHS5 questionnaire. Therefore, parts of the total nonfood expenditure is made up of the value of expenditure on nonfood nondurable item groups such as education; health services, including prescription and nonprescription drugs; housing utilities such as water, electricity, gas, firewood, charcoal, and others; clothing and footwear; transport service including operation cost of private vehicle/bicycle/motorbike, but not the actual purchase of these durable items, and public transportation; communication services such as mobile phone services; recreation and cultural services, except the purchase of durables such as televisions; hotel and lodging; and miscellaneous goods and services such as personal care like soap and personal effects such as umbrella. Expenditures on these goods and services are reported/collected in different reference periods (past 7 days, 1 month, 3 months, and 12 months). For those items with a reference period shorter than 12 months, the corresponding expenditure is annualized. The total annual household expenditure on these goods and services is compiled to calculate the total expense on nondurable nonfood items and matched with durable goods and rental/housing expense in the corresponding COICOP code.

Some expenditures that are sporadic in nature such as wedding, funerals, and births are excluded from consumption aggregate, which is intended to capture households' regular expenditure, to avoid overestimation of well-being. Remittance to others is excluded from consumption aggregate as it does not imply welfare improving consumption. Expenditure to repair or upgrade dwelling such as purchase materials and labor cost is also excluded from consumption as the housing/rental expenditure, discussed below, captures the value gains from this repair/upgrade.

Finally, it is important to note that we rely on total expenditure values and that there is no unit value data for nonfood goods and services. The diversity of nonfood items, both in quality and unit price, makes it difficult to compute a standard price for these nonfood items[26]. For instance, the type, quality, and unit of measurement of prescription medicines are so diverse that it is not possible to calculate their unit values.

26 *The list of items and their respective trimming threshold is available upon request.*

Durable goods

The ownership and utilization of durable goods is a crucial component of consumption aggregate as these goods improve the well-being of households. However, these goods are often purchased occasionally and used over extended periods. To properly account for the welfare of households, it is important to impute the use value of (or utility derived from) these goods in each year of service—not at the time of purchase. The utility derived from the use of these goods could be imputed using the purchase value and the expected lifetime of the goods.

Estimation of the use value derived from these durable goods is based on the information collected in the data and certain assumptions outlined below. The durable goods module (Module L) of IHS5 collects information on home appliances and other durables used by households to improve their daily lives[27]. The information collected about these items include their age, estimated current value, and number of each item owned by the household. Using the information on current value, age, and number of goods and the following three important assumptions, we estimate the use value[28].

First, the purchase of these durables is assumed to be uniformly distributed over time. This assumption allows us to estimate the lifetime of each durable good, except car and motorcycle, as twice the current age of the item. For car and motorcycle, ownership of which are recent phenomenon in the rural areas, the distribution is likely skewed and hence we calculate lifetime of these two durables as three time their current age[29].

Second, the remaining service years left for each durable good is calculated as its current age minus the estimated lifetime of the good. For goods that are very old, the estimated remaining service left might be negative. In such cases, the remaining service

27 This module also collects information on durable assets used for productive purposes. However, these goods are not directly used to improve welfare and hence are not included in the consumption aggregate.

28 Due to lack of data on purchase value, the estimated current value is used for approximating the total value of the durable goods.

29 he decision to use a different approach for car and motorcycle gives a more reasonable estimated lifetime: 11.8 years and 9.0 years, respectively. However, if we decide to adopt uniform distribution assumption, the estimated lifetime for car and motorcycle becomes only 7.9 years and 6.0 years, respectively.

year is replaced by two years. Finally, the ratio of the current value and the remaining lifetime of services is used to approximate the annual use value of each durable good.

Rent for housing

Like durable goods, only the service derived from dwellings, not the construction or repair expenses, needs to be included in the consumption basket. The residence of a household could either be owned by the household itself or rented from others. The rental expenditure on dwellings rented from other owners could be a good estimate of the service value of housing if the rental market is competitive. The IHS5 housing module (Module F) collects rental expense for households that rent their residences from others. However, most households, especially in rural areas, own their dwellings. For these households, self-reported rental values are collected. The self-reported rental data might, however, be inaccurate. To improve the accuracy of self-reported rent, information on actual rental expense is used.

To improve the accuracy of self-reported rental expenses (as well as actual rent), a hedonic regression is estimated using logarithm of rent (for those who are renting) and a theoric hedonic rental value is estimated for each household. The estimation takes into account types of dwelling (number of rooms and type of wall, roof, and floor), services available in the dwelling (source of drinking water, type of toilet, and availability of electricity in the home and in the village/town), and region and survey time fixed effects (urban, region, district, and survey year and month fixed effects). Based on the regression coefficients and the characteristics of the dwellings, the predicted rental value of the dwelling is estimated[30]. These estimates are used to replace outliers in self-reported rent data.

2.2 Adjustment for household size and composition

The next step in the construction of the welfare indicator requires adjusting consumption to account for household size and demographic composition of households to make welfare comparisons across individuals, not across households. This involves converting the standard of living defined at the household level

30 *The predicted rent in logarithm is converted into normal scale.*

to an indicator defined at the individual level. In this report, consumption expenditure per capita is used as indicator of individual welfare.

2.3 Adjustments for cost of living differences

For poverty analysis using household surveys, the nominal consumption must be adjusted for temporal and spatial differences in cost of living observed within the survey period and across survey locations. The temporal adjustment deals with differences in cost of living over time (April 2019 to April 2020). For example, MWK 1,000 in April 2019, or at the start of the fieldwork for IHS4, may not be worth the same value in April 2020, or at the end of the fieldwork for the survey. The spatial adjustment deals with differences in cost of living over locations. For example, MWK 1,000 in a rural district may not be worth the same in a large city such as Blantyre.

Because temporal price variations can differ significantly across areas, a temporal adjustment is implemented by using a combination of the unit values of food items from IHS5 and the official NSO-provided nonfood CPI. These itemized unit values are combined with their respective average food budget shares in the household survey to calculate the monthly food price index. The food price index is then combined with the nonfood CPI to calculate the overall monthly price index. The food price index is calculated using unit values from the household survey— consistent with the price adjustment across surveys described earlier. At the end of this exercise, consumption in IHS5 is adjusted to prices of April/May 2019.

In addition, adjustments were also made for spatial cost-of-living differences across regions. To do this, a spatial Paasche price index is estimated. Similar to the temporal price adjustments above, food prices come from unit values from IHS5, while the price data for nonfood items come from the official NSO CPI. Following the source of the prices, the weights of the items in the price index come from IHS5 for food items and the weights for nonfood items comes from the weight of the official nonfood CPI. The food and nonfood price indexes are then combined using the average budget shares of the two consumption aggregates at the regional level.

The base for spatial price index is All-Malawi for April/May 2019, which are the beginning months of fieldwork for IHS5. Average national prices are compared with average regional prices for the same period. By having the same reference period at the national and regional levels, the difference in prices in this calculation is attributable only to spatial differences. Spatial and temporal differences in prices are combined to form the final price index.

3. Poverty line

The cost-of-basic-needs approach is most commonly used to establish a poverty line. In this approach, the cost of acquiring enough food for adequate nutrition—in the case of Malawi 2215 calories per person per day—is first estimated and then an allowance for the cost of other basic needs is added (Haughton and Khandker 2009; Ravallion 1998). Therefore, the total poverty line is the cost meeting basic nutritional needs (that is, food poverty line) and then allowance for other basic needs (that is, the nonfood poverty line). If a person's total expenditure is below the poverty line, the person is considered poor. An individual with consumption below the food poverty line is considered ultra-poor.

First, the caloric requirements had to be set. For Malawi, the caloric requirements were set to 2215kcal to reflect actual intake of Sub-Saharan African countries. Once set the daily caloric requirements, the cost per calorie for a reference population has to be identified. A set of calories can be consumed through many different combinations of food. In order to price calories, a reference population needs to be identified. Ideally, the reference population would be households who are not extremely poor (thus resorting to eating extremely cheap foods) nor wealthy (consuming very expensive calories). The reference population was chosen to be the population in the 5th and 6th deciles of the consumption aggregate distribution. In fact, these are households that are close to/near the poverty line itself.

Then, the food poverty line is calculated as the price per calorie multiplied by the per capita daily caloric requirement (2215 kcal). This food poverty line is also the Ultra Poverty Line. The ultra-poor are those households whose total per capita expenditure levels are below the food poverty line.

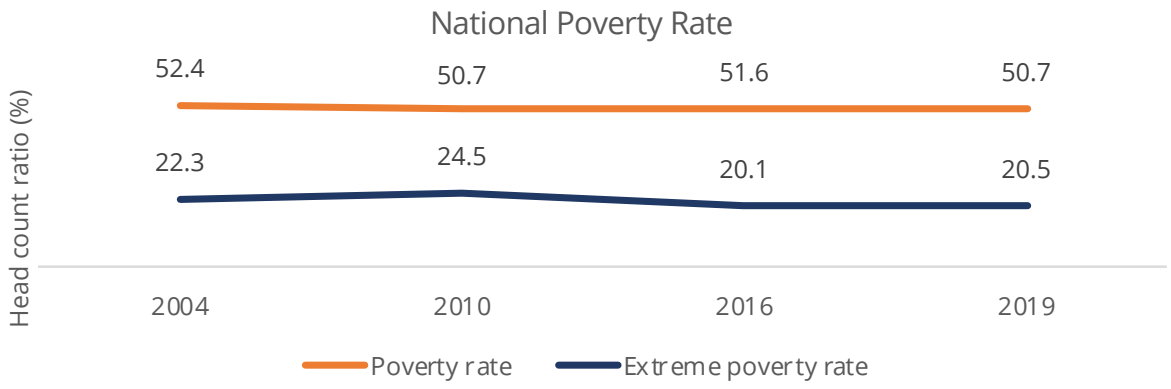
Finally, the food poverty line is expanded using Ravaillon & Bidani's (1994) estimation of the Orshansky coefficient to obtain the poverty line. In this approach, the nonfood allowance was estimated as the average nonfood consumption of the population whose food consumption is close to the food poverty line. Once the poverty line is established, all households can be categorized as poor or non-poor depending on whether their per capita expenditure (their welfare indicator adjusted for household size) is below or above the poverty line. The poverty headcount, then, can be computed, indicating the proportion of individuals living in poverty.

The poverty line is in essence absolute, and it also needs to be expressed in constant prices (that is, real poverty line). In other words, the poverty line is absolute because it fixes the same standard of living throughout Malawi—two persons with the same welfare level will be treated the same way regardless of the location of their residence. Similarly, to ensure proper comparison of well- being over time, the real poverty line is used.

4. Poverty

Poverty estimates are reflected in Figure A1.1. The results show that the national poverty headcount has not changed much since 2004. By 2019/20, about 50.7 percent of Malawians had consumption level below the national poverty line, and this is after a 0.8 percentage point decrease since 2016/17.

Figure A1.1: National poverty estimates



Source: World Bank calculation using IHS2-IHS5.

Table A1.1: Classification of items by COICOP and the repetitive modules in IHS5 questionnaire

COICOP code	Description	Module (M), question (Q) and label/code (L): in this sequence MQ-L
1	Food and nonalcoholic beverages	
1.1	Food	
	Cereals, tubers, nuts, vegetables, fruits, oil, sugar, and so on	G02-101 to G02-818
1.2	Nonalcoholic beverages	
	Tea; coffee; cocoa, Milo; squash; *thobwa*; fruit juice; freezes; soft drinks; bottled water; *maheu*; and other	G02-901 to G02-907, G02-909 to G02-G910, G02-912, G02-916
2	Alcoholic beverages and tobacco	
2.1	Alcoholic beverages	
	Bottled or canned beer, traditional beer (*masese*), wine or commercial liquor, locally brewed liquor (*kachasu*), and chibuku (commercial traditional-style beer)	G02-G908, G02-G911, G02-G913 to G02- G915
2.2	Tobacco	
	Cigarettes or other tobacco	I02-103
3	Clothing and footwear	
3.1	Clothing	
	Infant clothing	J02-301
	Baby nappies/diapers	J02-302
	Boy's trousers	J02-303
	Boy's shirts	J02-304
	Boy's jackets	J02-305
	Boy's undergarments	J02-306
	Boy's other clothing	J02-307
	Men's trousers	J02-308
	Men's shirts	J02-309
	Men's jackets	J02-310
	Men's undergarments	J02-311
	Men's other clothing	J02-312
	Girl's blouse/shirt	J02-313
	Girl's dress/skirt	J02-314
	Girl's undergarments	J02-315
	Girl's other clothing	J02-316
	Lady's blouse/shirt	J02-317
	Chitenje cloth	J02-318
	Lady's dress/skirt	J02-319
	Lady's undergarments	J02-320
	Lady's other clothing	J02-321
	Cloth, thread, other sewing material	J02-326
	Laundry, dry cleaning, tailoring fees	J02-327

COICOP code	Description	Module (M), question (Q) and label/code (L): in this sequence MQ-L
3.2	Footwear	
	Boy's shoes	
	Men's shoes	
	Girl's shoes	
	Lady's shoes	
4	Housing, water, electricity, gas and other fuels	
4.1	Actual rents for housing	
	Actual rent payment	
4.2	Imputed rents for housing	F04
	Estimated the rent for non-renters	F03
4.4	Water supply	
	Water for cooking, bathing, and so on	F37
4.5	Electricity, gas and other fuels	
	Value of the firewood used in the past week	F18
	Electricity	F25
	Charcoal	I02-101
	Paraffin or kerosene	I02-102
	Candles	I02-104
	Matches	I02-105
	Light bulbs	I02-209
	Solar panel	L02-531
	Generator	L02-532
5	Furnishings, household equipment, and routine home maintenance	
5.1	Furniture, furnishings, carpets, and other floor coverings	
	House decorations	J02-338
	Carpet, rugs, drapes, curtains	K02-401
	Mat - sleeping or for drying maize flour	K02-403
	Mosquito net	K02-404
	Mattress	K02-405
	Bed	L02-502
	Table	L02-503
	Chair	L02-504
5.2	Household textiles	
	Linen - towels, sheets, blankets	K02-402
5.3	Household appliances	
	Repairs to household and personal items (radios, watches, and so on)	I02-218
	Fan	L02-505
	Air conditioner	L02-506
	Sewing machine	L02-511

COICOP code	Description	Module (M), question (Q) and label/code (L): in this sequence MQ-L
5.4	Glassware, tableware, and household utensils	
	Bowls, glassware, plates, silverware, and so on	J02-328
	Cooking utensils (pots, stirring spoons, whisks, and so on)	J02-329
5.5	Tools and equipment for home	
	Batteries	I02-220
	Recharging batteries of cell phones	I02-221
	Torch/flashlight	J02-331
	Paraffin lamp (hurricane or pressure)	J02-333
	Mortar/pestle (*mtondo*)	L02-501
5.6	Goods and services for routine home maintenance	
	Milling fees, grain	I02-201
	Wages paid to servants	I02-215
	Cleaning utensils (brooms, brushes, and so on)	J02-330
6	Health	
6.1	Medical products, appliances, and equipment	
	Expenditure for nonprescription medicines (Panadol, Fansidar, cough syrup, and so on)	D12
6.2	Out-patient services	
	Expenditures for illnesses and injuries (medicine, tests, consultation, and in-patient fees)	D10
	Expenditure not related to an illness (preventative health care, pre- natal visits, check-ups)	D11
	Stay(s) at the traditional healer or faith healer	D19
	Stay(s) at the traditional healer or faith healer, transport costs	D20
	Stay(s) at the traditional healer or faith healer, food costs	D21
6.3	Hospital services	
	Hospitalization(s) or overnight stay(s) in a medical facility	D14
	Hospitalization(s) or overnight stay(s) in a medical facility, transport costs	D15
	Hospitalization(s) or overnight stay(s) in a medical facility, food costs	D16

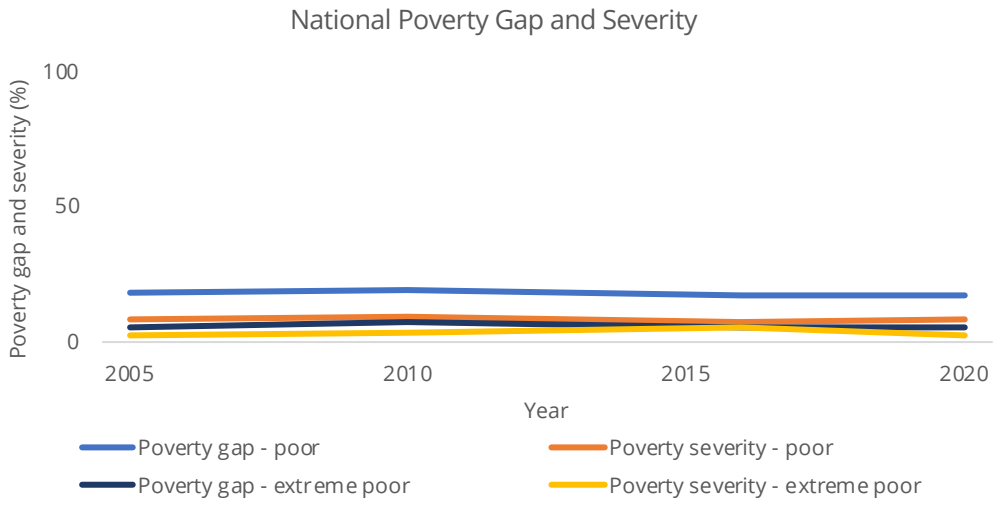
COICOP code	Description	Module (M), question (Q) and label/code (L): in this sequence MQ-L
7	Transport	
7.1	Purchase of vehicles	
	Bicycle	L02-516
	Motorcycle/scooter	L02-517
	Car	L02-518
7.2	Operation of vehicles	
	Petrol or diesel	I02-212
	Motor vehicle service, repair, or parts	I02-213
	Bicycle service, repair, or parts	I02-214
7.3	Transport services	
	Public transport - bicycle, taxi	I02-107
	Public transport - bus, minibus	I02-108
	Public transport - other	I02-109
8	Communication	
8.1	Postal services	
	Postage stamps or other postal fees	I02-210
8.3	Telephone and fax services	
	Cell phone	F35
9	Recreation and culture	
9.1	Audio-visual, photographic and information processing equipment	
	Music or video cassette or CD	J02-336
	Film, film processing, camera	K02-407
	Radio (wireless)	L02-507
	Tape or CD player; HiFi	L02-508
	Television	L02-509
	VCR	L02-510
	Computer equipment and accessories	L02-529
	Satellite dish	L02-530
9.2	Durables for recreation and culture, including repairs	
	Sports and hobby equipment, musical instruments, toys	K02-406
9.3	Other recreational items and equipment, gardens and pets	
	Expenditures on pets	I02-219
9.4	Recreational and cultural services	
	Tickets for sports / entertainment events	J02-337
9.5	Newspapers, books, stationery	
	Newspapers or magazines	I02-106
	Stationery items (not for school)	J02-334
	Books (not for school)	J02-335

COICOP code	Description	Module (M), question (Q) and label/code (L): in this sequence MQ-L
10	Education	
10.1	Education, all levels	
	Tuition, including any extra tuition fees	C22A
	After school programs and tutoring	C22B
	School books and stationery	C22C
	School uniform and clothing	C22D
	Boarding school fees	C22E
	Contributions for school building or maintenance	C22F
	Transport	C22G
	Parent association and other school related fees	C22H
	Other school expenses	C22I
11	Restaurants and hotels	
11.1	Vendors, cafes, restaurants	
	Vendor consumption: maize (boiled or roasted), chips, cassava, eggs, chicken, meat, fish, *mandazi* , samosa, meals eaten at restaurants, other	G820-G830
11.2	Accommodation services	
	Night's lodging in rest house or hotel	J02-339
12	Miscellaneous goods and services	
12.1	Personal care	
	Bar soap (body soap or clothes soap)	I02-202
	Clothes soap (powder)	I02-203
	Toothpaste, toothbrush	I02-204
	Toilet paper	I02-205
	Glycerine, Vaseline, skin creams	I02-206
	Other personal products (shampoo, razor blades, cosmetics, hair products, and so on)	I02-207
12.3	Personal effects	
	Umbrella	J02-332

Annex 2 Poverty gap and Unmet Basic Needs Indicators

On top of the poverty rate, the country's national poverty gap and national poverty severity have remained unchanged over time. These two measures are related but different. The poverty gap index measures the extent to which individuals fall below the poverty line as a proportion of the poverty line. The sum of the poverty gaps is equivalent to the minimum cost of eliminating poverty (assuming transfers are perfectly targeted). However, this measure does not reflect changes in inequality among poor households. Therefore, the squared poverty gap index, or poverty severity index, averages the squares of the poverty gaps relative to the poverty line. Then, it considers the inequality among poor households, giving greater weight to poor households whose welfare is further from the poverty line.

Figure A2.1: Stagnated indicators over time



Source: World Bank calculations based on IHS poverty estimates.

Table A2.1: Unmet basic needs (UBN) by region, 2019/2020

		Children (7-12) Not In School	3+ people per Bedroom	Precarious Dwelling	No Connection Water or Sewerage	3+ Members per Employed Member	Unmet Basic Needs
	National	3%	9%	54%	15%	22%	69%
North	Chitipa	0%	3%	34%	13%	22%	54%
	Karonga	0%	3%	34%	20%	32%	60%
	Nkhata Bay	3%	8%	43%	21%	34%	68%
	Rumphi	0%	4%	47%	19%	19%	61%
	Mzimba	1%	5%	44%	19%	18%	58%
	Likoma	0%	6%	69%	35%	44%	83%
	Mzuzu City	0%	4%	17%	6%	10%	29%
Center	Kasungu	1%	7%	69%	14%	20%	80%
	Nkhotakota	3%	11%	62%	24%	24%	77%
	Ntchisi	1%	11%	69%	16%	18%	75%
	Dowa	5%	8%	72%	13%	17%	78%
	Salima	4%	16%	62%	14%	24%	74%
	Lilongwe	4%	9%	71%	15%	22%	81%
	Mchinji	1%	18%	61%	23%	24%	77%
	Dedza	2%	14%	71%	17%	23%	79%
	Ntcheu	3%	14%	55%	14%	27%	71%
	Lilongwe City	0%	10%	44%	2%	14%	55%
South	Mangochi	9%	15%	64%	12%	25%	76%
	Machinga	3%	10%	65%	20%	31%	80%
	Zomba	2%	9%	53%	14%	24%	70%
	Chiradzulu	6%	5%	40%	12%	21%	58%
	Blantyre	2%	5%	44%	12%	19%	59%
	Mwanza	2%	9%	53%	10%	19%	69%
	Thyolo	2%	4%	37%	15%	30%	63%
	Mulanje	1%	3%	34%	17%	28%	58%
	Phalombe	3%	8%	57%	13%	27%	73%
	Chikwawa	2%	8%	57%	25%	19%	73%
	Nsanje	4%	9%	45%	30%	23%	66%
	Balaka	2%	5%	51%	15%	26%	69%
	Neno	0%	12%	50%	28%	26%	72%
	Zomba city	6%	6%	19%	7%	15%	36%
	Blantyre city	1%	8%	37%	6%	12%	49%

Source: World Bank calculations based on IHS poverty estimates.

Annex 3 TFP Methodology

I - Method

Following Restuccia and Santaeulalia-Llopis (2017), the estimation assumes a Cobb-Douglas production function:

$$y_i = A_i \zeta_i \left[(q_i l_i)^{\theta_l} k_i^{\theta_k} \right]$$

Where y,l,k denote real farm output, land, and capital, ζ_i is weather. q_i is land quality, which is the predicted productivity based on plot characteristics. A_i is each farm's productivity term (TFP). $\theta_l + \theta_k < 1$ to capture the relative importance of land in production. So TFP is given by:

$$TFP_i = A_i = \frac{y_i}{\zeta_i \left[(q_i l_i)^{\theta_l} k_i^{\theta_k} \right]}$$

The residual measure of TFP is given by:

$$\log TFP_i = \log y_i - (\log \zeta_i + \theta_l \log(q_i l_i) + \theta_k k_i)$$

Each component is expressed in terms of hours of labor. The choice of parameters follows Valentinyi and Herrendorf (2008), with 0.18 for capital and 0.36 for land.

II - Data

The data used come from the Integrated Household Survey of Malawi. The survey started in 2010, followed by another wave in 2013, 2016, and 2019. The 2013 wave was excluded from the analysis as it did not include a few key questions for the estimation. Each component of the TFP comes directly from the survey. TFP is expressed in hours of labor, which is the sum of hours worked by all household members and hired/exchange labor by men, women, and children.

Real output: value-added yield

This variable is given by the value of the yield minus input expenditure. The value of the yield per crop per plot is the quantity produced multiplied by the median unit price of the crop. The input expenditure includes the quantity of seeds and fertilizer

used and the unit cost. Due to the input subsidies, the unit cost of seeds and fertilizer is based on the median unit cost of the unsubsidized input. Other input use is excluded due to low usage: about 2.5 percent of households use pesticides and about 1 percent use irrigation. Almost 3 percent of observations with negative or zero real output values are excluded.

Weather

The variables include the 12-month total rainfall and annual mean temperature in logarithms.

Capital

The value of capital is given by the sum of a household's assets for agriculture and is based on the question 'If you were to sell this item today, how much would you get for it?'.

Land and land quality

Measured land area is converted to hectares. Land quality is the predicted value of the following regression based on the value of the yield in log, elevation in meters, slope in degrees, and indicators for nutrient availability and retention, rooting conditions, oxygen availability, salinity, toxicity, workability, soil quality, value of capital (log), and area (log). Standard errors are clustered at the enumeration area, and household survey weight is included.

Annex 4 Data Sources

Name	Acronym	Objective	Year (s) / rounds	Sections topics	Producer	Unit of analysis	Panel or cross-section	Geographic coverage	Sample	Representative at wich level
Malawi's Integrated Household Survey (IHS)	IHS	The main objective of the survey is to provide and update information on various aspects of welfare and socio-economic status of the population of Malawi and are presented at various levels such as national; urban-rural; region and districts as well as disaggregated by sex.	1997/98 (IHS1), 2004/05 (IHS2), 2010/11 (IHS3), 2016/17 (IHS4) and 2019/20 (IHS5)	The survey collected information on expenditure, consumption demographic characteristics, health, education, labour force participation, credit and loan, household enterprises, agriculture, housing infrastructure and asset ownership, food security and mortality indicators	National Statistical Office (NSO) affiliated to the Ministry of Economic Planning and Development (MoEPD). With Technical assistance of the World Bank	- Households - Individuals - Consumption expenditure commodities/items - Communities - Agricultural household/ Holder/ Crop	Cross section	National coverage	11,280 households in IHS2, 12,271 in IHS3, 12,447 in IHS4 and 11,434 in IHS5	Representative at the national, urban/rural, regional and district-level. The 32 districts in Malawi.
Fifth Integrated Household Survey 2019-2020	IHS5	---	2019 - 2020	The survey collected information on expenditure, consumption demographic characteristics, health, education, labour force participation, credit and loan, household enterprises, agriculture, housing infrastructure and asset ownership, food security and mortality indicators	National Statistical Office (NSO)	- Households - Individuals - Consumption expenditure commodities/items - Communities - Agricultural household/ Holder/ Crop	Cross section	National coverage	11,434 that corresponds to 93% of 12, 288 households from 768 Enumeration Areas that were selected. Due to covid, response rate was 93%	Representative at the national, urban/rural, regional and district-level. The 32 districts in Malawi.

Name	Acronym	Objective	Year (s) / rounds	Sections topics	Producer	Unit of analysis	Panel or cross-section	Geographic coverage	Sample	Representative at wich level
Fourth Integrated Household Survey 2016-2017	IHS4	---	2016 - 2017	The survey collected information on expenditure, consumption demographic characteristics, health, education, labour force participation, credit and loan, household enterprises, agriculture, housing infrastructure and asset ownership, food security and mortality indicators	National Statistical Office (NSO)	- Households - Individuals - Children under 5 years - Consumption expenditure commodities/items - Communities - Agricultural household/ Holder/ Crop	Cross section	National coverage	Final sample of 12,447 households	Representative at the national, urban/rural, regional and district-level. The 32 districts in Malawi.
Third Integrated Household Survey 2010-2011	IHS3	---	2010 - 2011	The survey collected information on expenditure, consumption demographic characteristics, health, education, labour force participation, credit and loan, household enterprises, agriculture, housing infrastructure and asset ownership, food security and mortality indicators	National Statistical Office (NSO)	- Households - Individuals - Children under 5 years - Consumption expenditure commodities/items - Communities - Agricultural household/ Holder/ Crop	Cross section	National coverage	The final sample of 12,271 household	Representative at the national, urban/rural, regional and district-level. The 32 districts in Malawi.

Name	Acronym	Objective	Year (s) / rounds	Sections topics	Producer	Unit of analysis	Panel or cross-section	Geographic coverage	Sample	Representative at wich level
Second Integrated Household Survey 2004-2005	IHS2	—	2004 - 2005	The survey collected information on expenditure, consumption demographic characteristics, health, education, labour force participation, credit and loan, household enterprises, agriculture, housing infrastructure and asset ownership, food security and mortality indicators	National Statistical Office (NSO)	- Households - Individuals - Communities	Cross section	National coverage	The total sample was 11,280 households (564 EAs x 20 households).	Representative at the national, urban/rural, regional and district-level. The 32 districts in Malawi.
Integrated Household Panel Survey 2010-2013-2016-2019 (Long-Term Panel, 102 EAs)	IHPS	The Integrated Household Panel Survey (IHPS) was integrated into the core Integrated Household Survey (IHS) program to study trends in poverty, socioeconomic and agricultural characteristics over time through a longitudinal survey.	2010-2013-2016-2019	(same of above)	National Statistical Office (NSO)	- Households - Individuals - Children under 5 years - Consumption expenditure commodities/items - Communities - Agricultural household/ Holder/ Crop	Panel data	National coverage	Sub-sample (204 EAs out of 768 EAs) of IHS3 2010 visiting 3,246 households in these EAs. Given budget and resource constraints, for the IHPS 2016 the number EAs in the panel was reduced to 102 out of the 204 EAs. The IHPS 2019 tracked all individuals 12 years or older from the 2016 households.	As a result, the domains of analysis are limited to the national, urban and rural areas. Although the results of the IHPS 2016 cannot be tabulated by region, the stratification of the IHPS by region, urban and rural strata was maintained.

Name	Acronym	Objective	Year (s) / rounds	Sections topics	Producer	Unit of analysis	Panel or cross-section	Geographic coverage	Sample	Representative at wich level
School-to-Work Transition Survey	SWTS	The main objective is to identify the employment opportunities and transitions of young people	2014	Information on transitions from education to work	ILO	Individuals	Cross section	National coverage	3097 young people aged 15 to 29 years	
Malawi Enterprise Survey	ES		2014	Firm characteristics, gender participation, access to finance, annual sales, costs of inputs and labor, workforce composition, bribery, licensing, infrastructure, trade, crime, competition, capacity utilization, land and permits, taxation, informality, business-government relations, innovation and technology, and performance measures	World Bank	Firms	Cross section		523 establishments	Representative sample of an economy's private sector

Annex 5 Vegetation Health Index

VHI combines Vegetation Condition Index (VCI) and Temperature Condition Index (TCI) to account for both moisture and heat conditions. Higher values of VHI denote less proneness to drought while lesser values indicate being highly prone to drought hazard.

Temperature Condition Index (TCI)

TCI is an index[31]that is used to measure temperature induced stress on vegetation. TCI is calculated relative to the all time maximum and minimum temperature of a pixel (smallest point in space) as shown in Equation (1)

$$TCI = 100 \times \frac{BT_{max} - BT}{BT_{max} - BT_{min}} \qquad [1]$$

Where BT_{max} and BT_{min} are the long term (since 2002) maximum and minimum temperatures for the pixel respectively, and *BT* is the represent current period 10-Day temperature (also see Tsiros et al., 2004). Ranging between 0 and 100, lower values of TCI denote unfavourable conditions while higher values represent more favourable conditions temperature-wise.

Vegetation Condition Index (VCI)

VCI provides an indication (in percentage terms) of where an observed value is located between the extreme values (minimum and maximum) of the long term NDVI. Lower and higher values of VCI denote bad and good vegetation respectively. The formula for TCI is shown in Equation 2 below.

$$VCI = 100 \times \frac{NDVI - NDVI_{min}}{NDVI_{max} - NDVI_{min}} \qquad [2]$$

31 https://dms.sig.ac.in/facts/indices.html

Vegetation Health Index (VHI)

Vegetation Health Index (VHI) is a combination of TCI and VCI. By considering the deviation from long term minimum and maximum NDVI and temperatures respectively, it takes into account both temperature and precipitation stress affecting crops. Higher values of VHI shows favourable drought conditions while lower values denote an unfavourable drought scenario. The formula for VHI is shown in Equation 3.

$$VHI = \theta VCI + (1 - \theta)TCI \qquad [3]$$

Where θ is the contribution or weight of the VCI component.

TCI and VCI in Malawi

The VHI maps seem to indicate that Malawi's Central Region is most prone regarding both drought hazard and drought exposure. Therefore, we also draw maps for TCI and VCI (the constituent indicators for VHI) separately.

Technical Notes on Data Processing

1. For VHI, the data is available weekly as global raster datasets only for drought hazard. Yet, it is important to consider drought exposure, that is drought hazard in farming areas. To obtain drought exposure[32], we overlay the drought hazard and binary crop/non-crop land use classification layers to filter out drought hazard for non-crop areas.

2. *Additional Note on Binary Crop non-crop classification*

For VHI, the binary crop non-crop classification relies on Google Earth Engine (GEE) classification using least cloudy Landsat imagery for the period 2008-11-15 to 2009-06-28, based on a Random Forest (RF) algorithm with 200 trees, yielding a >90% accuracy in out of sample prediction.

32 *Drought Exposure – The raw VHI data represents drought hazard. Drought Exposure is VHI over crop areas. Drought Exposure excludes VHI for non-crop areas, based on land cover classification from satellite imagery.*

Malawi | Poverty Assessment

Poverty Persistence in Malawi: climate shocks, low agricultural productivity and slow structural transformation

Germán Caruso
Lina Cardona Sosa

WORLD BANK GROUP