OVERVIEW

Reversing the Tide

REDUCING POVERTY AND BOOSTING RESILIENCE IN ZIMBABWE

WORLD BANK GROUP

Reversing the Tide

Zimbabwe Poverty Assessment

WORLD BANK GROUP

Acknowledgement

This team preparing this report was led by Dhiraj Sharma (Senior Economist, EAEPV). The core team comprised Ananda Paez Rodas (Extended Term Consultant), Christopher Hoy (Young Professional), Flora Marvellous Nyasha Kurasha (Consultant), Jeffrey Alwang (Professor, Virginia Tech University), and Tawanda Chingozha (Consultant).

Claudia P Rodriguez Alas (Social Protection Specialist) conducted the distributional performance analysis of the PICES 2017 data for the Social Protection chapter. Significant contributions were received from Shinya Takamatsu (Consultant) on poverty imputation; Dino Leonardo Merotto (Lead Economist), Michael Weber (Senior Economist), Mario Gronert (Extended Term Consultant), and Jorg Gero Langbein (Consultant) on Jobs Diagnostics; Marko Kwaramba (Economist) and Stella Ilieva (Senior Economist) on macroeconomic analysis; Khushbu Mishra (Assistant Professor, Stetson University) on poverty profiling; and Crispen Mawadza (Financial Sector Specialist), Gemechu Ayana Aga (Economist), and Muhammad Abdullah Ali Malik (Consultant) on firm performance during the pandemic. Thanks are also due to Carlo Cafiero and Filippo Gheri from the FAO for their help in estimating food insecurity.

Easther Chigumira (Senior Economist), Emma Wadi Hobson (Senior Economist), Rob Swinkels (Senior Economist), Ruth Wutete (Consultant), and Takaaki Masaki (Economist) provided valuable inputs and suggestions.

The core poverty diagnostics were conducted jointly with ZIMSTAT. We acknowledge the contribution of ZIMSTAT staff to the analysis. We are also grateful to Mr Taguma Mahonde (Director General, ZIMSTAT), Mrs Tafadzwa Bandama (Director, Macroeconomics Division), and Mr Grown Chirongwe (Acting Manager, Finance and BOP Statistics) for their leadership in the collaboration.

The report benefited from the comments from the Ministry of Finance and Economic Development (MoFED) and the Ministry of Lands, Agriculture, Fisheries, Water, and Rural Development (MLAFWRD) on the key findings and messages based on the preliminary draft of the report.

The report was peer-reviewed by Alvin Etang Ndip (Senior Economist) and Tom Bundervoet (Senior Economist). The team is grateful to Nobuo Yoshida (Lead Economist), Obert Pimhidzai (Senior Economist), and Ruth Hill (Lead Economist) for their comments on the Concept Note or preliminary version of the report.

The report was prepared under the general guidance of Mara Warwick (Country Director, AECE1), Marjorie Mpundu (Country Manager, AEMZW), R. Mukami (former Country Manager, AEMZW), AEMZW), William Battaile (Lead Country Economist, EAEDR), Tonderai Fadzai Naome Mukonoweshuro (Senior Operations Officer, AEMZW), and Pierella Paci (Practice Manager, EAEPV).

Especial thanks are due to Tsehaynesh H Michael Seltan (Program Assistant, EAEPV) and Farai Sekeramayi Noble (Program Assistance, AEMZW) for their excellent support during the preparation of this report.

Table of Contents

List of Figures

List of tables

1. Core Poverty Diagnostics

Synopsis

- Extreme poverty rate increased steadily in Zimbabwe during the 2010s, reaching more than twice its 2011 level in 2020. Inequality also increased during this period, making Zimbabwe highly unequal. These increases occurred in the backdrop of low and erratic growth, high rate of inflation, drought and other extreme events, and the COVID-19 pandemic.
- Even those who were not below the poverty line were vulnerable to falling into poverty, and the gap between the poorest and least poor areas was wide. Food security of rural Zimbabweans is closely tied to good and timely rainfall.
- Despite the steep rise in monetary poverty, Zimbabwe made significant progress during the 2010s in non-income dimensions of well-being such as maternal and infant mortality, child nutrition, education, and access to basic services.

Zimbabwe's economic performance over the last two decades has been volatile, characterized by booms and recessions. The economy entered hyperinflation in 2008, followed by reforms that helped economic recovery. However, after the boom that ended in 2013 (contributed by the base effect), economic growth slowed. The slowdown was due to the slow implementation of reforms, and it was compounded by a series of droughts and other weather shocks. The decade ended with two consecutive years of recession in 2019 and 2020 due to the macroeconomic challenges, record drought, cyclone Idai, and the COVID-19 pandemic.

This Poverty Assessment report explores how poverty has evolved in recent years, shedding light on the main forces shaping its progression. Its objectives are three-folds: (i) to take stock of the recent trend in poverty and inequality, as well as to sketch a profile of the poor in Zimbabwe; (ii) to explore the main drivers of the change in household welfare; and (iii) to build the evidence base for the formulation of policies to foster inclusive growth.

The rest of the report is structured as follows: This chapter presents the trend in poverty and inequality for the 2011-2021 period, the drivers of change, profile of the poor, and trends in non-monetary well-being. Chapter 2 explores the vulnerability of Zimbabwean households to natural shocks (drought in particular). Chapter 3 explores the trend in spatial and structural transformation, including an analysis of the quality of jobs and international migration. Finally, chapter 4 assesses the performance of the social protection system and offers suggestions to make the system more efficient and effective. The concluding section of each chapter also offers the policy implications of the foregoing analysis.

The purpose of this chapter is to show the evolution of poverty and inequality over the last decade (between 2011 and 2021). It considers both monetary poverty, defined as the share of the population consuming below a minimum threshold to meet basic food and non-food needs, as well as non-monetary poverty measured by access to basic services that define the quality of life. The reported findings are based on an analysis done using data from Zimbabwe's main household survey, the Poverty Income Consumption and Expenditure Survey (PICES). This overview will serve as the launching pad for the rest of the report to examine in greater detail the proximate causes of the increase in poverty. They, in turn, will help inform policies on improving livelihoods for the poor and vulnerable, a key objective of Zimbabwe's National Development Strategy 2021-2025.

i. Macroeconomic developments and poverty dynamics

Zimbabwe's economic performance over the last two decades was characterized by low growth and significant volatility reflecting the impact of macroeconomic challenges, slow structural transformation, climate shocks, and lately the pandemic. The volatile growth path resulted in a net decline in GDP per capita of 2.8 percent per year on average over the last two decades (Figure 1.1). The decline in per capita income was associated with loss of jobs, especially in the formal sector, high informalization of the economy keeping employment and incomes low, a sharp increase in poverty, and limited access to basic services for the poor.

An attempt at economic reforms in the early 1990s was not sustained, as major structural change happened starting in the late 1990s. The government embarked on the land distribution (the fast-track land redistribution program) that altered the production structure, affecting agriculture productivity. The losses to agricultural productivity since the 2000s could have been at the core of many of Zimbabwe's macroeconomic dislocations, including hyperinflation in 2008 and associated economic recessions. Given the change in the agriculture structure (land ownership), Government responded to the funding needs of the economy through both expansionary monetary and fiscal policy. Starting in 2004, the government increased spending using quasi- fiscal means through the Reserve Bank of Zimbabwe (RBZ). With limited scope for external financing, the quasifiscal losses arising from subsidized credit to priority sectors (agriculture in particular), support to parastatals, and foreign exchange losses were financed by money creation, which fueled the surge in money supply during 2005-2008 and contributed to the hyperinflation of 2008 (Makochekanwa and Kambarami, 2011; Munoz, 2007).

The erosion of purchasing power exacerbated an already difficult situation for the poor and vulnerable in the 2000s. Extreme asset poverty increased in both urban and rural areas between 2001 and 2007, accompanied by a deterioration in the conditions for communal and resettlement workers.[1] This increase reflected the fact that households owned fewer durable goods in 2007/08, likely because they had been liquidated to cope with the negative shocks. There was also a clear increase in both multidimensional and monetary poverty between 2001 and 2011 (Larochelle et al., 2014).

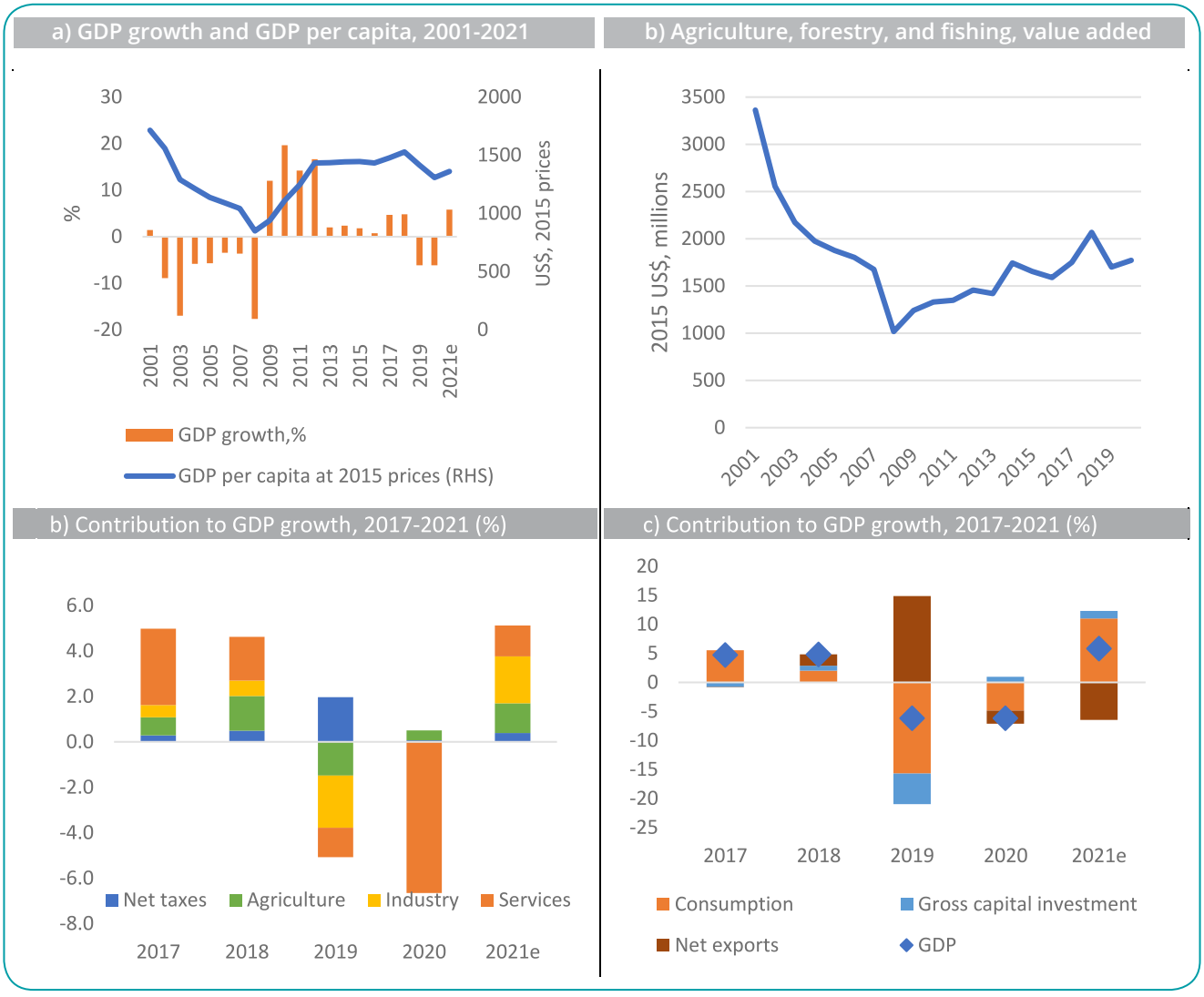
Economic performance was relatively better in the 2010s, but macroeconomic fluctuations increased later in the decade, with higher inflation and slower growth. More recently, due to the combined effects of triple-digit inflation, poor harvest and power shortages caused by a record drought, and the widespread damages by cyclone Idai, per capita income fell in 2019 by 9.4 percent compared to 2018. The Covid-19 pandemic put additional strain on the already weakening economy in 2020, leading to a back-to-back recession (Figure 1.1). High inflation and loss of jobs dampened household consumption and limited investment. Persistent drought reduced agriculture production, water and electricity supply, downsizing economic activity and requiring increased imports of maize and electricity. The pandemic restricted mobility and adversely affected the supply of and demand for goods and services. Despite several shocks, the economy rebounded in 2021. Relative stabilization of prices, improved weather conditions that resulted in an exceptional maize harvest, and measures in place to mitigate the impact of the pandemic, including high vaccination rates, contributed to a growth of almost 6 percentage points and a reduction of extreme poverty from 49 percent in 2020 to 43 percent in 2021. However, rising inflationary pressures and continuing vulnerability to climate shocks present risks to economic recovery and poverty reduction in the future, especially in the context of limited fiscal space to expand social protection and constrained access to external finance to upgrade human and physical capital.

Zimbabwe's debt distress, with large external arrears to official creditors, continues to be a drag on its growth potential as it limits investment. External debt is estimated at US$14.5 billion or 106.6 percent of GDP as of end-2020. Out of this amount, US$10 billion is arrears, including the compensation to former farmers of US$3.3 billion.[2] Arrears to International Financial Institutions since 2000 have prevented access to concessional financing, leading to low investment levels in the economy and limited resources for Zimbabwe's post-COVID recovery and Vision 2030 aspirations. In 2021, the government prepared an Arrears Clearance, Debt Relief and Restructuring Strategy, but the process of arrears clearance remains on hold, as creditors await economic and political reforms.

[1]Asset poverty is used to compare the 2001 and 2007/08 welfare level because high rate of inflation during the latter survey period makes it difficult to construct a comparable money-metric measure of welfare.

[2]In 2021, external debt is estimated to have reached US$17.3 billion.

Figure 1.1: GDP growth and contribution to GDP growth



Source: ZIMSTAT

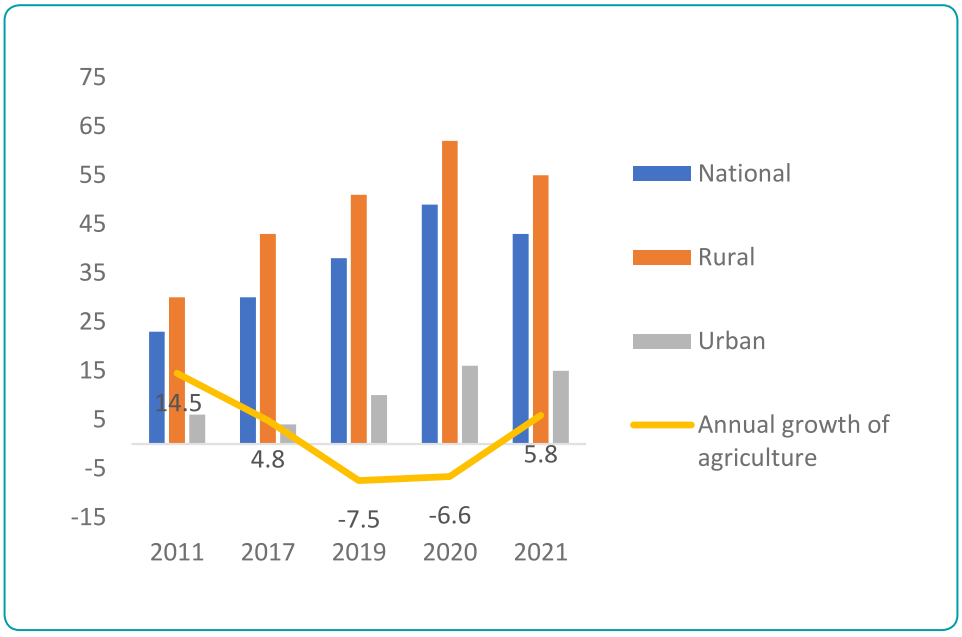
Economic growth and poverty dynamics have been shaped to a large extent by agriculture performance and price dynamics. About two-thirds of Zimbabweans work in agriculture[3] while many Zimbabweans, directly or indirectly, depend on it. However, incomes from agriculture are the lowest in the country reflecting low productivity and high exposure to climate risks as most of the agriculture is rain-fed. Productivity in agriculture has fallen since the introduction of the fast-track land reform program in 2000 and has been well below the level of its peers despite recent improvements. For example, maize yields in Zimbabwe were 0.6 tons per hectare in 2018 compared to 1.6, 2.2, and 5.4 tons per hectare for Malawi, Zambia, and South Africa, respectively.[4] Limited

[3] The two-thirds share of employment in agriculture follows from the "old" definition of work and employment used in Labor Force Surveys up to 2014. The 2019 Labor Force Survey uses a revised definition of work and employment, according to which 36 percent of the economically active workforce works in agriculture.

[4] Source: Our World in Data. https://ourworldindata.org/crop-yields. Accessed June 14th, 2022

security of land has meant constrained access to bank financing for most farmers. Frequent and increasing duration droughts, especially over the last decade, have meant large losses in agriculture output, losses of incomes for agriculture workers and their families, and significant worsening of living conditions. For instance, in 2019, maize production was only 36 percent of its 2017 level, sharply increasing food insecurity and poverty (Figure 1.2).

Figure 1.2: Extreme poverty rates and agriculture output growth (%)



Source: ZIMSTAT

Government support to agriculture has taken many forms throughout the years with subsidies to maize farmers and millers, provision of inputs (fertilizers, seeds), subsidized electricity and fuel, and guarantees on loans to farmers. Such support has been significant, and it has been at the core of many of Zimbabwe's macroeconomic distortions, driving inflation, expanding fiscal deficit, and ballooning public debt (World Bank, 2019). As discussed earlier, the hyperinflation in 2008, the high inflation in 2018-2020, a banking crisis in 2015, high fiscal deficits in 2016-18, and increasing debt, including compensation claims for former farmers who were evicted under the fast-track land reform, all have their roots in public support to agriculture.

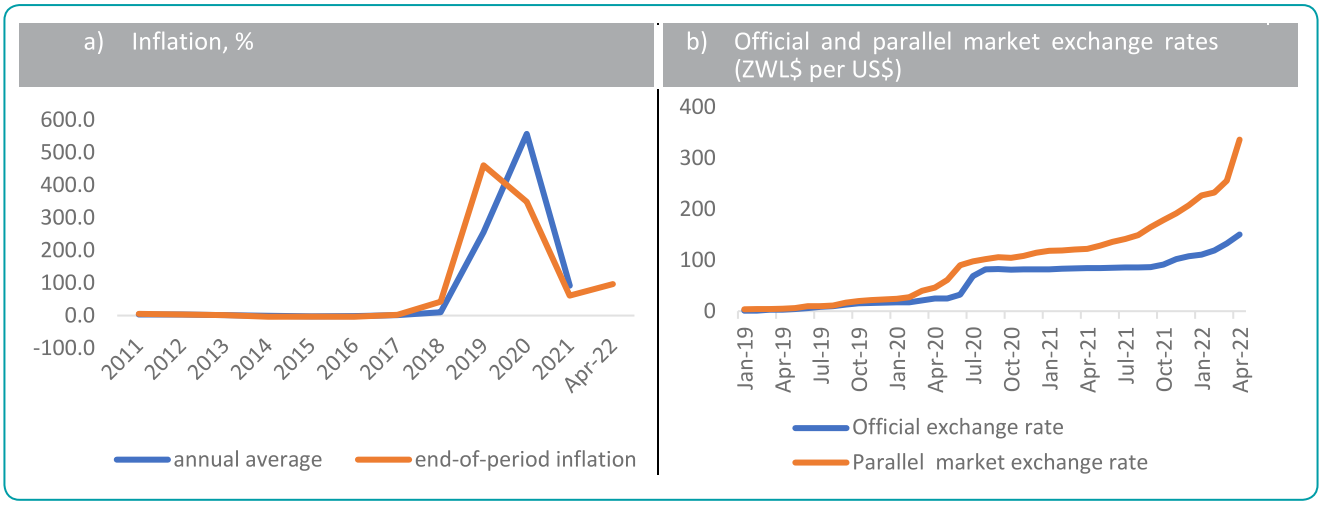
The government continues to intensify efforts to increase productivity and ensure food security as most agricultural workers produce for own consumption. In recent years, the government has taken steps to move away from providing direct government support to instead offering guarantees to bank lending to farmers. In 2020, a new program called Pfumvudza was initiated to support smallholder farmers by linking input provision to productivity-enhancing activities. While it is difficult to separate the impact of the Pfumvudza program from the natural weather cycles, the program combined with above-normal rains is believed to have contributed to the exceptionally good maize harvest in 2021.

High inflation has been detrimental, especially to the urban poor who rely predominantly on market purchases for food consumption. Urban poverty increased at a faster pace during the recession of 2019-2020 when the inflation level reached triple-digits. Though inflation has bottomed out since 2020, it remains high, eroding disposable incomes of households, constraining investment, and overall economic growth. Monetary and

exchange rate policies implemented since mid-2020 have helped bring down inflation from 521 percent in December 2019 to 61 percent in December 2021. The introduction of rules-based reserve money management, a foreign exchange auction, and the relaxation of de-dollarization measures have also helped ease the inflationary pressures.

Since January 2022, however, inflation has been trending up again, driven by a sharp rise in global prices due to the war in Ukraine as well as the rapid depreciation of local currency on the parallel market (Figure 1.3). The local currency lost close to 50 percent of its value between end-December 2019 and May 2022 on the parallel market, widening the parallel market exchange premium to over 100 percent since April 2022. The economy continued to dollarize leaving behind the poor and vulnerable as they have little access to foreign currency.

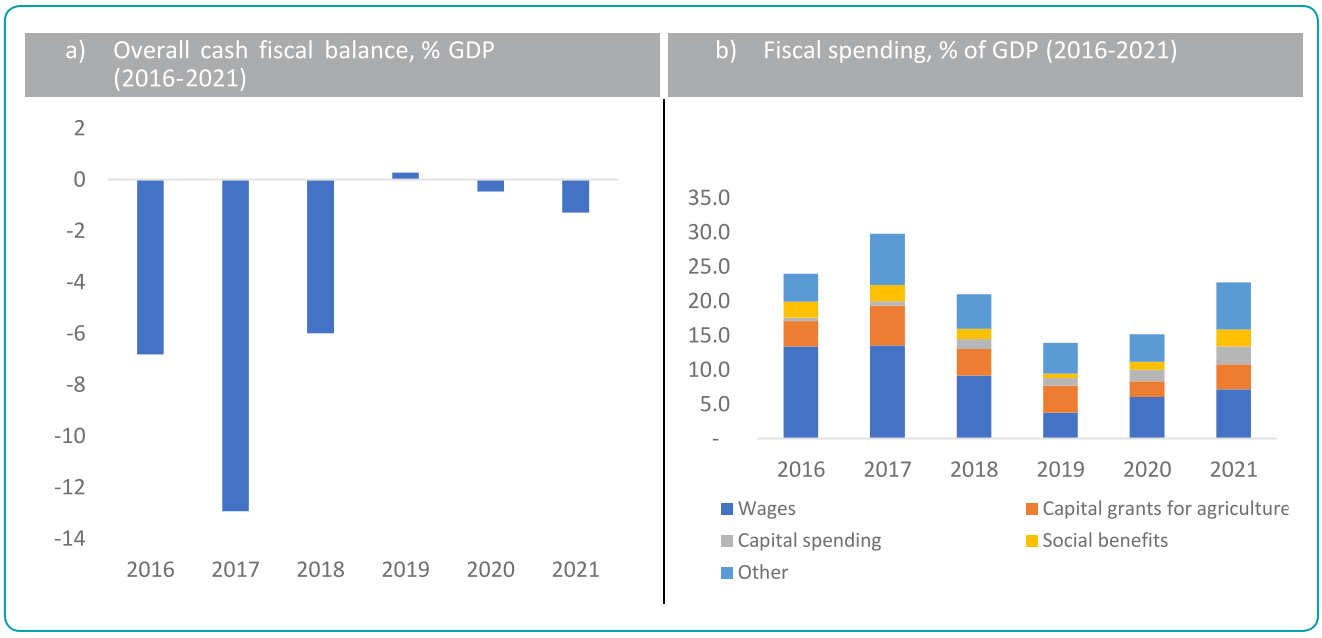
Figure 1.3: Inflation and exchange rates



Source: ZIMSTAT

To contain further inflation growth, fiscal accounts were consolidated significantly during the recession and the pandemic, but with negative impact on service delivery. The tightened fiscal stance was achieved by wage compression and trimmed support to agriculture via a transformation of direct support to farmers into contingent liabilities (through guarantees). Despite efforts to reduce inefficient and wasteful spending, the fiscal space and implementation capacity for scaling-up of social protection remained constrained. As a result, social protection spending was insufficient to cover the rising number of extreme poor while access to basic services became more difficult due to the erosion of budgets by inflation (Figure 1.4).

Figure 1.4: Cash balance and fiscal spending



Source: ZIMSTAT, MoFED

Taking a long and broad view, macroeconomic challenges, natural disasters and lately the pandemic have been impediments to economic growth, structural transformation, private sector development, jobs creation, poverty reduction, and improvements in the coverage and quality of service delivery. Frequent expansionary fiscal and monetary stance has sometimes contributed to high inflation that in turn impacted on growth potential. Money creation to finance off-budget expenditures added to inflationary pressures, while quasi-fiscal expenditures intended to boost production in targeted sectors of the economy often exacerbated distortions in the economy. Further inability to access the international capital market due to external arrears has often led to domestic liquidity shortages, impacting private sector activities, and stifling employment generation (World Bank, 2004; World Bank, 2017). Also paying the large civil service wage bill, support to agriculture and subsidizing inefficient public enterprises have diverted resources that otherwise could have been spent on social sectors such as health, education, and social protection.

ii. Poverty and inequality trends

Official poverty statistics show that poverty increased steadily in Zimbabwe over the last decade. (See Box 1.1 for details on the data, methodology, and the choice of poverty line for core poverty diagnostics). Figure 1.5 shows the extreme poverty headcount ratio for the years 2011, 2017, 2019, 2020, and 2021. In 2011, 22.5 percent of the population lived beneath the extreme poverty line defined as the minimum per capita expenditure necessary to meet the basic caloric needs.[5] The share of the population unable to afford basic food needs had risen to 30.1 percent by 2017.[6] What was a significant gap in the poverty headcount ratio between rural and urban areas in 2011 had widened further in 2017, as all the increase in the national poverty headcount was driven by rural areas, while the poverty rate in urban areas had declined slightly (Figure 1.5). As a result, poverty became more concentrated in rural areas, with rural areas containing more than 90 percent of the extreme poor in 2011 and 2017.

[5]The food poverty line in 2011 was $30.86 per person per month.
[6]The updated food poverty line in 2017 was $29.80 per person per month.

By 2019, the poverty rate had risen yet again when almost two-fifths of the population was found to be in extreme poverty (38.3 percent). The situation had deteriorated further after the onset of the COVID-19 pandemic in 2020. In mid-2020 when the country was under a strict COVID-related lockdown, businesses were shuttered, and many people had lost their jobs, almost half the population was below the extreme poverty line (Figure 1.5). With the easing of the lockdown, gradual opening of the economy, and a bumper maize harvest in the 2020/21 season, the situation had improved slightly in late 2021, with 43 percent of the population in extreme poverty.

The Zimbabwe experience stands in sharp contrast to that of the rest of Africa. In the 2010s, poverty reduction in Africa was slower compared to the rest of the world so that, over time, Africa comprised an increasingly larger share of the poor living below the international poverty line ($1.90 per person per day, 2011 PPP) (Beegle and Christiaensen, 2019; World Bank, 2020). Nevertheless, although at a slow pace, poverty did decline in Africa during the 2010s. That was not the case for Zimbabwe. In 2011, Zimbabwe's international poverty rate was 21 percent, less than half the level in rest of sub-Saharan African. In 2019 it was estimated to have reached 42 percent, on par with the rest of the region (Figure 1.6).

Figure 1.5: Poverty headcount ratio, national food poverty line, 2011-2021

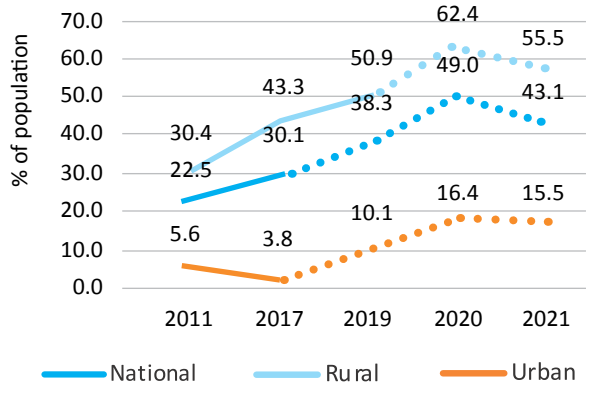
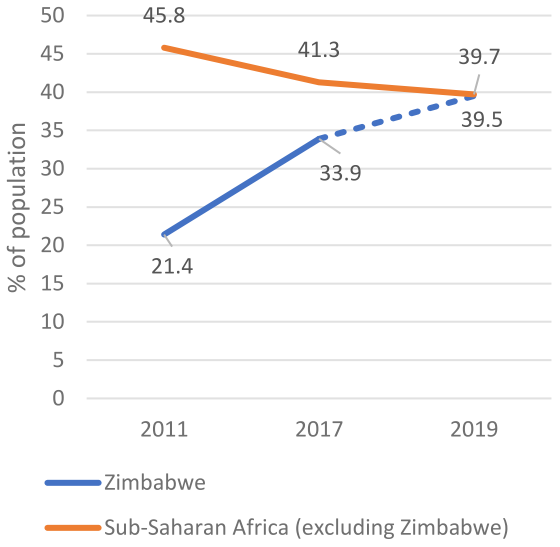


Figure 1.6: Poverty headcount ratio, international poverty line ($1.90 per capita per day, 2011 PPP)



Source: Authors' calculations using PICES 2011, 2017, Mini-PICES 2019, and Rapid-PICES 2020, 2021; Povcalnet (http://iresearch.worldbank.org/PovcalNet/introduction.aspx).

Note: The 2019, 2020, and 2021 are poverty estimates are based on imputed consumption from data collected over a 1-2 month period. As such, they are not strictly comparable to the 2011 and 2017 estimates calculated using direct measure of consumption from yearlong surveys. The dotted lines signify the lack of strict comparability between the first two and last three data points.

While the main analysis focuses on extreme poverty based on the food poverty line, poverty can also be defined in terms of higher poverty lines that make allowance for basic non-food expenditures necessary for a decent living such as clothing, utilities, and transportation. Table 1.1 shows the poverty trends using the lower and upper poverty lines in Zimbabwe.[7] The poverty rates are understandably higher with higher poverty thresholds. The lower poverty rate was 53 percent in 2017, and it was 4 percentage points higher in 2019. The main contributor to this change was the almost 8 percentage point increase in urban poverty.

The other poverty line applied to consumption expenditure distribution is the upper poverty line. As shown in Table 1.1, using the upper poverty line, national poverty ranged from 69 to 72 percent between 2011 and 2019. While there was a slight decrease (of 3 percentage points) between 2011 and 2017, it was followed by a small increase (1.3 percentage points) between 2017 and 2019. Rural poverty was higher than the national average and it did not fluctuate much during the period as it ranged between 84 and 87 percent. On the contrary, more significant changes occurred in the urban areas where poverty declined by 12 percentage points in the first 6 years and then increased by 6 percentage points between 2017 and 2019.

Table 1.1: Poverty headcount ratio, lower and upper poverty lines, 2011–2019

	Lower Poverty Line			Upper Poverty Line		
	2011	2017	2019	2011	2017	2019
National	N/A	53.0	56.9	72.3	69.3	70.6
Rural	N/A	71.6	71.8	84.3	86.8	84.1
Urban	N/A	15.9	23.6	46.5	34.4	40.5

Source: Authors' calculations using PICES 2011, 2017, and 2019
Note: The poverty headcount ratios using the upper and lower poverty lines may show dissimilar trends because they depend on the shape of the consumption distribution and the position of the poverty lines.

There was also an increase in the depth and severity of national and rural poverty between 2011 and 2017 (Table 1.2).[8] Poverty depth and severity decreased in Harare and Bulawayo, which house Zimbabwe's urban population. Among rural provinces, Mashonaland Central and Manicaland exhibit the largest increases in poverty depth and severity.

Table 1.2: Poverty gap and poverty severity index, 2011–2017

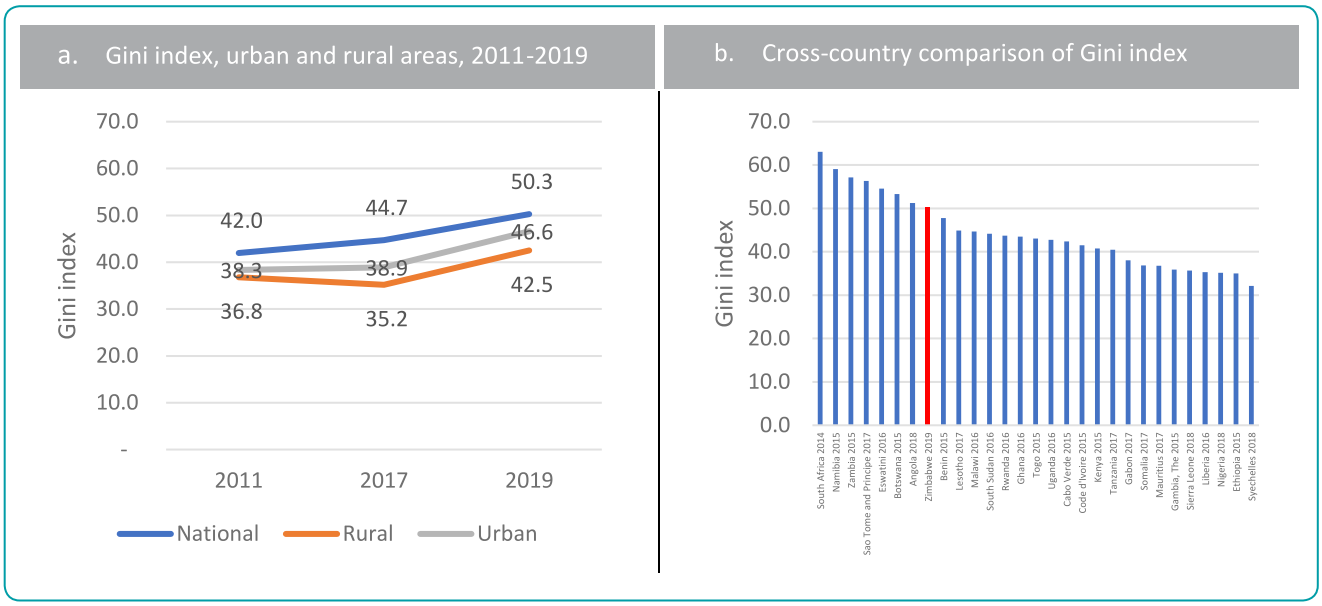
	Poverty Gap (p1)			Poverty Severity (p2)		
	2011	2017	Absolute Change (%)	2011	2017	Absolute Change (%)
National	0.059	0.078	0.019	0.022	0.028	0.006
Rural	0.081	0.114	0.033	0.031	0.041	0.01
Urban	0.011	0.006	-0.005	0.004	0.002	-0.002

Source: Authors' calculations using PICES 2011, 2017, Mini-PICES 2019
Note: Poverty gap and severity are calculated using the food poverty line.

[7] The lower poverty estimates are not available for 2011 because only the food poverty and upper poverty lines were constructed in 2011.
[8] The poverty gap index (p1) considers how far, on average, the poor fall below the poverty line. Higher poverty gap levels imply a greater depth of poverty. The poverty severity index (P2) is a weighted sum of poverty gaps such that households that are further below the poverty line are assigned greater weights.

It was not just poverty that increased during the last decade, but inequality grew as well. The Gini index, one of the most widely used indicators of inequality, increased from 43 in 2011 to 44 in 2017, and then to 50 in April-May 2019, making Zimbabwe highly unequal (Figure 1.16). The Gini index in rural and urban areas, and the provinces were lower than the national level, which suggests that much of the inequality is between locations rather than within locations. Focusing on sub-national inequality, the Gini index in 2017 was the highest in Harare, followed by Mashonaland West and Midlands (Table A1).[9]

Figure 1.7: Gini index, 2011-2019



Source: Authors' calculations using PICES 2011, PICES 2017, Mini-PICES 2019

Alternative measures of inequality also suggest a significant increase in inequality. For instance, per capita consumption of individuals at the 90th percentile of the distribution was already at a high of six times that of individuals in the 10th percentile in 2011, but it had increased further to more than eight times as high in 2017 (Table 1.3). Other percentile ratios also show a similar increasing trend. Similarly, the Palma ratio, the ratio of the consumption share of the top 10 percent of the distribution to the share of the bottom 40 percent, also rose from just above two in 2011 to more than three in 2019.For comparison, the Palma ratio in countries like the United States where there are intense debates regarding the income concentration among the top 1% or 0.1% was 1.8 in 2019.[10] The GE-class measures, those that are sensitive to the inequality at the top such as GE (1) and GE (2), also point to an increase in inequality during the decade.

[9] Provincial and district-level statistics are not available for the 2019 Mini-PICES because of small sample size and sample representativeness.
[10] Source: data.oecd.org (https://data.oecd.org/inequality/income-inequality.htm)

Table 1.3: Alternative measures of inequality in Zimbabwe, 2011-2017

	2011	2017	2019
p90/p10	6.3	6.6	8.1
p90/p50	2.7	3.0	3.4
p75/p25	2.6	2.8	3.2
Palma ratio	2.1	2.4	3.2
GE (0)	0.3	0.3	0.4
GE (1)	0.3	0.4	0.5
GE (2)	0.5	0.8	1.0

Source: Authors' calculations using PICES 2011, PICES 2017, Mini-PICES 2019

A high level of inequality may not only be unwanted in its own right for moral and ethical reasons, it may also be undesirable for instrumental reasons for its inhibitory effect on poverty reduction. There may be a feedback effect where high inequality impedes future growth and people's ability to participate in it through channels such as failure in credit or land markets and human capital investments. In the long term, inequality may also shape economic and political institutions, tilting the playing field in favor of the powerful and wealthy, in turn perpetuating inequality and poverty (Ravallion 2005; World Bank 2006).

Box 1.1: Data and methodology

Data

This study uses multiple sources of data. The official national poverty rates in Zimbabwe are based on household income/expenditure data collected through comprehensive household surveys known as Poverty, Income, Consumption and Expenditure Survey (PICES). The PICES are repeated cross-sectional surveys conducted by the Zimbabwe National Statistics Agency (ZIMSTAT). The data are collected using a diary which the households fill out every day for 30 days, recording the amount and value of every food and non-food item consumed on that day. The items may have been produced at home, purchased from the market, or received as gifts, transfers, or in-kind payment. The interviews are spread evenly throughout the year to faithfully capture seasonal variation in consumption, especially that of food. This report uses the PICES data for the core poverty analysis.

The most recent PICES were implemented in 2011 and 2017. These surveys interviewed approximately 30,000 households in each round. Such a large sample size allows an estimation of the poverty rate not just at the national level but also at the subnational level such as urban/rural areas, provinces, and districts with a fairly high level of statistical precision. Being able to disaggregate at the subnational level is important to know the areas where poverty is concentrated and thus need public investments. In the rest of this report, these surveys will be referred to as PICES 2011 and PICES 2017.

According to the usual schedule, the next survey after PICES 2017 would have taken place four

or five years later. But events in late 2018 and early 2019, notably a rapid rise in food prices coupled with poor rainfall during the 2018/2019 season, necessitated an update of the poverty levels because it was widely believed that the shocks had a severe adverse effect on well-being. To meet this data need, a survey was fielded in 2019 which departed from the 2011 and 2017 PICES in important ways. First, the sample size was much smaller at 2201 households. Hence, the survey could provide reasonably precise poverty estimates at the national, urban/rural, and perhaps even at the provincial level (for 10 provinces), but not at the district level. For this reason, the 2019 survey will be referred to as Mini-PICES 2019. Second, unlike its predecessors, the 2019 survey was not conducted throughout the year because its objective was not to definitively capture the annual consumption pattern in the country. It was to obtain a quick understanding of the poverty estimates and living conditions post 2017.

Third, 2019 survey was a hybrid survey. It collected detailed consumption data needed for poverty estimation from only a small subsample of households, while nonconsumption data were collected from all surveyed households. The nonconsumption data included indicators that are strongly correlated with household consumption such as demographic characteristics, ownership of durables, housing quality, education level and employment status of the household head. Using the subset of households with both consumption and nonconsumption data, a model is developed relating the two set of variables. Using this relationship, consumption is imputed for households for whom no consumption data were collected. The poverty rate is calculated using the full sample using the directly measured value of consumption for a subset of households and imputed values for other households.

Mainly due to the latter two reasons, the 2019 poverty estimate is not strictly comparable to the 2011 and 2017 estimates. To make this apparent, in the figures showing the 2011-2017-2019 poverty trend, the latter segment is displayed in dotted lines, signifying the lack of strict comparability.

A similar approach was adopted to estimate poverty after the onset of the COVID-19 pandemic in 2020. A rapid household welfare monitoring system was instituted to measure the impact of and household response to the pandemic. The same households interviewed for Mini-PICES were contacted again via phone. Because it was not possible to collect household consumption data over the phone, the imputation method was used to estimate household consumption based on its nonconsumption information. The indicators necessary for imputation were included in round 2 (August-September, 2020) and round 6 (September – October, 2021) of high frequency phone surveys. These surveys will be referred to as Rapid-PICES 2020, 2021 in this report.

In addition to the two reasons described above, the poverty estimates obtained from high frequency phone survey data may not be comparable to the 2011 and 2017 estimates for yet another reason. By design, the survey only reaches those households that had provided a phone number in 2017, who could be reached by phone 2020, and agreed to be interviewed over the phone after the pandemic. Although the weights are adjusted each round to compensate for attrition, if attrition is correlated to household consumption, the data provide a skewed picture of the consumption distribution.

Consumption aggregate and poverty lines

The poverty line in 2011 was US$30.86 per person per month (in 2011 prices). The consumption aggregate, minimum-needs food basket, and poverty line used until 2011 needed an update because they were constructed in 1995 when the consumption pattern was very different. The consumption aggregate was updated in 2017 (World Bank, 2020). The updates included:

a. Update of the food basket that forms the basis of the food poverty line;
b. More precise estimates of the use value of assets;
c. Inclusion of value of owner-occupied dwelling;
d. A longer recall period for infrequently bought items; and
e. Treatment of lumpy expenditures such as hospitalization and wedding.

With the new minimum food basket and consumption aggregate, the poverty line was also updated to better reflect the consumption pattern. The food component of the poverty line is based on a basket of food items consumed by low-income Zimbabwean households that provides 2,100 calories per person per day. Households in the 10th – 50th percentiles of per capita consumption distribution were used as the reference group for the "typical" food basket. The updated food poverty line in 2017 prices was US$ 29.80 per person per month.

In addition to the food poverty line, two other poverty lines were also calculated: the lower-bound (US$ 45.60/person/month) and upper-bound (US$ 66.10/person/month) poverty lines. These poverty lines make allowance for basic nonfood needs such as housing and clothing.

The food (or extreme) poverty line is the preferred poverty line for this analysis to cast light on the neediest households. Even with this low threshold, almost half the population was in poverty at the height of the crisis in 2020. The use of higher poverty lines would deem most of the people to be under poverty, especially in rural areas. A threshold with such a low discriminatory power loses its relevance for policymaking.

iii. Drivers and proximate causes of poverty

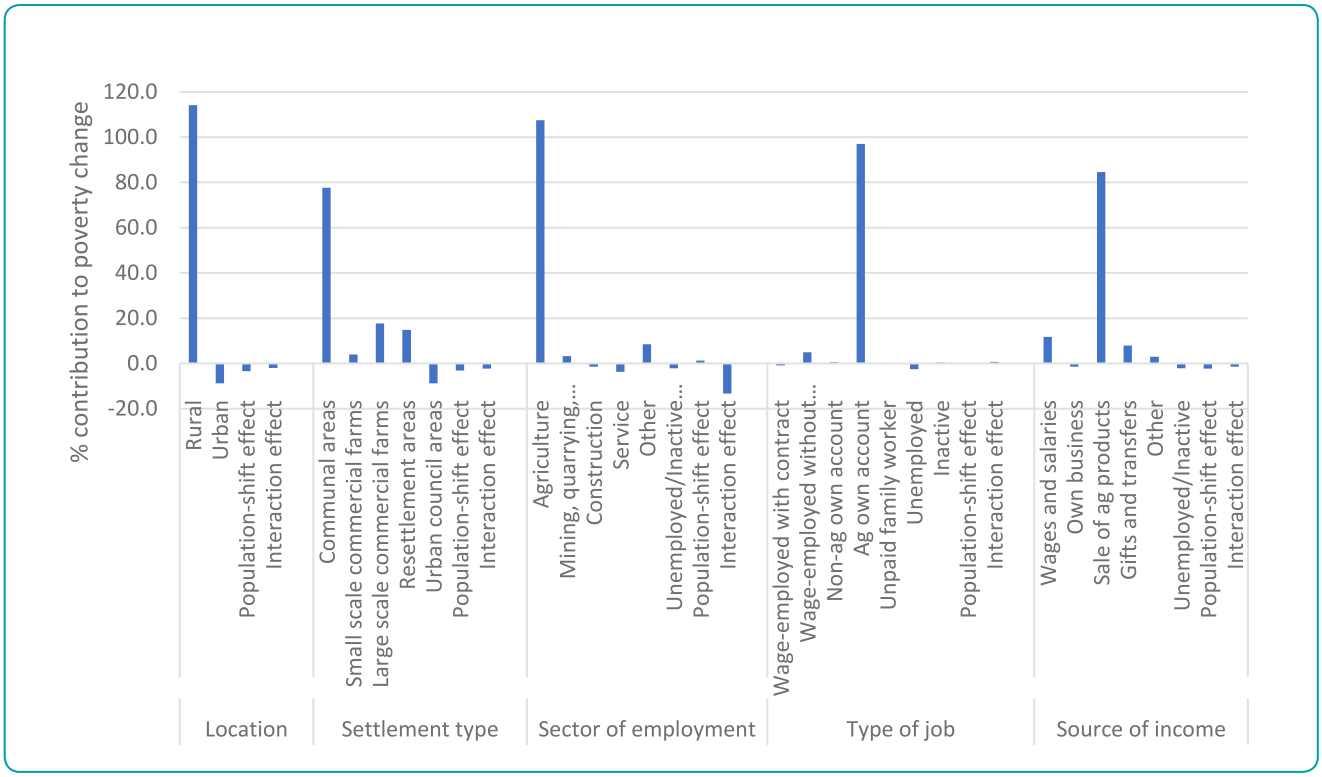
To examine the main contributors to the increase in poverty headcount, we apply the decomposition method. It follows a simple accounting approach to quantify the contributions to poverty change into its constituent components. The approach exploits the additive decomposability property of the standard FGT measures of welfare to perform the decompositions. For example, if poverty has fallen between two time periods, the decomposition analysis differentiates the drop due to a movement of the population across locations or sectors of the economy (inter-sectoral effect) from the drop due to a decline in poverty within, locations or sectors without an attendant movement of population (intra-sectoral effect). Although decomposition analysis cannot be used to attribute causality, the accounting exercise is nevertheless useful in gleaning empirical regularities. Here, we decompose the distributional changes in consumption for the 2011-2017 and 2017-2019 periods separately by location (urban-rural, land use type), sector of employment, type of employment, and the primary source of income to better understand which geographical and economic factors most influenced the poverty change.

2011-2017: Drought

The decomposition analysis shows that the increase in poverty between 2011 and 2017 was overwhelmingly a rural, agrarian phenomenon (Figure 1.3). Of the total increase in poverty headcount during the period, all of it was driven by within-rural changes (+114 percent) while the within-urban effect had a small poverty-reducing impact (-9 percent). Rural-to-urban or urban-to-rural population shifts contributed very little to the change in poverty headcount as there was little mobility during the period.[11] Among rural residents, the poverty increase was concentrated among residents of communal areas, contributing 78 percent of the total poverty rise.

Decompositions by economic characteristics of the household head reinforce the dominant role of agriculture in driving the 2011-2017 poverty trend. Households whose head was employed in agriculture, was an own-account worker in the sector, or whose primary source of income was the sale of agricultural products – in other words, a smallholder farmer – explain almost all the increase in poverty over the period (Figure 1.8). Consumption smoothing may not have been possible for these households because of their high dependence on agricultural production.

Figure 1.8: Decomposition of change in poverty headcount, 2011-2017

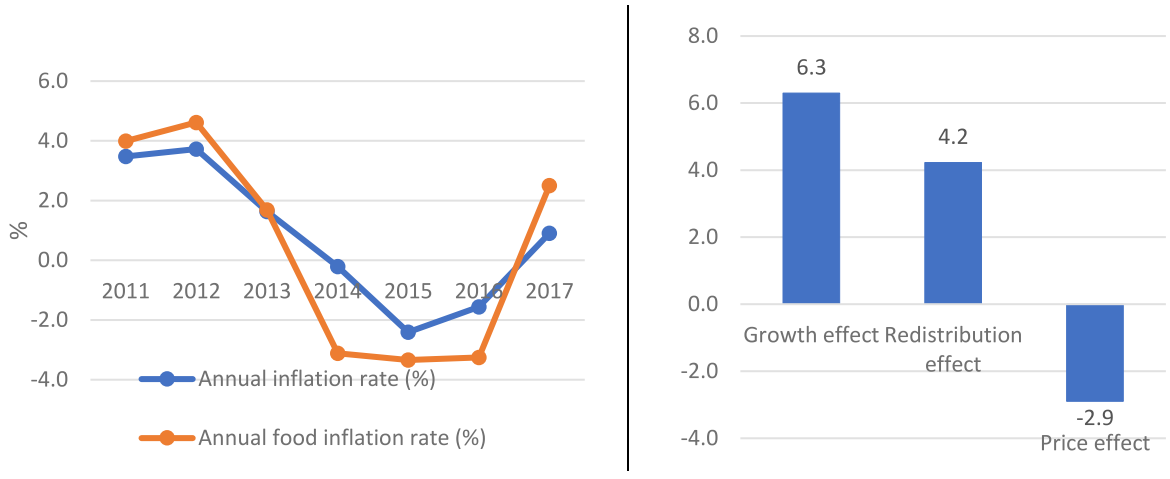


Source: Authors' calculations using PICES 2011, PICES 2017
Note: The decomposition is based on household head's labor market characteristics.

[11] The magnitude of the interaction effect, the component to balance out the accounting exercise, was -0.2.

What role did inflation play in increasing the poverty headcount between 2011 to 2017? Inflation was not as severe during this period as it was in prior years. The annual inflation rate did not exceed 4 percent, and the general prices were lower than the previous year's in three out of seven years (2014, 2015, and 2016). As a result, the Consumer Price Index (CPI) was only 2 percent higher in 2017 than 2011. Moreover, the trend in prices of food, on which the poor spend a relatively larger share of their income, was no different from the trend in overall CPI. In fact, in some years, food prices fell more than the general prices (Figure 1.9). The role played by prices in poverty change can also be shown through three-way decomposition assessing relative contributions of growth, distribution, and price effects in the change in poverty.[12] Between 2011 and 2017, growth and inequality had a poverty-increasing effect, but the poverty line had a poverty-reducing effect, which implies the poverty rate fell as a result of the change in the poverty line (Figure 1.9).

Figure 1.9: Annual inflation rate and price effects on poverty, 2011-2017



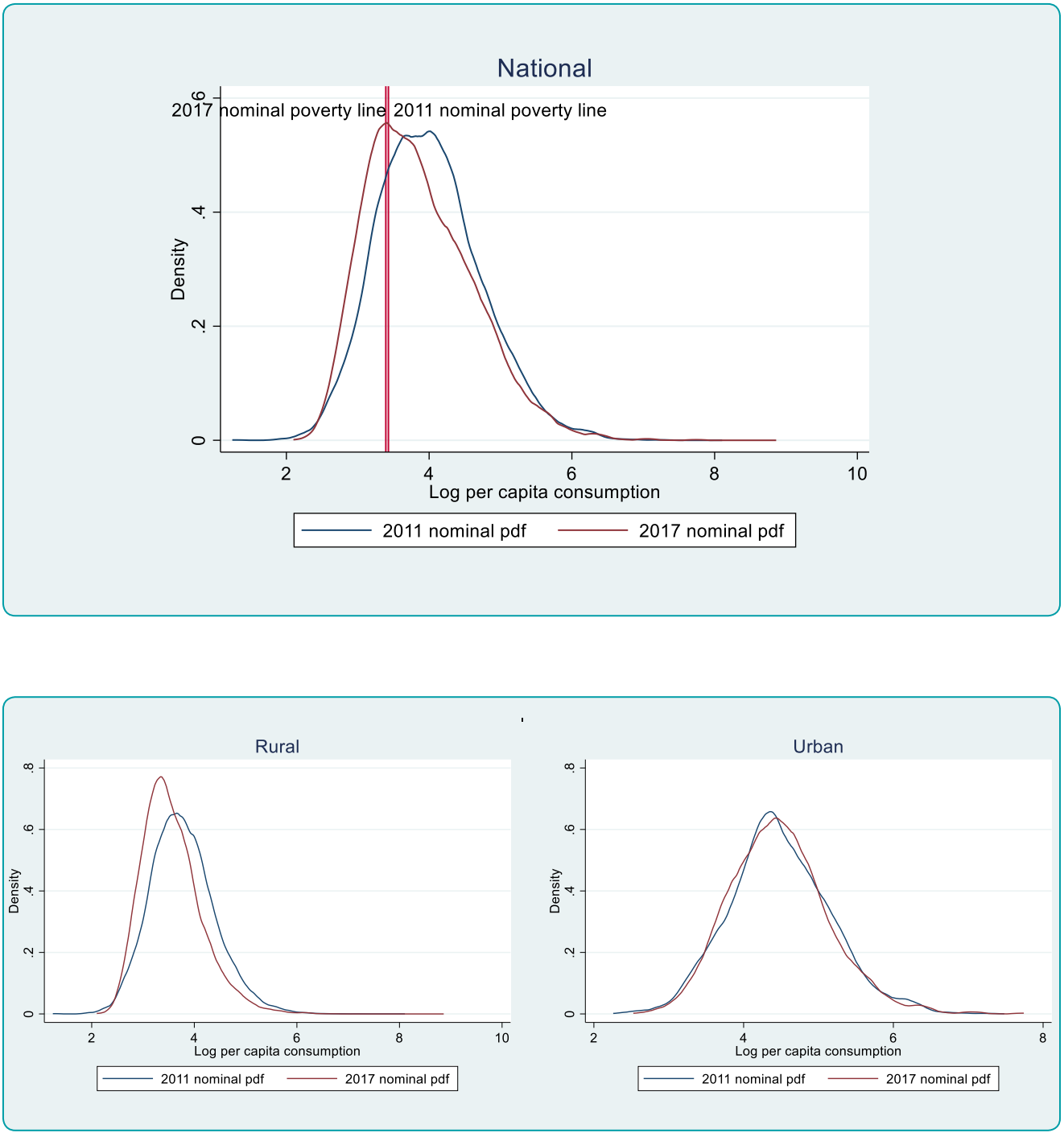
Source: ZIMSTAT

Source: Authors' calculations using PICES 2011 and PICES 2017

If the fall in welfare level cannot be attributed to the "price effect", i.e., an erosion of real purchasing power of income, it must be due to the "income effect", i.e., a decline in the nominal value of household consumption. Indeed, per capita consumption was lower in nominal terms at the mean and most points in the consumption distribution in 2017. This is seen in a marked leftward shift of the 2017 distribution (Figure 1.10). The poverty-reducing effect of price change is also evident from the figure, as the 2017 nominal poverty line is slightly lower than the 2011 poverty line. Mapping the welfare distributions for urban and rural areas separately offers further visual evidence of rural areas as the driver of the poverty increase (Figure 1.10). While the 2011 and 2017 distributions for urban areas largely overlap each other, there is a sharp leftward shift in the rural distribution (Figure 1.10).

[12] The three-way Shapley decomposition was proposed by Kolenikov and Shorrocks in an application for Russia (Kolenikov and Shorrocks, 2005). It decomposes the change in welfare to changes in growth, redistribution, and real value of the poverty line. The decomposition is performed using the "skdecomp" command in Stata.

Figure 1.10: Per capita consumption distribution and nominal poverty lines, 2011 and 2017

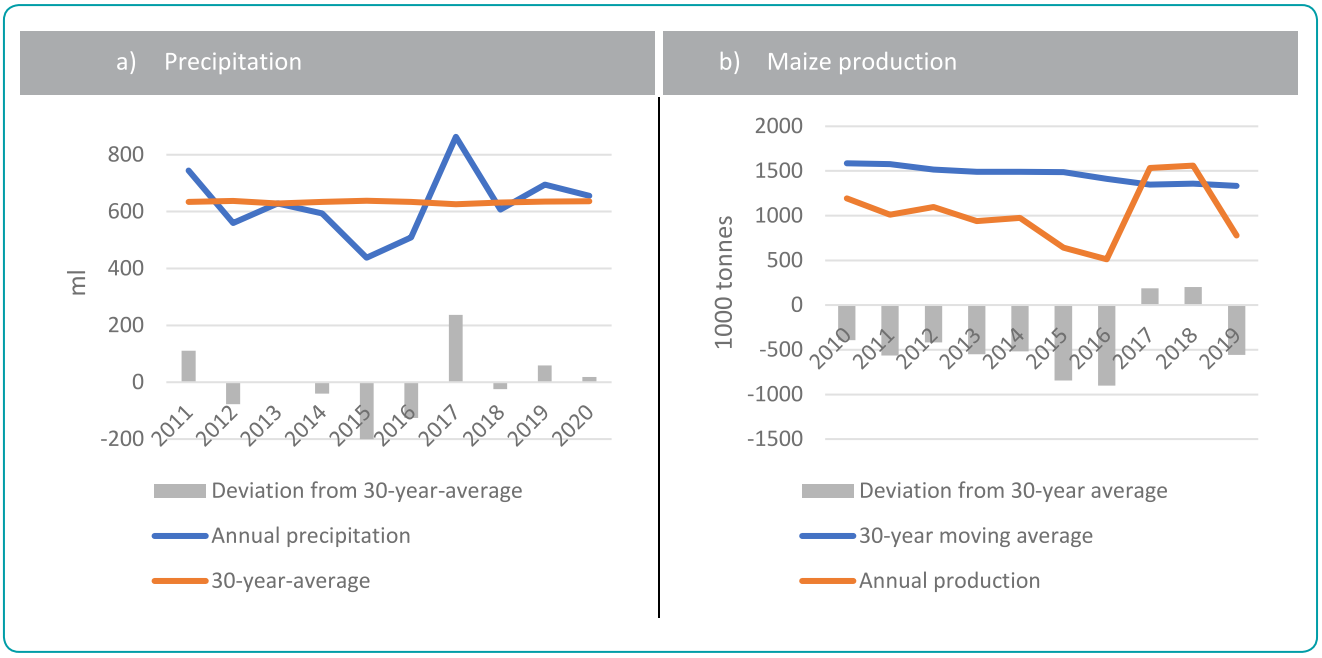


Source: Authors' calculations using PICES 2011, PICES 2017

The drought that began in 2012 and stretched up to 2015 likely played a role in causing significant loss in agricultural outputs and income, especially in communal areas. Agricultural households depend primarily on natural rainfall for crop production as less than 1 percent of total cultivated land and 4 percent of plots owned by smallholder farmers are irrigated. Due to heavy reliance on natural rainfall, agricultural production falters in absence of timely and adequate rainfall. The weather shocks are largely uninsured, so any crop loss is not reimbursed, leading to a decline in own-produced food consumption or income from crop sales. The 2011-2017 period saw erratic and low rainfall, with annual precipitation below the 30-year-average for five out of seven years (2012-2016) (Figure 1.11, panel a). The 2015-16 planting season received particularly low rainfall, with several parts of the country falling under severe and extreme drought (Frischen et al., 2020). Only in 2017 did the rainfall level climb above the long-term trend and was there a recovery in cereal production (Figure 1.11, panel b). Smallholder farmers in marginal lands without access to irrigation or other capital improvements were likely most affected by drought. The next chapter takes a deeper look into the features of the rural economy to shed more light on the vulnerability of rural, agricultural households to natural shocks and its association with household welfare.

Because of the drought-induced drop in output and decline in productivity, the agriculture sector experienced several contractions (Figure 1.11, panel c). In contrast, the industrial and services sectors that dominated the urban labor markets, employing about 93 percent of working adults in 2011 and 2017 (Figure 1.11, panel d), grew at a slow but steady pace for much of the decade before the slump of 2019 and 2020. Although the growth was not sufficient to significantly boost the average consumption level, it helped maintain the living standards of urban households.

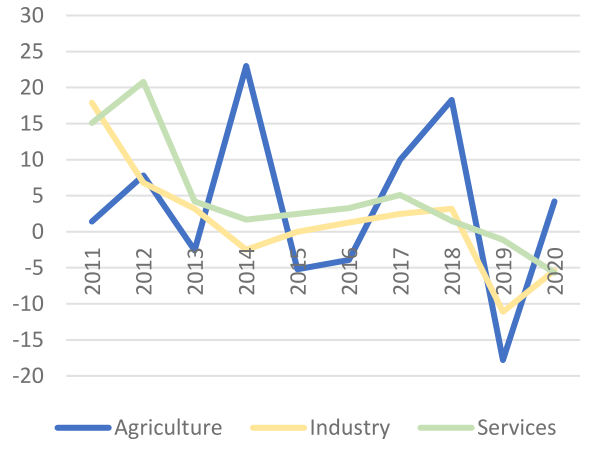
Figure 1.11: Precipitation, maize production, and sectoral growth, 2011-2020



Source: Climate Change Knowledge Portal (https://climateknowledgeportal.worldbank.org/download-data)

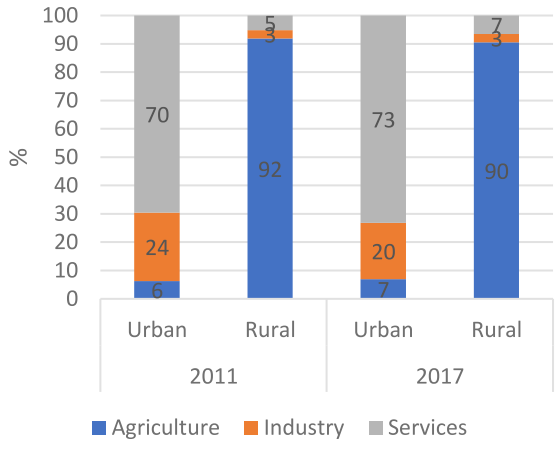
Source:FAOSTAT (http://www.fao.org/faostat/en/#data/QCL)

c) Annual value-added growth, by sector (%)



Source: World Development Indicators. Accessed June 15, 2022

d) Sectoral distribution of jobs, 2011-2017

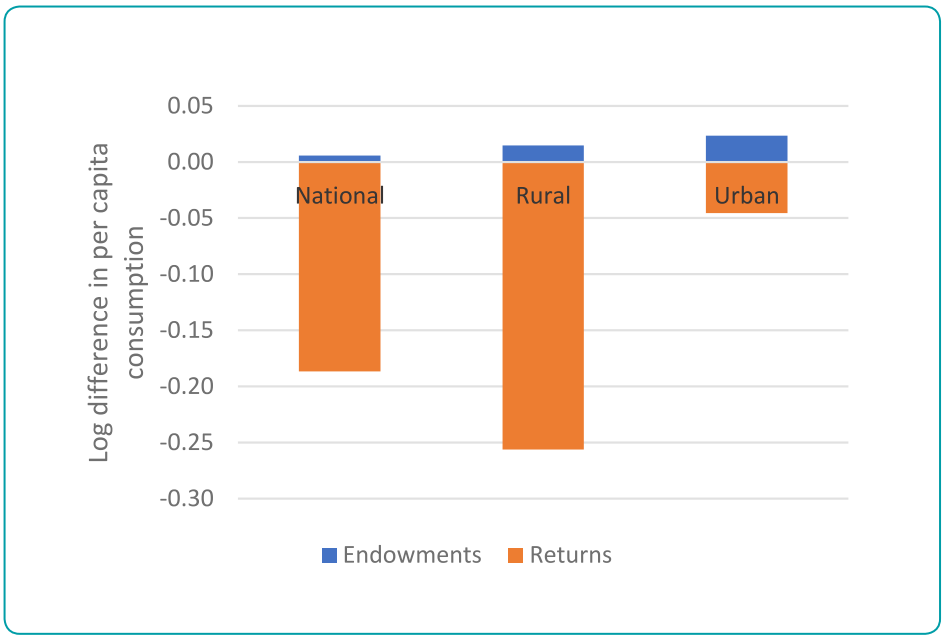


Source: Authors' calculations using PICES 2011, PICES 2017

Besides the standard decomposition, the change in well-being can also be partitioned into contribution from changes in the level of endowments and returns to endowments. This follows from the theory that household income or earnings is a function of how many productive assets a household owns and how remunerative are the assets. Changing macroeconomic or microeconomic conditions may induce asset accumulation or liquidation, and they may also affect the returns to assets. The Oaxaca-Blinder decomposition method can be used to divide the change in household consumption between two periods into a part that is "explained" by differences in asset endowments and an unexplained part that measures returns to assets (or other unobserved household characteristics) (Jann, 2008).

The decomposition analysis suggests that the decline in consumption between 2011 and 2017 was due to a drop in the returns to assets and not the level of assets (Figure 1.12). Changes in endowments had a positive contribution on household consumption, especially in urban areas, although the absolute size of the contribution is small. In contrast, returns to endowments had a negative effect on household consumption, particularly in rural areas where there was a collapse in the returns to endowments. Thus, the increase in poverty headcount in rural areas was not because of a decline in household productive capacity measured by household head's level of education, labor market status, sector of employment, or type of job, but because of lower remunerations for the same level of education, sector of employment, or type of job in 2017. This indicates a deterioration of economic conditions in rural areas in the first half of the 2010s.

Figure 1.12: Decomposition of change in per capita consumption into endowments and returns, 2011-2017

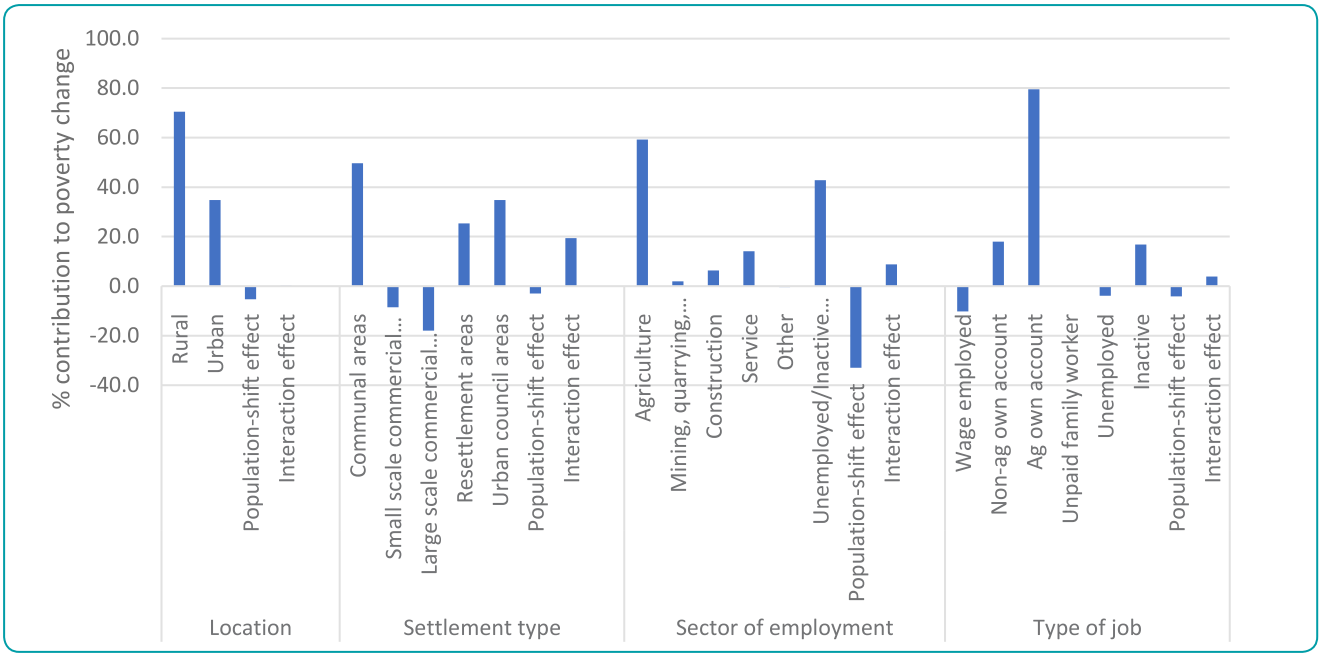


Source: Authors' calculations using PICES 2011, 2017
Note: The characteristics used in the decomposition are household head's education, labor market status, including the sector of employment (agriculture, mining/quarrying/manufacturing, construction, service) and type of job (wage, non-ag own account, ag own account, unpaid family worker) for employed workers.

2017-2019: Drought, cyclone, and inflation

Rural, agricultural households continued to be the main driver of the poverty increase between 2017 and 2019. The 2019 saw a record drought, leading to widespread crop loss and a contraction of the agriculture sector. It was also the year of cyclone Idai which caused devastation in the Eastern Highlands. Nevertheless, the contribution of urban, non-agricultural households was significantly higher in this period (35 percent) (Figure 1.13). Similarly, non-agriculture own account workers contributed negligibly to the poverty change in 2011-2017, but their contribution was 18 percent in 2017-2019.

Figure 1.13: Decomposition of change in poverty headcount, 2017-2019

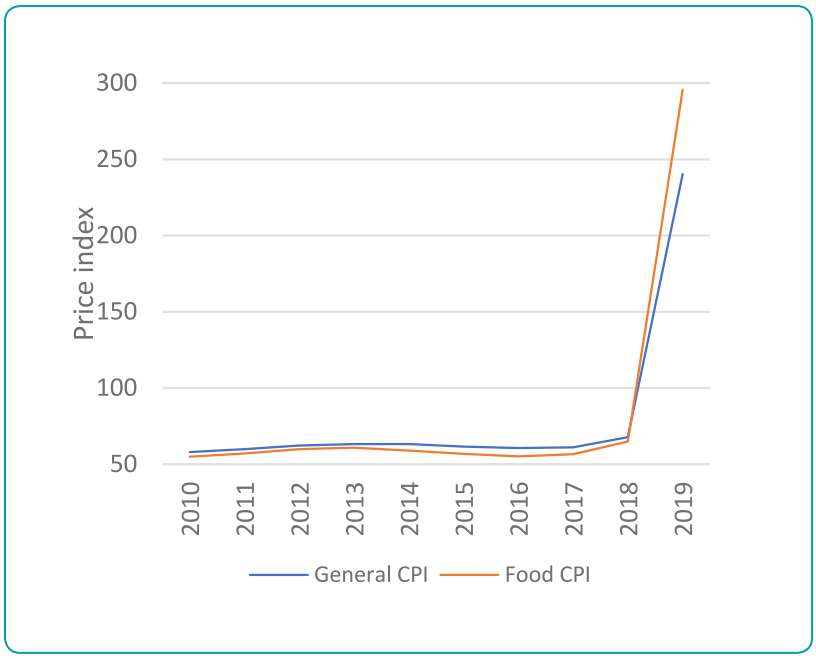


Source: Authors' calculations using PICES 2017, PICES 2019
Note: The decomposition is based on household head's characteristics. The analysis is conducted using only the subsample of households in 2019 with direct consumption measure. As such, the poverty headcount is different from the level calculated using the full sample with imputed per capita consumption.

The rapid rise in prices after 2017 played a role in increasing the contribution of urban households to the poverty increase. After staying under control for much of the 2010s, prices started rising again after 2018, with the increase in food prices outpacing the general increase in prices (Figure 1.14).[13] The price of maize and other cereals increased by more than 550 percent, the price of cooking oil rose by almost 400 percent, and partly because of the elimination of subsidies, the price of fuel, transportation, and electricity soared by 270, 350, and more than 700 percent respectively. Simulations suggest that food poverty may have risen from 38 percent in April-May of 2019 to 52 percent by the end of the year. The prices for foodstuffs such as maize grain, maize meal, bread, cereals, and cooking oil had the largest impact on this increase in poverty headcount (World Bank, 2020).

[13] Despite a slump in domestic production of maize between 2014 and 2016, food prices did not increase because the decline was compensated by imports such that the total domestic supply of maize did not decline by the same proportion.

Figure 1.14: General CPI and Food CPI, 2010-2019



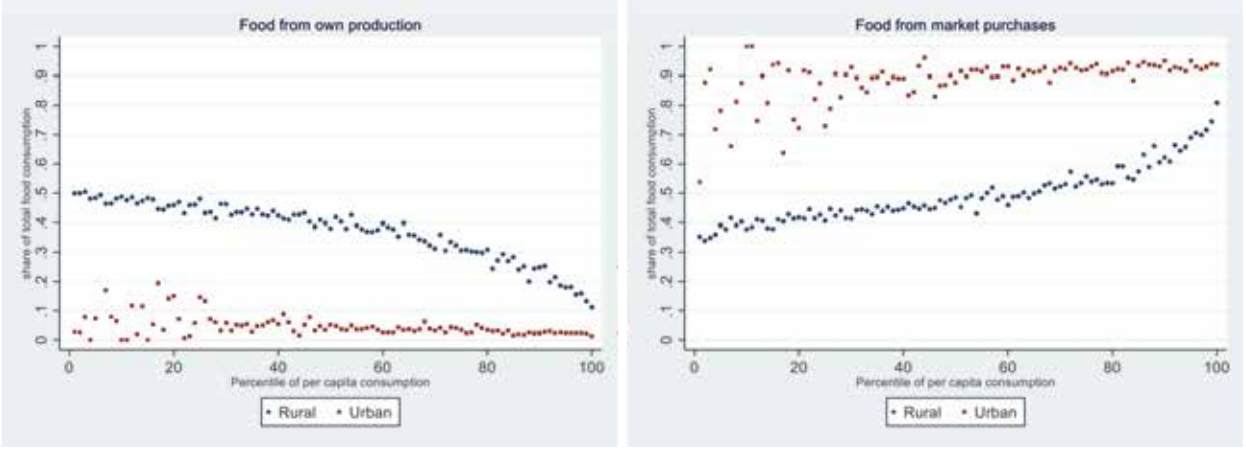
Source: ZIMSTAT

Urban households are more sensitive to the rise in food prices because they source a higher share of total food consumption from market purchases. Comparing households with the same per capita consumption level, food purchased from the market constitutes a higher share of total consumption for urban households at all consumption levels (Figure 1.15). Households that were net sellers of crops would have benefited from the increase in crop prices, although the crops failed in the 2018/2019 season because of poor rainfall.

Figure 1.15: Source of food (own production vs. market purchase), 2017

a) Share of food consumed from own production, by consumption percentile (2017)

b) Share of food consumed from market purchase, by consumption percentile (2017)

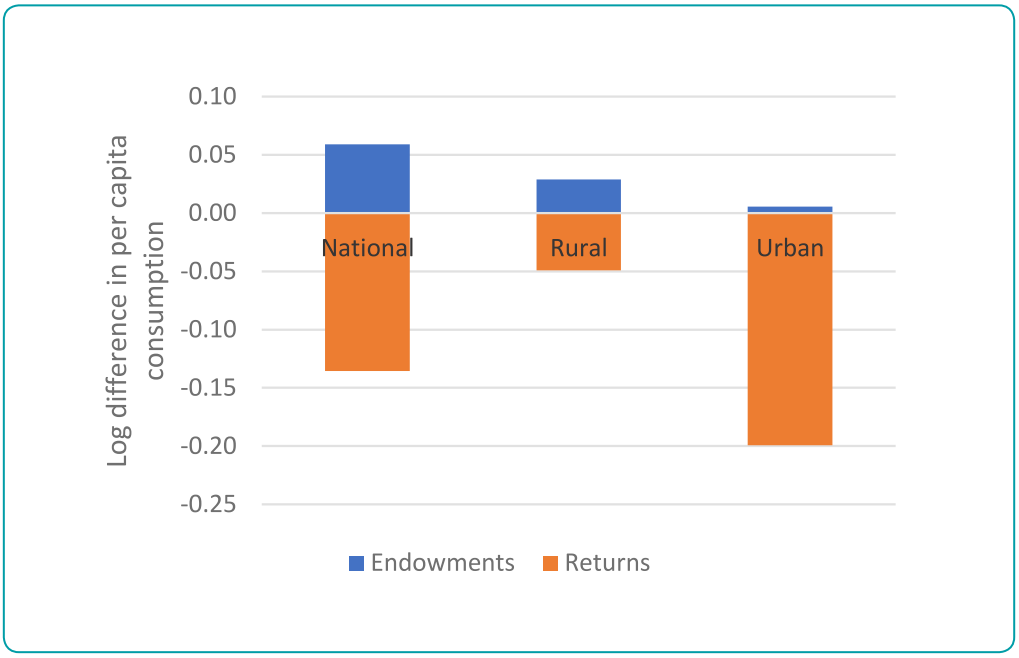


Source: Authors' calculations using PICES 2017

Note: Besides own production and market purchases, other food sources are gifts and in-kind payments.

The Oaxaca-Blinder decomposition of the change in per capita consumption into endowments and returns reinforces the role of urban areas as the driver of change late in the decade (Figure 1.15). Nationally, the decline in well-being between 2017 and 2019 was once again due to a deterioration in returns to endowments, while the endowment effect was welfare-enhancing. Unlike the 2011-2017 period, urban areas experienced a sharp and relatively larger decline in returns, suggesting a severe worsening of economic conditions.

Figure 1.16: Decomposition of change in per capita consumption into endowments and returns, 2017-2019



Source: Authors' calculations using PICES 2017, PICES 2019
Note: The characteristics used in the decomposition are household head's education, labor market status, including the sector of employment (agriculture, mining/quarrying/manufacturing, construction, service) and type of job (wage, non-ag own account, ag own account, unpaid family worker) for employed workers. The analysis is conducted using only the subsample of households in 2019 with direct consumption measure. As such, the poverty headcount is different from the level calculated using the full sample with imputed per capita consumption.

2020-2021: Drought, inflation, and pandemic

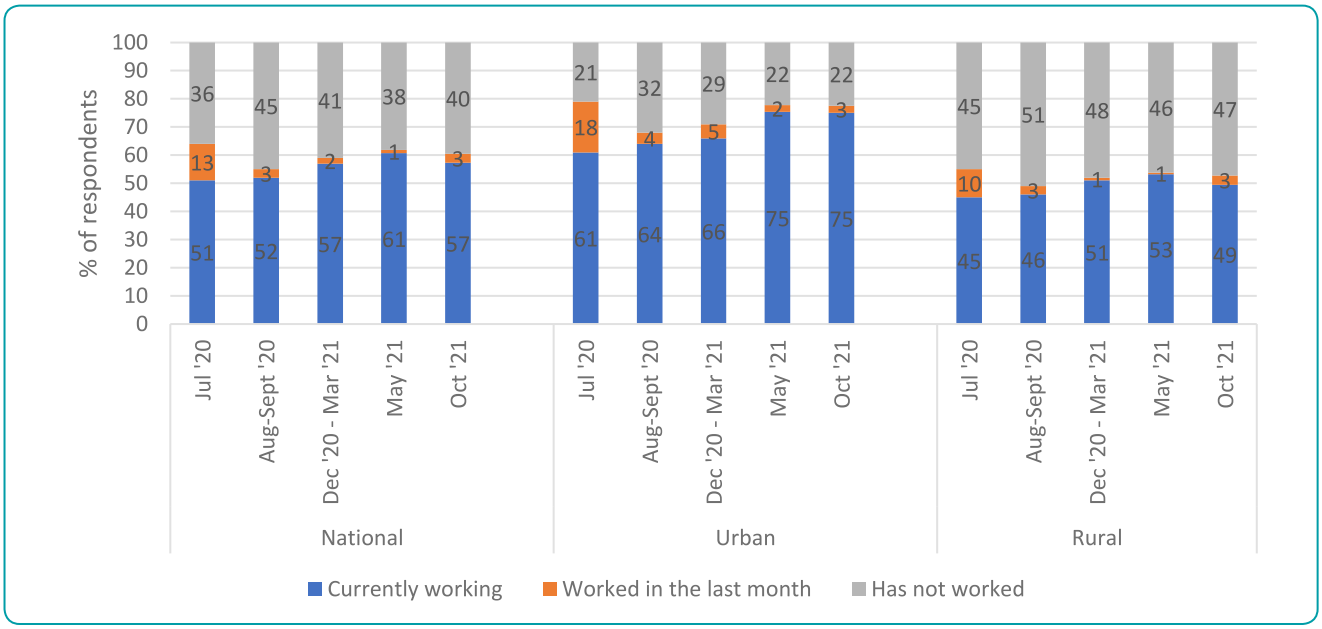
The COVID-19 pandemic dealt a blow to the Zimbabwean economy. The lockdown and containment measures put in place in Zimbabwe as well as by its key trade partners disrupted the supply chain, which limited the opportunities for the purchase of inputs and sale of outputs (World Bank, 2021). Immediately after the pandemic onset, 89 percent of firms had to suspend operations, at least temporarily. The impact was largest among micro and small firms. An equally large share of firms experienced a disruption in the demand for goods and services (86 percent) and supply of inputs (79 percent). Mobility patterns based on cellphone location data also suggest a significant fall in economic activity, as people stayed home, cutting visits to retail stores, recreation venues, public transit stations, and workplaces.[14] The COVID-19 crisis came on top of the significant challenges Zimbabwe was facing in recent years.

[14] Source: Google COVID-19 Community Mobility Reports

Predictably, the lockdown had a swift and widespread effect on employment. Of the roughly 64 percent of working-age adults who had a job before the pandemic, 13 percent were no longer working in July 2020 following the imposition of mobility restrictions (Figure 1.17).[15] Among those who stopped working most were temporarily out of job because of the closure of businesses (54 percent) while some were laid off (7 percent). However, the impact was not equal for everyone, everywhere. Given the nature of the crisis and the associated containment measures, relatively more urban residents lost their jobs. Of the 79 percent of urban workers who had a job before the pandemic, 18 percent were not working in July 2020, compared to 10 percent in rural areas. Urban residents were more likely to experience job loss because of the nature of their jobs. Indeed, of the urban workers who lost their jobs, 80 percent were previously employed in service sector occupations such as wholesale and retail, education services, food and accommodation, or other service activities that were presumably most affected by the crisis. With the easing of the lockdown and resumption of economic activity, employment level had approached pre-pandemic level by late 2021 (Figure 1.17).

The Rapid-PICES data show that even those who were able to retain their jobs or businesses were not free of pandemic-related disruptions. Among wage workers in urban areas, a significant share was not able to work in 2020 as they would have usually worked pre-pandemic. Only in 2021 were almost all workers able to work without hindrance. Again, business closure because of the lockdown was the main reason why wage-earners could not work as usual. The situation was equally severe among urban residents who ran their businesses. At the depths of the crisis, in July 2020, 88 percent of urban business owners were deriving less or no revenue from their business. In contrast, the agriculture sector was relatively less affected. Nationally, 84 percent of households engaged in farming could perform farming-related activities they would have normally performed even after the pandemic. Thus rural residents were less affected by the pandemic through the employment channel.

Figure 1.17: Employment status, 2020 – 2021



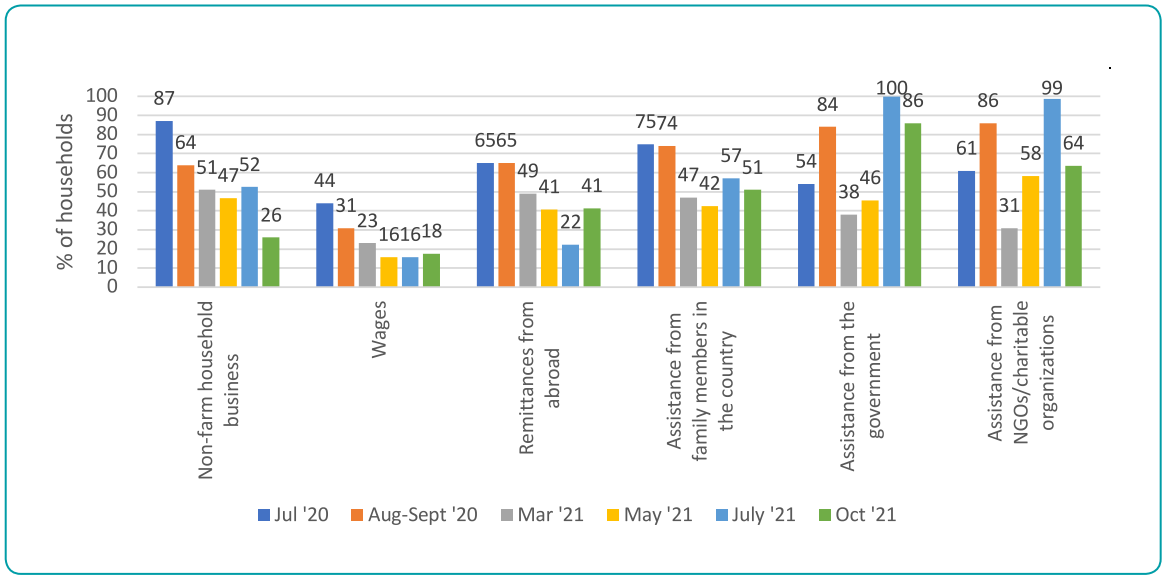
Source: Authors' calculations using Rapid-PICES 2020-2021

[15]It is not possible to calculate the labor force participation rate using high frequency data because there is not enough information to differentiate between active and inactive workers. Labor force participation rate calculated using LFS 2019 and following the standards adopted in the 19th International Conference of Labor Statistics (ILCS) is 42.8 percent (ZimSTAT, 2020).

Consistent with the closure of businesses due to government decree, many households experienced a loss in income from multiple sources. Immediately after the pandemic, an overwhelming majority (87 percent) of households with a non-farm family business reported lower income from the business. Tellingly, households with a wage income were relatively protected, with only 44 percent reporting decreased wage income. Because of the systemic nature of the shock, sources of income such as remittances that, in normal circumstances, would be countercyclical to household income also fell in line with other income sources. Almost two-thirds of households reported lower income from international remittances in July 2020 (Figure 1.18).

While the levels are high nationwide, the crisis had a relatively larger impact on business owners in urban areas. About 90 percent of urban households with businesses reported lower or no income after the crisis compared to 84 percent of rural business owners. Loss in wage income had a proportionately larger impact in urban areas because more than twice as many urban households (49 percent) had a wage-earner in the family before the pandemic than rural households (22 percent). With the gradual resumption of economic activities, incomes had recovered by late 2021, but only partially. About a quarter of the surveyed households reported lower or no income from businesses and 18 percent said their wage income was lower than that before the pandemic (Figure 1.18).

Figure 1.18: Income loss



Source: Authors' calculations using Rapid-PICES 2020-2021

Wage-earners in urban areas experienced the largest relative increase in poverty following the COVID-19 shock.[16] The poverty rate of the wage-employed in urban areas, both permanent and casual, was in the order of 4 to 6 percent in 2019. The rate increased four-fold in 2020, reaching 16 and 17 percent (Table 1.4). Agricultural workers in urban areas constitute only 2 percent of the total working population, so they are a small contributor to aggregate urban poverty. The increase in urban poverty after COVID-19 was thus driven largely by wage workers.

[16] The phone surveys do not allow the construction of employment status comparable to the pre-pandemic surveys. For that reason, we analyze the post-pandemic poverty rate by pre-pandemic employment status, i.e., the poverty rate before and after the pandemic of households whose head was a wage worker or own account worker in 2019.

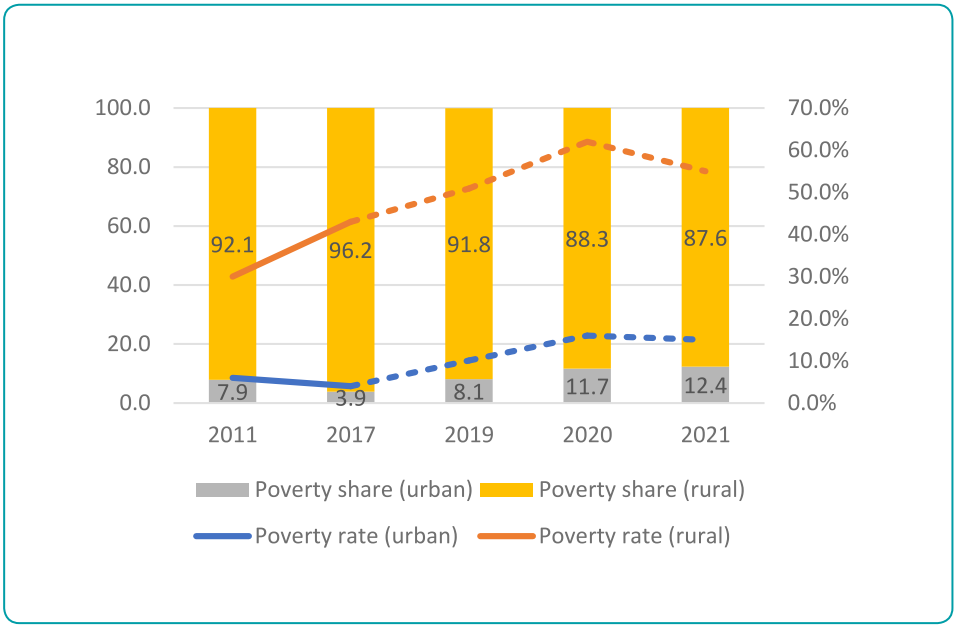
Table 1.5: 2020 poverty rate by employment status

	Urban		Rural		National	
Wage workers	2019	2020	2019	2020	2019	2020
Paid employee-permanent	0.04	0.16	0.26	0.41	0.12	0.26
Paid employee-casual	0.06	0.17	0.53	0.59	0.30	0.39
Non-farming own account workers, employers, unpaid family workers	0.13	0.16	0.50	0.67	0.22	0.30
Farmers	0.24	0.22	0.53	0.67	0.53	0.65
Unemployed/Inactive	0.16	0.16	0.49	0.60	0.25	0.27
All	0.10	0.16	0.51	0.63	0.38	0.50

Source: Authors' calculations using Rapid-PICES 2020

Urban areas have experienced a relatively faster increase in poverty headcount in recent years (Figure 1.16). The extreme poverty rate increased by 18 percent in rural areas (43 to 51) while it rose 165 percent in urban areas (4 percent to 10 percent). Consequently, the urban share of the extreme poor increased, from 4 percent in 2017 to 8 percent in 2019. The share of urban residents among the extreme poor rose further after the COVID-19 shock, with 12 percent of the extremely poor estimated to live in urban areas in 2020 and 2021. Although poverty has tilted to urban areas following recent crises that disproportionately affected urban consumers and workers, it is important to not lose sight of the fact that poverty, and vulnerability to poverty, remain an overwhelmingly rural phenomenon.[17]

Figure 1.19: Extreme poverty rate and distribution of the extreme poor, 2011-2021



Source: Authors' calculations using PICES 2011, PICES 2017, Mini-PICES 2019, and Rapid-PICES 2020-2021.
Note: The percentages may not sum to 100 due to rounding.

[17] The 2019 and 2020 poverty estimates also have a high degree of uncertainty due to small sample size and the indirect methodology for poverty estimation, so they must be interpreted with appropriate caution.

iv. Vulnerability to poverty and coping mechanisms[18]

The steady and rapid rise in poverty in the last decade exposes the vulnerability of Zimbabweans to poverty. To the extent that a household frequently experiences shocks, its income and consumption will be volatile, so a static picture of its poverty status is not a good measure of its vulnerability.Unlike the poverty headcount measure which indicates whether a household is below the poverty threshold at a specific point in time, vulnerability is a dynamic concept, capturing the ex-ante probability of a household to remain in or fall into poverty at some point in the future. The welfare impact of shocks depends on coping mechanisms households have at their disposal. If they are insured against unanticipated shocks (e.g., through index insurance, health insurance, property insurance, life insurance), then the shock has a minimal impact on welfare because the losses will be partially or fully covered. However, if the shocks are not insured, households will have to either absorb the costs or resort to costly ex-post coping mechanisms. In this section, we explore the size and sources of vulnerability to poverty using the Gunther and Harttgen (2009) method applied to the 2017 PICES, as well as the coping mechanisms in response to shocks.

Many more people are vulnerable to poverty than the number of poor.[19] Based on the 2017 food poverty line, 31 percent of the population is classified as poor, whereas 38 percent is vulnerable to poverty in that they had a more than an even chance of being poor in the following two years (Table 1.6).[20] Vulnerability is significantly higher in rural areas. More than half of the rural population is at risk of falling into poverty in the next two years while the same risk is faced by only 10 percent of the urban population. The prevalence of vulnerability also varies widely across provinces. While higher poverty usually corresponds to higher vulnerability, the magnitudes vary. For instance, Matabeleland South, Midlands, and Masvingo have a similar poverty rate of about 30 percent, but the share of vulnerable households ranges from 43 percent (Midlands) to 51 percent (Matabeleland South) (Table A2).

Households may be vulnerable to poverty because of low average level of consumption (known as poverty-induced vulnerability) or high variability in consumption (known as risk-induced vulnerability). Low average level of consumption is typically due to low human or physical capital or other productive endowments. On the other hand, high variability in consumption is a function of the volatility in income stream. Vulnerability to poverty in rural areas is driven in equal parts by low average consumption and high variation in consumption (Table 1.6). In contrast, urban vulnerability arises not so much because households do not have asset endowments or workers do not have human capital, but because intermittent shocks are likely to push them below the poverty line. Risk-induced poverty is more than twice as important in urban areas as poverty-induced poverty. Decomposing the vulnerability due to idiosyncratic and covariate shocks, a higher share of households is at risk of falling into poverty due to idiosyncratic shocks, but covariate shocks play a relatively larger role in rural areas.

[18] Vulnerability to poverty is estimated following the Gunther and Harttgen (2009) method applied to the 2017 PICES data using the Vulnerability Tool developed by Equity Policy Lab at the World Bank.

[19] A household is classified as vulnerable if it has a 50 percent or higher probability of falling below the poverty line in the next two years.

[20] There may be a small difference in the poverty rates reported here and those reported in the earlier section because the rate reported here is estimated based on a model of consumption that is a function of household and community characteristics while the poverty rates reported in the earlier section are measured directly using consumption.

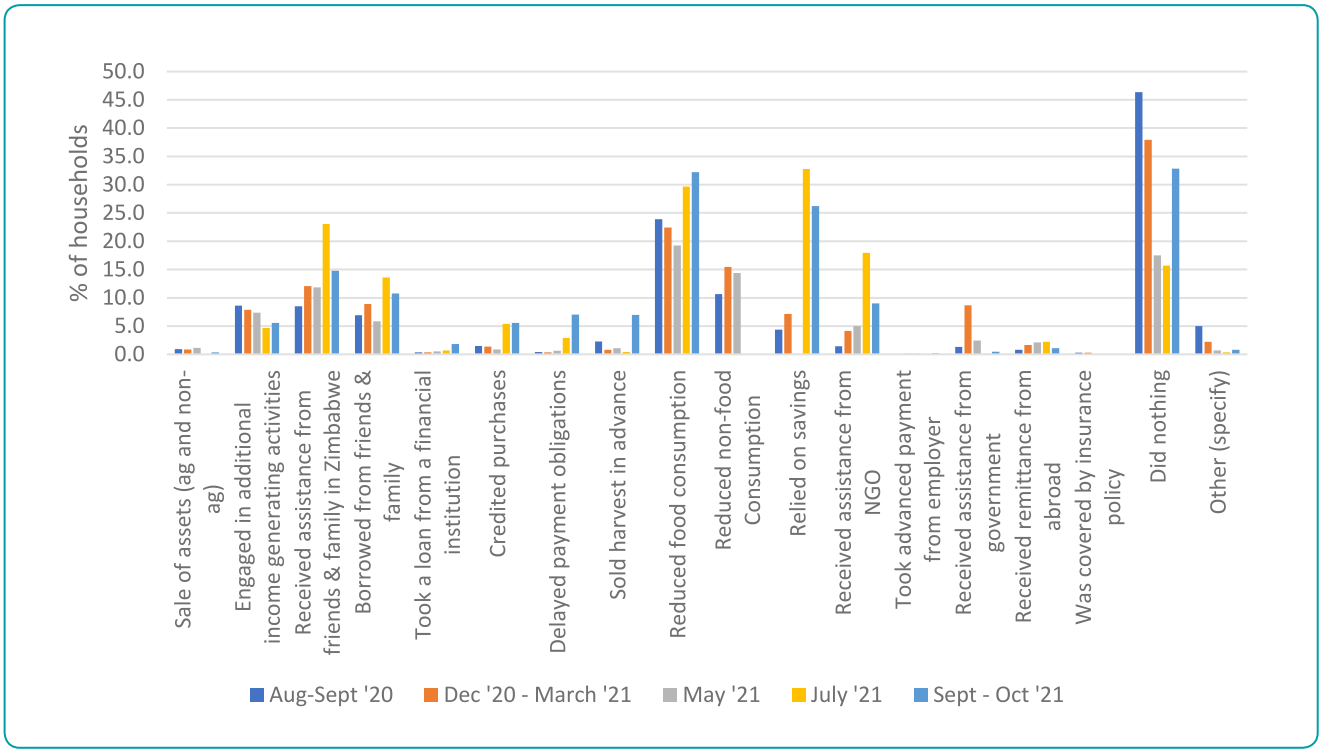
Table 1.6: Poverty and vulnerability rates, type and sources of vulnerability, 2017

			Type of vulnerability			Source of vulnerability		
	Poverty rate	Vulnerability rate	Idiosyncratic vulnerability	Covariate vulnerability	Ratio of covariate to idiosyncratic	Poverty-induced vulnerability	Risk-induced vulnerability	Ratio of risk-induced to poverty-induced
National	0.31	0.38	0.36	0.25	0.69	0.18	0.20	1.11
Rural	0.44	0.53	0.50	0.35	0.70	0.26	0.27	1.04
Urban	0.05	0.10	0.09	0.06	0.64	0.03	0.07	2.33

Source: Authors' calculations using PICES 2017

The 2017 PICES and APM surveys do not have information on coping mechanisms, but we can get a glimpse of how households respond to shocks from the Rapid-PICES data.[21] The most common response to experiencing a shock is doing nothing. A significant share of households reduces food and non-food consumption to cope with shocks, which is worrisome because of the already high prevalence of food poverty. Households also turn to informal network in times of need, either receiving help for free or borrowing money to tide over the difficult period. Very few borrow from formal institutions, which is a sign of underdeveloped credit market (Figure 1.20). These findings are consistent with prior studies that find sale of livestock (Kinsey et al., 1998) as the main private coping mechanism in response to droughts.

Figure 1.20: Coping mechanisms, 2020-2021



Source: Authors' calculations using Rapid-PICES 2020-2021
Note: The figure shows the percentage of households using each coping mechanism conditional on the household experiencing any shock.

[21] Households that report being affected by a shock such as job loss, business closure, increase in price of goods and inputs are asked how they coped with the shocks.

v. Profile of the poor

As well as understanding the spatial variation in poverty, it is also instructive to know the households and individual characteristics that predict poverty. As we saw earlier, in both 2011 and 2017, the location was a key determinant of poverty as the poverty rate was significantly higher in rural than in urban areas. The urban population comprised a third of the population but less than 8 and 4 percent of the extreme poor in the two years (Table 1.7). There does not appear to be a difference in poverty at the individual level, but male-headed households experienced a higher poverty rate than female-headed households.

Household head's education and labor market characteristics are strongly associated with poverty. Around 60 percent of Zimbabweans lived in a household whose head engaged primarily in agriculture, while they comprised 84 and 88 percent of the poor (Table 1.7). Households whose head was employed in the service sector were least likely to be poor. Consistent with the sector of employment, households whose heads are own-account workers in agriculture or whose main source of income is the sale of agricultural products are significantly poorer than other households. The poverty headcount drops monotonically with the head's level of education, and it is especially low among households whose heads have tertiary education.[22]

[22] These findings are substantiated by the regression outputs presented in Annex Table A3-A5.

Table 1.7: Poverty headcount, population shares, and poverty shares by household characteristics, 2011 and 2017

	2011			2017		
	Poverty headcount	Distribution of the population	Distribution of extreme poor	Poverty headcount	Distribution of the population	Distribution of extreme poor
Rural	30.4	68.2	92.1	43.0	67.2	96.2
Urban	5.6	31.8	7.9	3.5	32.9	3.9
Male	22.6	47.7	47.9	30.2	47.8	48.1
Female	22.4	52.4	52.1	29.8	52.2	51.9
Household head's gender						
Male	23.2	66.7	68.6	31.0	66.5	68.7
Female	12.2	33.3	31.4	28.1	33.5	31.3
Household head's sector of employment						
Agriculture	31.6	60.3	84.1	45.0	58.8	88.2
Mining, quarrying, manufacturing	8.2	7.1	2.6	11.7	5.7	2.2
Construction	14.3	2.1	1.3	9.0	2.3	0.7
Service/other	5.5	18.6	4.5	5.2	21.0	3.7
Unemployed/Inactive	14.1	12.0	7.5	12.8	12.2	5.2
Household head's type of job						
Wage-employed with contract	5.3	18.3	4.3	4.9	15.4	2.5
Wage-employed without contract	13.6	5.4	3.2	20.4	8.3	5.6
Non-ag own account	11.8	9.3	4.9	12.3	10.2	4.2
Ag own account	32.7	55.1	80.0	46.0	53.8	82.4
Unpaid family worker	13.1	0.1	0.1	16.9	0.1	0.1
Unemployed	17.4	2.6	2.0	9.9	2.6	0.8
Inactive	13.2	9.3	5.5	13.6	9.7	4.4
Household head's main source of income						
Wages and salaries	8.5	24.9	9.4	12.0	24.9	10.0
Own business	11.0	8.3	4.1	9.8	8.7	2.8
Sale of ag products	34.1	45.6	69.1	47.9	44.6	71.3
Gifts and transfers	23.2	7.0	7.2	31.6	7.2	7.6
Other	29.7	2.1	2.8	39.9	2.4	3.1
Unpaid family worker/ Unemployed/Inactive	14.1	12.1	7.6	12.8	12.2	5.2
Household head's level of education						
No education	39.9	8.0	14.2	48.1	5.8	9.3
Primary	29.9	40.3	53.5	41.7	34.8	48.4
Secondary	16.8	42.5	31.6	25.4	47.4	40.2
Tertiary	1.6	9.2	0.7	5.5	12.0	2.2

Source: Authors' calculations using PICES 2011 and 2017

Poverty analyses typically focus on the characteristics of household heads to examine the differential in poverty across subgroups. However, a focus on the household head may miss the granular details of the household's economic and demographic structure, providing an incomplete picture of poverty levels beyond the headship. To overcome the problem, alternative ways to construct household demographic and economic typologies that reveal more of the household features have been proposed. Following this approach, we analyze household poverty by defining household typologies based on the number, gender, age, and labor market status of household members. The categories are mutually exclusive and collectively exhaustive in that every member of the household is counted once and only once.

Demographic typology

For demographic decomposition, households are divided into seven typologies based on the number and gender of adults, and the number of dependents.[23] Table 1.8 shows the typologies, extreme poverty headcount for each household type, their share in the total population, and among the extreme poor in 2011 and 2017. The most common type of living arrangement was households with two adults or multiple adults with dependents, comprising three-quarters or higher share of the total population. Notably, households with only one adult female (with or without dependents) were significantly more prevalent than households with only one adult male (13.8 versus 3.3 percent in 2011 and 13.7 versus 3.7 percent in 2017). Households without dependents and with only dependents (children or seniors) together comprise a small share – about 6 percent – of the total population.

"Two adults with dependents" and "multiple adults with dependents" make up the largest share of the extreme poor in both years and they are overrepresented among the poor, i.e., their share among the extreme poor is higher than the share in the total population. Comparing the third and fourth columns of Table 1.8, "multiple adults with dependents" made up 33.6 percent of the total population in 2011, but their share of extreme poor was 40.4 percent. A closer look at the source of income and type of jobs held by adults of these households reveals that a majority are either unpaid family workers or unemployed (64 percent) or engaged in own-account agriculture (20.5 percent). Both "Multiple adults with dependents" and "two adults with dependents" were overrepresented among the poor in 2017. Again, a large share of adults in such households were either unpaid family workers or unemployed (42.7 and 41 percent, respectively) or engaged in own agriculture (30.9 percent).

When we shift from the gender of the household head to the demographic typologies, the gender difference becomes noticeable. Notably, "one female adult" households were almost twice as poor as "one male adult" households in both years (Table 1.8). These differences can be explained by the difference in income source and type of job. For example, wages and salaries were the main source of income for only 9.1 and 11.3 percent of "one female adult" households in 2011 and 2017, respectively. In comparison, the rates were 30.6 and 32.8 percent for "one male adult" households for the same years. "One female adult" households are also more likely to be dependent on agriculture than "one male adult" households. [24]

The demographic household classification shows that households with dependents fare worse than households without dependents. In both the years, households with the lowest poverty headcount were households without

[23] For demographic typologies, dependents are composed of members below 18 and above 64 years of age.

[24] 31.6 and 37.6 percent of "one female adult" households were engaged in own agriculture compared to 24.4 and 33.7 percent in "one male adult" households in 2011 and 2017, respectively.

dependents. For example, the poverty rate among "two adults without dependents" and "multiple adults without dependents" in 2017 was 1.9 percent and 5.1 percent respectively. They made up 2.6 percent and 2.2 percent of the total population in 2017 but only 0.2 percent and 0.4 percent of the extreme poor.

Table 1.8: Extreme poverty rates by demographic typology for 2011 and 2017

	2011			2017		
	Extreme poverty rate	Distribution of the population (%)	Distribution of the extreme poor (%)	Extreme Poverty rate	Distribution of the population (%)	Distribution of the extreme poor (%)
One female adult, with & w/o dependents	19.8	13.8	12.1	27.8	13.7	12.7
One male adult, with & w/o dependents	10.3	3.3	1.5	14.5	3.7	1.8
Two adults, w/o dependents	0.4	2.2	0.04	1.9	2.6	0.2
Two adults, with dependents	22.9	43.0	43.7	32.9	43.9	48.2
Multiple adults, w/o dependents	3.3	1.5	0.2	5.1	2.2	0.4
Multiple adults, with dependents	27.1	33.6	40.4	33.6	30.9	34.6
Only dependents	16.7	2.7	2.0	22.6	3.0	2.2
Total	22.5	100.0	100.0	30.3	100.0	100.0

Source: Authors' calculations using PICES 2011 and 2017.
Note: For demographic typologies, dependents are composed of members below 18 and above 64 years of age. The distribution of population and extreme poor may not sum to 100 due to rounding

Economic typology

For economic typology, households are categorized into five groups based on the number, gender, and earning status of working-age members (Table 1.9).[25] Consistent with the demographic categories where "two adults with dependents" was the most common type of household in 2011 and 2017, households with two adult earners were the most prevalent, with 45 and 37.9 percent of the total population. These households also had a higher rate of poverty than the national average – 28.2 and 35 percent, respectively, in 2011 and 2017 – and they were overrepresented among the extreme poor. A high proportion of working-age adults in these households are engaged in unpaid family work or are unemployed (47 percent in 2011), or are engaged in agriculture (49.1 percent in 2017).

Between 2011 and 2017, the group whose size and poverty rate grew the most was "multiple earners". Their share of the population grew from 10.7 percent to 25.4 percent, and the poverty rate almost doubled from 23 percent to 44.8 percent. As a result, they came to be significantly overrepresented among the extreme poor in 2017.

Notable differences also emerge between households with one female and one male earner. In both the years, the extreme poverty rate was much lower among "one male earner" households, and they were highly

[25] For economic typologies, following the labor market definition of working age, a household member is classified as an adult if he or she is above 15 years of age.

underrepresented among the extreme poor. The difference is explained by single male earners holding more remunerative jobs. In 2017, wages and salaries were the primary sources of income for 13.6 percent of single female earners, while it was 28.6 percent for single male earners. Similarly, among households with one female earners, 7.6 percent are wage-employed with a contract, but this is much higher – 17.5 percent – for one male earners.

Table 1.9: Extreme poverty rate by economic typology for 2011 and 2017

	2011			2017		
	Extreme poverty rate	Distribution of the population (%)	Distribution of the extreme poor (%)	Extreme poverty rate	Distribution of the population (%)	Distribution of the extreme poor (%)
One female earner	23.3	22.6	23.4	22.9	14.5	11.1
One male earner	9.7	17.6	7.5	9.5	17.4	5.5
Two adult earners (no other adults)	28.2	45.0	56.3	35.0	37.9	44.1
Multiple earners	23.0	10.7	10.9	44.8	25.4	37.9
No adult earners	10.1	4.2	1.9	8.5	4.9	1.4
Total	22.5	100.0	100.0	30.3	100.0	100.0

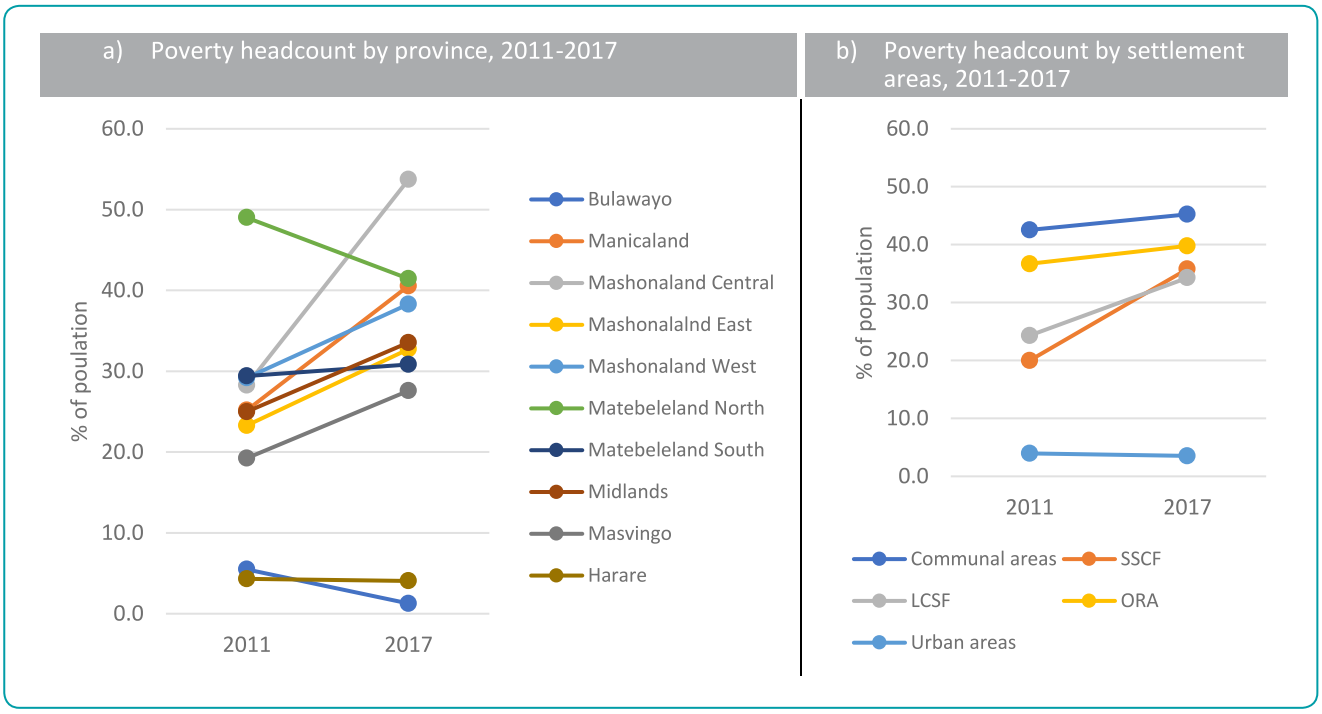
Source: Authors' calculations using PICES 2011 and 2017
Note: For economic typologies, following the labor market definition of working age, a household member is classified as an adult if he or she is above 15 years of age. The distribution of population and extreme poor may not sum to 100 due to rounding.

Spatial differences in poverty

While the living standards deteriorated between 2011 and 2017 on average, a closer examination of the poverty trends at the sub-national level reveals dramatic spatial differences in the level of welfare. Over and above the urban-rural divide, there is wide heterogeneity in poverty prevalence across provinces, districts, and settlement areas (Figure 1.17). For instance, Harare and Bulawayo provinces stand apart from the rest of the provinces, with their poverty rate far below the national average and that of the next poorest province (Masvingo). The poverty rate in the poorest provinces – Matebeleland North in 2011 and Mashonaland Central in 2017 – was an order of magnitude higher than that in Harare and Bulawayo.

Communal areas have the highest poverty rate – 45.2 percent in 2017. They host 47 percent of the population but 71 percent of the extreme poor. In contrast, the urban areas comprised about 33 percent of the population but only 4 percent of the extreme poor. The roots of this spatial disparity can be traced to the colonial legacy of land tenure that designated communal lands as areas where native farmers could live and farm while the most productive land was designated as commercial farming areas for white farmers. A sizeable proportion of the rural population continues to live in these densely populated communal lands, typically located far away from the main road network, and poorly connected to markets. Education levels are typically lowest in communal lands as are other public amenities such as access to electricity.

Figure 1.21: Subnational poverty headcount

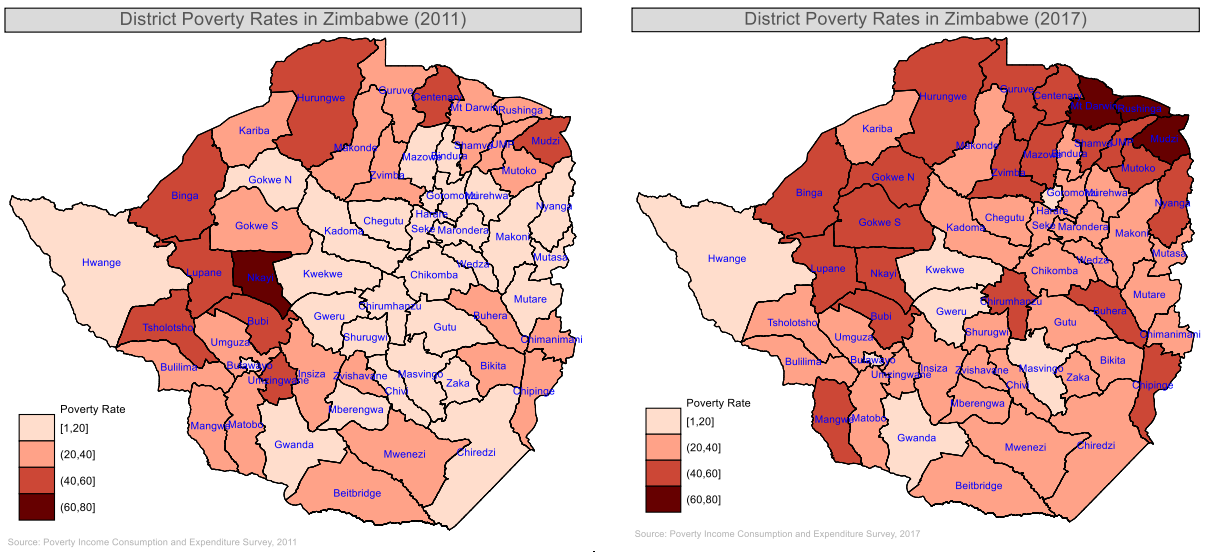


Source: Authors' calculations using PICES 2011, PICES 2017
Note: SSCF = Small Scale Commercial Farms; LCSF = Large Scale Commercial Farms; ORA = Old Resettlement Areas

Spatial differences in welfare become further accentuated when we examine poverty at the district level, the lowest geographical level of representativeness of household surveys (Figure 1.22). There is a wide variation in the poverty rate across districts each year, and this variation is more pronounced in 2017 than in 2011. Consistent with the increase in average poverty, the 2017 map is "darker" than the 2011 map, especially in the northeastern districts such as Mt. Darwin, Rushinga, and Mudzi. Nkayi district in Matebeleland North province was the poorest district in 2011 (poverty headcount of 76 percent) while in 2017 it was Mt. Darwin in Mashonaland Central province (64 percent).[26]

[26] District-level statistics on poverty and inequality are provided in the Annex.

Figure 1.22: Poverty headcount by district, 2011 and 2017



Source: Authors' calculations using PICES 2011 and 2017

As Zimbabwe grew poorer, did the gap between initially poor and non-poor areas close? We should see poverty convergence if areas that started with a high incidence of poverty became less poor, or became poorer at a slower rate, than areas that started with low poverty incidence. Figure 1.23 plots the annualized change in extreme poverty headcount ratio between 2011 and 2017 against the initial (2011) poverty level. There is a strong sign of convergence; districts with a high poverty rate in 2011 had become less poor (negative growth rate) or their poverty had grown more slowly than districts with a low initial poverty rate. This relationship is confirmed by the regression analysis which shows that for every percentage point increase in the initial poverty rate, the annualized growth rate was 0.33 percent lower (Table 1.9). This analysis shows that even as the country grew poorer, it became more equal spatially.

Figure 1.23: Spatial poverty convergence

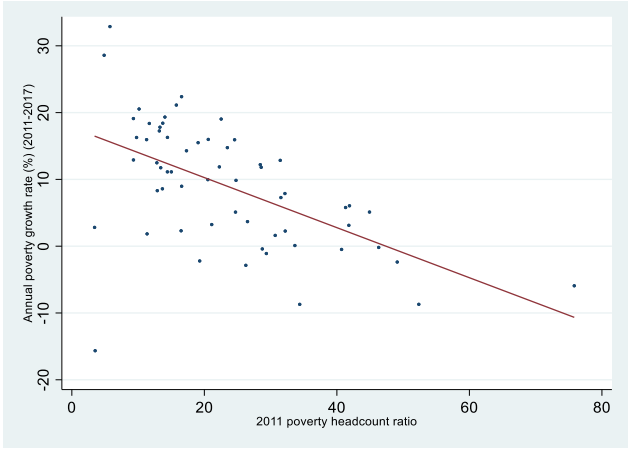


Table 1.9: Spatial poverty convergence

	Annualized poverty growth rate (%) (2011-2017)
2011 poverty headcount ratio	-0.329***
	(0.0812)
Constant	16.09***
	(2.176)
N	60
R-squared	0.221

Source: Authors' calculations using PICES 2011, 2017

In addition to the spatial differences in poverty, there are also notable disparities across urban and rural districts in infrastructure availability. The density of roads, hospitals, and schools in districts with urban clusters are significantly higher than those in rural districts (Table 1.10). Poorer districts also have a low density of roads and fewer schools and health facilities (Masiyandima et al., 2022). Proximity to roads and services infrastructure matters for intrinsic reasons as well as for instrumental reasons as they appear to have a causal impact on poverty (Masiyandima et al., 2022).

Table 1.10: Density of infrastructure facilities per km² (2013)

	Road Length	No. of Schools	No. Hospitals/Clinics
National	0.114	0.081	0.013
Rural	0.040	0.027	0.005
Urban	0.277	0.199	0.030

Source: Masiyandima et al., 2022

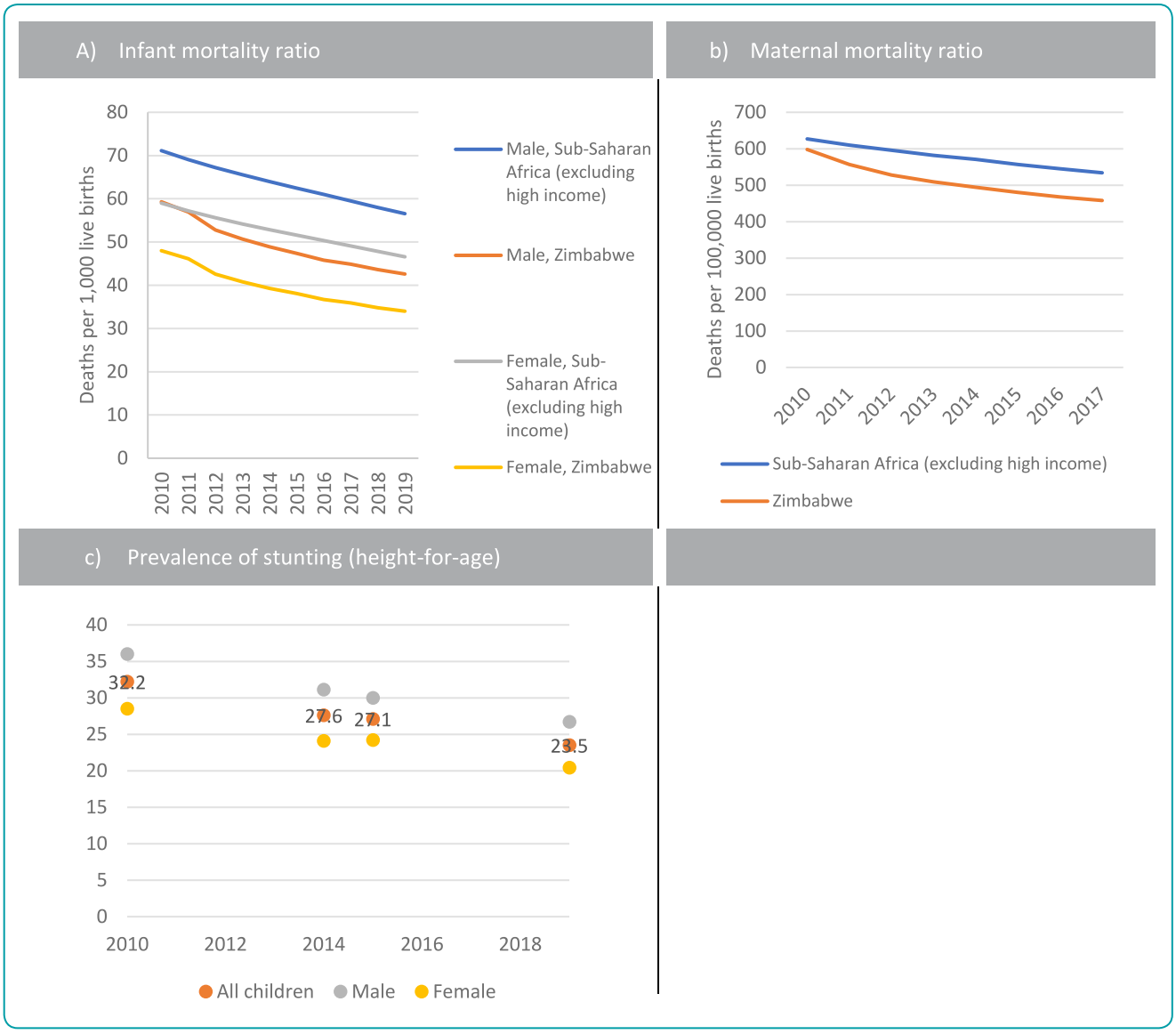
vi. Non-monetary wellbeing

Unlike monetary well-being, there was a steady improvement in non-monetary dimensions of well-being in the 2010s. While poverty is often measured using income or consumption, it can also be measured using quality of life indicators such educational attainment or access to basic services. Zimbabwe's National Development Strategy 2021-2025 (NDS 1) specifies several targets to be reached by 2025, including higher school enrollment, broader access to improved source of drinking water, sanitation facilities, access to electricity, among other things.

There was a significant improvement in infant and maternal mortality in the 2010s (Figure 1.23, panels a and b). Notably, the gender parity is in favor of girls, i.e., girls have a better chance of surviving up to the first birthday than boys do. Zimbabwe fares better even relative to its peers as it continues to maintain or improve its lead over other countries in the region (excluding high-income countries) in early life outcomes. Child nutrition is another important component of human capital investment where there has been a considerable improvement in the last decade (Figure 1.24, panel c). At a beginning of the decade, almost a third of children under 5 were

stunted, but this prevalence had fallen to less than a quarter of children by the end of the decade.[27] Here again, the outcome is in favor of girls as the prevalence of chronic malnutrition is lower among girls than boys.

Figure 1.24: Health and nutrition outcomes



Source: World Development Indicators (data.worldbank.org). Accessed February 23rd, 2022.

Steady progress was also made in the other priority areas identified in the National Development Strategy 2021-2025. Slightly less than two-thirds of the population in 2011 had access to improved sanitation facilities (Table 1.11).[28] This share had increased to more than 80 percent by 2019, which surpasses the NDS 1 target of 77.3

[27] Children whose height-for-age is below two standard deviations of the WHO Child Growth Standards are considered short for their age and classified as moderately or severely stunted. Stunting indicates chronic malnutrition as a result of failure to receive adequate nutrition in early life over an extended period and/or recurrent or chronic illness (ZIMSTAT and Unicef, 2019).

[28] Improved sanitation facilities are those designed to hygienically separate excreta from human contact, and include: flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines), and composting toilets. Source: The JMP ladder for sanitation (https://washdata.org/monitoring/sanitation).

percent. Another vital basic service is clean drinking water from an improved (uncontaminated) source. Access to improved drinking water had increased from 73 percent to 80 percent between 2011 and 2019. These levels, though improving over time, are lower than the NDS 1 target of 90 percent. While just over half the population had access to electricity in 2011, more than three-fifths did in 2019. In comparison, NDS 1 aims for 54 percent of Zimbabweans to have electricity by 2025.

While these numbers suggest a significant expansion in the coverage of basic services, room for improvement become apparent when more stringent definitions of access are applied. For instance, while 81 percent of households had access to improved sanitation facilities in 2019, only 52 percent had access to basic sanitation.[29] Going from improved to the basic source of drinking water, the coverage rate drops from 80 percent to 74 percent.[30]

A similar gap is also seen in access to electricity. In the latest PICES data, 62 percent of the population had access to any form of electricity at home, while only 34 percent were connected to the national grid. Alternative sources of electricity such as solar home systems, solar lanterns, and rechargeable batteries may be sufficient for basic lighting, but they may be unreliable, costly, and inadequate to power industrial appliances. The apparent effect of poor access to reliable, grid-supplied electricity is seen in the use of electricity for cooking. About 30 percent of the population used clean energy for cooking in 2019, and electricity from the national or mini-grid was the main source of energy for cooking for only 27 percent of the population. A disaggregation of the use of clean energy for cooking by location reveals the inequality as 84 percent of the urban population had access to clean energy for cooking compared to 4 percent of the rural population. The Hwange Thermal Power Station unit 7 and 8 expansion program, expected to be completed by March 2023, will add 600 MW of power to the national grid. This will increase access to electricity and reduce service disruption.

Despite a general improvement in coverage of basic services, inequities across space and population groups remain an issue. But for a few exceptions, access to basic services is lower in communal areas and among the poorest 40 percent of the population. The spatial and socioeconomic disparity in grid-supplied electricity and clean cooking fuel is especially egregious, with access in those areas and among those groups a fraction of the average level (Table 1.11). In other areas, however, there is a welcome convergence. Due to a rapid decline in the price of electronics, access to radio and mobile phone is as high, if not higher, among otherwise disadvantaged groups.

Ownership of or access to durable assets, a proxy for income, also became more prevalent between 2010 and 2019 (Table 1.10).[31] The NDS 1 prioritizes access to television and radio to ensure that information reaches the people on time. The PICES data show that, in 2019, slightly more than two-fifths of the population had ready access to a television or radio, proportions that are well short of the NDS 1 targets for 2025 (75 percent for TV and 80 percent for radio), but higher than what they were at the beginning of the decade. Mobile telephone penetration is inching towards the 100 percent target of the NDS 1. More than 90 percent of the population in 2019 lived in a household that either owned or had ready access to a mobile phone. On the other hand, very few have access to landlines because the rise of the mobile telephone has rendered them irrelevant. The ownership rate of other durable assets such as motor vehicles, motorcycles, and refrigerators was also slightly higher in 2019 than in 2011.

[29] Basic sanitation is the use of improved facilities not shared with other households (https://washdata.org/monitoring/sanitation)

[30] Basic source of drinking water is drinking water from an improved source with collection time less than 30 minutes (including queuing) (https://washdata.org/monitoring/drinking-water)

[31] A household in the PICES survey is said to have access to a durable asset if it owned the asset or had free access to it.

An increase in private ownership of durables at a time when monetary poverty was on a rapid ascent is puzzling. As we saw earlier, the rise in poverty was accompanied by a large increase in inequality, which suggests the increase in asset ownership may be explained by asset accumulation by better-off households, with little change among less well-off households. Asset ownership rates barely changed between 2011 and 2017 for households in the bottom 40 percent of the distribution (Table 1.11).

Table 1.11: Non-monetary dimensions of wellbeing

	PICES 2011	PICES 2017	PICES 2019
NDS 1 target: 90% of population using an improved drinking water source by 2025			
Access to improved drinking water	72.7	78.1	80.6
Communal areas	72.1	68.0	71.1
Bottom 40%	72.6	66.0	71.7
Access to basic drinking water	65.7	71.7	74.2
Communal areas	65.4	59.5	61.0
Bottom 40%	65.1	57.5	63.3
NDS 1 target: 77% of population using improved sanitation facilities by 2025			
Access to improved sanitation[32]	65.2	74.4	80.1
Communal areas	65.1	60.8	69.1
Bottom 40%	65.2	57.8	68.6
Access to basic sanitation	n.a.	45.2	51.9
Communal areas	n.a.	45.0	51.4
Bottom 40%	n.a.	39.4	47.6
NDS 1 target: 54% of the population with electricity access by 2025			
Access to electricity	51.1	58.8	62.0
Communal areas	29.4	40.7	40.7
Bottom 40%	29.3	37.0	46.5
Access to national or mini grid	n.a.	33.3	34.3
Communal areas	n.a.	4.2	3.2
Bottom 40%	n.a.	6.3	11.9
NDS 1 target: 50,000 households using modern energy forms[33]			
Clean cooking fuel[34]	n.a.	28.7	28.5
Communal areas	n.a.	3.1	1.9
Bottom 40%	n.a.	3.4	4.2
NDS 1 target: 100% mobile penetration by 2025			
Access to landline	n.a.	2.7	4.3
Communal areas	n.a.	0.5	1.0
Bottom 40%	n.a.	0.5	0.0
Access to cellphone	n.a.	86.7	91.8
Communal areas	n.a.	82.5	88.5
Bottom 40%	n.a.	80.1	88.7

[32] A household in the PICES survey is said to have improved sanitation if it had one of the following types of toilet: Flush toilet, Blair toilet, Pit toilet, or Compositing/Arbo toilet.

[33] Solid fuels are considered polluting and non-modern sources of energy, while non-solid fuels are considered clean sources of energy. Source: SDG Indicators Metadata Repository (https://unstats.un.org/sdgs/metadata/)

[34] A household in the PICES survey is said to have access to clean cooking fuel if its main source of energy for cooking is one of the following: Kerosene/paraffin, solar, ethanol, biogas, LPG/cooking gas, or electricity.

	PICES 2011	PICES 2017	PICES 2019
NDS 1 target: 75% of the population with TV access by 2025			
Access to TV	33.7	39.6	40.5
Communal areas	13.6	14.8	14.2
Bottom 40%	17.2	13.8	20.9
NDS 1 target: 80% of the population with radio access by 2025			
Access to radio	41.4	36.0	43.1
Communal areas	36.5	38.0	44.9
Bottom 40%	33.1	35.9	40.7
Asset ownership (% of population that owns or has free access to)			
Motor vehicle	6.1	10.2	13.7
Communal areas	1.5	3.4	5.3
Bottom 40%	0.7	1.4	5.1
Motorcycle	0.8	1.5	3.3
Communal areas	0.7	1.2	4.2
Bottom 40%	0.7	0.8	2.4
Refrigerator	19.4	21.0	22.8
Communal areas	1.8	3.0	1.9
Bottom 40%	2.9	1.3	6.9

Source: Authors' calculations using PICES 2011, PICES 2017, Mini-PICES 2019

Significant improvements also occurred in school enrollment and adult literacy (ZimSTAT and Unicef, 2019). Net primary attendance ratio has always been high in Zimbabwe, with only 9 percent or fewer children of primary school-age not attending school. More than 90 percent of adults (ages 15-49) are literate, with the literacy rate slightly higher among women than men. In 2009, more than half of children of secondary school age (13-18 years) were not attending secondary school. By 2019, the net school enrollment of lower secondary school-age children (13-16 years) had increased significantly, by 10 percentage points for boys and almost 20 percentage points for girls, for a Gender Parity Index of 1.19 in favor of girls.[35] Nevertheless, there is still much room for improvement in the net school enrollment ratio at the upper secondary level, as many 16-17-year-olds are still in the lower secondary level or are out of school.

The performance of the education sector in the 2010s owes to the fact that following the low of 2008, public expenditure on primary and secondary education grew considerably in the 2010s. The spending per student in primary and secondary education more than quadrupled between 2009 and 2014 (World Bank, 2017) and its budget allocation to the sector was 6.2 percent of GDP in 2015, compared to 3.9 percent for Zambia. However, almost all the budget increase since 2009 went to cover teacher salaries, while there was a net decrease in capital and non-salary recurrent expenditure. As a result, in 2014, salaries accounted for 99 percent of total spending in primary and secondary sectors, one of the most skewed ratios in the world. There is room to improve the allocative efficiency of public spending in education by funding other areas to provide better learning conditions.

[35] The Gender Parity Index (GPI) is the ratio of girls to boys school enrollment ratios.

Table 1.12: Literacy and educational attainment

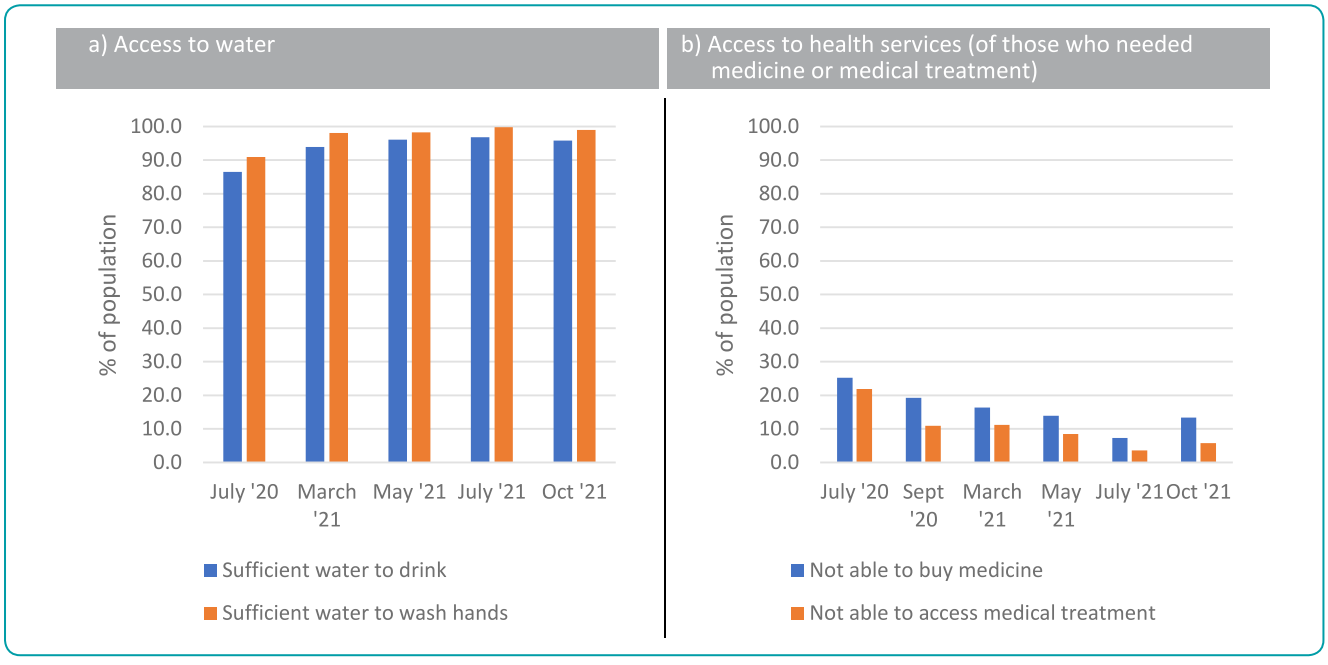
	MICS 2009	MICS 2019
NDS1 target: Literacy rate of 93% by 2025		
Adult male literacy rate	n.a.	89.4
Adult female literacy rate	87.3	92.1
NDS1 target: Junior school NER of 86% by 2025, Secondary school GER of 63% by 2025		
Net primary attendance ratio, male	90.0	89.6
Net primary attendance ratio, female	91.0	91.5
Net lower secondary attendance ratio, male		54.6
Net lower secondary attendance ratio, female		64.8
NDS 1 target: ECD NER of 20% by 2025		
Net ECD attendance rate, male		27.7
Net ECD attendance rate, female		29.1

Source: ZIMSTAT, 2009; ZIMSTAT and Unicef, 2019
Note: The literacy rate is estimated for adults aged 15-49.

Basic service delivery after the pandemic

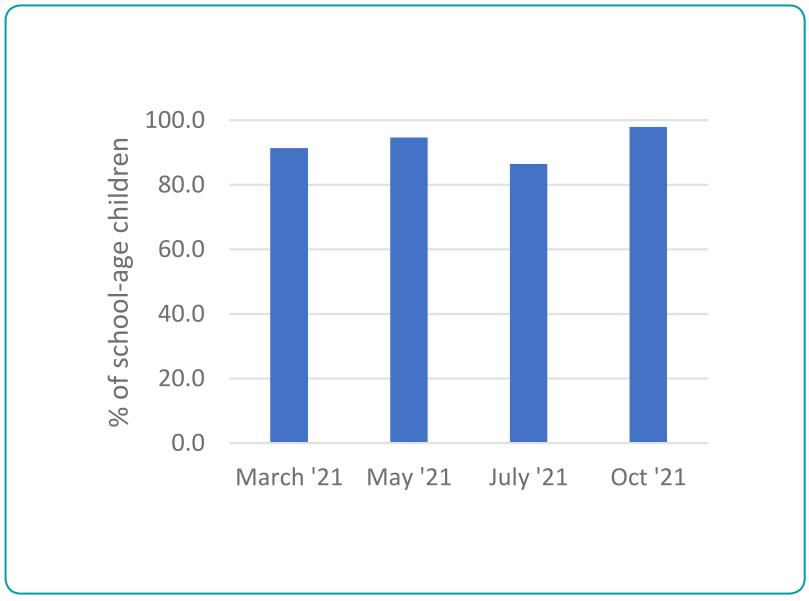
Public resource constraints and implementation challenges presented by the pandemic have affected service delivery (World Bank, 2021). Immediately after the onset of the pandemic, about 13 percent of households in the phone survey reported not having sufficient drinking water, while 9 percent did not have sufficient water to wash hands. Over time, access to water was restored to most of the population. Similarly, among those who needed medicine or medical treatment, primarily due to lack of money, close to a quarter were not able to buy medicine, and more than a fifth were not able to get the necessary medical treatment. The situation has improved with the gradual reopening and recovery of the economy (Figure 1.25).

Figure 1.25: Access to basic services after COVID-19



Besides workplaces and businesses, the other institution that was most affected by COVID-19-related lockdown measure was schools. With the easing of lockdown and reopening of schools, most children were attending school in 2021 (Figure 1.26). However, the pandemic continued to play a role in keeping some children away from school. Among those who were not yet attending school, the main reason for their absence was teacher absence (40 percent), while some hesitated going back to school out of a fear of infection (8 percent). Even as schools reopened for in-person instruction, almost 40 percent of children continued to engage in some form of home-based learning, which is one of the welcome changes brought about by the pandemic.

Figure 1.26: School attendance after COVID-19



Source: Authors' calculations using Rapid-PICES 2020-2021

The pandemic threatens to erode the gains in human capital accumulation, particularly among the poor and vulnerable. School closures may adversely affect learning because of limited access to distance and remedial learning. Globally, among households with children who attended school before school closure due to the Covid-19 outbreak, less than 60% had their children participating in any educational activities (World Bank, 2022). The situation was no difference in Zimbabwe. Immediately after the school closure, less than 40 percent of children who were going to school before they were closed engaged in any educational or learning activities at home. There was a clear urban-rural divide in the pattern of home-based learning. When schools were closed, children in rural areas were much less likely to have completed assignments from teachers, suggesting a difficulty in establishing and maintaining remote contact with teachers due likely to a lack of phones or other devices or poor network connectivity. Relatedly, rural children were also far less likely to use mobile applications for learning purposes.

At a time when public finances are dwindling due to the economic downturn and other competing fiscal demands, it may appear difficult to maintain service delivery. But a failure to preserve the stock of human capital may prove more costly in the long term to the society and individuals. The earnings potential of workers and growth potential of the country may suffer because of a fall in enrollment, rise in school dropout, loss of learning, or worsening of health and nutritional outcomes. If the loss (or slowdown) in human capital accumulation happens disproportionately among poorer children, it will constrain intergenerational mobility and give rise to long run earnings inequality.

Food security

Agriculture in Zimbabwe is primarily dependent on natural rainfall, so poor rains have an immediate bearing on many people, especially those in rural areas, who depend directly on farming for food consumption and income. The 2019/2020 crop season was marked by erratic and late rains which led to crop failures in many parts of the country. This was the second consecutive agricultural season with poor harvests. Total cereal output in the 2018/2019 cropping season was 40 percent below the five-year average owing to unfavorable rainfall with erratic spatial and temporal distribution (FAO, 2020). Furthermore, a rise in food prices made food unaffordable to many poor and near-poor households. The COVID-19 pandemic came on the heels of two poor agricultural seasons and rising food prices. Closure of businesses, loss of jobs, travel restrictions, border closures, and disruption of supply chain likely put more stress on household finances and food supply, putting foodstuff further out of reach of many households.

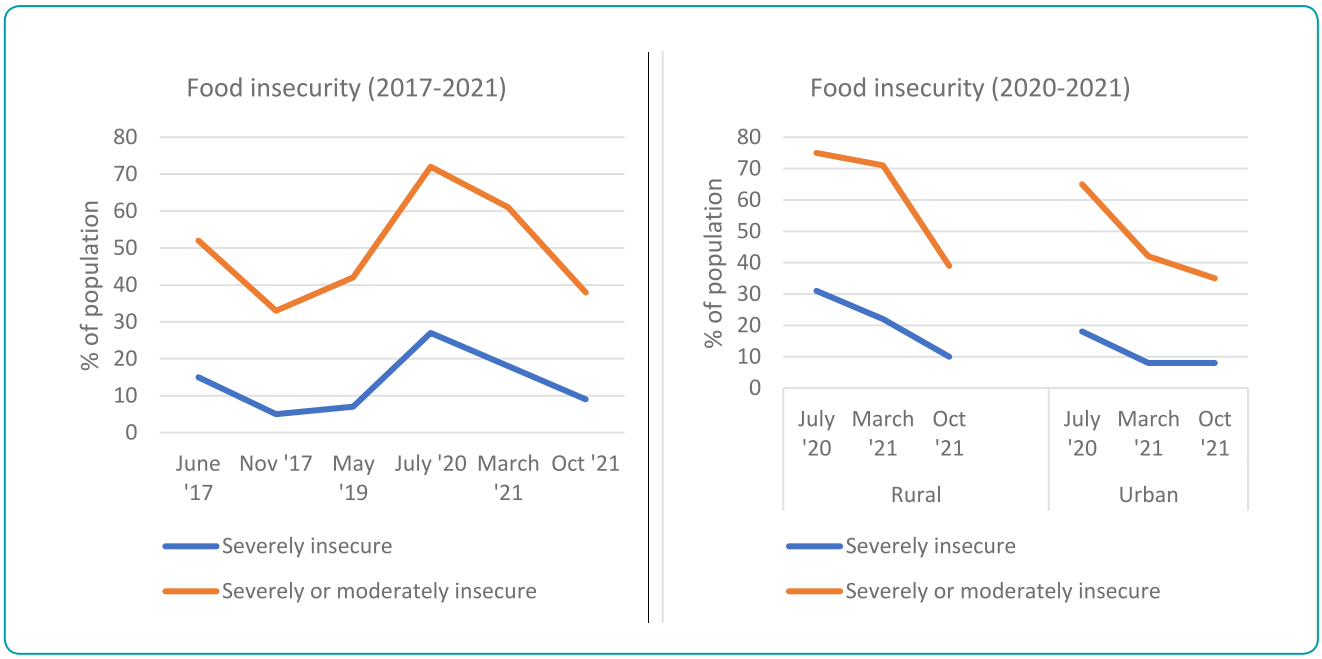
Food insecurity analysis suggests that after a sharp increase during the peak of the crisis, the food security situation had improved by early 2021 (Figure 1.27).[36] In July 2020, 72 percent of Zimbabwean households were severely or moderately food insecure, with 27 percent in severe food insecurity. The respective proportions were 42 percent and 7 percent about a year ago (April-May 2019), a 30 and 20 percentage point rise in the share of households in severe or moderate, or severe insecurity respectively. This represents the combined effect of poor harvests, inflation, and COVID-19 induced stresses.

Rural households being more food insecure than urban households was perhaps not unexpected as the former are more dependent on subsistence agriculture. What is informative is the differential trend in urban and food insecurity between July 2020 and March 2021. The share of households in moderate or severe food insecurity fell dramatically among urban residents but it remained effectively unchanged in rural areas. This suggests that while the early impact of the crisis fell disproportionately on urban households, the recovery was also relatively faster for the same group.

Thanks to the plentiful harvest of the 2020-2021 agricultural season, food security had improved everywhere by late 2021. Nationally, only 9 percent of the population was in severe food insecurity in late 2021, the lowest level since 2019. Remarkably, the proportion of food insecure populations (both severe and moderate or severe) was about the same in rural areas as it was in urban areas. Although this is unmistakably a positive development, it does reveal the vulnerability, particularly of rural households, to natural rainfall cycles. Indeed, concerns are rising that the delayed rains in the 2021-22 agricultural season will put many households at risk of hunger and malnutrition.

[36] Food insecurity is measured using the FIES (Food Insecurity Experience Scale) comprising eight questions with simple dichotomous responses ("Yes"/ "No") on whether during a reference period, households have worried about their ability to obtain enough food, have run out of food, or were forced to compromise the quality or quantity of the food eaten due to lack of money (FAO, 2013). Other approaches to measure food security are currently in use in Zimbabwe. We acknowledge FAO's technical assistance in estimate food insecurity figures.

Figure 1.27: Proportion of households experiencing food insecurity



Source: FAO estimates using PICES 2017, Mini-PICES 2019, Rapid-PICES 2020-2021

vii. Conclusion

The past decade was marked by a steady increase in poverty in Zimbabwe, with the poverty rate more than doubling from 2011 to its peak in 2020 soon after the onset of COVID-19. There were wide disparities across space and socioeconomic groups. The rise in poverty was accompanied by a rise in inequality, putting Zimbabwe on par with some of the most unequal countries in the world. The decade was marked by low and erratic growth, drought, inflation, macroeconomic instability, currency fluctuations, and the pandemic which all contributed to the increase in poverty.

Considering these observations, the rest of the report turns to an in-depth exploration of some of the main determinants of poverty and inequality. The next chapter considers the association between natural shocks (drought in particular) and poverty, as well as the vulnerability of agricultural households to shocks. Since the transformation of rural, agrarian societies to urban, industrial societies is one of the hallmarks of economic development, in the following chapter we examine Zimbabwe's spatial and structural transformation and the barriers to such a transformation. Finally, we look at the role played by the country's social protection system in mitigating poverty and vulnerability. Together, the chapters will shed light on the economic lives of the poor, the risks they face, the constraints they encounter in escaping poverty, and the role of the social protection system in mitigating the vulnerability.

2. Vulnerability to Natural Shocks

Synopsis

- Rural Zimbabwe faces severe drought hazard, and it is highly exposed and vulnerable to drought owing to a significant share of land devoted to cropping, a large share of employment in agriculture, and the rural concentration of food poor who are least able to cope with drought.
- Besides drought, Zimbabwean smallholder farmers also face other risks such as flooding, pests, diseases, and predation.
- Climate projections suggest that Zimbabwe's climate will get hotter and drier in the future, making it less suitable for the cultivation of maize, its most important crop. Prospects remain better for drought- and heat-tolerant crops such as sorghum, millet, and cassava, but adjustments in farming will be required to reduce long-term vulnerability.
- The short to medium-term policy priorities for Zimbabwe are to boost resilience to natural shocks through expanding the irrigation coverage, promoting the use of productivity-enhancing agricultural inputs and practices, and encouraging market orientation of smallholder farmers. In the long-term, attention must shift to switching away from maize to more drought- and heat-tolerant alternatives such as sorghum, millet, and cassava.

i. Introduction

Agriculture is the dominant economic activity in Zimbabwe where it accounts for more than 66 percent of total employment. But agriculture in Zimbabwe is also a risky venture as the sector is vulnerable to variations in weather. Drought poses a constant threat as El Nino-influenced drought has been pervasive over the past several years in Southern Africa (Hao et al., 2020). Zimbabwe is often ranked among the most drought-prone and disaster-prone countries in the world. For instance, according to the EU's drought risk assessment, Zimbabwe has one of the highest drought risks in the world.[37] There have been at least nine episodes of drought since 1980, interspersed with years of flooding.[38] Most recently, Zimbabwe experienced a delayed start of the rainy season and poorly distributed rainfall in 2019, which contributed to making 27 percent of the population (and 31 percent of the rural population) severely food insecure in 2020. (CIAT and World Bank, 2017).

Despite the frequency of droughts, access to irrigation remains limited. Of the approximately 16.7 million hectares of land under cultivation, about 123,000 hectares, or less than 1 percent of total cultivated land, is under irrigation (CIAT, 2017). The irrigated lands are mostly on large commercial farms, which leaves most smallholder farmers without access to irrigation, forcing them to rely on erratic rainfall as the primary source of water for crops (World Bank, 2019). This means that each year, in dryland farms, crop yields are largely determined by the timing and amount of rain. Evidence shows that net farm revenues in the smallholder farming sector in Zimbabwe are much more sensitive to temperature and precipitation in rainfed farms compared to irrigated farms (Mano and Nhemachena, 2007). Lower yields, in turn, lead to food insecurity. In absence of formal credit

[37] Source: INFORM risk assessment (https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Risk-Facts-Figures)
[38] Source: EM-DAT (The International Disaster Database) (https://public.emdat.be/data)

or insurance markets, farmers are not protected against unanticipated shocks. The covariate nature of extreme weather events also limits the opportunities for risk pooling through informal, group-based mechanisms.

As described earlier, the increase in national poverty of almost 8 percentage points between 2011 and 2017 was wholly or predominantly a rural, agricultural phenomenon, driven by increased poverty among residents of rural areas, especially communal lands, households whose head's main employment is as an own-account agricultural worker, and households whose primary source of income is sales of agricultural products. The national poverty dynamics between 2011-2017 thus cannot be understood without understanding the dynamics in agriculture which, in turn, depends on the exposure to weather fluctuations and its association with agricultural output.

This chapter characterizes drought conditions faced by rural Zimbabwean households. While many studies have explored the causes and consequences of poverty in Zimbabwe and others have analyzed the drought risk, this is one of the few attempts to link the two together. Section 2 characterizes drought hazard, exposure, and vulnerability. Regression analysis to establish the association between natural shocks and household welfare is presented in Section 3. Section 4 describes the incidence of agricultural shocks using data from a smallholder agricultural survey. Section 5 describes the implications of the hotter and dryer climate projected for Zimbabwe for the coming decades. Section 6 focuses on agricultural practices to boost yields and reduce vulnerability. Finally, section 7 concludes with policy directions.

ii. Characterizing drought hazard, exposure and vulnerability

Drought risk is conceptualized as a function of drought hazard, exposure, and vulnerability. Drought hazard reflects the proclivity of a place to be affected by drought; it is a physical relationship. Hazard is calculated using remotely sensed data on variables such as temperature, precipitation, and vegetation health. Drought hazard is measured using the Vegetation Health Index (VHI), an index that combines precipitation and temperature (see Box 2.1 for more details on the VHI).

The exposure measure incorporates sources of livelihoods, as different livelihoods imply potentially different relationships. An area with fewer people or fewer people directly dependent on agriculture will have lower exposure to drought compared to another area with more people or more people in agriculture, even if both areas have the same level of hazard. Exposure is derived by integrating the hazard data with land use patterns, particularly by differentiating land used for growing crops. A lacuna of this analysis is it does not account for the impact of drought on livestock rearing which may operate through a loss of forage, scarcity of feed, disease and predation, or shortage of drinking water for cattle.

Finally, drought vulnerability is the predisposition to be adversely affected by drought. Vulnerability is a function of social susceptibility, ecosystem susceptibility, and a lack of coping ability. In the present analysis, vulnerability is represented as the number of people and extremely poor people exposed to drought. In the subsequent analysis, we consider only rural wards because a very small share of urban households depends directly on agriculture. This omission underestimates the true extent of drought exposure because urban households too are affected by drought through an increase in food prices and a possible fall in wages triggered by drought-induced displacement of rural workers to urban areas. It is also common for urban households to tend to kitchen gardens or use unutilized public space to grow vegetables or maize. Nevertheless, such supplemental income constitutes a small share of the total income.

Box 2.1: Measuring drought using the Vegetation Health Index (VHI)

Drought is a relative concept. It is defined as deviation from the "normal" condition of precipitation and evapotranspiration, or a below-normal water availability over an extended period (Wilhite and Glantz, 1985; Frischen et al., 2016).

Drought hazard is measured by the Vegetation Health Index (VHI) which captures deviation from the long-term conditions. The VHI is a linear combination of the Vegetation Condition Index (VCI) and the Temperature Condition Index (TCI). The VCI compares the current Normalized Difference Vegetation Index (NDVI) to the range of values in previous years. The VCI, expressed in percentages, gives an idea of where the observed value is situated between the extreme values (minimum and maximum) in the previous years. Lower values indicate bad vegetation state. Mathematically,

$$VCI = (NDVI - NDVI_{min}) / (NDVI_{max} - NDVI_{min})$$

Similarly, the TCI measures temperature-related vegetation stress. It compares the current land surface temperature to the range of values observed in the same period in previous years. The TCI, expressed in percentages, indicates where the observed value is situated between the extreme values (minimum and maximum) in the previous years. The TCI is computed as follows:

$$TCI = (T_{max} - T) / (T_{max} - T_{min})*100$$

The VHI is expressed as the linear combination of VCI and TCI:

$$VHI = \alpha*VCI + (1-\alpha)*TCI$$

where α measures the relative contribution of the VCI (α = 0.5). The VHI is used as a proxy for drought as it combines both temperature-related and vegetation-related stress. Low values of VHI indicate vegetation stress due to heat and dryness. The VHI thresholds for the intensity of drought are as follows: Above 40 – No drought; 30-40 – Mild drought; 20-30 – Moderate drought; 10-20 – Severe drought; Below 10 – Extreme drought.

Our preferred measure of drought hazard is the average frequency of drought which is estimated by calculating the total number of years a pixel has been in drought (i.e., VHI < 40) over the 1981-2012 period and taking the average of the total over all pixels over an area. Thus, if a district has an average drought frequency of 5, the pixels within the district were, on average, in drought conditions for five years. We focus on the 1981-2012 period because our vulnerability analysis is based on the ward-level distribution of people and the poor from the 2012 census. The VHI data was derived from the National Oceanic and Atmospheric Administration (NOAA) Advanced Very High-Resolution Radiometer (AVHRR).

Source: Frischen et al., 2020

Drought hazard

Drought is common in rural Zimbabwe (Table 2.1 and Figure 2.1).[39] In line with prior expectations, the rural areas of Matabeleland North and South have the highest drought frequency, with drought occurring there on average every three to four years. Even in the humid areas in the Eastern Highlands and the Central Highveld, drought events occur approximately on average once every five to six years. Not surprisingly, the frequency of drought is the highest in agroecological regions IV and V, the regions that experience low total rainfall which makes them unsuitable for intensive cropping.[40]

Table 2.1: Drought hazard (Average drought frequency) (1981-2012)

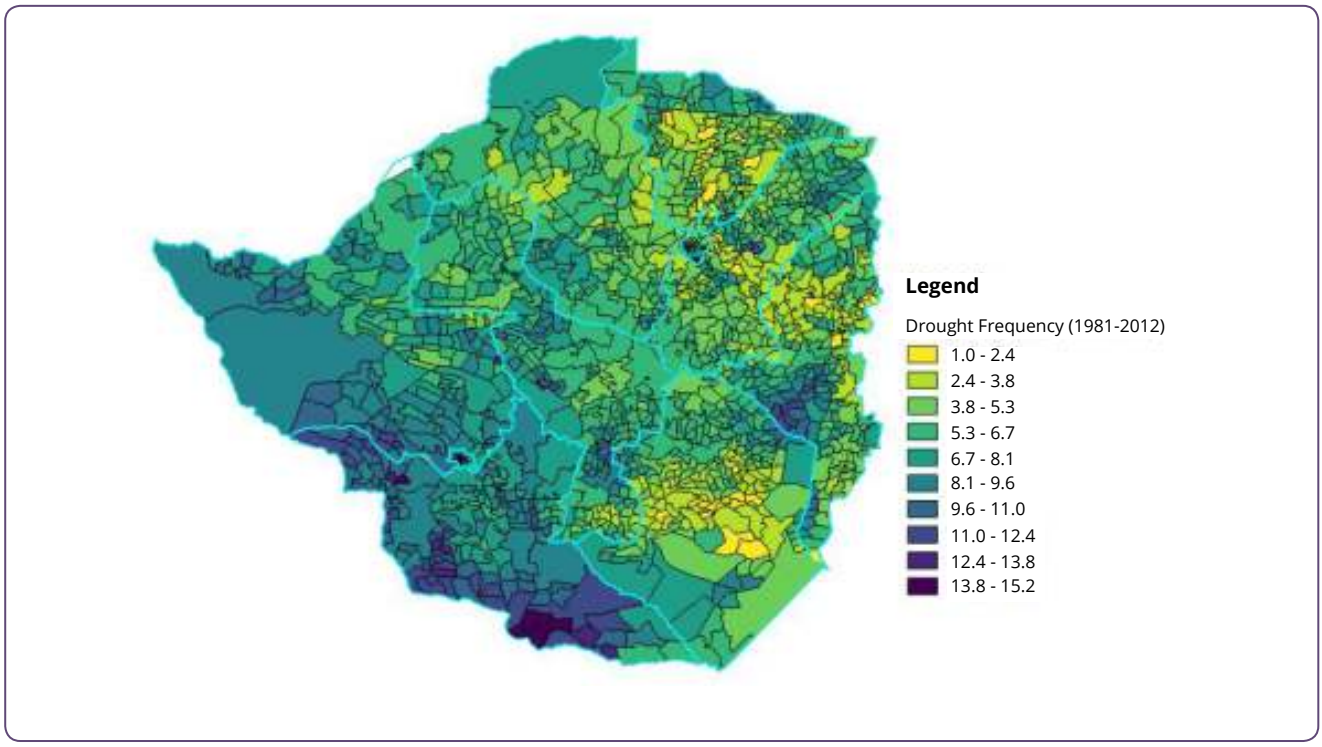
	Average drought frequency				Number of wards (rural only)
	mean	s.d.	min	max	
Provinces					
Manicaland	5.6	2.3	1.0	12.3	207
Mashonaland Central	4.9	1.6	1.8	9.5	164
Mashonaland East	5.4	1.6	2.1	11.0	200
Mashonaland West	5.6	1.4	2.9	9.4	120
Masvingo	5.0	1.9	1.7	10.0	195
Matabeleland North	7.8	1.7	3.8	13.5	145
Matabeleland South	9.4	2.2	5.0	15.2	128
Midlands	6.6	1.7	3.0	13.0	193
Natural Regions					
I	4.2	1.6	1.0	9.0	43
IIA	4.9	1.7	1.8	11.0	204
IIB	4.6	1.4	2.0	12.0	117
III	5.9	1.6	1.9	11.5	270
IV	6.8	2.2	1.7	14.0	529
V	7.5	2.9	1.5	15.2	189

Source: Authors' calculations using Zimbabwe Spatial Database and NOAA VHI
Note: Average drought frequency refers to the average of the total number of years the pixels within the province have experienced drought (i.e., VHI < 40) over the 1981-2012 period

There is wide heterogeneity in the frequency of drought within each province (Figure 2.1). For instance, while rural Matebeleland North and South are highly drought-prone, they have pockets of areas that experience drought less frequently. Some areas of Zimbabwe were in drought for 15 years over the last 30 years, or every other year on average, while others experienced drought only once over the same period. Broadly speaking, the frequency of drought increases from the north and east to the south and west of the country.

[38] We use the Vegetation Health Index (VHI) and the measure of drought (December - February), the main cropping season in Zimbabwe, for the 1981-1982 to 2011-2012 agricultural seasons (see Box 2.1 for details on VHI calculation).
[39] We use the agroecological zones developed by Vincent and Thomas (1960) and revised by AGRITEX (1984). The zones have recently been revised by Manatsa et al. (2020) to account for the change in temperature and precipitation and agricultural practices.

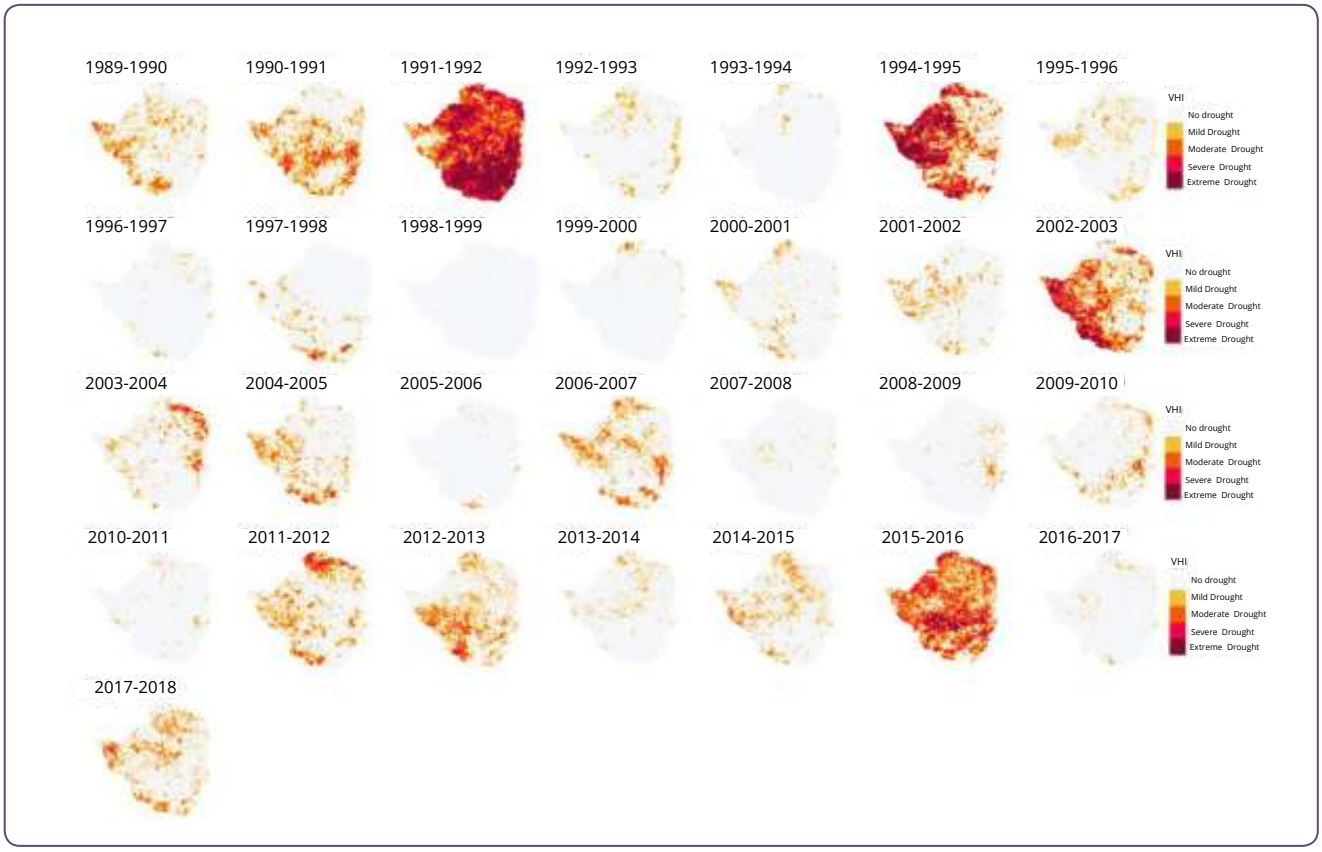
Figure 2.1: Long-term (1981-2012) drought frequency (rural wards only)



Source: Authors' calculations using Zimbabwe Spatial Database and NOAA VHI data.
Note: Average drought frequency refers to the average of the total number of years the pixels in the province have experienced drought (i.e., VHI < 40) over the 1981-2012 period. The blue lines reflect provincial boundaries and the black lines differentiate wards.

There is also a wide annual variation in drought conditions. Between 1989-90 and 2017-18, Zimbabwe experienced major droughts in 1991-92, 1994-95, 2002-03, and 2015-16 (Figure 2.2). The El-Nino induced drought of 2015-2016 over a wide swathe of the country affected more than 800 wards and more than half the population, with 34 percent, 18 percent, and 4 percent of the population affected by moderate (20 < VHI <= 30), severe (10 <= VHI <= 20), and extreme drought (VHI < 10), respectively. Besides the widespread drought years, each year sees a localized occurrence of drought, for example in the north in 2011-12 and the center and southwest in 2012-13.

Figure 2.2: Annual fluctuations in planting season Vegetation Health Index (VHI)



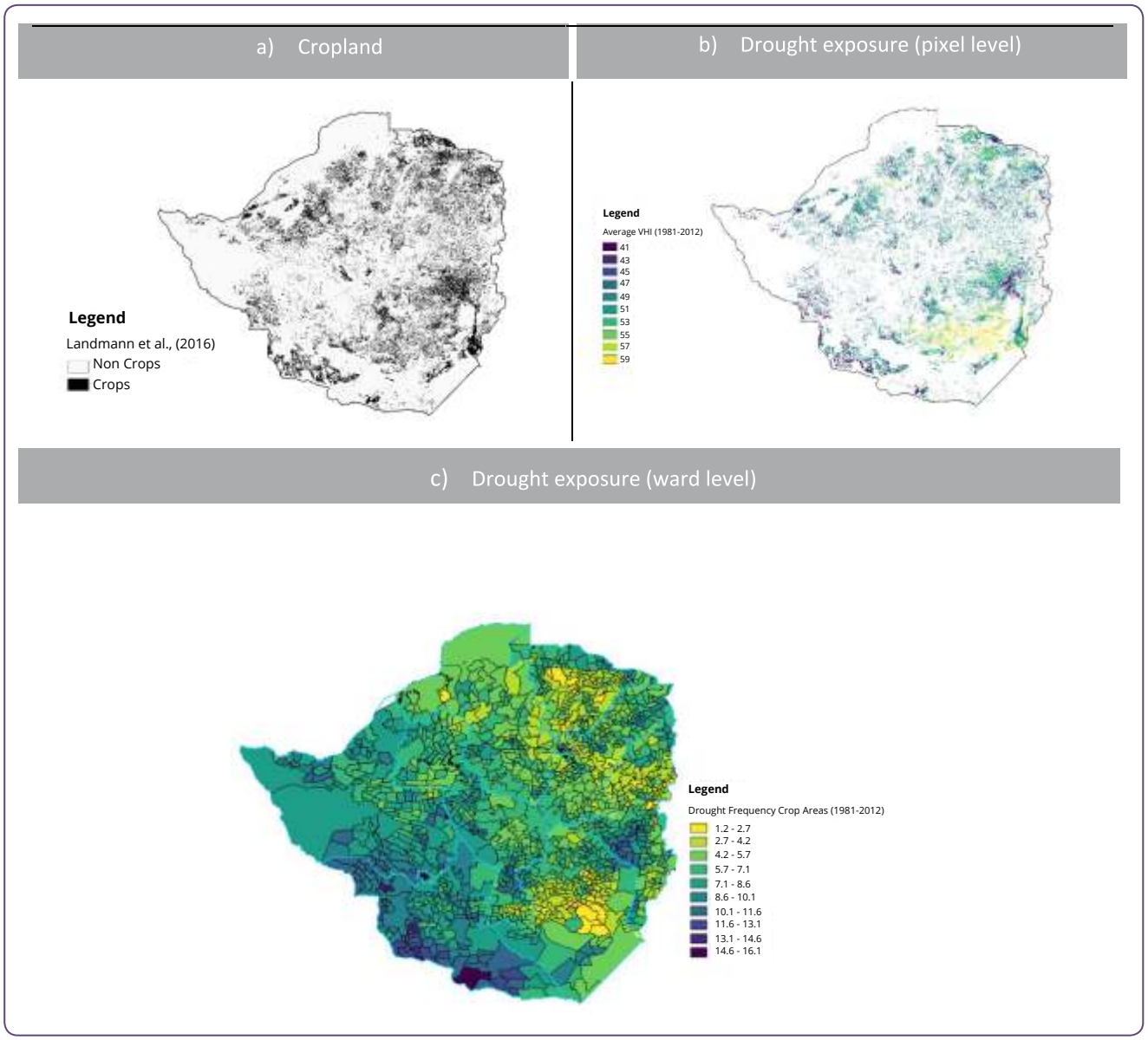
Source: Authors' calculations following Frischen et al., (2020) using NOAA VHI data.

Drought exposure

An analysis of exposure to drought, computed as average drought frequency over cropped areas, shows that substantial parts of Zimbabwe are exposed to drought.[41] The drought exposure map (Figure 2.3, Panel b), obtained after superimposing the spatial distribution of cropland (Figure 2.3, Panel a) on drought hazard, reveals interesting patterns. For example, the south and west of the country have high drought hazard (Figure 2.1), but their exposure to drought is limited because the areas are so dry that they cannot sustain rainfed agriculture (Manatsa et al., 2020). However, extensive cattle ranching predominates in these areas, an activity requiring some minimal rainfall for forage growth. Ignoring drought hazard on livestock rearing underestimates the drought exposure for the south and west of the country.

[41] The land use/land cover data showing the spatial distribution of croplands is sourced from Landmann et al. (2019).

Figure 2.3: Drought exposure



Source: Authors' calculations using NOAA VHI data and croplands data from Landmann et al. (2019).
Note: The spatial distribution of croplands is based on the data from Landmann et al. (2019). Drought exposure is calculated as the average frequency of drought over crop areas. The blue lines reflect provincial boundaries and the black lines differentiate wards.

Rural areas are highly exposed to drought as they are heavily dependent on agriculture. Cropland constitutes a significant share of rural land, and roughly 60 to 80 percent of rural employment in the rural areas is in the agriculture sector (Table 2.2). Areas such as Matabeleland North and South, and Regions IV and V that frequently experience drought and where a large share of workers are in agriculture will feel the direct effect of drought acutely through widespread income loss and food insecurity. The direct effect on areas that are less dependent on agriculture may be moderate, but they will still be affected by second-order effects such as increases in food prices.

Table 2.2: Exposure to drought (rural wards only)

	Drought exposure (Average drought frequency over crop land)				Agriculture share of employment	Crop share of land	Number of rural wards
	mean	s.d.	min	max			
Provinces							
Manicaland	5.8	2.5	1.2	13.4	0.69	0.30	207
Mashonaland Central	5.0	1.6	2.0	9.6	0.79	0.35	164
Mashonaland East	5.5	1.6	2.3	10.0	0.69	0.27	200
Mashonaland West	5.6	1.4	2.5	9.8	0.74	0.22	120
Masvingo	5.1	2.0	1.6	10.3	0.83	0.30	195
Matabeleland North	7.9	1.7	3.3	14.0	0.67	0.15	145
Matabeleland South	9.5	2.2	4.8	16.1	0.58	0.26	128
Midlands	6.7	1.7	3.0	12.6	0.82	0.28	193
Regions							
I	4.1	2.1	1.2	13.4	0.67	0.09	43
IIA	4.9	1.6	2.0	9.7	0.69	0.27	204
IIB	4.7	1.3	1.8	10.0	0.74	0.26	117
III	6.0	1.6	2.0	11.6	0.76	0.26	270
IV	6.9	2.2	2.0	14.3	0.77	0.29	529
V	7.7	2.9	1.6	16.1	0.73	0.32	189

Source: Authors' calculations using Zimbabwe Spatial Database and NOAA VHI

Vulnerability to drought

Linking areas exposed to drought with the spatial distribution of people and poor reveals vulnerability to drought (Table 2.3).[42] About two-thirds of Zimbabwe's population and 90 percent of its poor live in rural wards. Region IV is most vulnerable to drought as almost a quarter of the population and more than a third of all extreme poor live there (Table 2.3). Region V has higher exposure to drought than region IV, but region V is less vulnerable as relatively fewer people and extremely poor people live there. Region I is least vulnerable to drought, both because it has the least exposure to drought of all the regions and it holds only a small share of the population and the poor.

[42] Vulnerability to drought is measured by overlaying the map of drought exposure with the ward-level distribution of poverty and population distributions. The ward-level poverty estimates are obtained from small area estimates of poverty using the 2011 PICES and 2012 census.

Table 2.3: Vulnerability to drought (rural wards only)

	Drought exposure (Average drought frequency over crop land)				Agriculture share of employment	Crop share	Distribution of population	Distribution of extreme poor	Number of rural wards
	mean	s.d.	min	max					
Provinces									
Manicaland	5.8	2.5	1.2	13.4	0.69	0.30	0.12	0.14	207
Mashonaland Central	5.0	1.6	2.0	9.6	0.79	0.35	0.09	0.11	164
Mashonaland East	5.5	1.6	2.3	10.0	0.69	0.27	0.09	0.10	200
Mashonaland West	5.6	1.4	2.5	9.8	0.74	0.22	0.09	0.14	120
Masvingo	5.1	2.0	1.6	10.3	0.83	0.30	0.10	0.10	195
Matabeleland North	7.9	1.7	3.3	14.0	0.67	0.15	0.05	0.11	145
Matabeleland South	9.5	2.2	4.8	16.1	0.58	0.26	0.05	0.06	128
Midlands	6.7	1.7	3.0	12.6	0.82	0.28	0.09	0.13	193
Regions									
I	4.1	2.1	1.2	13.4	0.67	0.09	0.02	0.03	43
IIA	4.9	1.6	2.0	9.7	0.69	0.27	0.13	0.17	204
IIB	4.7	1.3	1.8	10.0	0.74	0.26	0.06	0.06	117
III	6.0	1.6	2.0	11.6	0.76	0.26	0.13	0.17	270
IV	6.9	2.2	2.0	14.3	0.77	0.29	0.23	0.36	529
V	7.7	2.9	1.6	16.1	0.73	0.32	0.10	0.12	189

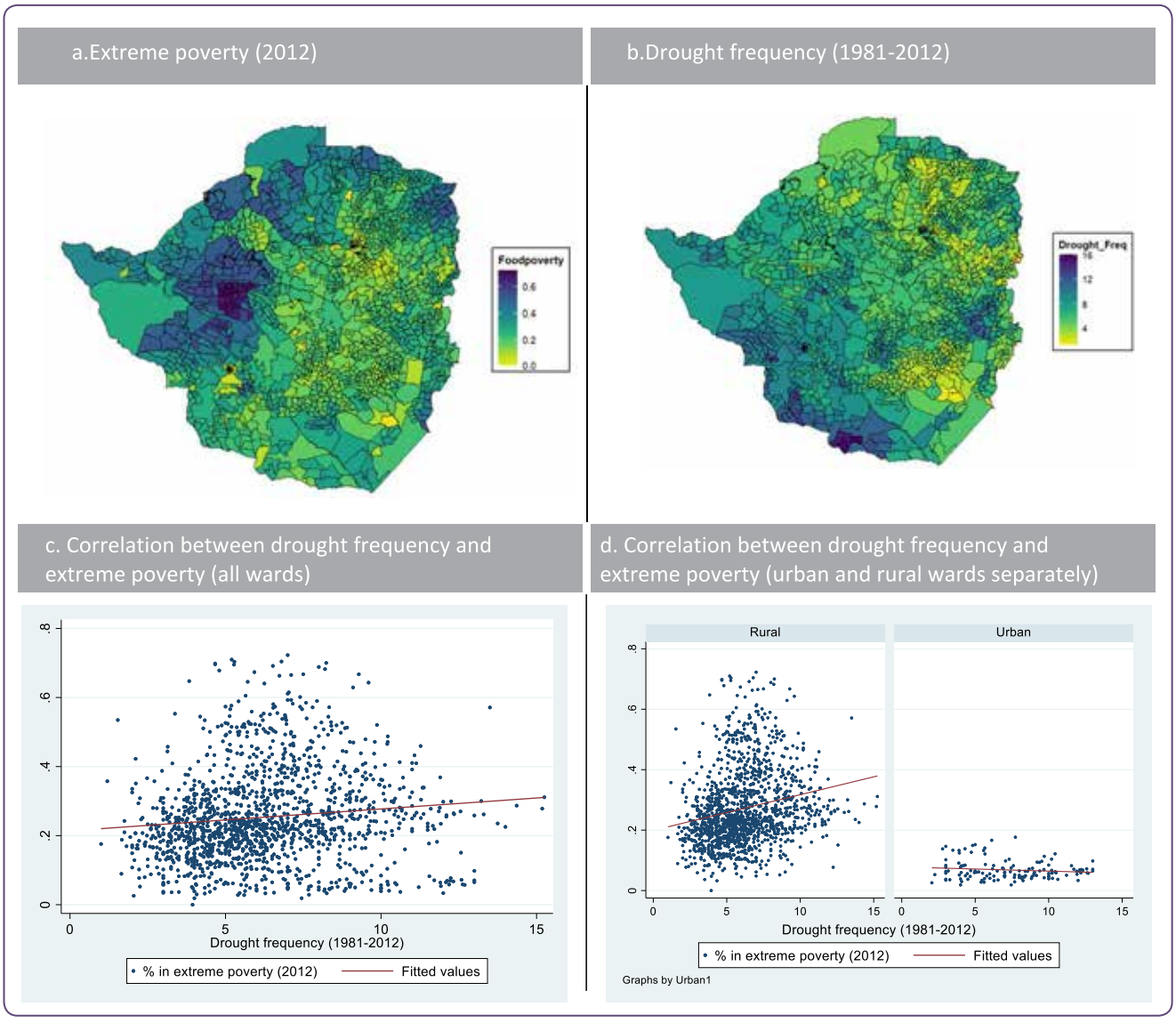
Source: Authors' calculations using Zimbabwe Spatial Database and NOAA VHI.
Note: Distribution of population and of extreme poor reflect people in rural areas of the province/region as a percentage of all people and poor in Zimbabwe as of 2012. The agriculture share of employment may differ between the census and survey data due to differences in the instrument and survey sampling error.

iii. Association between drought and poverty

The discussion so far has characterized the spatial distribution of drought hazard, exposure, and vulnerability in Zimbabwe. This section uses the frequency of drought to explore the association between poverty and drought exposure in a regression framework. We use a cross-sectional analysis with 2012 ward level poverty as the dependent variable and drought frequency as the measure of drought exposure (Table 2.4). We hypothesize that the poverty headcount, on average, is higher in areas that experience a higher frequency of drought.

Before presenting the regression results, we provide a visual preview of the association between the 2012 extreme poverty headcount ratio and the frequency of drought events at the ward level. Figure 2.4 shows the maps of extreme poverty in 2012 and drought frequency between 1981-2012 and the scatterplots of the poverty rate and drought frequency. There is a modest positive association between drought frequency and extreme poverty shown by the small upward slope of the line of best fit in panel (c) of the figure. The association is stronger in rural areas, while there is no correlation between extreme poverty and the average frequency of drought in urban areas (Figure 2.4, panel d).

Figure 2.4: Ward-level association between extreme poverty (2012) and drought frequency (1981-2012)



Source: Authors' calculations using Zimbabwe Spatial Database and and NOAA VHI
Note: Average ward-level drought frequency is computed as the average of total numbers of years the pixels in the ward have been in drought (VHI < 40) during 1981-2012.

The positive correlation between ward-level extreme poverty in 2012 and average drought frequency is confirmed by regression analysis. In our preferred specification, which controls for the factors that may mediate the impact of drought on poverty,[43] an increase in drought frequency of one year is associated with an increase in extreme poverty of 0.6 percentage points in rural wards (Table 2.4, Column III).[44] The association is weaker and less robust in urban areas. The control variables are strongly correlated with poverty and explain a large proportion of the variation in the poverty headcount.

[43] Such factors include the dependence of ward in agriculture (cropland share of ward and agriculture share of employment), level of education (share of adults with secondary education), and connectivity (market potential).
[44] This association is weaker and marginally significant for alternative measures of market access.

Table 2.4: Association between extreme poverty (2012) and drought frequency (1981-2012)

Dep Var = Ward-level extreme poverty headcount	(I)	(II)	(III)	(IV)	(V)	(VI)
Average Drought Frequency	0.011***	0.012***	0.006***	0.003*	0.003*	0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agriculture Share of Employment		0.184***	0.107***		0.065*	0.014
		(0.015)	(0.016)		(0.025)	(0.028)
Crop share			-0.046*			-0.013
			(0.018)			(0.034)
Share of adults with Secondary Education			-0.452***			0.053**
			(0.038)			(0.018)
Market Access			-0.011***			-0.020***
			(0.002)			(0.006)
Constant	0.211***	0.067***	0.388***	0.049***	0.040***	0.247***
	(0.009)	(0.015)	(0.026)	(0.010)	(0.010)	(0.060)
N	1348	1347	1347	71	68	68
R2	0.041	0.132	0.273	0.057	0.134	0.281

Source: Authors' calculations using Zimbabwe Spatial Database 2019.
Note: Market access (or market potential) refers to the distance between two areas weighted by travel time.

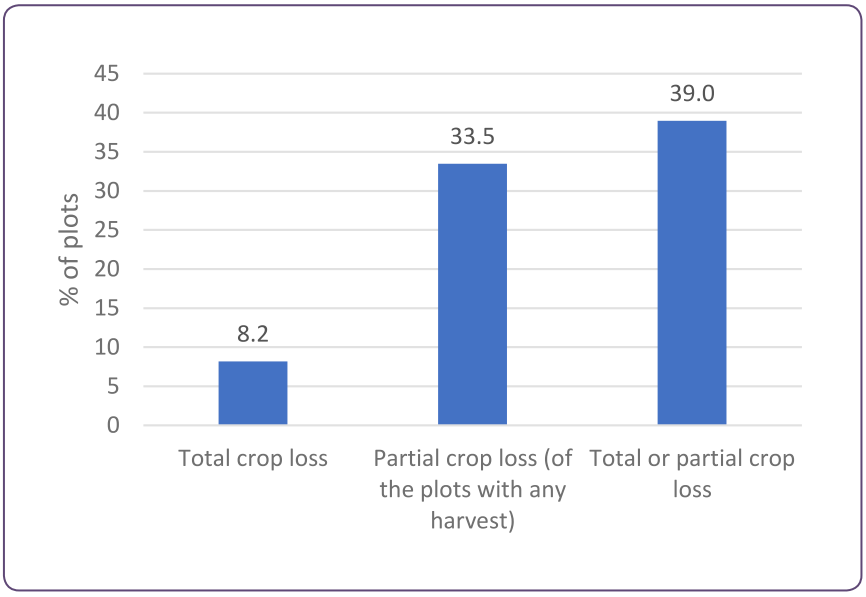
iv. Self-reported incidence of shocks

Drought is not the only risk faced by farming households in Zimbabwe. This section broadens the analysis to examine multiple risks faced by farm households and their impact on farming outcomes. We use data on the self-reported incidence of shocks in the 2016-2017 agricultural season from the Agricultural Productivity Module (APM) of the 2017 PICES. The APM was an addendum to the main household survey conducted among a subset of 2338 smallholder farmers.[45] The sample was designed to be representative of smallholder farmers in Communal Areas (CAs), Small Scale Commercial Farms (SSCFs), A1 resettlement areas (A1), and old resettlement areas (ORAs). It contained detailed questions on agricultural practices, use of inputs and technology, outputs, and sales, among other things. Two interviews were conducted, once before the planting season and once after the harvest.

[45] A total of 2552 households were sampled for the survey. With a successful interview of 2338 households, the response rate was 92.5 percent.

Farm households in Zimbabwe are in a precarious situation. Of all the plots planted at the beginning of the season, there was no harvest at all on about 8 percent of the plots. Of the plots with some harvest, there was a crop loss on about 34 percent (Figure 2.5). Together, of all planted plots, 39 percent either yielded no output entirely or partial output.[46] Smallholder households in CAs, SSCFs, ORAs, and A1 farms were equally likely to experience total or partial crop failure.

Figure 2.5: Incidence of agricultural shocks



Source: Authors' calculations using APM 2017

The reasons for crop loss varied. The most common reason for total crop loss in the 2016-2017 season was flooding (34 percent of plots) followed by damage by animals (22 percent) and pests or diseases (10 percent) (Figure 2.6). Consistent with the national-level evidence of sufficient rainfall, drought was responsible for crop failure on about 4 percent of the plots, indicating that even in abundant-rainfall years, drought can afflict some Zimbabwean farmers. Among the reasons for partial crop loss, flooding and water-logged conditions were the reasons for almost half the plots (48 percent). Lack of fertilizers, a variable under policy control, was responsible for a loss of yields in about a quarter of the plots. Damage by animals or pests (20 percent) was each responsible for crop loss in about a fifth of the plots. Drought was the cause of crop loss in 1 percent of the plots.

Flooding was the predominant determinant of total or partial crop failure in the 2016-2017 agricultural season because that year saw record rainfall, exceeding the long-term average level (Figure 1.6). The widespread crop loss caused by excessive rain in 2017 is especially noteworthy because it occurred one year after Zimbabwe experienced one of the worst droughts in recent history. While good rainfall following a severe drought is welcome news for farmers reliant on rainfall, the year-to-year fluctuation only accentuates the outsized role unpredictable natural shocks play in the livelihoods of smallholder farmers.

[46] Partial output is when the area harvested is less than the area planted.

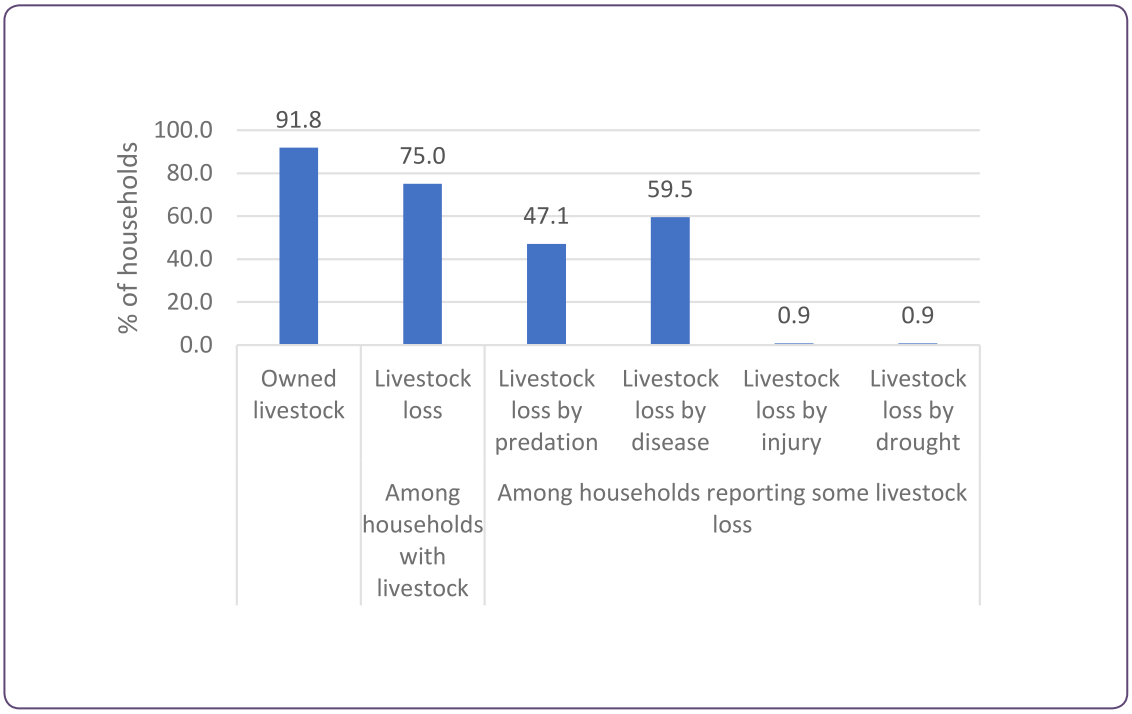
Figure 2.6: Reasons for crop failure

Source: Authors' calculations using APM 2017

Livestock rearing is an equally risky venture. Raising livestock is a part of household wealth and income portfolio for an overwhelming majority of Zimbabweans as 92 percent of smallholder households in 2017 held some livestock. Among households that owned any livestock, three-quarters had lost an animal in the first half of 2017 due to causes such as predation, disease, injury, and drought (Figure 2.7). Looking at heterogeneity across settlement types, smallholders in SSCF areas were significantly more likely to face livestock loss, especially through predation. Disease and predation posed the highest risks, as 59 percent and 47 percent of households that had lost livestock had done so for those reasons.[47] Again, drought posed a negligible risk to livestock mortality in 2017 as less than 1 percent of households had lost a farm animal to a lack of sufficient water.

[47] Chicken was most likely to be lost due to predation, followed by goat and turkey.

Figure 2.7: Incidence of livestock loss



Source: Authors' calculations using APM 2017

Households experiencing crop loss were significantly more likely to experience food insecurity. Specifically, households experiencing total or partial crop loss in any plot were 14 percentage points more likely to worry about food and 8 percentage points more likely to have run out of food in the previous month.[48] They were also more likely to resort to costly coping measures such as skipping a meal, restricting food intake, and going a whole day without food (Table 2.5), and they were significantly more likely to borrow money to mitigate the food shortage.

[47] Food insecurity was measured after the 2016/17 harvest season in the second round of APM data collection, between September and November of 2017.

Table 2.5: Association between agricultural shock and food insecurity

VARIABLES	Worried about food	Skipped a meal	Ran out of food	Went a whole day without food	Restricted food intake	Borrowed money to buy food
Crop loss	0.14***	0.13***	0.08***	0.06***	0.06***	0.09***
	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Observations	2,112	2,112	2,112	2,112	2,112	2,112
Pseudo R-squared	0.07	0.10	0.11	0.11	0.09	0.06

Source: Authors' calculations using APM and PICES 2017
Note: Marginal effects from probit regression. Robust delta-method standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
The control variables are province, settlement type, and categorical variables for household head's highest level of education (no education, primary, secondary, or tertiary), sector of employment (agriculture, mining/quarrying/manufacturing, construction, service, other, unemployed/inactive), job type (wage employment with and without contract, non-ag own account, unpaid family worker, employed, inactive), and main source of income (wages and salaries, own business, sale of ag products, gifts and transfers, other, unemployed/inactive).

Crop loss is associated with a higher poverty rate as well. Using a regression framework to control for a variety of household characteristics, we find a positive association between crop loss and extreme poverty status. Specifically, a household that experienced any crop loss during the growing season is 8 percentage points more likely to be in extreme poverty, although the relationship weakens and becomes marginally significant when controlling for other variables (columns I and II of Table 2.6). While the relationship is in the "expected" direction, it does not imply crop loss causes poverty. It is equally plausible for the direction of causality to run in the opposite direction, i.e., poor households are more prone to experience crop loss because their plots are in more shock-prone areas. In contrast, there is no significant relationship between loss of livestock and extreme poverty (columns III and IV in Table 2.6).

Table 2.6: Association between agricultural shocks and extreme poverty in 2017

Dependent variable = Dummy variable for extreme poverty					
	(I)	(II)		(III)	(IV)
Crop loss	0.08***	0.06*	Livestock loss (conditional on owning a livestock)	-0.04	-0.03
	(0.04)	(0.03)		(0.04)	(0.04)
Control variables	No	Yes	Control variables	No	Yes
Observations	2,131	2,119	Observations	2,009	1998
Pseudo R-squared	0.01	0.15	R-squared	0.00	0.15

Source: Authors' calculations using APM and PICES 2017
Note: The point estimates are marginal effects from a probit regression. Robust delta-method standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
The control variables are district, settlement type, and categorical variables for the household head's highest level of education (no education, primary, secondary, or tertiary), sector of employment (agriculture, mining/quarrying/manufacturing, construction, service, other, unemployed/inactive), job type (wage employment with and without a contract, non-ag own account, unpaid family worker, employed, inactive), and main source of income (wages and salaries, own business, sale of ag products, gifts and transfers, other, unemployed/inactive).

v. Projections of a hotter and drier future

The effects of climate change are already visible in Zimbabwe as the precipitation levels have declined and temperature levels have increased over the last two decades. All districts except a few northern districts received lower precipitation over the 2011-2017 period compared to the period from 2004 to 2010 (Figure 2.8, panel a). In contrast, the mean maximum temperature was higher over the 2011-2017 period than the 2004-2010 period for most districts (Figure 2.8, panel b) (Pindiriri et al., 2022).

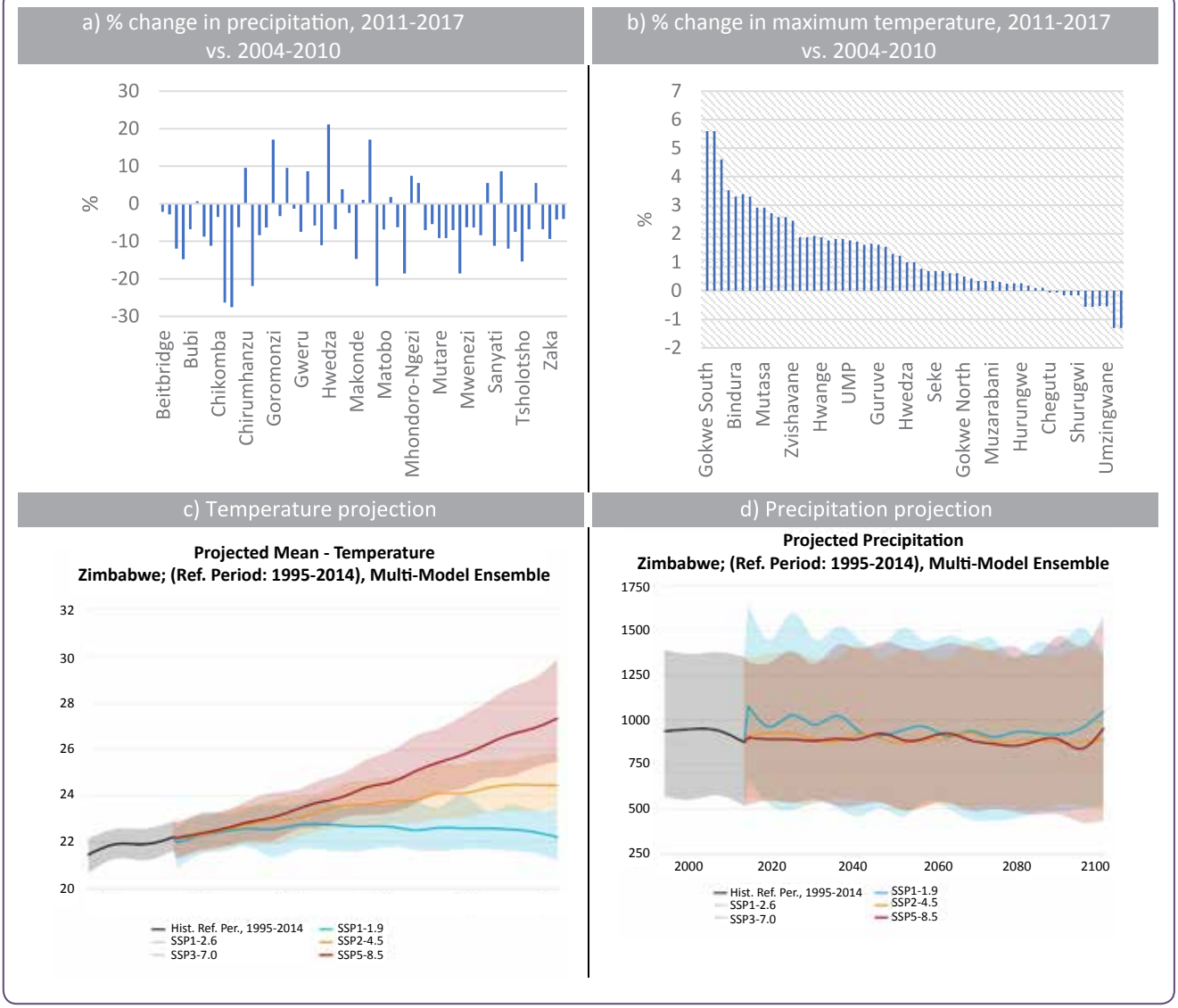
As severe as the risks of natural hazards are, they will only be exacerbated in the future because of climate change. Climate models predict that Zimbabwe will get hotter in the coming decades. Specifically, compared to the reference period of 1995-2004, the annual temperature is projected to increase by 0.66-degree Celsius over the next two decades (2020-2039) under a conservative scenario (SSP 1.9) while it may increase by 0.85°C under a less optimistic scenario (SSP 8.5).[49] By the end of the century, under the least optimistic scenario (SSP 8.5), the annual median temperature may be 4.64 Celsius higher than the baseline period (Figure 2.8, Panel c). The temperature increase is expected to be slightly higher in the south and the west, areas that are currently more prone to drought. While there is less certainty in the projected trends in rainfall (Figure 2.8, Panel c), northern and eastern parts of the country are projected to experience above-normal precipitation, whereas western and southern parts (the driest areas) are expected to receive less than normal precipitation[50] Crop systems simulation model show that a reduction in rainfall has a negative impact on grain yield, but the most dramatic impact comes from the increase in temperature, with a reduction of 16 percent for maize and sorghum, 31 percent for groundnut, but only 3 percent for pigeonpea (Dimes et al., 2008)

As climate change accelerates, hurricanes and extreme weather events like cyclones are projected to be more frequent and intense (IPCC, 2021). Although precise long-term forecasting of extreme events is difficult, the predicted increase in frequency and intensity does not augur well for countries like Zimbabwe, especially among its most vulnerable people. The devastation caused by the tropical cyclone Idai in the Eastern Highlands in March 2019 offers a preview of the impact of such weather events. More than 350,000 people in eight districts were affected by the cyclone, displacing more than 63,000 people from their homes and inflicting damages to crops, livestock, and assets of 50,000 farmer-households (World Bank, 2019). The monetary value of total loss arising from the loss of crops, livestock, and fruit trees was estimated at $155.5 million. The extent of damage and magnitude of the loss will only increase as extreme events become more common and intense.

[49] The SSPs refer to the five Shared Socioeconomic Pathways introduced in the IPCC's Sixth Assessment Report that cover a wide range of plausible level of future GHG emissions. They include scenarios with "high and very high GHG emissions (SSP3-7.0 and SSP5-8.5) and CO2 emissions that roughly double from current levels by 2100 and 2050, respectively, scenarios with intermediate GHG emissions (SSP2-4.5) and CO^2 emissions remaining around current levels until the middle of the century, and scenarios with very low and low GHG emissions and CO^2 emissions declining to net zero around or after 2050, followed by varying levels of net negative CO2 emissions (SSP1-1.9 and SSP1-2.6)" (IPCC, 2021).

[50] Source: Climate Change Knowledge Portal (https://climateknowledgeportal.worldbank.org/country/zimbabwe/climate-data-projections)

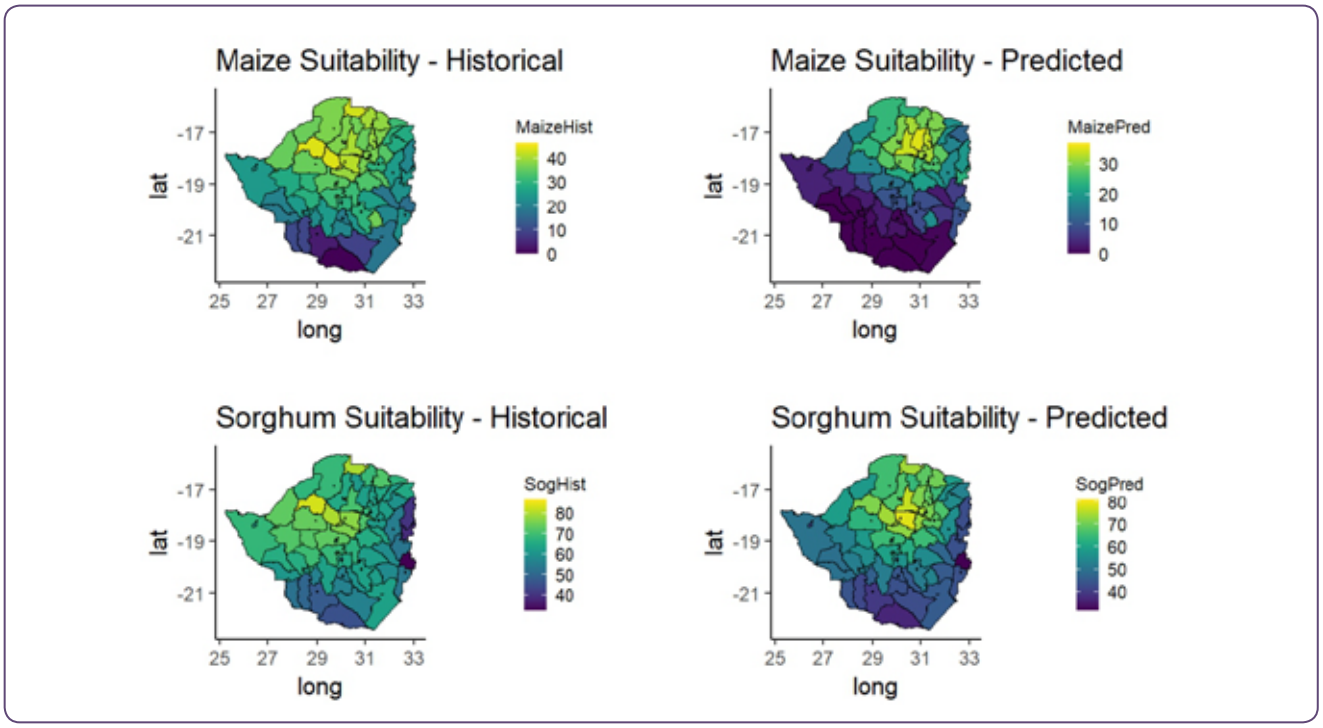
Figure 2.8: Temperature and precipitation projections



Source: Climate Change Knowledge Portal (https://climateknowledgeportal.worldbank.org/country/zimbabwe/climate-data-projections)

Climate change also affects the suitability of agricultural land for crop cultivation which has important ramifications for adaptation. A cropland suitability analysis for Zimbabwe is revealing of the conditions currently faced by Zimbabwean farmers, which paints a grim picture of future agricultural prospects. No area in Zimbabwe is "highly suitable" for maize cultivation primarily because the total precipitation during the growing season is below the level necessary for its optimal growth, while only 19 percent of the total area is "moderately suitable" to grow maize (Figure 2.9, Table 2.7) [51] The unsuitability of maize cultivation is remarkable given that maize is the most important and widely farmed crop in Zimbabwe. It also explains why maize yields are so low compared to other countries. Starting from this poor base, the analysis shows that by 2050, maize suitability will only decline in response to climate change.

Figure 2.9: Current and Future Cropping Suitability of Maize and Sorghum



Source: Authors' calculations using Zimbabwe Climate-Smart Agriculture Investment Plan (World Bank, 2019)

[51] Suitability is based on a 100-point score with 100 being the most suitable and 0 being the least suitable. The continuous suitability score is categorized into four classes as follows: not suitable (0 – 10); marginally suitable (10-40); moderately suitable (40-80); highly suitable (80-100).

The loss of suitability for large grains has enormous implications on the well-being of rural Zimbabweans because of their dependence on agriculture and the role of these grains in household consumption. Currently, only 12 percent of the country's population and 17 percent of the extreme poor live in rural lands with moderately suitable maize production (Table 2.7). In the future, almost all rural land will degrade, becoming unsuitable or only marginally suitable for maize production (Table 2.7, Table 2.8). Areas with low maize suitability have lower yields, which means the general loss of suitability will lead to lower total maize production which, in turn, will lead to lower food consumption and agricultural incomes among households that rely overwhelmingly on agriculture for their livelihood.

Table 2.7: Current maize suitability (rural wards only)

Current maize suitability	Current maize suitability score	Distribution of maize production	Yield (tons/ hectare)	Ag. share of employment (2012)	Extreme poverty rate (2012)	Distribution of the extreme poor (2012)	Distribution of population (2012)	Number of rural wards
Unsuitable	0-10	0.05	0.51	0.64	0.24	0.05	0.04	82
Marginally suitable	10-20	0.13	0.66	0.69	0.27	0.09	0.07	148
	20-30	0.32	0.71	0.74	0.28	0.26	0.20	449
	30-40	0.32	0.75	0.75	0.27	0.33	0.24	486
Moderately suitable	40-50	0.15	0.91	0.79	0.26	0.16	0.12	178
	50-60	0.01	0.98	0.74	0.28	0.01	0.00	10

Source: Authors' calculations using Zimbabwe Spatial Database (2019) and crop suitability analysis (World Bank, 2019)

Table 2.8: Future maize suitability (rural wards only)

Future (2050) maize suitability	Future (2050) maize suitability score	Ag. share of employment (2012)	Extreme poverty rate (2012)	Distribution of the extreme poor (2012)	Distribution of population (2012)	Number of rural wards
Unsuitable	0-10	0.72	0.29	0.33	0.24	543
Marginally suitable	10-20	0.75	0.29	0.21	0.15	311
	20-30	0.77	0.24	0.22	0.17	322
	30-40	0.74	0.25	0.14	0.11	168
Moderately suitable	40-50	0.66	0.22	0.01	0.01	9

Source: Authors' calculations using Zimbabwe Spatial Database (2019) and crop suitability analysis (World Bank, 2019)

Alternatives to maize such as sorghum and millet that are more heat-tolerant and require less water fare better under the changing climate. Currently, most of the rural population lives in land that is highly or moderately suitable for sorghum cultivation (Table 2.9, column VIII). The expected loss in suitability due to climate change will affect relatively fewer areas and people, with wards that in 2012 held 7 percent of the population and 8 percent of the extreme poor degrading to the "marginally unsuitable" category for sorghum cultivation by 2050 (Table 2.10, columns V and VI). This analysis suggests that switching from maize to climate-resilient crops such as sorghum offers a better prospect for poor rural households under a changing climate. Of course, these households will necessarily have to adapt their consumption patterns following such cropping changes.

Table 2.9: Current sorghum suitability (rural wards only)

I	II	III	IV	V	VI	VII	VIII	IX
Current sorghum suitability	Current sorghum suitability score	Distribution of sorghum production	Yield (tons/ hectare)	Ag. share of employment (2012)	Extreme poverty rate (2012)	Distribution of the extreme poor (2012)	Distribution of population (2012)	Number of rural wards
Marginally suitable	10-20	0.00	0.21	0.59	0.18	0.00	0.00	6
	20-30	0.01	0.24	0.68	0.25	0.01	0.01	20
	30-40	0.01	0.24	0.65	0.26	0.02	0.01	35
Moderately suitable	40-50	0.20	0.26	0.69	0.26	0.09	0.07	147
	50-60	0.23	0.28	0.71	0.24	0.16	0.13	259
	60-70	0.36	0.27	0.75	0.25	0.30	0.24	501
Highly suitable	70-80	0.16	0.32	0.77	0.33	0.28	0.17	330
	80-90	0.02	0.36	0.85	0.26	0.05	0.03	55

Table 2.10: Future sorghum suitability (rural wards only)

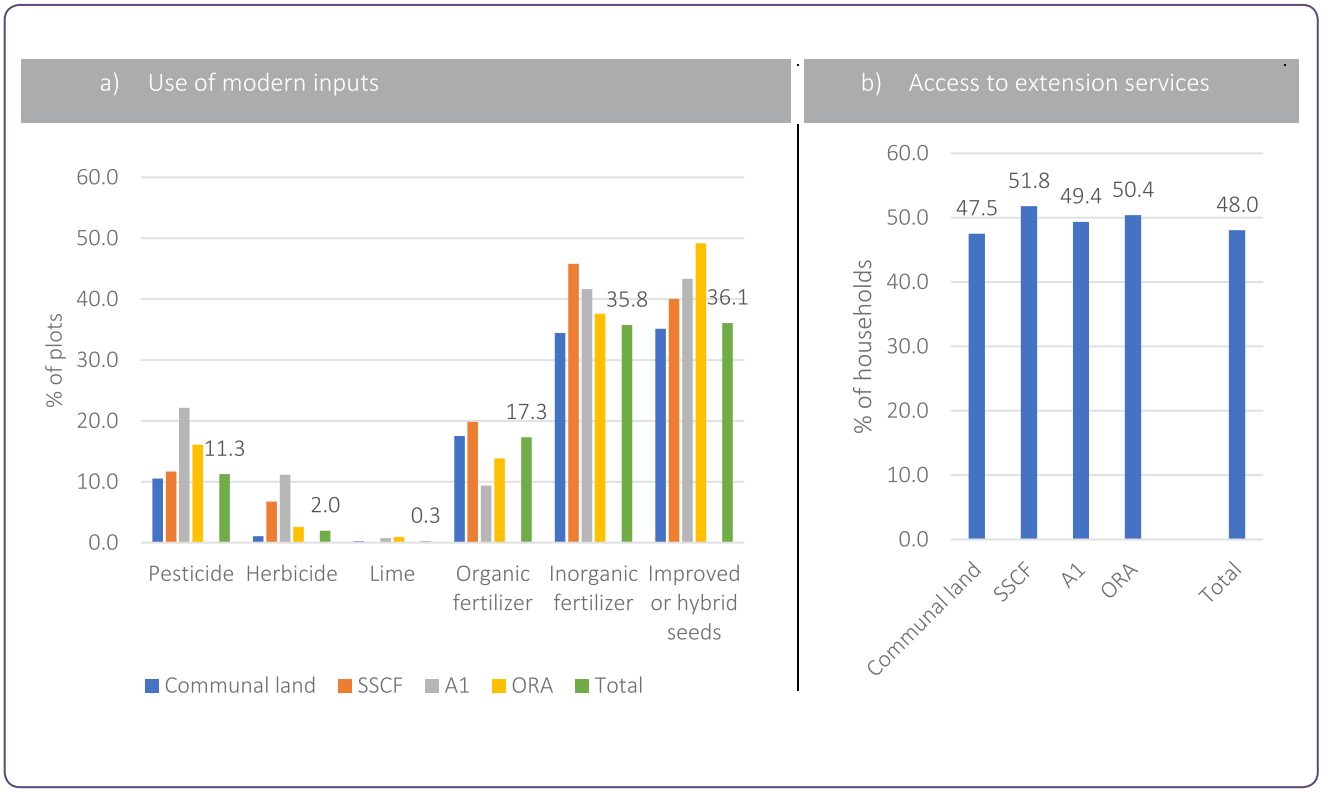
I	II	III	IV	V	VI	VII
Future (2050) sorghum suitability	Future (2050) sorghum suitability score	Ag. share of employment (2012)	Extreme poverty rate (2012)	Distribution of the extreme poor (2012)	Distribution of population (2012)	Number of rural wards
Marginally suitable	10-20	0.80	0.26	0.00	0.00	3
	20-30	0.62	0.25	0.01	0.01	16
	30-40	0.69	0.26	0.07	0.06	122
Moderately suitable	40-50	0.72	0.26	0.19	0.16	319
	50-60	0.74	0.31	0.23	0.16	365
	60-70	0.77	0.27	0.20	0.14	271
Highly suitable	70-80	0.78	0.24	0.16	0.13	217
	80-90	0.68	0.25	0.03	0.02	40

vi. Practices to boost productivity and resilience

Agricultural productivity and resilience to climate change can be increased with the use of modern inputs such as pesticides, herbicides, fertilizers, and drought-tolerant and high-yield improved variety seeds, market orientation, complemented by extension services. There is room to expand the use of modern inputs among smallholder farmers. Pesticides were applied on only about a tenth of the plots (11 percent) while the use of herbicides was less common (2 percent of plots). The use of inorganic fertilizers was more common, but they were still not used in about 64 percent of plots, respectively. There is also a scope to expand the use of improved or hybrid seeds, with such seeds used in only slightly more than a third of the plots (Figure 2.10). It is uncertain how hybrid seeds and, especially, inorganic fertilizer use will perform under drought conditions; the use of these inputs is especially risky as vulnerability to drought grows.

Also, input use is a choice that depends on multiple factors such as prices of inputs and outputs, the type of crop, soil type, and objectives other than to maximize profits. These arguments notwithstanding, when asked for the reason for not using agricultural inputs, "lack of money" is the most common reason, which suggests that access to credit facilities will increase their use. Again, drought increases the riskiness of such loans. Access to extension services was encouraging, with almost half the smallholder farmers having received advice on extension services (Figure 2.10, panel b) of whom most (64 percent) were through government extension officers.

Figure 2.10: Use of modern inputs and access to extension services



Source: Authors' calculations using APM 2017

Climate-smart agricultural practices such as soil and water management can mitigate the impact of climate change. Maintaining or improving soil health is vital for the sustainability of agricultural production. Topsoil holds the microorganisms and micronutrients necessary for plant growth. Yet intensive cultivation, farming practices such as mechanical tillage, as well as the expansion of farming into marginal lands with fragile soil ecology have globally increased the rate of soil erosion. Topsoil erosion makes it difficult for the soil to retain moisture and support plant growth, resulting in loss of nutrients, soil organic matter, and biota, all of which are necessary for a healthy plant. As a result, one of the immediate effects of topsoil erosion is a decline in crop yields. Climate-smart agriculture practices such as no or limited tillage, control of soil erosion, or maintaining crop cover to minimize moisture loss are among the practices that slow or reverse soil degradation.

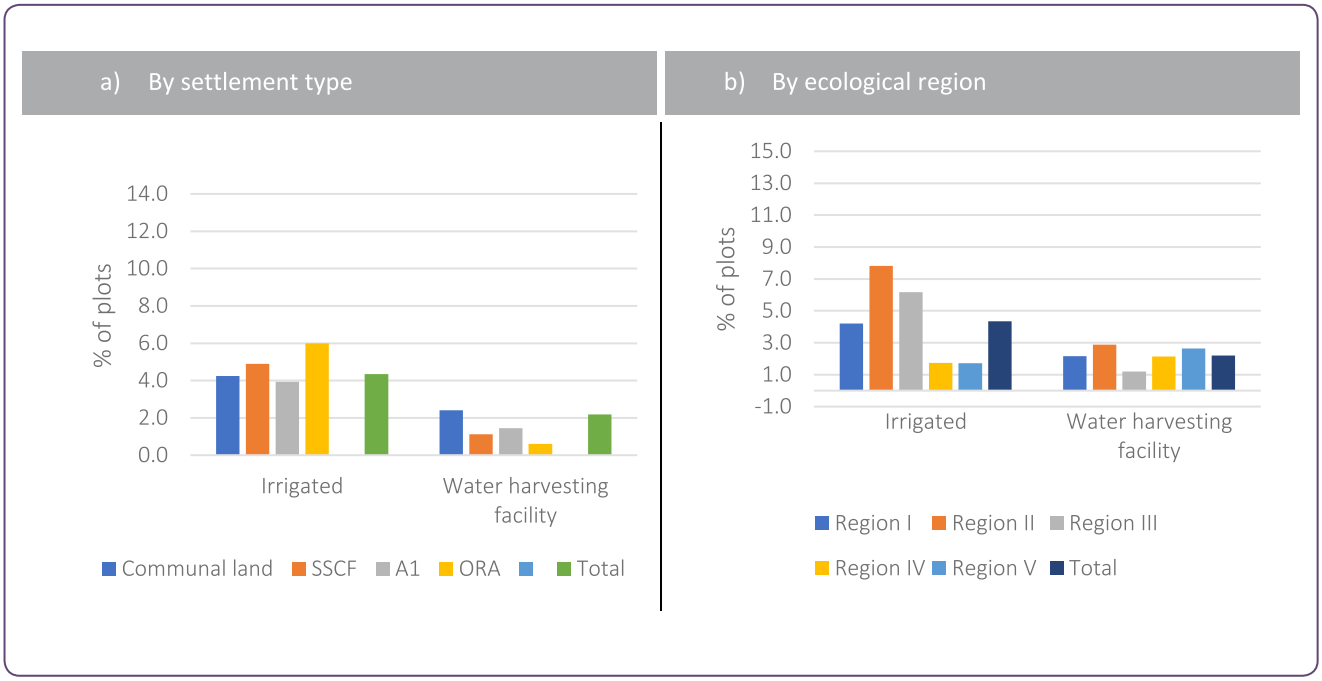
Climate-smart soil management practices are not common in Zimbabwe. The APM data show that soil erosion was a problem in almost a third (30 percent) of the plots. Among plots where soil erosion was an issue, structures to control soil erosion have been constructed in about two-thirds (66 percent) (Figure 2.11, panel a). Strategies for erosion control include contour ridges, terrace farming, placing sandbags, growing grasses, ringing the plot by tree belts, or constructing stone or earth bunds to slow runoff of topsoil and organic matter, but continual maintenance of groundcover and reduced or no-tillage are less costly and are equally effective. Cover crops can increase crop yield by retaining moisture, sequestering carbon, or providing a habitat for pollinators. Yet, only about 8 percent of plots were under crop cover before the 2016/2017 planting season (Figure 2.11, panel b). Minimizing tillage can improve soil health by minimizing the loss of soil nutrients and moisture. The practice of zero tillage or minimum tillage where only some part of a plot is tilled is very uncommon, being implemented in about 6 percent of the plots (Figure 2.11, panel b). Crop cover and minimal tillage are relatively less prevalent in regions IV and V where such practices could have the most benefit. The use of such practices will also facilitate the transition to more drought-resistant crops.

Figure 2.11: Soil erosion and soil-management practices

Source: Authors' calculations using APM 2017

Limited access to irrigation affects food production, particularly during droughts that occur regularly in Zimbabwe. According to the APM survey, only about 4 percent of plots are irrigated, and among the plots that are irrigated, only about half have year-round access to irrigation. Irrigation is complementary to the use of modern inputs such as hybrid seeds and inorganic fertilizers; increased use of these without supplementary irrigation may exacerbate the risk and impact of crop loss. Access to irrigation is especially low in ecological regions IV and V which have the lowest rainfall levels (Figure 2.12, panel b). In-situ water harvesting to capture and store rainfall during the wet season for use during the dry season or low rainfall can ameliorate water shortages. Nevertheless, only a small fraction of plots (2 percent) owned by smallholder farmers has a water harvesting facility such as water harvest bunds, gabion retaining wall, weirs, or dams.

Figure 2.12: Access to irrigation and water harvesting facilities



Source: Authors' calculations using APM 2017

One of the ways in which the government is trying to promote climate-smart agricultural practices is through the Pfumvudza/Intwasa Agricultural Program. The Pfumvudza /Intwasa concept is based on conservation agriculture principles such as reduced/minimum tillage, ground cover, and crop rotations. The program targets smallholder farmers who are vulnerable to climate change. Its objective is to address low agricultural productivity caused by poor agronomic practices, poor soils, poor rains, dry spells, and too much rainfall. While it is too early to measure the impact of the Pfumvudza program on productivity, there is an early indication of wide participation in the program. In the 2020-2021 season, about 61 percent of agricultural households participated in the Pfumvudza /Intwasa program. Among those who participated, 30 percent received the complete inputs package while 61 percent received a partial input package conditional on preparing the plot as per the program specification. Programs like Pfumvudza that are targeted at smallholder farmers can promote the use of climate-smart practices in Zimbabwe; because of the limited size of the inputs packages, large-scale impacts of Pfumvudza depend on learning. Success on Pfumvudza plots may spill over to the use of conservation agriculture practices on all farmer fields due to a demonstration/learning effect.

Improving the market orientation of agriculture is an unexploited source of increasing agricultural incomes. Productivity and welfare gains depend not just on input intensification to boost yields, but also on increasing the private returns to production. This requires that value be added to raw agricultural products and exchanged for goods and services in the market. But Zimbabwean agriculture is relatively autarkic. The 2017 APM data show that only 17 percent of crops grown in the 2017 season were sold in the market.[52] Market integration was the lowest in communal areas, with only 15 percent of crops offered for sale. Communal areas tend to be distant from road networks, increasing transaction costs and discouraging market exchange (World Bank, 2020).

[52] White maize, tobacco, groundnuts, and cotton were the four most sold products. Tobacco and cotton were sold almost exclusively through tobacco auction floors or to cotton companies. White maize and groundnuts were sold to the Grain Marketing Board, middlemen, other households, or in the open market.

After accounting for the district of location and type of land, productivity-enhancing agricultural practices are generally associated with lower household vulnerability. The use of any modern inputs and hybrid or improved seeds is associated with a 13- and 15-percentage point lower probability of the household experiencing food insecurity (Table 2.11). The association between the market sale of crops and food security is stronger. Surprisingly, access to irrigation does not appear to have a significant impact on food security, but this could be explained by the extremely low coverage of irrigation such that the data cannot detect any difference, even if it existed.

Table 2.11: Association between agricultural inputs and practices, and food insecurity

	Modern inputs	Extension Services	Crop cover	Low tillage	Improved or hybrid seeds	Market sale	Irrigation
Food insecurity	-0.13***	-0.00*	-0.03	0.05	-0.15*	-0.17***	-0.05
	(0.03)	(0.00)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
N	2144	2143	1975	2145	2136	2115	2145
Pseudo R-squared	0.10	0.09	0.10	0.09	0.11	0.11	0.09

Source: Authors' calculations using APM and PICES 2017
Note: Marginal effects from a probit regression. Robust delta-method standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Note: The control variables are district and settlement type. The number of observations differs across regression because of item nonresponse, missing sampling weights, and skip patterns.

vii. Conclusion and policy directions

Drought hazard is a pervasive feature of rural Zimbabwe where most the population lives, where agriculture is the dominant source of livelihood, and where access to irrigation is severely limited. This makes the areas highly exposed and vulnerable to drought. Drought hazard will likely only increase as the climate gets drier and hotter in the future, making it less suitable for growing maize, with associated implications on productivity, income, food security, and poverty.

In the short to medium term, reducing vulnerability of smallholder farmers to natural rainfall by expanding access to irrigated agriculture is a priority. Such an expansion may come about through public capital investments in large irrigation infrastructure, but there is also a potential to promote in-situ water harvesting practices and farmer-led irrigation development. Significant potential to boost productivity and increase welfare also exists by expanding the use of modern inputs, adapting climate-smart farming practices, expanding access to extension services, and improving market orientation.

In the long term, attention must shift to adaptation measures to shield from the effects of the changing climate. This include switching away from maize as its suitability declines to more drought- and heat-tolerant crops such as sorghum, millet, and cassava. Such a shift involves more than replacing one crop with another. It also requires the know-how to plant the new crops and complementary infrastructures such as storage and processing facilities. Not least, to supplant a crop that has been an integral part of the local diet, culture, and customs for generations requires a change in taste, habit, and mindset. These policies to boost rural incomes and protect

agricultural households from the worst impact of shocks are crucial not just for poverty reduction but also to reduce inequality in Zimbabwe.

The analysis on the relationship between agriculture and poverty presented here is by no means exhaustive. Future studies should tackle other important issues such as what factors affect agricultural productivity, how productivity relates to poverty, and what impact does land tenure have on productivity. Future World Bank studies such as the Climate Change and Development Report (CCDR) will also explore relevant topics at the intersection of climate change and household welfare.


PLAY
SMILE
DANCE LOVE

3. Structural Change and Jobs

Synopsis

- **Zimbabwe has had a unique development trajectory in that it has experienced slow or reverse spatial and structural transformation, with labor moving back to agriculture and rural areas.**
- **The supply of labor or skilled labor, is not the binding constraint for Zimbabwe's structural transformation. Rather, it is the anemic demand for labor, as the private sector has created few off-farm jobs, and the jobs that do exist are of poor quality. As a result, many Zimbabweans are abroad in search of economic opportunities or overqualified for the jobs they hold.**
- **Policy directions: Promoting the entry and growth of firms for the creation of productive jobs is a priority, which requires the demonstration of policy consistency, and implementation of macroeconomic and structural reforms.**

One of the most salient patterns of economic development concerns the change in the structure of employment. As countries become richer, the share of workers in agriculture falls as the secondary and tertiary sectors with higher labor productivity attract surplus labor away from the low-productivity, rural agricultural sector. The transformation of the employment structure is accompanied by the spatial transformation in the form of a movement of the population from rural areas where agriculture predominates to urban areas where the modern sectors are located. The pattern of transformation also matters as research has shown that the transition to rural off farm activities and secondary cities may be more equitable and lead to faster poverty reduction than agglomeration in mega cities (Christiaensen and Todo, 2014).

Growth in labor productivity could come from within-sector productivity growth (change in value-added per worker across sectors) or between-sector productivity growth (movement of labor from low-productivity to high-productivity sectors). The agriculture sector holds more than two-thirds of workers who have a much lower level of labor productivity, and the poverty headcount ratio is also higher among rural, agricultural workers. Hence there appears a lot of "slack" in the system, i.e., the potential to achieve labor productivity growth, income growth, and poverty reduction through a reallocation of workers from agriculture to the modern sectors of the economy.

Despite this apparent opportunity, spatial and structural transformation in Zimbabwe has occurred very slowly or even reversed over the previous decades. Given this observation, it is natural to ask what is retarding spatial and structural transformation in Zimbabwe when the opportunities seemingly abound. This chapter explores these issues. It considers alternative definitions of urban and rural areas to explore if spatial transformation has indeed stalled or reversed in Zimbabwe. It also assesses the pace of and impediments to the structural transformation of the Zimbabwean economy.

i. Spatial transformation

There appears little spatial mobility of people within Zimbabwe over the last couple of decades. The census data and population projections based on the data show a relatively stable, or even declining, urban share of the population. Zimbabwe's Population and Housing Census conducted in 2002 and 2012 show that the urban

share of the population declined slightly over the period, from 35 percent in 2002 to 33 percent in 2012. The United Nations Population Division's population projections for the 2010s also suggest no meaningful change in urbanization, with the predicted urban share of the population of 32.2 percent in 2020 and 32.9 percent in 2025.[53] ZimSTAT's own projections based on the 2012 census place the urban share of the population at approximately 33 percent in 2020 and 2025.[54]

At the same time, data also show a significant internal movement of people in Zimbabwe. In 2012, 17.3 percent of residents of a province (aged 10 years and above) had moved there from another province since 2002 (ZIMSTAT, 2012). Cross-district mobility rate was higher, with 23 percent of the population (10 years or older) having moved to the current district from a different district since 2002 (World Bank, 2019). The rate of internal migration continued apace in the 2010s. In 2017, 14 percent of the population older than five years was living in a different district than they did five years ago. Indeed, according to some estimates, Zimbabwe has one of the highest rates of internal migration among all the countries in the world (Lucas, 2015).

These observations seem to be at odds with each other. While there was a significant movement of people within the country in the 2000s and 2010s, there was no observable increase in the urban share of the population as would be the case if the migration occurred in the "expected" direction, i.e., from rural to urban areas. But that is not what happened in Zimbabwe. According to the 2012 census, the movement of people in the previous 10 years from rural to urban areas (508,000) was only marginally higher than the movement from urban to rural areas (492,000), with a net increase in the urban population of only 16,000. Much of the movement was from one rural area to another (632,000) or from one urban area to another (just under 300,000). This pattern of movement reconciles the apparent contradiction, as it explains both the high rate of internal migration and a slow rate of urbanization.

The inference drawn from these data that Zimbabwe has become less urban may, however, be an artifact of the definition of urban areas. According to the 2012 census, an area was defined as urban if it was a designated urban area or if it had all the following characteristics: (i) 2,500 or more inhabitants; a compact settlement pattern; and the majority (more than 50 percent) of the employed persons engaged in non-agricultural occupations (ZIMSTAT, 2013). But the definition may have been applied inconsistently or boundary rigidities may have led to settlements above the 2500 threshold to be counted and reported as rural (Mbiba, 2017). Districts adjacent to urban Harare provide the most vivid illustration. The areas officially defined as "Harare Urban" barely grew during 2002-2012, but "rural" areas surrounding Harare Urban grew substantially over the same period. Districts such as Goromonzi and Seke that were categorized as "rural" in 2012 experienced massive population growth between 2002 and 2012 (33 percent for Seke and 50 percent for Goromonzi), far more than the average population growth for Zimbabwe (13 percent) (World Bank, 2019).

To overcome the issue presented by the official definition of urban areas, we use distance to the nearest urban center as the measure of urbanization.[55] This allows wards that are designated as rural but that are on the periphery of urban centers to be treated differently from rural wards that are distant from urban clusters. For example, using this approach, five wards in Goromonzi (out of 25) and four wards in Seke (out of 15) are

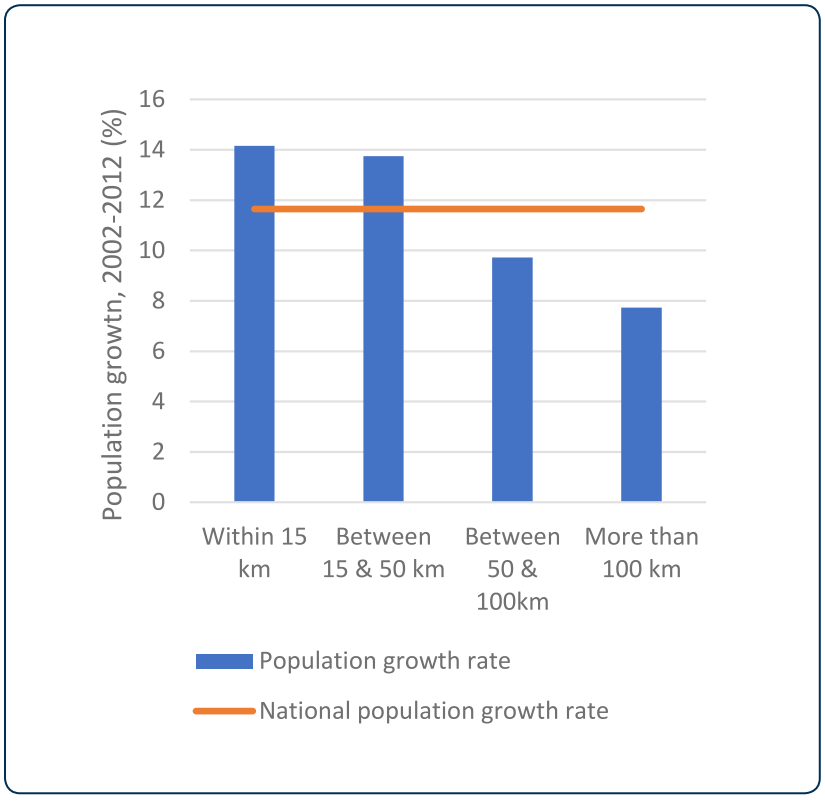
[53] United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision.
[54] The projections are based on medium scenario of fertility, mortality, and net international migration (ZimSTAT and UNFPA, 2015).
[55] The distance of a ward to the to the nearest urban center is defined the distance to the nearest city council, municipality, or town council. The city councils are Harare, Bulawayo, Mutare, Kadoma, Gweru, Kwekwe, and Masvingo. The municipalities are Bindura, Marondera, Chinhoyi, Chegutu, Kariba, Victoria Falls, Gwanda, Redcliff, and Chitungwiza. The town councils are Beitbridge, Chipinge, Chiredzi, Gokwe, Karoi, Mvurwi, Norton, Plumtree, Rusape, Shurugwi, and Zvishavane (World Bank, 2019).

categorized as "urban" as they are within 15 kilometers of a city council, municipality, or town council. This may better capture the agglomeration effects that the wards may have experienced because of the proximity to an urban center.

The pattern of urbanization is similar when "urban" is defined according to proximity to urban clusters rather than by the official administrative designation. Between 2002 and 2012, the population in wards that were within 15 kilometers or 15-50 kilometers of a city council, municipality, or town council grew faster than the country as a whole, while wards that were farther from urban centers grew slower than the rest of the country (Figure 3.1).[56] This suggests clustering of the population around the urban centers. However, even with the alternative measure of urbanization, the urban share of the population did not change substantially in the 2000s. In 2012, 35.5 percent of the population lived within 15 kilometers of a city council, municipality, or town council compared to 34.7 percent in 2002.[57] Thus, on the balance of evidence, the pace of urbanization in Zimbabwe may be somewhat higher than what is suggested by official figures, but not enough to warrant a reassessment of our understanding of the pattern of urban growth.[58]

Recent data show that the pace of urbanization has speeded up in the last decade. Recently released preliminary findings from the 2022 census show that the urban population comprise 38.6 percent of the total population in 2022 (ZIMSTAT, 2022)."

Figure 3.1: Population growth (2002-2012), by the distance of ward to the nearest urban center (city council, municipality, or town council)



Source: Authors' calculation using Zimbabwe Spatial Database 2019 and summary data from ZIMSTAT 2012

[56] The total population of the country was 11,631,657 and 13,061,239 in 2002 and 2012 respectively (ZIMSTAT, 2004; ZIMSTAT, 2013).
[57] Examining the pattern of spatial growth using urban footprint as a proxy suggest that smaller cities – those with population between 50,000 and 250,000 people – grew faster than Harare and Bulawayo, the two largest cities (World Bank, 2021).
[58] A 2020 report on the spatial distribution of population also reaches the same conclusion (World Bank, 2020).

Owing to its colonial history, Zimbabwe has a distinct settlement pattern that inhibits the realization of the gains from agglomeration. During colonial times, communal areas were designated as locations where African farmers could live and farm while the most productive land was designated for white commercial farmers. A sizeable proportion of the rural population continues to live in these communal lands that are densely populated and typically located far away from the main road network and poorly connected to markets. This concentration of people in remote, poorly connected areas with marginal agricultural land has contributed to entrenched poverty in those areas (World Bank, 2020). Inefficiencies in the land and housing markets have hindered equitable and orderly urbanization in Zimbabwe (World Bank, 2020). There is an acute lack of affordable housing in the city centers. As a result, much of the urbanization has happened in unplanned settlements in peri-urban, far from the city center, and where the provision of basic infrastructure services is poor.

There is a strong relationship between proximity to urban areas and the distribution of economic activities In the urban vicinity, nonfarm activities dominate over farm or agricultural activities (95 percent versus 5 percent) (Table 3.1). As the distance from major urban agglomerations increases, the opportunities to diversify to non-farm activities decay, and farm activities become the major source of livelihood. There is a sharp increase in the agriculture share of employment between wards near city councils or municipalities (within 15 km) and those that are slightly farther (15-50 km) (Mashura, 2022).

High dependence on agriculture is also reflected in the high share of cropland in peripheral areas. The cropland share is low in urban proximity because of alternative uses of land such as for housing, industry, roads, and infrastructure. In addition, the value of land is higher in urban proximity, which encourages individuals to sell their land for non-agricultural activities. This has been observed in Zimbabwe, with farmers who own farms closer to urban centers converting the land from crop farming to housing or other nonfarm activities.

There is also a steep gradient in the degree of formality and type of job by urban proximity. Formality is higher in urban proximity, while informality increases with the distance to the nearest city or municipality. The wards located “within 15 kilometers” of urban agglomeration have a 39 percent share of informal employment while those that are located “between 15-50 kilometers” have an informal employment share of 66 percent. Likewise, the share of workers in paid employment (wages or salary) drops steadily as one moves from urban proximity to the periphery. Self-employment and unpaid family work which is often characterized by low productivity, inadequate earnings, lack of social security, and other benefits such as paid leave, affects more than 80 percent of workers in wards located more than 50 kilometers away. The high incidence of vulnerable employment in Zimbabwe will continue to undermine the prospects of reducing working poverty.

Table 3.1: Urban agglomeration and employment patterns (% of employed workers)

	Within 15km	Between 15 and 50km	Between 50 and 100km	More than 100km
Farm employment	5.2	63.3	74.0	77.9
Nonfarm employment	94.8	36.7	26.0	22.1
Nature of employment				
Formal employment	**61.2**	**34.5**	**18.5**	**15.7**
Farm	1.5	11.8	3.9	3.4
Non-farm	59.7	22.7	14.6	12.3
Informal employment	**38.2**	**65.5**	**81.5**	**84.3**
Farm	3.7	51.4	70.0	74.6
Nonfarm	35.1	14.1	11.4	9.8
Status in Employment				
Share of wage and salary workers	**60.4**	**34.1**	**18.3**	**15.5**
Farm	1.4	11.6	3.8	3.3
Non-farm	59.0	22.5	14.5	12.2
Share of self-employed or unpaid family workers	**39.6**	**65.9**	**81.7**	**84.5**
Farm	3.8	51.6	70.1	74.6
Nonfarm	35.8	14.3	11.6	9.9
Cropland share	13.2	51.2	60.6	57.0
Observations	140	214	432	701

Source: Mashura (2022) using Zimbabwe Spatial Database 2019 and ZimSTAT (2012)
Note: The calculations are based on driving distance to the nearest city council or municipality.

ii. Structural transformation

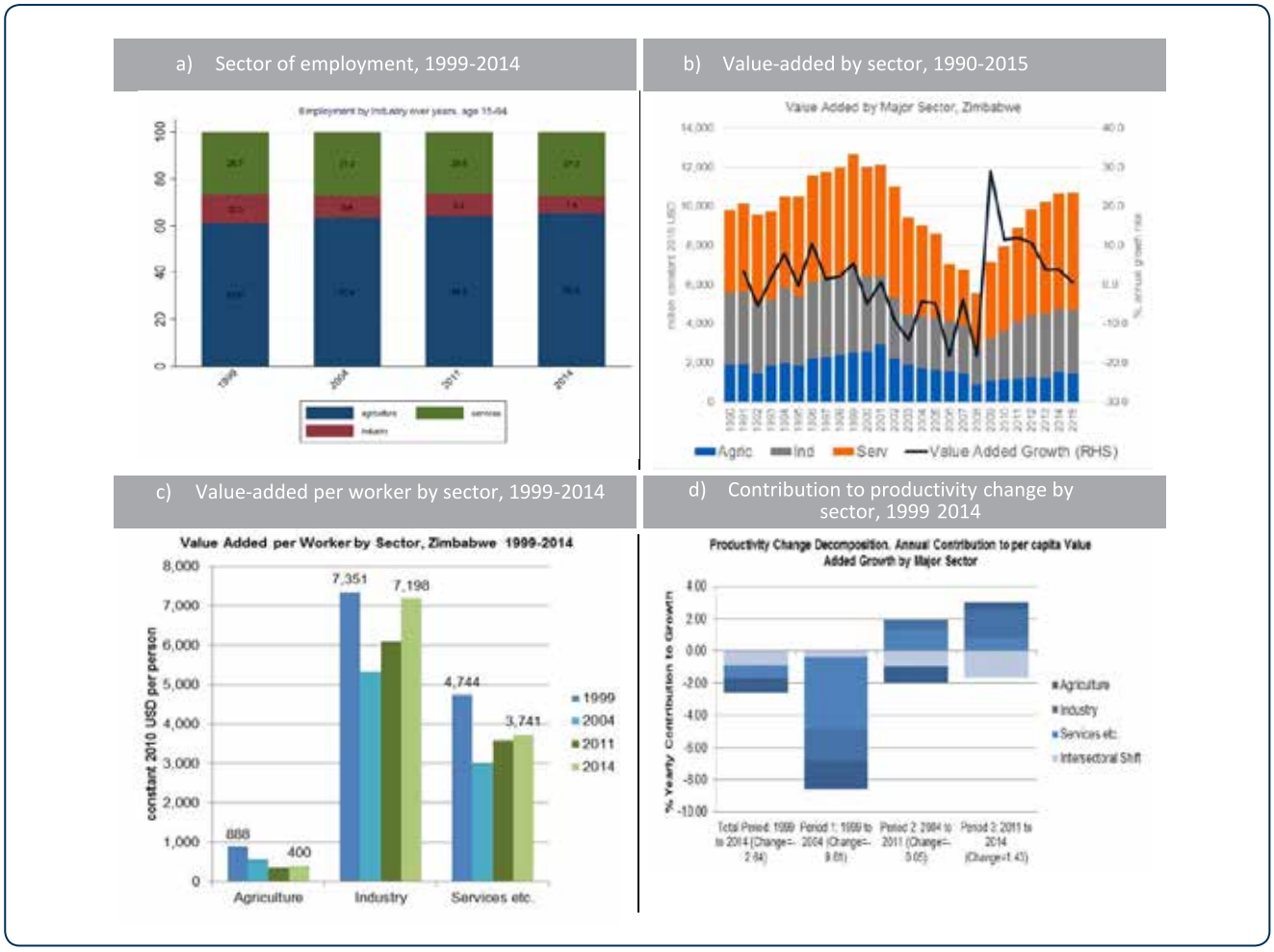
Structural transformation involves the transition of employment and GDP value-added away from agriculture toward the modern sectors. At the early stages of development, the agriculture sector is a labor-intensive, low-productivity activity primarily for subsistence and with limited market linkages. Structural transformation is the process of absorption of the pool of surplus labor in agriculture with very low marginal productivity by more capital-intensive and high productivity sectors, thus increasing the economy-wide productivity.

Structural transformation in Zimbabwe has stalled or reversed over the last two decades. Following the land reform and economic crises of the 2000s, Zimbabwe witnessed a reverse structural transformation with workers moving to less productive activities in agriculture. The share of total employment in agriculture increased from 61 percent in 1999 to 65 percent more than a decade later in 2014, and it stayed relatively unchanged over the rest of the 2010s. The increase in agriculture share of employment was accompanied by a fall in industry's share of labor, with the sector comprising 13 percent of employment in 1999 compared to 8 percent in 2014 (Figure 3.2).

As a result, structural change in Zimbabwe was productivity-reducing. Decomposition of the productivity change since 1999 into intra-sectoral changes and inter-sectoral movement of labor shows that between 1999 and 2014, total productivity fell by an average of 2.64 percent per year (Figure 3.2). Most of this drop occurred between 1999 and 2004, with an annual productivity decline of 8.61 percent over this period. Labor shifts from more to less productive sectors and productivity declines within each sector contributed to the overall productivity decrease. Intra-sectoral productivity rose in industry and services after 2004, and it rose in all three sectors after 2011, but labor continued to move into less productive sectors, which served as a drag on total labor productivity.

Some commentators have argued that the claim of a reverse structural transformation ignores the fact that those who turned to farming after the land reform did not return to smallholder, subsistence farming. Rather, they practiced mechanized farming and grew high-value cash crops. This assertion, however, is not borne out by the data. Due to the combined effect of more workers in the sector and a decline in its total value-added, value-added per worker in agriculture fell between 2000 and 2011 (Figure 3.2), and average labor productivity in 2014 was 45 percent of the 1999 level. Labor productivity in agriculture was also far lower compared to industry and services. For example, in 2014, average agricultural productivity was 6 percent and 11 percent of that of industry and services respectively.

Figure 3.2: Labor share of employment and value-added by sector, 1999-2014



Source: Zimbabwe Jobs Diagnostics using LFS 1999-2014.

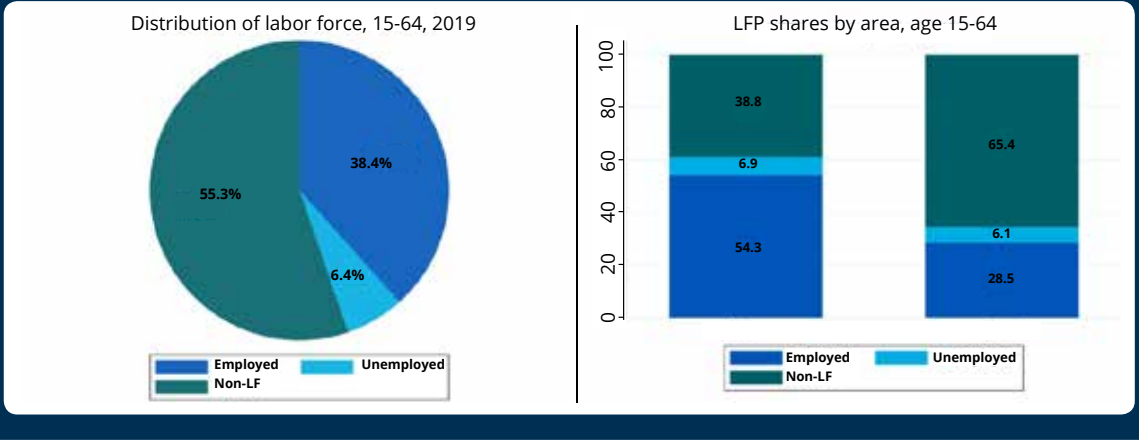
Box 3.1: Measuring Employment in Zimbabwe Labor Force Survey 2019

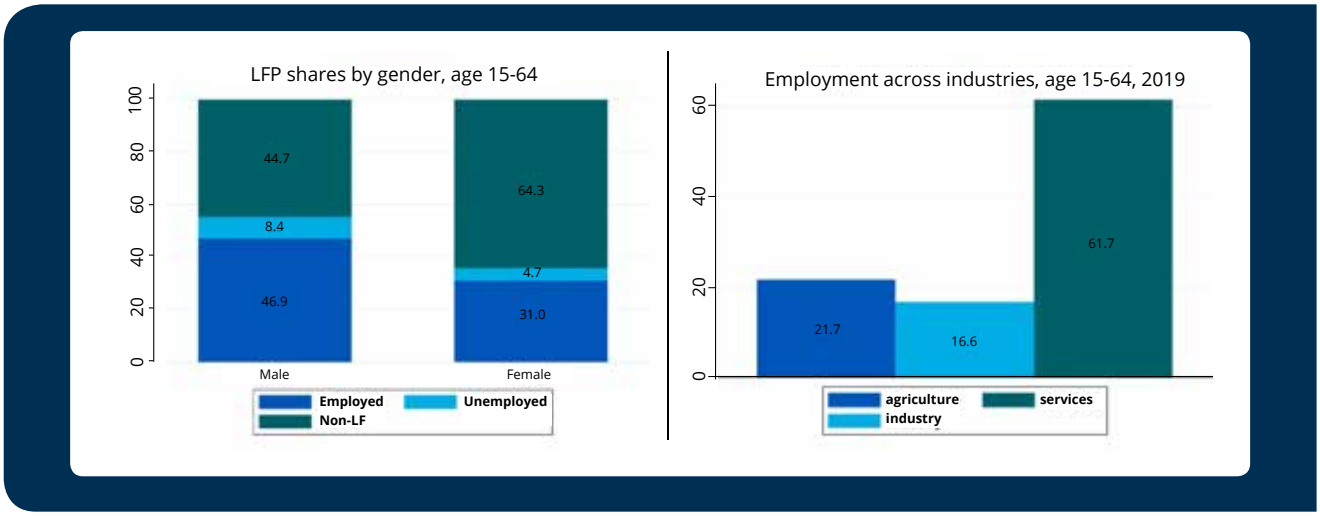
Zimbabwe has a more recent Labor Force Survey from 2019, but the labor market statistics between the 2014 and 2019 surveys are not comparable because of the changes in the survey instrument and statistical definitions. Starting in 2019, Zimbabwe Labor Force Survey followed the standards introduced at the 19th International Conference of Labor Statisticians (ICLS) in 2013 for the measurement of labor statistics, superseding the standards established at the 13th ICLS in 1982. One of the most consequential changes was the definition of employment. Whereas the previous definition of employment included work done for profit or own use, the new definition narrowed the definition of employment to work done to produce goods and services for use by others for pay or profit. Thus, it removed from employment the production of goods for own or household consumption (Durazo et al., 2021).

This modification has large implications on the measurement of employment in developing countries where own-use production of goods, especially that of food, is the most common form of economic activity. Under this narrower definition, smallholder farmers who produce only or mainly for their own consumption are not considered to be employed. Instead, such activity is reported separately as "own-use production work." As a result, a large share of farmers who would have been formerly classified as employed is excluded from the labor force altogether if they do not engage in other activities that are primarily for pay or profit (Gaddis et al., 2020).

Following the revised definition of employment, the 2019 LFS yields a significantly lower labor force participation rate in Zimbabwe. More than half (55 percent) of 15-64-year-olds appear inactive, while the rate is even higher in rural areas where almost two-thirds of the population are out of the labor force The gender gap in the participation rate persists, with the participation of females 20 percentage points lower than that of males. It also shifts the sectoral composition of employment. Whereas in 2014 about two-thirds of employment was in agriculture, under the new definition, agriculture's share of employment shrinks to about 22 percent of total employment. In contrast, the services sector, especially occupations in commerce and "other services," become the dominant sector of employment.

Although the 2019 figures are not comparable to those from earlier LFS rounds, the differences are instructive in their own right. After the exclusion of farmers who only or mainly produce for own/family use, there is a reduction in labor force participation rate and agriculture share of employment by 40 percentage points or higher. This alone shows the predominance of smallholder, non-commercial agriculture in Zimbabwe, particularly among women and rural residents.

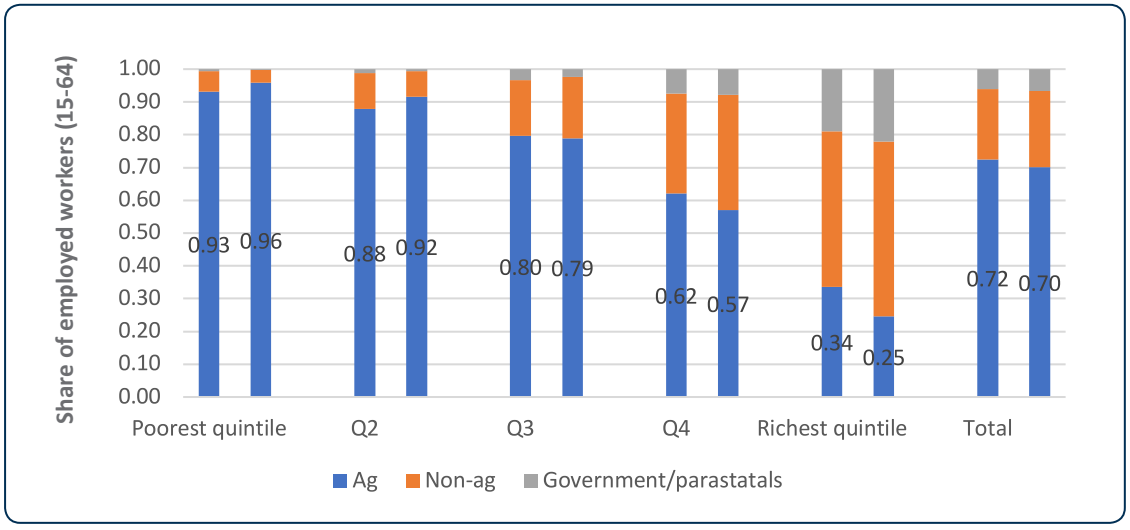




Source: Zimbabwe Jobs Diagnostics using LFS 2019

Although the structure of the economy did not change in general, there was a movement away from agriculture among workers from the better-off segments of the population.[59] In both 2011 and 2017, more than 90 percent of employed workers from the poorest 40 percent of the consumption distribution were employed in the agriculture sector, and agriculture share of employment increased for those groups during the period. In contrast, there was a marked shift of employment toward the non-agricultural sectors for workers from the top 40 percent of the distribution, with an especially pronounced shift among workers in the top 20 percent (Figure 3.3). Employment in public sector jobs or parastatals is also limited largely to workers in the top 40 percent of the distribution.

Figure 3.3: Sector of employment for employed workers (15-64) by consumption quintile, 2011-2017



Source: Authors' calculations using PICES 2011, 2017

[59] We assess the change in sectoral composition of employment by welfare level using the PICES 2011 and 2017 datasets. The agriculture share of employment from PICES may differ from that in the LFS due to differences in the sample or the questionnaire.

The persistence of Zimbabwe's labor force in agriculture and widespread poverty among farmers on the one hand, and much higher levels of productivity in industry and services and a lower poverty rate among non-agricultural workers on the other present a puzzle. If opportunities for much more remunerative work exist in the industry and services sector, why don't agricultural workers move into those sectors? Productivity gains could be achieved at the margin simply by shifting labor across the sectors. In other settings, participation in nonfarm employment is shown to enable upward mobility by accelerating income growth (Bezu et al., 2012, Fox and Sohnesen, 2016).

There may be multiple explanations for this phenomenon. One possible explanation is that farmers, and rural populations in general, do not have sufficient education, skills, experience, or financial assets required to enter more remunerative sectors and activities. This would be a problem emanating from the so-called supply-side of labor, where the economy is creating enough high-paying jobs, but there aren't enough qualified workers to fill the vacancies. An alternative is that despite a supply of skilled workers and their willingness to move for better opportunities, not enough jobs are being created in the economy to absorb them. This is the so-called demand-side problem, where weak demand for high-skilled labor in modern sectors of the economy due to slow job creation impedes structural transformation. Another explanation is that the productivity gap between agricultural and non-agricultural sectors is not as high as suggested by the data due to measurement issues, so the reason to move is less compelling than it appears. Finally, moving to a new location and occupation may entail higher risks and uncertainties, perceived or otherwise, that may reduce the expected returns from more productive sectors. In what follows, we take a closer look at the first two possible explanations.[60]

Supply of labor

This means more than 85 percent of the working-age population was either working or looking for work. The labor force participation rate, a measure of labor supply, was 81 percent in 1999 and it had gradually risen to 85.5 percent in 2014 (Figure 3.4).[61] This means more than 85 percent of the working-age population was either working or looking for work. Zimbabwe's labor force participation rate was high even in comparison to that of its neighbors and other countries in the region. For example, the participation rate in sub-Saharan Africa was under 70 percent in 2019.

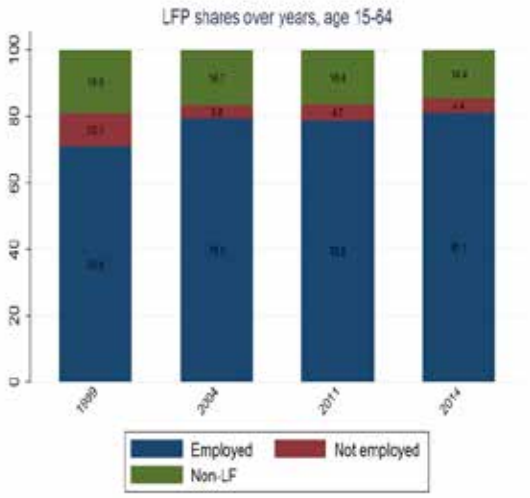
The one way in which Zimbabwe can increase its labor supply is by increasing the participation of women. In 2014, there was a nine-percentage point gap between male and female participation (81.5 percent for women vs. 90.5 percent of men). Inactivity may be for "salutary" reasons such as education or training that augment human capital, or it may be for less "salutary" reasons such as housework, childcare, and care of the elderly, a responsibility borne disproportionately by women. Indeed, there is a marked difference in the reason for being out of the labor force between males and females. "Family responsibilities or housework" was the main reason for the exclusion from the labor force for a quarter of inactive women, while it was a constraint for only 1.4 percent of men. In contrast, almost half (49 percent) of men were out of the labor force because they were in school or training, while only about a quarter (24 percent) of women were out for the same reason.

[60] While the data limitations prevent a closer examination of the measurement issue, there is literature showing the persistence of agricultural productivity gap even after accounting for the possible errors in measurement (Gollin, Lagakos, and Waugh, 2013).

[61] There is a difference between the labor force participation rates presented in figure 3 and those in the Labor Force Survey reports prepared by ZIMSTAT because of a difference in the definition of unemployment and age group under consideration. In this report, a working-age adult is said to be unemployed if he or she was not working, was available for work, and had looked for a job in the last 30 days. In the ZIMSTAT report, unemployment referred to not working and being available for work.

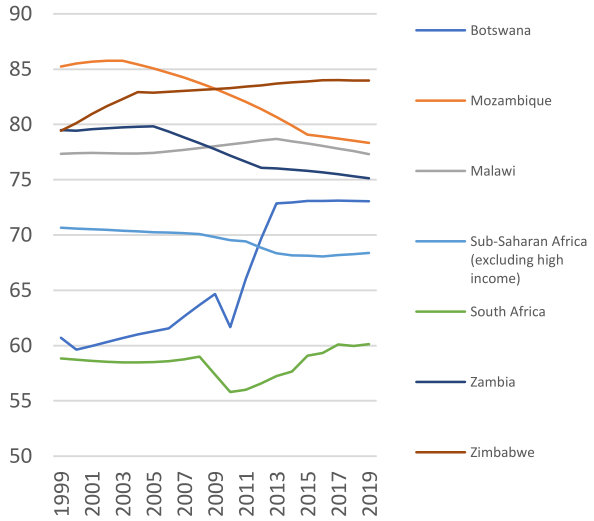
Figure 3.4: Labor supply, 1999-2014

a) Labor force participation, 1999-2004



Source: LFS 1999, 2004, 2011, 2014

b) Cross-country comparison of LFP



Source: World Development Indicators

Note: The LFP may differ between the two figures because the former is sourced from the labor force survey while the latter is based on ILO projections.

Neither was there a short supply of skilled labor demanded by modern sectors of the economy in the manufacturing and services sectors. Household survey data from 2011 and 2017 show that more than 50 percent of adults aged 25-64 had some secondary education or had completed secondary schooling in both 2011 and 2017 (Figure 3.5).[62] The share of workers that had some tertiary education had also increased modestly during the period, supplying highly qualified labor to the economy. That is a large pool of relatively skilled labor ready to be absorbed in the economy.

Table 3.2: Educational attainment of individuals aged 25-64 (2011-2017)

	2011	2017
No education	5.1	3.5
Primary	34.3	29.1
Secondary	50.5	56.8
Tertiary	10.2	10.6

Source: Authors' calculations using PICES 2011 and PICES 2017

Zimbabwe's pool of skilled labor compares favorably in comparison to its neighbor as Zimbabwe ranks higher in the Human Capital Index than even some of its richer neighbors. World Bank's Human Capital Index (HCI) is an index that measures the amount of human capital a child born today could expect to attain by age 18. Shortfalls

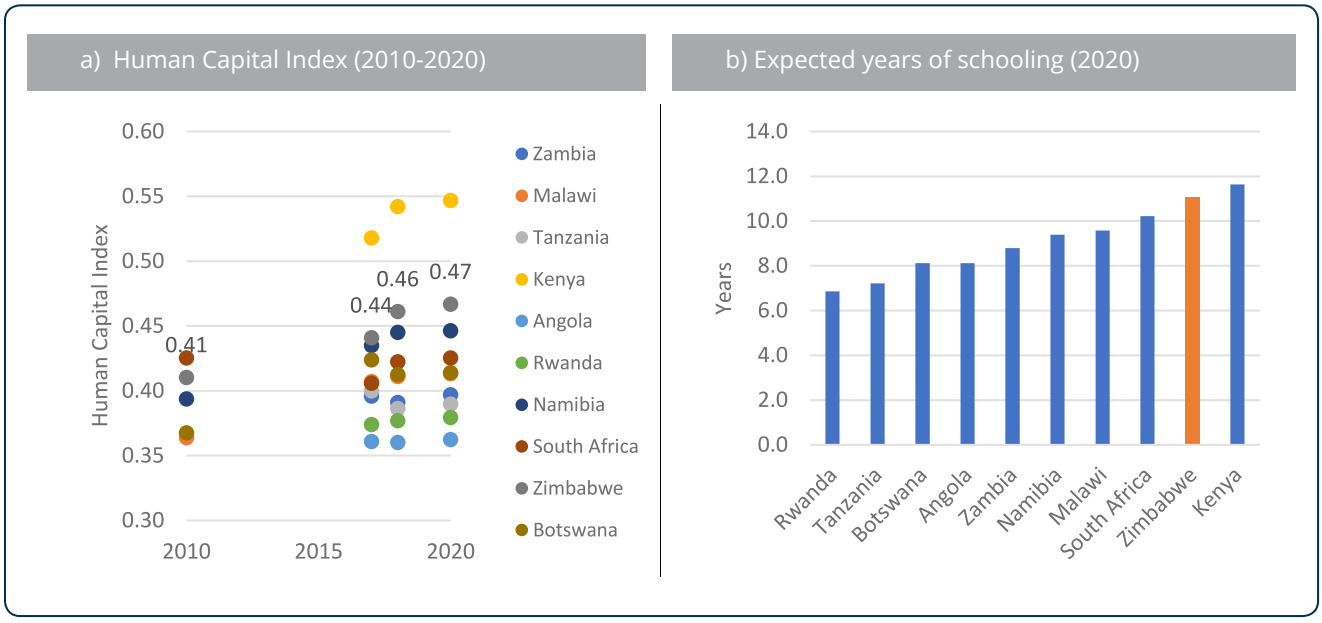
62

63 Even in global comparison, expected years of schooling was higher in Zimbabwe in 2020 than what would be expected given its per capita income level (World Bank, 2020)

to the full potential may arise from premature death, poor nutrition, and health, or incomplete or low-quality education. In 2019, Zimbabwe's HCI score was 0.47, which means a child born in that year was expected to be "47 percent as productive when she grows up (turns 18) as she could be if she enjoyed complete education and full health" (World Bank, 2020). This level is higher than that of its structural peers such as Malawi, Tanzania, and Zambia, and more prosperous neighbors such as South Africa (0.43), Namibia (0.45), and Botswana (0.41) (Figure 3.5, panel a). Expected years of schooling, the proxy for skills, is also higher in Zimbabwe than among its comparators (Figure 3.5, panel b).[63]

There is little gender disparity in human capital achievements. For example, the probability of survival to age 5 is 0.95 for boys and 0.96 for girls, and the expected years of schooling is 11.1 for boys and 11.0 for girls. If anything, some human capital outcomes such as the adult survival rate (0.67 for women vs. 0.63 for men) and the stunting rate (0.20 for girls vs. 0.27 for boys) skew in favor of girls and women. One area where there is room for improvement for Zimbabwe to boost its human capital is the quality of learning. Zimbabwe registered an improvement in all components of the Human Capital Index between 2010 and 2019 with one exception: harmonized test scores. In 2019, students in Zimbabwe scored 396 on average on a scale ranging from 300 to 625.

Figure 3.5: Supply of skilled labor



Source: World Development Indicators. Accessed: March 23rd, 2022.

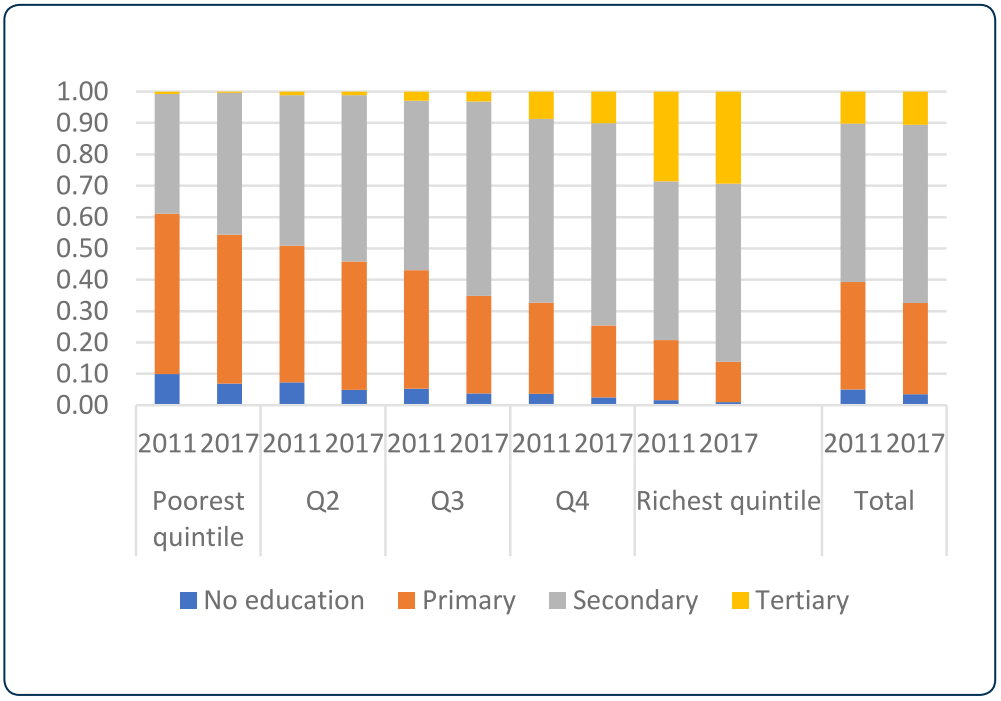
Yet another evidence that the availability of skilled labor is not a constraint in Zimbabwe comes from businesses themselves. The 2016 Enterprise Survey interviewed 960 registered businesses nationally and 515 unregistered businesses in Harare. Out of the total sample of 1475 firms, only one firm (0.06 percent) reported an "inadequately educated workforce" as the primary obstacle affecting the operation of the establishment. In a slightly different framing of the question, a small fraction (4.4 percent) of registered businesses said an inadequately educated workforce posed a "major" or "severe" obstacle to their operation.[64]Taken together, the evidence suggests that

[64] This variation of the question was not asked to unregistered businesses.

the supply of labor and the availability of a qualified workforce is not the primary impediment to structural transformation in Zimbabwe.

Lack of skills does appear to be a binding constraint among workers from poorer households. Only a small fraction of individuals aged 25-64 from the bottom 60 percent of the consumption distribution have some tertiary education (Figure 3.6). In an environment where good jobs are scarce, not having tertiary education may put job seekers at a disadvantage, which may partly explain the little movement out of agriculture among workers in the poorer households.

Figure 3.6: Educational attainment of individuals aged 25-64 (2011-2017), by consumption quintile



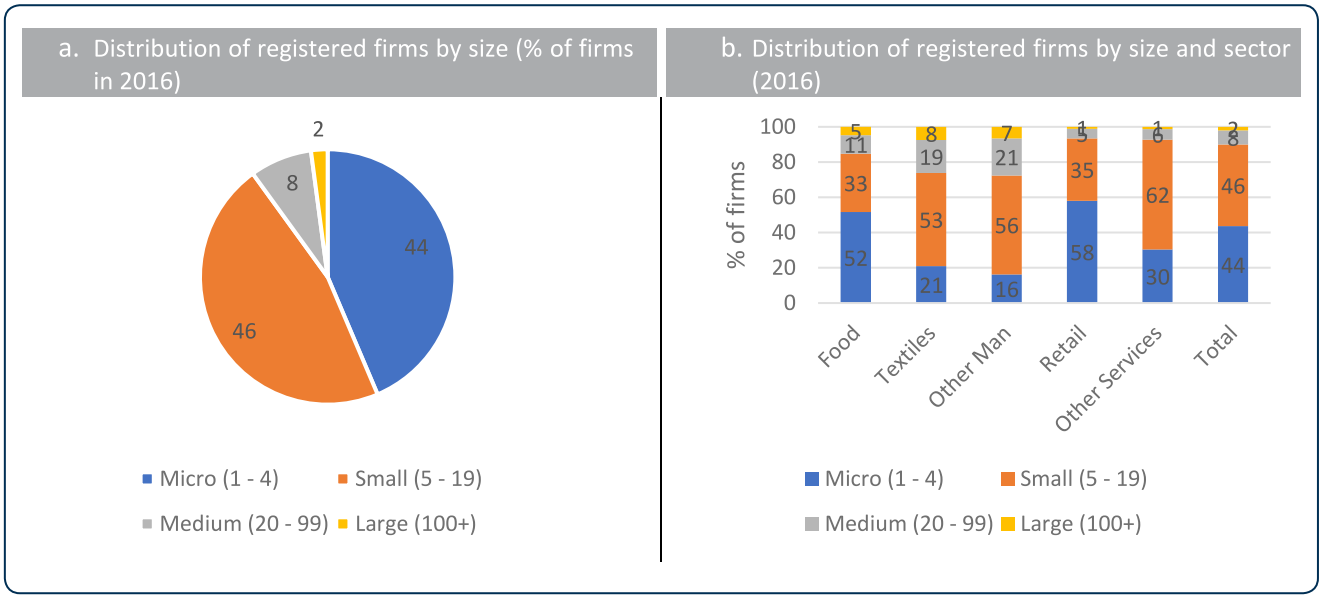
Source: Authors' calculations using PICES 2011, 2017

Demand for labor

To complement the measure of labor supply, we next focus on labor demand for a better understanding of the labor market dynamics in Zimbabwe. Labor demand refers to the number of workers employed and requisitioned by private establishments, as well as by the public sector including state-owned enterprises and parastatals, although due to data limitations we only consider the private sector for present purposes.

Micro or small-scale enterprises comprise most of the registered businesses in Zimbabwe. Of the formally registered businesses in 2016, 46 percent were micro firms and 44 percent were small businesses (5- 20 employees). Only 8 and 2 percent of the firms were medium (20-99 workers) and large (more than 100 workers) sized respectively. They comprised a relatively larger share in the textiles and manufacturing industry while constituting a tiny fraction of businesses in the retail and "other services" sector (Figure 3.7).

Figure 3.7: Distribution of registered firms by size and sector

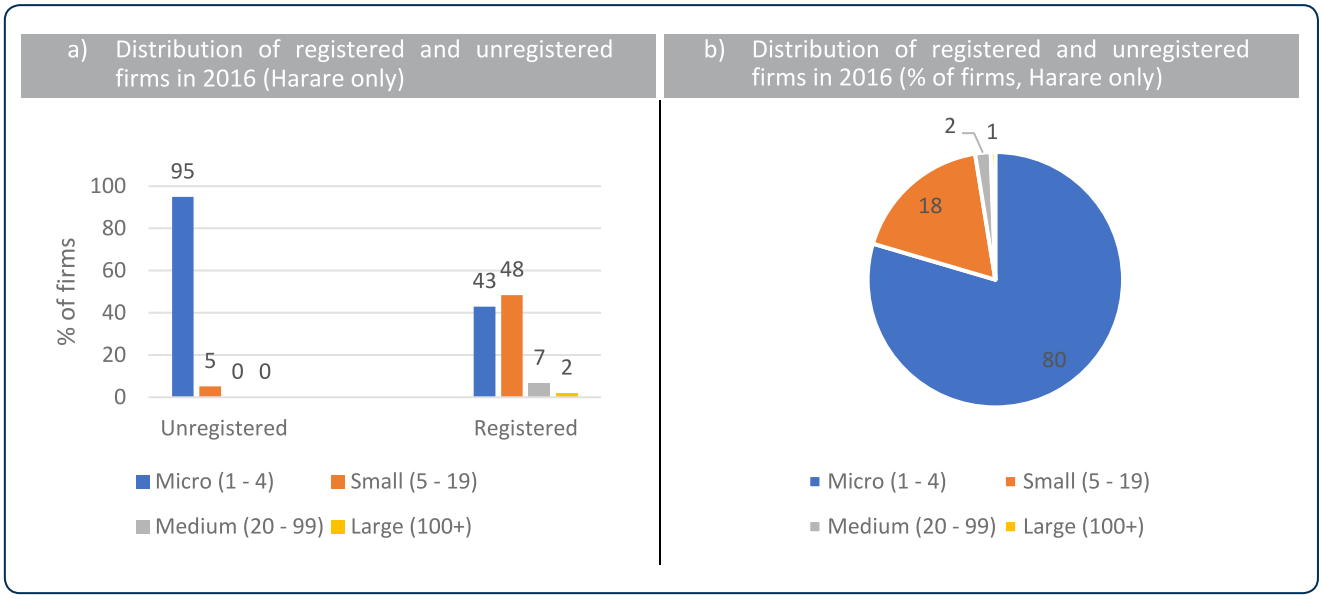


Source: Enterprise Survey, 2016

Source: Enterprise Survey, 2016

Focusing only on registered firms portrays a skewed picture of the distribution of firm size as unregistered businesses are likely to be relatively smaller. The 2016 Enterprise Survey included a sample of unregistered firms, but only for Harare. So, although it cannot be done for all of Zimbabwe, a more complete picture of the distribution of firms by size can be painted for Harare. Virtually all unregistered firms (95 percent) are micro firms in that they have fewer than five employees (Figure 3.8, panel (a)). Considering registered and unregistered businesses together, small and micro businesses comprise the overwhelming majority. Now, about 80 percent of firms are micro firms (fewer than 5 workers) and 18 percent are small firms (5-19 workers). Only about 3 percent of firms have more than 20 employees.

Figure 3.8: Distribution of firms by size



There was very little net job creation in Zimbabwe in the mid-2010s, and the few jobs that were added were by micro and small firms (Table 3.3). The trend in job creation can be inferred from the 2016 Enterprise Survey by comparing the number of employees at the time of interview and three years ago (in 2013). This helps us understand the dynamism of Zimbabwe's private sector in the mid-2010s. The data show that very few jobs were created during this period. For example, focusing on registered establishments, firms that were micro in size three years ago had an average of 3.3 employees while in 2016 they had an average of 3.4 employees, meaning they gained an average of 0.1 employees. Firms that were small, medium, and large-sized three years before the interview had since shrunk, leaving them with fewer employees on average. The firms that were established two years before the interview are net job creators because they were not in operation three years ago (Table 3.3). This, however, must be balanced against the loss of jobs because of firms that went out of business over the same period on which we don't have the information. Lack of access to finance, uncompetitive practices of informal businesses, political instability, and red tape to obtain licensing and business permits are among the most cited obstacles to operations by registered businesses.

Table 3.3: Firm growth between 2016 and 2013 (registered firms)

Size 3 years ago	Median number of workers in 2013	Median number of workers in 2016	N
Micro (1 - 4)	3.3	3.4	228
Small (5 - 19)	10.0	9.6	380
Medium (20 - 99)	39.0	37.9	163
Large (100+)	539.1	515.0	91
Firms established in the last 2 years	-	7.1	87
Total	**21.6**	**22.5**	**944**

Source: Authors' calculations using Enterprise Survey 2016

There was no job creation in the informal sector as well. Unregistered businesses start very small, with almost all having than 4 employees at the time of establishment, with the median size of 2 employees. For the micro-firms that survived till 2016, their median size had declined by about 10 percent (Table 3.4). Unregistered businesses are very young, with the median firm being only three years old. This means most of the jobs created in the informal sector are by new and micro firms rather than through the growth of existing firms. Poor access to finance, land, and difficulty in getting licenses and permits are the biggest obstacles to the operation of unregistered businesses.

Table 3.4: Firm growth between year of establishment and 2016 (unregistered firms)

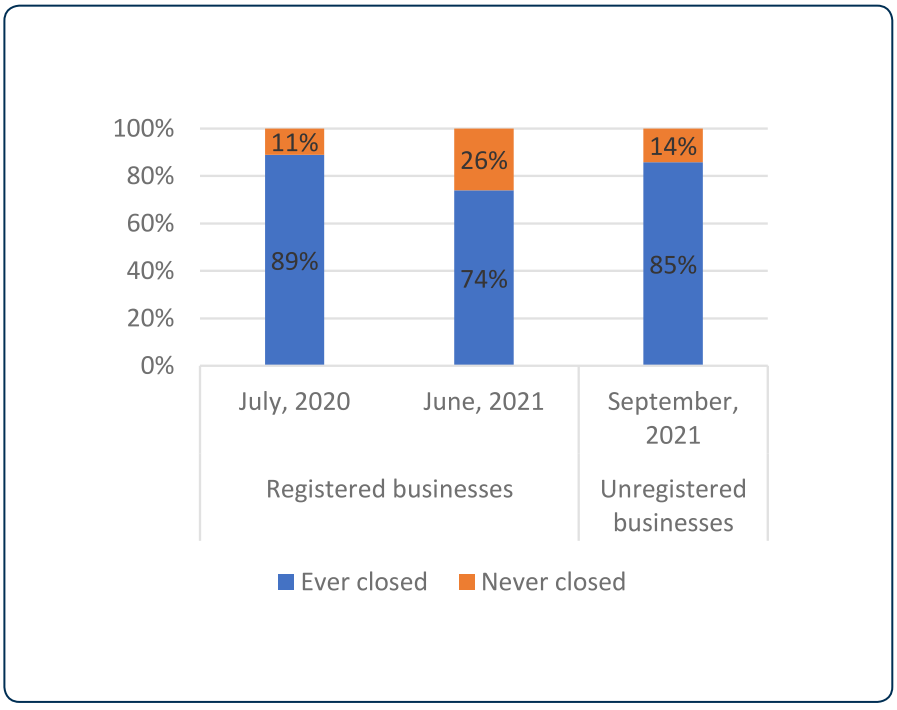
Size at establishment	Median number of workers in year of establishment	Median number of workers in 2016	N
Micro (1 - 4)	2	1.8	501
Small (5 - 19)	6	4.5	12
Total	**2**	**1.9**	**513**

Source: Authors' calculations using Enterprise Survey 2016

Demand for labor after COVID-19

The COVID-19 shock dealt a blow to the private sector, leading to further loss of jobs. From the onset of the pandemic to July 2020, 89 percent of registered firms had suspended operations at least once due to the lockdown measures (Figure 3.9). The prevalence was higher among micro and small firms. While the situation had improved a year into the pandemic, still, in June 2021, 74 percent of firms had suspended operations at least temporarily since July 2020. Firm closure was just as high among unregistered businesses. In September 2021, about 85 percent of unregistered businesses had had to temporarily close operations at some point since March 2020.

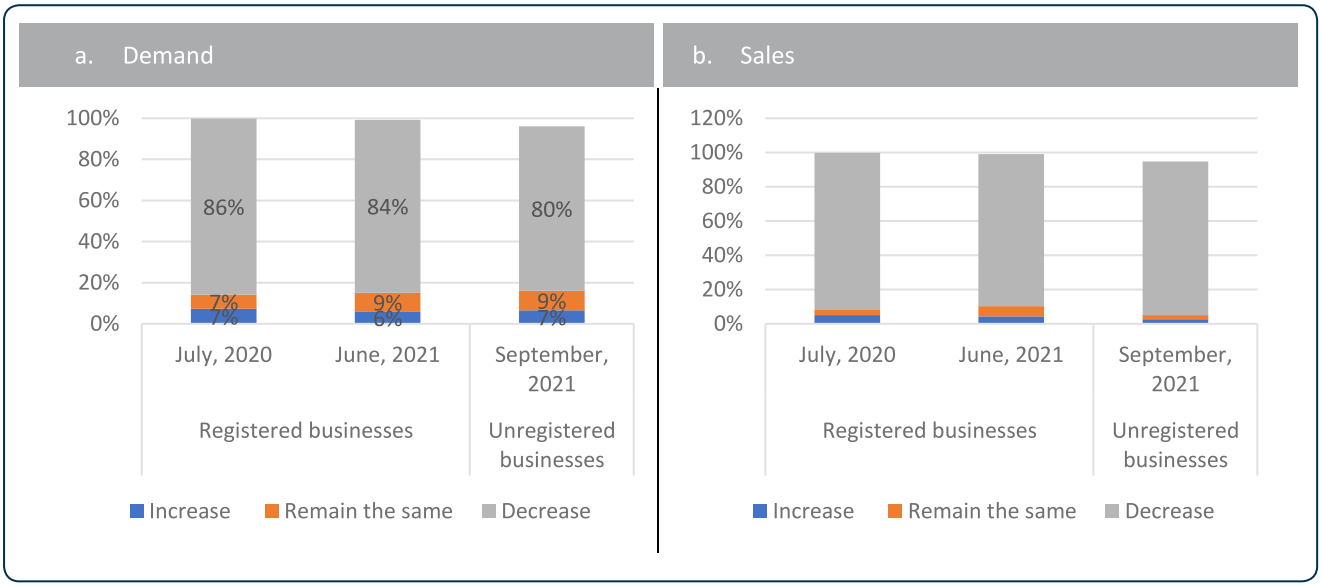
Figure 3.9: Temporary firm closures



Source: Authors' calculations using COVID-19 follow-up Enterprise Survey 2020, 2021

Although only a small share of firms had closed permanently since the pandemic, they face a prolonged period of loss in demand and sales. In July 2020, about 86 percent of registered firms experienced a decline in demand for their products or services compared to the pre-COVID levels, with micro and small firms being the most affected (Figure 3.10). The reduction in demand persisted into the second year of the pandemic. Consequently, the decline in sales was pervasive and deep. Approximately 92 percent of firms had lower sales in July 2020 relative to the same month in 2019 and the level had hardly recovered in 2021. Sales too were on average 54 percent and 44 percent lower in July 2020 and June 2021 compared to the same months in 2019. Unregistered businesses also saw a precipitous drop in demand and sales. About 80 percent of unregistered businesses had lower demand for their products and services in mid-2021 compared to before the pandemic in February 2020. For 90% of unregistered businesses, sales in mid-2021 were lower compared to the pre-pandemic level.

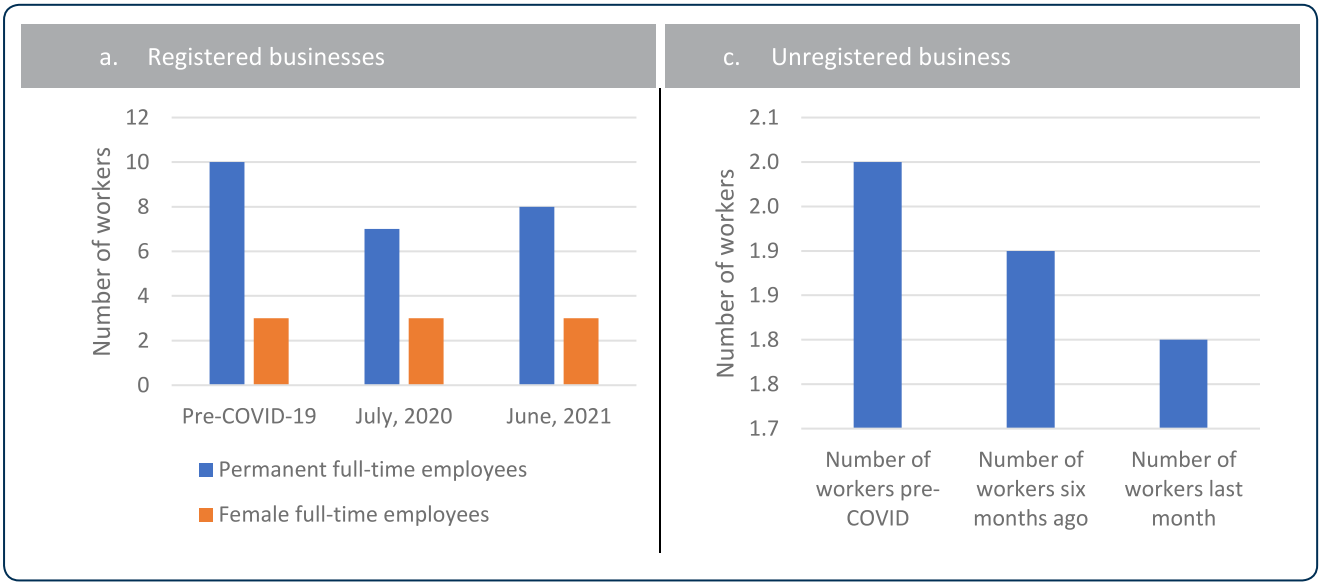
Figure 3.10: Loss in demand and sales



Source: Authors' calculations using COVID-19 follow-up Enterprise Survey 2020, 2021

Firms responded to the drop in demand and sales by, among other things, downsizing their workforce and reducing the hours of work. Registered firms laid off workers immediately after the pandemic, and while there was a recovery in 2021, not all the jobs had returned. In about 94 percent of the registered firms, the total hours of work per week were lower than the pre-pandemic level. More than a year into the pandemic, the figure had improved only slightly, with 90 percent of firms reducing their working hours between July 2020 and June 2021. Starting from a small size, unregistered businesses too shrank further after the pandemic. From the pre-pandemic level of an average of 2 employees, unregistered firms had shrunk to an average of 1.8 employees in 2021 (Figure 3.11).

Figure 3.11: Job loss



Source: Authors' calculations using COVID-19 follow-up Enterprise Survey 2020, 2021

Skills mismatch

The imbalance between the supply of labor and the availability of jobs results in a mismatch between the skills endowment of individuals and that demanded by the occupation in which they are employed.[65] This is illustrated in Figure 3.12, which reveals at least four salient features. First, there is a dearth of high-skill occupations in Zimbabwe. Only a fraction – 15 percent – of all off-farm jobs is high-skilled such as managers and professionals, while almost a third are elementary occupations such as cleaners, casual laborers (in agriculture, mining, construction, manufacturing, or transport sector), and street vendors. [66] Second, workers with no tertiary education are largely excluded from high-skill occupations. Even among those who have at least some secondary education, only 6 percent of individuals are in high-skill occupations. Third, having at least some tertiary education increases the probability of being in a high-skill occupation by an order of magnitude. Finally, in evidence of the demand for skilled labor lagging the supply, having at least some tertiary education is no guarantee for having a high-skill job, as more than 40 percent of such individuals are employed in medium-skill or low-skill occupations.

The sectoral mobility from agriculture to non-agriculture may also be obstructed by a lack of skills among agricultural workers if there is a sorting across occupations by the level of education. However, more than half the workers employed in agriculture have the skills, i.e., secondary or tertiary education, demanded by the medium- or high-skill non-agricultural occupations (Figure 3.13).

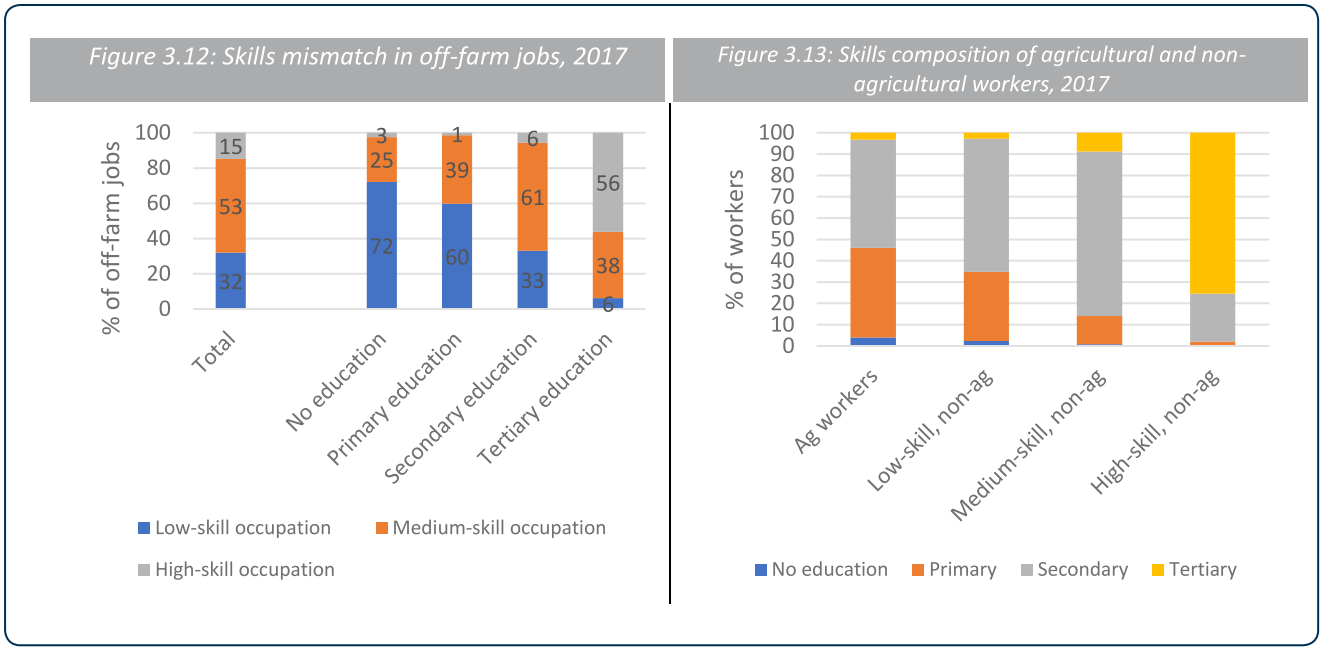
The possibility cannot be negated that some highly educated individuals choose to work in less-skilled occupations, but it may be inferred from the strong association between the skill level and job quality that such individuals may be a minority. Considering the wage-employed (either permanent or temporary), 92 percent of individuals in a high-skill job have a written contract while only 58 and 29 percent of those in medium- and low-skill occupations do. Similarly, 80 percent of high-skill occupations have access to a pension or social security. In comparison, pension or social security covers only 38 and 20 percent of workers in medium- and low-skill occupations. From this, it is reasonable to infer that while there may be exceptions, many high-skilled individuals in less-skilled jobs are there because of a scarcity of jobs that match their skill level and that they would prefer to be in high-skill occupations with associated job security and benefits.

[65] We use level of education to proxy for skills, but formal education may not impart the skills demanded by the industry as suggested by the 2018 Zimbabwe National Critical Skills Audit Report.

[66] We follow the International Standard Classification of Occupation (ISCO) categories to classify occupations into low-skill, medium-skill, and high-skill. The one-digit ISCO categories corresponding to the three classes are as follows:
High skill: 1 "Managers" 2 "Professionals" 3 "Technicians and associate professionals";
Medium skill: 4 "Clerical support workers" 5 "Service and sales workers" 6 "Skilled agricultural, forestry and fishery workers" 7 "Craft and related trades workers" 8 "Plant and machine operators, and assemblers";
Low skill: 9 "Elementary occupations".

Figure 3.12: Skills mismatch in off-farm jobs, 2017

Figure 3.13: Skills composition of agricultural and non-agricultural workers, 2017



Source: Authors' calculations using PICES 2017

iii. Quality of jobs

While structural transformation is a crucial marker of economic development, it is not just the movement out of agriculture but the quality of off-farms jobs that ultimately matters for job security and a higher standard of living. Precarious employment with low remuneration, poor job security, and without any benefits such as social security contributions or paid leave may do little to improve the material conditions of those employed in the non-agricultural sectors. Zimbabwe's National Development Strategy (NDS) 2021-2025 too aspires to expand the opportunities for decent employment. Therefore, for a better understanding of the poverty-reducing impact of structural transformation, it is important to assess the quality of jobs.

Informality is the dominant feature of employment in Zimbabwe.[67] In 2011 and 2017, employment in the informal sector constituted about 70 percent of total employment (Figure 3.14, panel a), with employment in the informal agriculture sector being the most common. The most productive jobs, i.e., off-farm jobs in the formal sector, comprised only 12-13 percent of total jobs and there was no noticeable increase in its share over the period. There does appear to be a modest increase in the share of formal sector employment in agriculture.

There is also a considerable degree of exclusion in access to good jobs. For example, formal employment in non-agriculture constitutes 1-5 percent of all jobs among workers in the bottom 40 percent of the distribution, compared to more than 30 percent in the richest quintile (Figure 3.14, panel b). There is an equally pronounced difference in agriculture and formal share of employment between urban and rural areas.

[67] According to the 2019 Labor Force Survey, 34 percent of workers (aged 15 or above) in non-agricultural activities are employed in the informal sector.

Despite the higher enrollment of girls at the primary and secondary levels, it does not translate into better labor market outcomes. As mentioned earlier, relatively more working-age women were economically inactive which indicates an inefficient allocation of resources. Even those women who are working are likely to be employed in less productive sectors and low-quality jobs. Women are relatively more concentrated in agriculture and the informal sector relative to men, whereas men are more than twice as likely as women to be employed in off-farm, formal sector jobs (Figure 3.14, panel d). The gender difference in off-farm employment is consistent with what is observed in other countries in the region (Van den Broeck and Kilic, 2019).

Figure 3.15: Quality of jobs, 2011-2017

Source: Authors' calculations using PICES 2011, 2017
Note: The legend for panels (b), (c), and (d) are the same as for panel (a).

Informal sector versus informal employment

Being employed in the formal sector hardly guarantees formal employment (see Box 3.2 for the definitions of the informal sector and informal employment). In 2017, more than two-thirds (61 percent) of workers employed in a formal enterprise were in informal employment, either because they did not have a written contract or did not make pension or social security contributions (Table 3.5). Accounting for agricultural activities, about 86 percent of all the employed workers were in informal employment, which highlights the precarity of employment in Zimbabwe.[68]

Table 3.5: Informal sector and informal employment (2017)

	Formal employment	Informal employment	Total
Ag informal	0%	100%	100%
Ag formal	75%	25%	100%
Non-ag informal	0%	100%	100%
Non-ag formal	39%	61%	100%
Central/local govt., parastatals	0%	100%	100%
Total	**14%**	**86%**	**100%**

Source: Authors' calculations using PICES 2017

[68] An earlier note on informality finds that 73 percent of all the employed are in informal employment (World Bank, 2020). The difference stems from the criteria used to define informal employment. The earlier analysis defines informal employment as not having a written contract, whereas the current analysis also considers not making social security contributions.

Box 3.2: Measuring the quality of jobs

Informal sector: An informal sector enterprise is an unincorporated market enterprise, satisfying at least one of the following criteria: (i) the number of employees is below a threshold; (ii) the enterprise is not registered; or (iii) the employees of the enterprise are not registered. In PICES 2017, due to the data limitations, informal sector is measured as employment in enterprises that are neither registered nor licensed.

Informal employment: Informal employment comprise all workers in the informal sector and informal workers outside the informal sector. The latter include:

i) Own-account workers engaged in the production of goods exclusively for own final use
ii) Paid employees (permanent or casual/temporary) in informal jobs, i.e., if their employment relationship is, in law or in practice, not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits (paid annual or sick leave, etc.)
iii) Unpaid family workers.

In PICES 2017, informal employment is defined as workers in the informal sector and workers in the formal sector but without a written contract or social security contribution. All unpaid family workers are categorized to be in informal employment.

Source: Statistical definition of informal employment: Guidelines endorsed by the Seventeenth International Conference of Labour Statisticians (ILO, 2004); World Bank (2020)

iv. International migration

International migration has become an important source of employment and income as the lack of job opportunities at home has led many Zimbabweans to seek opportunities abroad. Zimbabwe was the top migrant sending country in sub-Saharan Africa during 2000-2020 (UN-DESA, 2019). The remittances sent by the diaspora is much higher in Zimbabwe as a share of the GDP than in the rest of Sub-Saharan Africa. Between 2010 and 2020, personal remittances received were equivalent to 7 - 13 percent of the GDP, compared to about 2 percent for sub-Saharan Africa.[69] Contrary to expectations, the volume of international remittances increased in 2020 when it was widely thought that economic disruption in host countries due to the COVID-19 pandemic would lead to a loss of jobs and income among migrants and subsequently a decline in international remittances.[70] In 2017, about 15 percent of households reported having at least one member living abroad, of whom almost 90 percent were in South Africa.[71] Most of the migrants (about 90 percent) were abroad in search of employment.

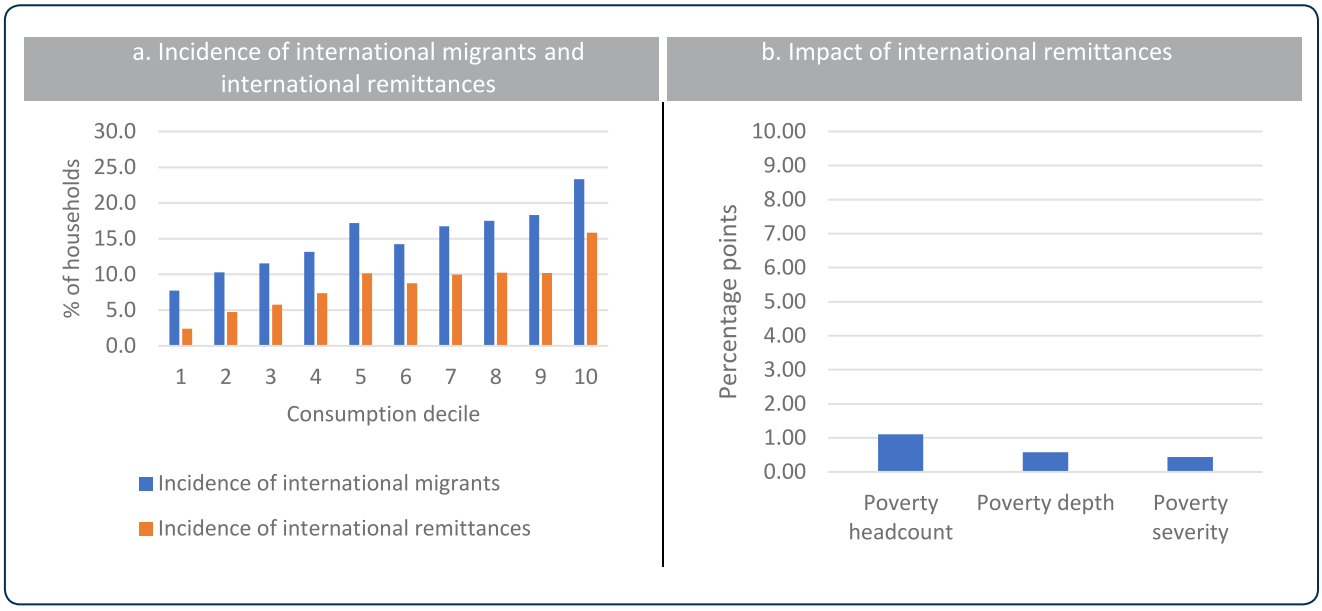
[69] Source: World Development Indicators (https://data.worldbank.org/indicator/SI.RMT.COST.IB.ZS?end=2020&locations=ZW ZA&start=2010)

[70] There is a discrepancy between the survey data and the Balance of Payment data on remittances. In the rapid phone survey, households report a loss in remittances in 2020, whereas the Reserve Bank of Zimbabwe (RBZ) data show an increase. The apparent contradiction may partially be explained by a shift in the channel through with remittances are transferred. Due to border closures and movement restrictions, what would usually have been sent through informal sources (in-person physical cash transfer by relatives, friends, cross-border transporters) may have been sent through the formal channel.

[71] The primacy of South Africa as the destination for Zimbabweans is corroborated by the data from South Africa. The 2011 census of South Africa counted 2.1 million international migrants in the country, of which 45 percent (or approximately 670,000 individuals) were from Zimbabwe (Statistics South Africa, 2015). This is likely an undercount as not all migrants may present themselves to the authorities during the census.

International remittances have a modest impact on poverty due to the low incidence of international migrants and remittances at the bottom of the consumption distribution. In 2017, 1 in 13 households in the poorest decile had an international migrant compared to 1 in 4 households in the top decile (Figure 3.13, Panel a). The incidence of remittances was lower, as not all migrants sent remittances.[72] An average of 5 percent of households in the bottom four deciles received international remittances, while an average of 11 percent of households did so in the top six deciles. As such, the national poverty rate would have been 1.1 percentage points higher without international remittances, and the impact on poverty depth and severity would have been similarly modest (Figure 3.13, Panel b).

Figure 3.14: Incidence and impact of international remittances



Source: Authors' calculations using PICES 2017

v. Conclusion and policy directions

Zimbabwe experienced a unique development trajectory in the 2010s with an increase in the rural share of population and agriculture share of employment, when labor productivity in agriculture is much lower than that in the non-agricultural sectors, and the poverty rate among agricultural households is much higher. Supply of labor, supply of skilled labor, or the skill level of agricultural workers is not an impediment to structural transformation. The transformation is hampered by the slow pace of off-farm job creation, as the private sector is not a creator of productive jobs. The transformation is likely to have suffered a setback with the COVID-19 shock as many registered and unregistered businesses shed jobs.

The generation of productive jobs through private sector growth is imperative for Zimbabwe. It is necessary not only to absorb the new entrants to the labor market but also to shift the existing workforce into more productive sectors of the economy. As of now, much of the skilled labor force remains in agriculture or informal employment or goes abroad in search of economic opportunities. Demonstrating fiscal responsibility and policy consistency, and implementing macroeconomic and structural reforms to win the confidence of domestic and international investors remain the top priorities for the country. Forthcoming World Bank studies such as the Country Economic Memorandum (CEM) will synthesize existing evidence and undertake new analyses to recommend policy options for economic growth and the creation of good jobs.

[72] The reference period for receipt of remittances was the last 12 months.

4. Social Protection and Poverty

Synopsis

- **Social assistance programs in Zimbabwe are progressive, but they have low coverage, low adequacy, and they are not well targeted. As a result, the programs do not have a meaningful impact on poverty and inequality.**
- **There are clear opportunities to improve the efficiency of social assistance programs, even without additional fiscal commitment, through better targeting of the poor. But increasing coverage and adequacy (which comes with additional fiscal commitment) is equally important to make a significant dent on poverty and equity.**
- **The social protection system is also not well-equipped to respond to shocks. In the medium to long term, the policy priority should be laying the foundations of a shock-responsive social protection system that meets chronic needs and can quickly respond to transient needs due to recurrent shocks.**

i. Introduction

In the preceding chapters, we saw that Zimbabwe got poorer in the last decade due to proximate causes such as natural shocks, uneven economic growth, inflation, and the pandemic. The country also made little movement away from agriculture into the modern sectors of the economy limiting income growth. A natural follow-up question that arises is what part the social protection system played in mitigating poverty and vulnerability during this period. Social protection policies can play an instrumental role in reducing poverty, vulnerability, and inequality. They can promote growth and increase productivity in the long term, and they can also affect income distribution in the short term (Alderman and Yemtsov, 2013). A well-designed social protection system can build long-term human capital by investing in education, health, and nutrition through programs such as cash transfers while helping households cope with shocks and find jobs in the immediate term.

This chapter assesses the performance of Zimbabwe's social protection system before and after the pandemic in terms of its coverage, targeting efficiency, benefits incidence, and distributional impact. It then draws out the implications on poverty and inequality if the system were better targeted. Finally, it considers alternative ways in which the programs could be expanded in response to shocks and their implications on poverty.

ii. Social protection system before the pandemic

Zimbabwe's social protection system is primarily made up of non-contributory social assistance programs. Social insurance schemes and labor market interventions reach only a small share of the population, with the former chiefly benefiting formal sector workers who comprise a small share of the total labor force. The social protection system is highly fragmented with multiple small programs, each with limited coverage, intended beneficiaries, and governance mechanism.[73] Even taken together, these programs only cover less than 50

[73] A 2018 study found 29 social safety net programs operational in Zimbabwe (12 cash transfer programs, 2 public works, 2 educational interventions, 1 health intervention, 3 emergency programs, and 9 "other" programs). In comparison, the average number of social safety net programs in sub-Saharan Africa was 15 and in Southern Africa was 12. (Beegle, Coudouel, and Monsalve, 2018). Among sub-Saharan African countries, only Uganda had more programs (39).

percent of the food poor. This fragmentation also prevents the system from being agile and shock-responsive as the barriers to coordination become prohibitively high. Box 4.1 provides an overview of Zimbabwe's main social protection programs.

Compared to other countries in the region, Zimbabwe's social protection sector is underfunded. In 2020 and 2021, Zimbabwe's average social protection expenditure based on the budget reported by the Ministry of Finance and Economic Development (MoFED) was 0.3 percent of GDP, a very low figure. The sector was heavily reliant on donor funding in the past, but with donors having pulled out from funding government programs in recent years, social protection programs are increasingly underfunded and unable to meet the rising needs of Zimbabwe's poor and vulnerable. Another challenge is that not all the resources allocated in the budget are spent, as there is often a gap between the budgeted amount, the amount released by the Treasury, and the actual spending reported at the end of the year.

Box 4.1: Government Implemented Social Protection Programs in Zimbabwe

Social Assistance

Harmonized Social Cash Transfer (HSCT): Previously considered the flagship social protection program in Zimbabwe to which donors contributed, HSCT is an unconditional cash transfer program targeted at labor-constrained and food-poor households. While HSCT was intended to be scaled up nationally when it was introduced in 2011, the program currently supports about 75,677 households in 26 districts, representing 40% of the country's districts. The government has announced HSCT's expansion into 10 additional districts and targeting and registration have taken place in 5 new districts in the first quarter of 2022 with the validation process ongoing.

The HSCT targeting involves three steps: geographical targeting of the poorest districts, a simplified Proxy Means Test (PMT), and community-based verification. Households are classified as poor and labor-constrained based on their PMT score. The benefit size depends on the number of household members. Households with one, two, three, and four members receive ZWL 1000, 1500, 2000, and 2500, respectively. Ministry of Public Service, Labor, and Social Welfare (MPSLSW) is currently under discussion with the Ministry of Finance and Economic Development (MoFED) to review the benefit level and potentially peg them to the USD so that payments can be made at the prevailing exchange rate as the real value of HSCT transfers has been severely eroded by inflation and a depreciation in the exchange rate.

Basic Education Assistance Module (BEAM): BEAM is an educational subsidy targeting vulnerable children between the ages of 6 and 19 years in primary and secondary schools across all districts in the country. The program aims to increase school attendance and completion rates by supporting the education of at-risk children. The program has been implemented by MPSLSW in conjunction with the Ministry of Primary and Secondary Education (MOPSE) since 2001.

The BEAM selection process is community-driven, with funds allocated to districts and provinces based on their share of the poor population. Community members nominate children to community-based structures that assess their eligibility based on a range of selection criteria including previous access to education, whether the child is an orphan and other demographic and socioeconomic variables.

BEAM covers the cost of school fees, levies, and examination fees by making payments directly to schools rather than to households. The budget allocation for BEAM increased from USD 16 million in 2019 to USD 20 million in 2020. In 2022, BEAM began the procurement process to provide additional support by covering the costs of stationery and uniforms. These are planned to be rolled out in the second quarter of 2022. The program reportedly reached 1.4 million beneficiaries in 65 districts in 2021 (out of a target of 1.5 million) which represents about 31 percent of the population aged 5-to 19 years. [74]

Food Deficit Mitigation (FDM): FDM is a food transfer program for labor-constrained households that delivers maize grain to households during the peak lean season (October – March). The first round of geographical targeting is carried out using ZimVac assessments on vulnerability and food insecurity.[75] At the district level, government committees select households based on applications submitted in line with the selection criteria. The selection criteria prioritize food insecure, labor-constrained households, which include households headed by the elderly and people with disabilities, female-headed households, orphan-headed households, and households with chronically ill members.

In 2021, the budget allocation for the program was USD 47 million, or 21 percent of the total social protection budget, and it reached a total of 1.1 million beneficiaries between October and December. In the first quarter of 2022, the program reached 1.4 million beneficiaries but remained below its target of 2.3 million. A retargeting exercise has also been carried out in 2022, complemented by recent joint programming with WFP to prevent double-dipping with WFP's Lean Season Assistance program.

Assisted Medical Treatment Orders (AMTO): AMTO aims to improve access to healthcare for the poor and vulnerable by providing a health subsidy. It covers the cost of medical bills in public and mission hospitals. As such, payments are made directly to health facilities. AMTO is an on-demand program, so potential beneficiaries must apply for benefits. The applicants are assessed on a case-by-case basis. The eligibility criteria for AMTO are vague, and district-level staff lacks adequate guidelines to assess the applications. However, MPSLSW is in the process of finalizing AMTO guidelines to standardize the processing of applications. In the first quarter of 2022, 9,540 beneficiaries benefited from AMTO and 29 people received specialized treatment. A total of USD 21,750 was paid for special treatment orders during this period.

Public Assistance (PA): Established in 1988, PA is a discretionary grant provided to vulnerable households by the district-level Social Development Officers. PA is currently active in districts not covered by HSCT, as well as in urban areas in HSCT districts since HSCT is implemented exclusively in rural areas. PA's eligibility criteria include being over 60, financial hardship, and absence of other forms of assistance. Applicants must also disclose their state of health, education, and skill level to be considered for the program. In the first quarter of 2022, the program had reached 30,469 beneficiaries in five provinces.

[74] Calculations based on the Zimstat's 2012 National Census Report.

[75] Zimbabwe Vulnerability Assessment Committee (ZimVac) is a technical advisory committee comprised of representatives from Government, Development Partners, UN, NGOs, technical agencies and academia.

Social Insurance

Zimbabwe's social insurance schemes, constituting primarily of private and public sector pension schemes, are managed by the National Social Security Authority (NSSA). In 2019, 3.2 million individuals were registered under an NSSA pension scheme, and NSSA paid a total of USD 10.6 million in short-term benefits and USD 222.5 million in long-term benefits. In addition to pensions, NSSA offers Accident Prevention and Worker Compensation schemes as well as a Rehabilitation scheme. To keep abreast of inflation and the exchange rate fluctuation since the start of the COVID-19 pandemic, NSSA is reviewing the USD equivalence of pension benefits every quarter. In addition, since the first quarter of 2022, NSSA has begun aligning pension rates with the foreign exchange auction rate every month. This has resulted in the minimum retirement pension for the second quarter of 2022 being pegged at the equivalent of USD 70.

Zimbabwe's social insurance programs cover only the formal sector, and Zimbabwe has one of the largest informal economies in the world, accounting for approximately 73 percent of all employment. This means that the bulk of Zimbabweans, particularly the poor and vulnerable, are left without any form of social insurance. The excluded are mainly households that are not poor enough to be eligible for social assistance programs but are highly vulnerable to shocks. While NSSA is developing a pilot social insurance scheme for informal workers that is projected to be launched in the fourth quarter of 2022, in the short term this scheme will remain small in scale and focus on maternity benefits which will still leave the bulk of the informal sector without coverage.

Active Labor Market Policies

Zimbabwe's current labor market programs focus primarily on vocational training, support to micro, small and medium enterprises (MSMEs), and livelihoods programs. A network of vocational training centers nationwide provides vocational training opportunities for youth, but their reach is limited. At the same time, employment incentives and wage subsidies are provided to enterprises in certain sectors, as was the case during the COVID-19 pandemic for the transportation and tourism industries. In addition, Zimbabwe is implementing the Sustainable Livelihoods program that provides livelihood support to non-labor constrained indigent people to develop sustainable sources of livelihood. By the first quarter of 2022, 4,500 households had benefited from the program out of an annual target for 2022 of 6,000. Until 2021, a total of 10, 971 youth had been supported through the program. Further, Zimbabwe is receiving USD 4 million from the African Development Bank to implement a project focused on generating employment opportunities over the period 2022-2025. With support from the ILO, the government will implement the Sustainable Enterprise Development for Women and Youth (SEDWAY) project which aims to scale up interventions focused on the economic empowerment of women and youth through agricultural value chains and small gemstone mining sectors. The estimated number of total beneficiaries is 7,720 direct beneficiaries and approximately 100,000 indirect beneficiaries. The government is also formulating a formalization strategy focused on the informal sector, with a draft report expected by the end of April 2022.

Source: Oxford Policy Management, 2021; UNICFE Budget Analysis, 2021; Presentations to the Social Protection Steering Committee; NSSA Annual Report

In addition to government-implemented social protection programs, a major proportion of support is channeled through donor-funded humanitarian programs implemented by the UN and Non-Governmental Organizations (NGOs). The latest available data indicate that around 19 percent of the population received support from humanitarian programs while 16 percent received support from government-implemented social assistance programs.[76] Other pieces of evidence such as the recent OCHA report showing 51 percent of the population receiving humanitarian support (which includes support beyond social protection) indicate that humanitarian support is far-reaching in Zimbabwe (OCHA, 2021).

To the extent the survey response conflates the public and humanitarian sources of assistance, the impact of government social protection expenditure discussed in this report is likely overestimated as it may include some humanitarian expenditure as well. A brief description of the main humanitarian assistance programs is provided in Box 4.2.

Box 4.2: Humanitarian assistance programs in Zimbabwe

Lean Season Assistance

he Lean Season Assistance (LSA) program addresses the urgent food needs of vulnerable households affected by climate-induced shocks, economic crises, and the COVID-19 pandemic. The program provides unconditional in-kind food and cash transfers to food insecure populations to help increase food consumption and access to adequate and nutritious diets. LSA provides support primarily during peak lean season which usually takes place between January and April. Given three consecutive years of drought, for the first time one WFP LSA program followed another during the 2020/2021 season. By the end of the 2020/2021 season, 1.5 million households had received assistance. At the peak of the 2021/2022 season, LSA reached 655,222 households.

Food Assistance for Assets

The Food Assistance for Assets (FFA) program provides cash, voucher, and food transfers through support to building or rehabilitating assets that will improve long-term food security and resilience to climatic shocks. These interventions are designed to help address immediate food needs. Overall, FFA aims to reduce the risk and impact of climate shocks, increase food productivity and strengthen resilience to natural disasters over time. In 2022, FFA reached over 138,000 beneficiaries.

Emergency Social Cash Transfer

Supported by UNICEF, the Emergency Social Cash Transfer mirrors the HSCT structure to provide emergency support to vulnerable households. The program provides monthly cash transfers equivalent to USD 48. In response to the COVID-19 pandemic, the program reached 26,000 households and plans to transition them over to the government-run HSCT program.

[76] These estimates use data from the Mini PICES 2019. It is important to note that this estimate is only indicative as PICES data did not differentiate the sources of support. Programs were grouped into the 'government' and 'humanitarian' categories based the best available information and a set of assumptions.

Urban Social Assistance

The Urban Social Assistance program provides cash transfers to address immediate food security needs as well as a resilience-building component that focuses on developing beneficiaries' skills and capacities to be more resilient to climate-induced shocks. The cash transfers are paid through e-voucher and remittance modalities. Meanwhile, the resilience-building component invests in climate-smart urban agricultural solutions and livelihoods promotion among the urban poor who are informal workers. By April 2022, the program had reached over 56,530 people.

Source: World Food Program & UNICEF

The rest of the section takes an in-depth look at the performance of social protection programs through indicators of coverage, the incidence of beneficiaries and benefits, adequacy of transfers, poverty and inequality reduction, and the cost-benefit ratio of social protection programs using the 2017 PICES data. Before presenting the results, a few caveats are in order. First, the 2017 data is preferred over the more recent 2019 data because the former has a larger sample size ideal for subgroup disaggregation and simulation analysis. Moreover, the 2017 survey was conducted over 12 months so it better captures the seasonal variation in programs such as the food mitigation program. In comparison, the 2019 survey was conducted in May and June. Indicators such as undercoverage, leakage, and poverty impact in this analysis are in reference to the food poverty line which is an absolute minimum threshold necessary for households to meet their basic caloric needs. The line does not make allowance even for basic non-food expenditures such as clothing, utilities, and transportation. As a result, what we call non-poor households are still below the threshold of meeting basic food and non-food needs, so they may well be within the target population of social protection programs. Indeed, the targeting criteria of Zimbabwe's social protection programs is not based on the food poverty line. If higher poverty lines that made allowance for non-food expenditure were employed, the results would naturally differ. For example, the rate of leakage would be lower because more of the beneficiaries would now be considered poor under the higher poverty thresholds. Finally, "undercoverage" and "leakage" are not assessed with reference to program eligibility criteria as program-eligible and ineligible households cannot be reconstructed with high fidelity using the survey data.

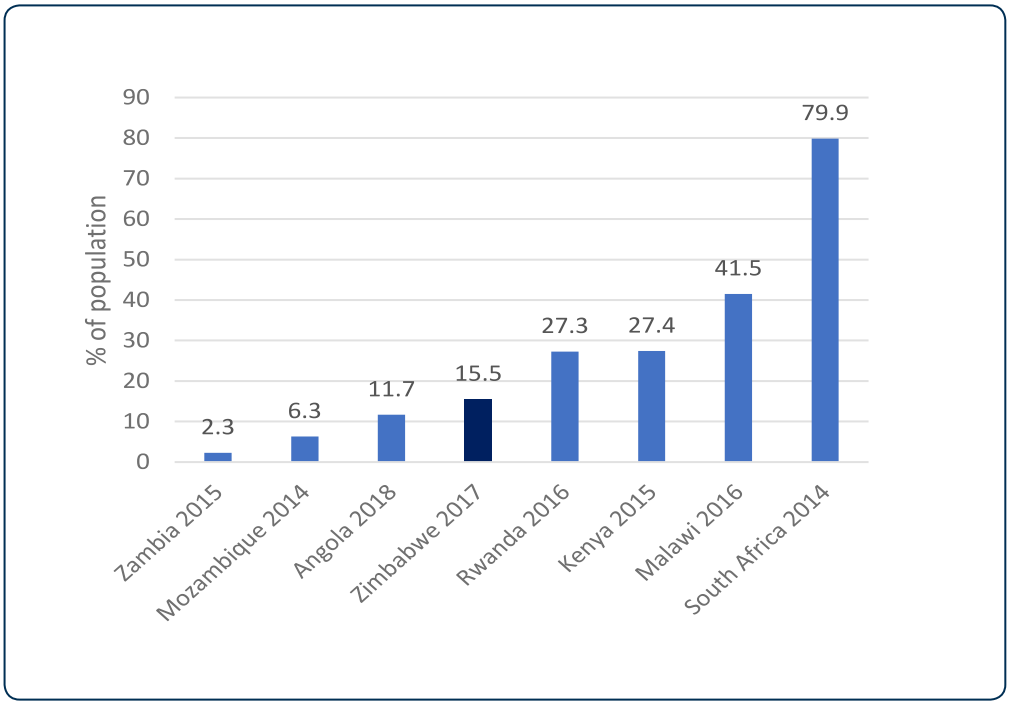
Coverage

Coverage refers to the share of the population covered by social protection programs. The coverage figures reported below include direct and indirect beneficiaries as program information is only collected at the household level. As such, all members of a household where at least one individual is the recipient of a social protection program are counted as indirect beneficiaries. The analysis is based on self-reported information from the 2017 PICES survey.

According to the latest comprehensive data available from 2017, the overall coverage of social protection programs was quite low in Zimbabwe. Only about 16 percent of the population lived in a household where at least one member benefited from a social protection program (Table 4.1). Figure 4.1 shows Zimbabwe's social protection coverage compared to other Sub-Saharan African countries based on available household survey data. At 15.5 percent, the social protection system in Zimbabwe covers a higher percentage of its total population than Zambia (2.3 percent) and Mozambique (6.3 percent). However, this coverage is significantly

lower than other peers such as South Africa and Malawi (79.9 and 41.5 percent respectively.) [77] This share is also much lower than the sub-Saharan Africa regional average, where about a quarter (23.7 percent) of the population is covered by social protection programs.[78] The low coverage comes into an even starker contrast when compared to the average for lower-middle-income countries, in which social protection programs cover almost 60 percent of the population.

Figure 4.1: Cross-country comparison of social protection coverage



Source: World Bank ASPIRE Database - www.worldbank.org/aspire. Accessed on May 6, 2022.
Note: Coverage includes direct and indirect beneficiaries.

Social assistance represented the bulk of Zimbabwe's social protection coverage, with 11 percent of the population receiving social assistance, which is lower than the regional average of 16 percent. Before the pandemic, social assistance had a rural focus with 15 percent of the rural population receiving at least one social assistance program compared to only 5 percent in urban areas. Among all social assistance programs, BEAM had the highest coverage reaching 6 percent of the population. In contrast, HSCT, Zimbabwe's main cash transfer program, has a very low coverage, reaching only 0.4 percent of the population. Social insurance programs and labor market interventions have a particularly low reach in Zimbabwe according to the survey. Overall, social insurance and labor market programs covered 3 and 1 percent of the total population respectively (Table 4.1).

Social Protection coverage of the poorest quintile and food poor, whose need for assistance is higher, was very low. Only 21 percent of the poorest quintile and 19 percent of the food poor were covered by at least one social protection program, leaving most of the neediest households without access to any social protection benefits.

[77] Country and regional coverage figures are likely to have changed as the data in the ASPIRE database are dated for some countries.
[78] Source: ASPIRE database (https://www.worldbank.org/en/data/datatopics/aspire/region/sub-saharan-africa)

The lack of coverage was particularly acute for both social insurance and labor market programs where 2 percent and 0.2 percent of the food poor respectively received any support. This is a consequence of pension benefits representing the bulk of Zimbabwe's social insurance schemes, where mostly those with formal sector jobs who are less likely to be poor can afford to participate. These results are however not surprising as social insurance programs are traditionally not designed to support the poorest and vulnerable. Even considering all social assistance programs, only 17 percent of the food poor were covered by any program (Table 4.1).

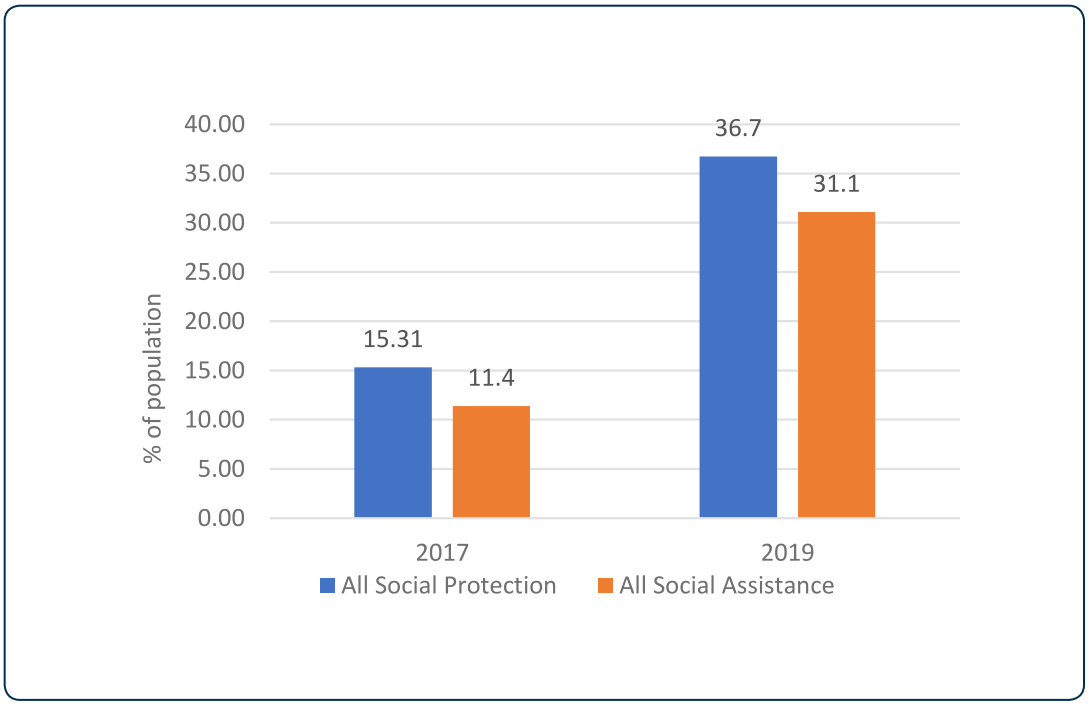
Table 4.1: Social Protection Coverage (% of population, direct and indirect beneficiaries)

		Quintiles of per capita consumption, net of all SP transfers					Poverty Status			
	Total	**Poorest quintile**	**Q2**	**Q3**	**Q4**	**Richest quintile**	**Food Poor**	**Non-poor**	**Urban**	**Rural**
Direct and indirect beneficiaries										
All social protection	**15.3**	**20.5**	**15.3**	**14.7**	**13.6**	**12.5**	**18.5**	**13.8**	**12.8**	**16.5**
All social insurance	**3.4**	**1.7**	**1.5**	**2.3**	**4.4**	**7.0**	**1.5**	**4.3**	**6.1**	**2.1**
Pension benefits	1.6	0.9	0.8	0.9	1.7	3.6	0.7	2.0	2.9	1.0
Social security benefits	2.2	1.0	0.8	1.5	3.4	4.5	0.9	2.8	4.2	1.3
All labor market programs	**1.2**	**0.2**	**0.3**	**0.8**	**2.1**	**2.6**	**0.2**	**1.6**	**3.5**	**0.1**
Employment agencies	1.2	0.2	0.3	0.8	2.1	2.6	0.2	1.6	3.5	0.1
All social assistance	**11.4**	**19.2**	**13.7**	**12.2**	**7.9**	**3.9**	**17.3**	**8.7**	**4.5**	**14.6**
HSCT	0.4	0.8	0.6	0.5	0.2	0.0	0.7	0.3	0.0	0.6
Education benefits by BEAM, STEM, other gov	5.7	8.8	7.1	5.8	4.4	2.5	8.3	4.5	2.9	7.0
Food for works	1.8	3.3	1.7	2.1	1.4	0.4	2.5	1.4	0.1	2.6
Cash for works	0.6	1.7	0.6	0.4	0.1	0.2	1.3	0.3	1.0	0.4
Food (disaster relief)	1.3	2.4	1.6	1.6	0.7	0.2	2.1	0.9	0.1	1.8
Food mitigation program	1.5	2.5	2.1	1.8	0.8	0.3	2.4	1.1	0.2	2.1
Smallholder Farm Input Support Scheme	0.3	0.8	0.2	0.1	0.1	0.1	0.6	0.1	0.0	0.4
Other social assistance	0.7	1.2	0.6	0.6	0.4	0.4	1.0	0.5	0.3	0.8

Source: Authors' calculations using the PICES 2017.
Note: Coverage includes direct and indirect beneficiaries.

Estimations derived from the 2019 Mini PICES indicate that there was an increase in social protection coverage in 2019 during the economic crisis. Figure 4.2 shows that social protection coverage increased from 16 to 37 percent in 2019. This increase in coverage is attributed mostly to humanitarian assistance such as disaster relief programs that were put in place in response to shocks like inflation, poor harvest of the 2019 agricultural season, and Cyclone Idai.

Figure 4.2: Social protection and social assistance coverage in 2019

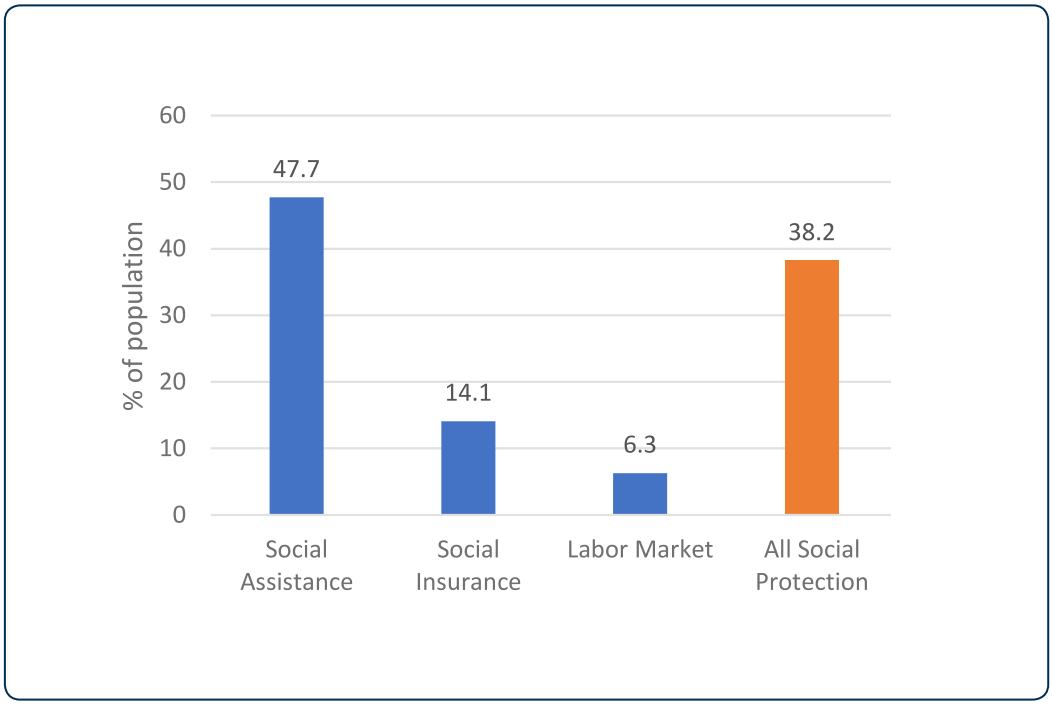


Source: Authors' calculations using PICES 2017 and Mini-PICES 2019
Note: Coverage includes direct and indirect beneficiaries.

Distribution of beneficiaries

The incidence or distribution of beneficiaries measures how programs beneficiaries are distributed across different subgroups. As was indicated by a higher rate of coverage of the poorest quintile and the food poor, the social assistance program beneficiaries are concentrated among those groups. Among social assistance beneficiaries, 58 percent are from the bottom 40 percent of the population and 48 percent are food poor (Figure 4.3). The small holder farm input support scheme and cash for works programs had the highest proportion of food poor beneficiaries (72 percent and 70 percent respectively). Meanwhile, only 2 percent of HSCT beneficiaries were from the richest quintile which is the lowest among all social assistance programs (Maboshe et al., 2022). Unlike social assistance programs, the opposite is true for social insurance and labor market programs where beneficiaries are concentrated among the most well-off and non-poor households. Indeed, 41 percent of social insurance beneficiaries and 44 percent of labor market beneficiaries were from the richest quintile (Maboshe et al., 2022)

Figure 4.3: Percentage of food-poor among the beneficiaries



Source: Authors' calculations using PICES 2017

Distribution of benefits[79]

Despite limited coverage, social protection programs in Zimbabwe were generally progressive. This means that the distribution of benefits was concentrated in the poorer quintiles. Progressivity in the social protection system can be illustrated by concentration curves that map the cumulative share of benefits going to households ranked from poorest to richest. The concentration curve for social assistance programs in Zimbabwe in 2017 is above the line of equality, which means the poorer segments of the population receive a proportionately larger share of total social assistance benefits (Figure 4.4). Overall, 54 percent of social assistance benefits reached the food poor, which is relatively high considering the low threshold of the food poverty line employed in this analysis (Annex 1). Indeed, the poorest quintile received 45 percent of social assistance benefits while the richest quintile received 10 percent.

Social assistance was also progressive at the level of specific programs. For example, 66 percent of HSCT benefits were received by the bottom 40 percent of beneficiaries. Other social assistance programs implemented either at the district level or by non-governmental actors exhibit the same pattern. For example, 80 percent of the benefits of cash for work programs were received by the poorest quintile. While the distribution of BEAM benefits does not appear to be progressive, a breakdown by the level of education reveals some differences. BEAM is more progressive at the primary level but not so at the secondary level (Maboshe et al., 2022).

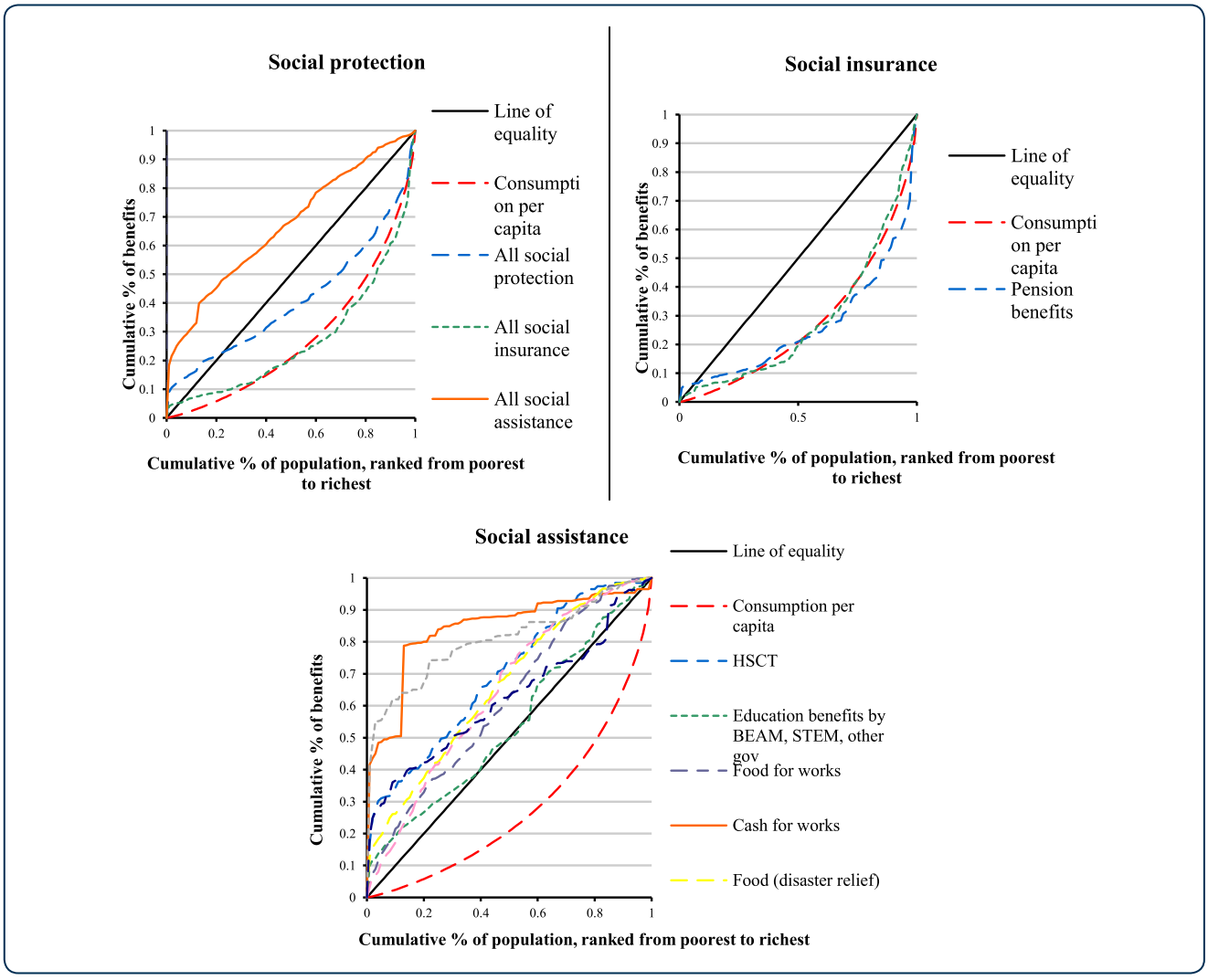
In contrast, social insurance benefits were concentrated mostly among the non- food poor who received 86 percent of the benefits. The richest quintile alone received 41 percent of social insurance benefits while the

[79] Incidence or distribution of benefits measures the percentage of benefits received by a certain group. The indicator is used as a measure of targeting accuracy.

poorest quintile received 10 percent (Table A5). This is a common characteristic of social insurance schemes, and it is to be expected given that pension schemes mostly cover formal sector workers. Labor market program benefits are also concentrated heavily among the food non-poor with 94 percent of benefits received by this group.

Despite the progressivity of social assistance programs, the concentration curve for Zimbabwe's social protection system fell below the line of equality at most parts of the distribution. This is because the concentration curves of social insurance programs fall not only below the line of equality but often also below current consumption, which means social insurance programs are inequality-increasing. This is a consequence of social insurance being limited mostly to the formally employed who comprised only a small share of workers in Zimbabwe. Indeed, informal workers, most of whom do not participate in pension schemes, represent approximately 75 percent of Zimbabwe's economy, which limits social insurance to a very small part of the population.[80]

Figure 4.4: Percentage of food-poor among the beneficiaries



Source: Authors' calculations using PICES 2017

Note: Labor market programs do not report monetary transfers, so they are not included in the figure.

[80] World Bank staff analysis using PICES 2017 data.

Adequacy of transfers [81]

Among the small share of households that did receive social protection, the level of the transfers represented a significant share of household consumption. Overall, social assistance benefits represented 13 percent of pre-transfer per capita consumption in 2017 (Table 4.2). This share was higher for the food poor (17 percent) than the non food-poor (12 percent). Transfer generosity was also higher in urban areas, driven primarily by cash-for-work programs. Among all the programs, cash-for-work, Smallholder Farm Input Support Scheme, and HSCT programs were the most generous. HSCT benefits, for example, comprised 34 percent of welfare among the food poor and 20 percent among the food non-poor. Despite having the highest coverage, BEAM's adequacy was low, representing 8 percent of pre-transfer welfare.[82] Social insurance schemes have larger transfer amounts and constitute 29 percent of total household consumption (Table 4.2). The difference in social insurance adequacy between the food poor and food non-poor is large.

Table 4.2: Adequacy of social protection benefits

		Quintiles of per capita consumption, net of all SP transfers					Poverty status		Area of residence	
	Total	Poorest quintile	2nd quintile	3rd quintile	4th quintile	Richest quintile	Poor	Non-poor	Urban	Rural
All social protection	21.3	18.2	18.2	19.3	20.2	23.5	19.6	21.5	26.1	17.3
All social insurance	29.3	37.9	56.7	45.7	33.2	26.4	55.0	28.8	27.4	34.1
Pension benefits	36.7	64.8	83.0	62.0	50.6	32.3	80.9	36.3	32.9	47.8
Social security benefits	15.3	29.0	40.1	26.2	19.6	12.5	40.8	14.8	14.6	17.1
All labor market programs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employment agencies	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
All social assistance	13.2	17.1	14.9	13.3	10.3	12.7	17.0	12.2	19.0	11.5
HSCT	21.9	33.4	26.6	22.4	15.4	18.0	33.8	19.6	19.0	22.1
Education benefits by BEAM, STEM, other gov	8.0	8.2	6.5	7.9	6.2	10.4	7.7	8.1	12.2	6.0
Food for works	9.7	15.5	13.9	8.5	7.1	7.2	15.3	8.3	7.4	9.7
Cash for works	35.6	44.0	43.8	36.9	51.4	27.8	53.5	32.7	38.5	27.0
Food (disaster relief)	10.9	19.5	11.7	10.1	8.8	6.6	16.6	9.3	3.0	11.5
Food mitigation program	11.9	17.9	14.7	12.5	8.7	7.3	15.6	10.9	11.0	11.9
Smallholder Farm Input Support Scheme	27.7	50.3	36.8	35.9	28.9	12.0	46.1	21.4	6.7	29.1
Other social assistance	13.0	21.8	22.7	17.0	9.0	8.3	22.0	11.4	11.5	13.5

Source: Authors' calculations using PICES 2017. **Note:** Adequacy refers to the value of transfer as a share of household consumption.

[81] Transfer adequacy refers to the transfer amount as a share of the total welfare of the recipients. Transfer adequacy may have changed since 2017 due to factors such as transfer levels, household consumption level, exchange rate volatility, and inflation. However, adequacy cannot be analyzed for recent years due to a lack of consumption data.

[82] There may be some noise in the estimate of BEAM benefits as they are calculated from the value reported by households while the benefit payments are made directly to schools.

It is however important to note that the adequacy of benefits may have declined since 2017 due to economic volatility and exchange rate fluctuations. The benefits are paid in RTGS, which means a deterioration in exchange rate erodes the real value of the transfers. More recent macroeconomic analysis does show that the benefit levels have not been adjusted since 2017 in response to exchange rate fluctuations. The real transfer values of programs such as HSCT have therefore been affected. It is also crucial to highlight that the adequacy numbers presented above are conditional on household receipt of benefits. Due to their low coverage, the unconditional share of HSCT transfers and food assistance receipts in total household incomes are negligible (Maboshe et al., 2022).

Poverty and inequality impact

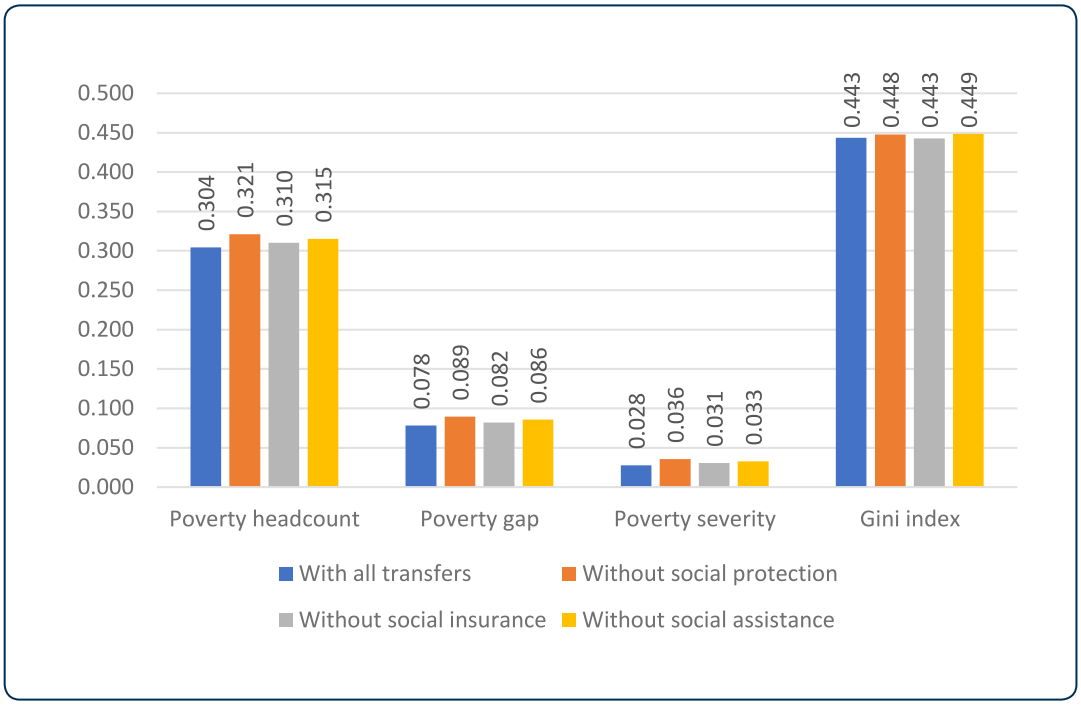
While the impact on poverty of social protection programs is affected by low coverage and adequacy, they do have a positive but limited impact on poverty reduction in Zimbabwe.[83] With regards to the impact on the poverty headcount, Figure 4.5 shows that if all social protection programs were eliminated, the food poverty headcount ratio would increase by 1.7 percentage points. To put it differently, simulations show that without social protection transfers, food poverty in 2017 would have been 32.1 percent (compared to 30.4 percent with the transfers). The impact on poverty is small, particularly compared to other countries in the region such as Botswana where the estimated impact of social protection on the poverty headcount is 8 percentage points. [84] This means while the social protection programs in Zimbabwe have the potential to play more of a role in poverty reduction and income equalization, they can only do so if they can better target the poor, increase the benefits level, and expand coverage of the food poor. Notably, the social protection system also does not play an equalizing role, as it has only a small impact on the Gini index (from 0.448 to 0.443).

Despite having a small impact on poverty headcount, social assistance plays a relatively larger role in poverty alleviation than social insurance and labor market interventions, which is not surprising given the composition of Zimbabwe's social protection system. The absence of social assistance programs would be associated with 1.1 percentage point increase in the poverty headcount and an increase in the Gini index from 0.443 to 0.449 (Figure 4.5). BEAM and cash for work are associated with the highest impacts on poverty headcount and inequality, while HSCT's impact is estimated to be slightly lower. As expected, social insurance programs have a more modest impact on poverty (0.6 percentage points) and inequality (0.005), but it is noteworthy that the impact of social assistance programs is not much higher due to low coverage, inefficient targeting, and low generosity. Indeed, pensions have a slightly higher impact on the poverty headcount than many social assistance programs, likely due to the transfer size (Figure 4.5).

Despite the small impact on poverty headcount, social protection programs do make a dent in the poverty gap, with estimates suggesting that in the absence of social protection programs in 2017 the poverty gap would have increased from 7.8 percent to 8.9 percent. While this may not be enough to bring people out of poverty and therefore change the poverty headcount, it does reduce the gap to the food poverty line. For example, in absence of social assistance programs the poverty gap would have increased from 7.8 percent to 8.6 percent. As expected, the impact of social insurance on the poverty gap is lower than that of social assistance. In the absence of social insurance, the poverty gap would have increased from 7.9 percent to 8.2 percent (Figure 4.5).

[83] Program impact is calculated by comparing the poverty headcount ratio, poverty gap index, poverty severity index, and Gini index with and without the transfers. The poverty headcount index the proportion of a population that lives below a given poverty line. Poverty gap index is the difference between an individual/household's income and the poverty line, expressed as a percentage of the poverty line. Gini index is a measure of income distribution and is used to determine the level of inequality across a population. The indicator ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality.
[84] Guven et al., 2021.

Figure 4.5: Impact on poverty and inequality



Source: Authors' calculations using PICES 2017

Cost-Benefit Ratio

A cost benefit ratio analysis shows the equivalent reduction in the poverty gap for every unit of local currency that is invested in the social protection program. Thus, for example, for every USD 1 invested in social protection, there is a 19-cent reduction in poverty gap (Table 4.3). Social assistance has the highest cost-benefit ratio of 0.37. This figure is driven by programs like the Small Holder Farmer Input Support Scheme, Food Disaster Relief and Cash for Work. Interestingly, despite having the highest coverage, BEAM has the lowest cost-benefit ratio among social assistance programs at 0.28 cents. As expected, the benefit-cost ratio of social insurance is significantly lower at 0.10 given that social insurance does not target the poor.

Table 4.3: Benefit-Cost Ratio

	Benefit-Cost Ratio
All social protection	0.19
All social insurance	0.10
Pension benefits	0.10
Social security benefits	0.10
All labor market programs	n.a.
Employment agencies	n.a.
All social assistance	0.37
HSCT	0.36
Education benefits by BEAM, STEM, other gov	0.28
Food for works	0.36
Cash for works	0.38
Food (disaster relief)	0.41
Food mitigation program	0.37
Smallholder Farm Input Support Scheme	0.52
Other social assistance	0.41

Source: Authors' calculations using PICES 2017.
Note: Labor market programs do not report monetary transfers, so it is not possible to estimate their benefit-cost ratio.

iii. Social protection system during the pandemic

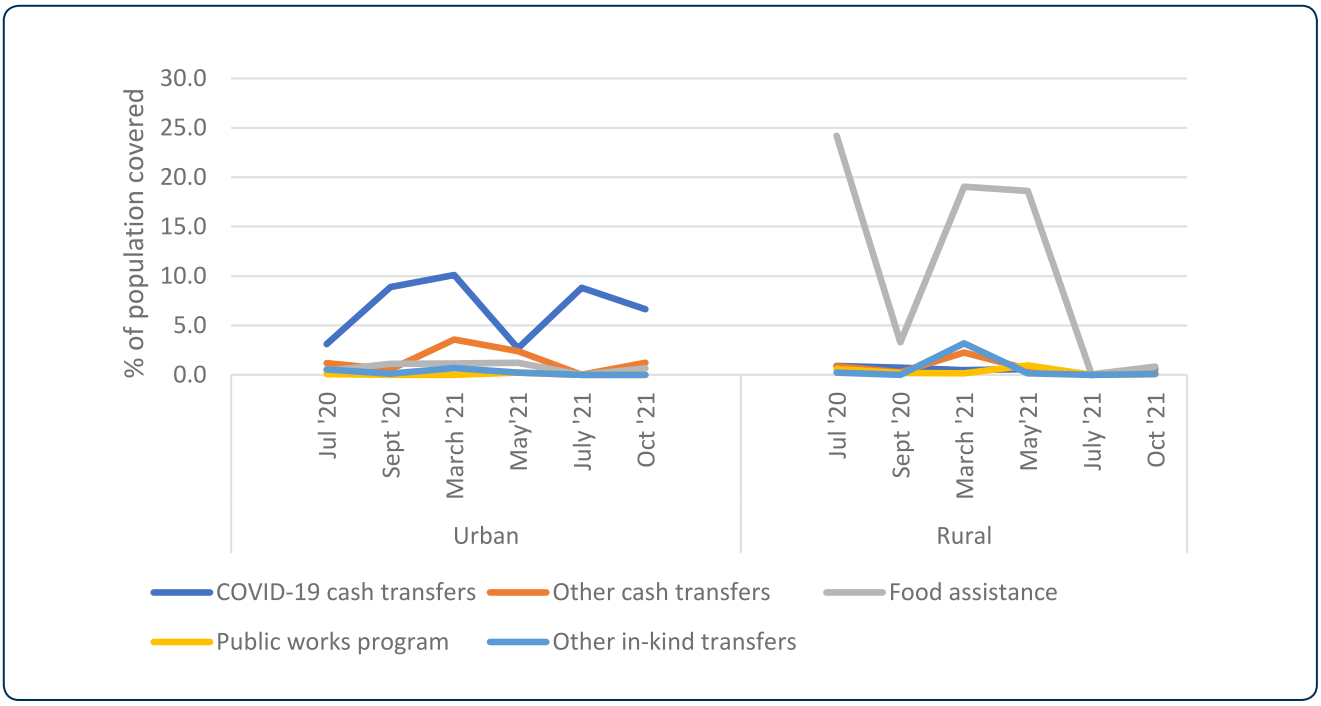
Given the context of Zimbabwe's social protection system with high levels of fragmentation, low coverage and adequacy affected by economic volatility, it is not surprising to find that the system was ill-equipped to respond to the COVID-19 pandemic. But for a few exceptions, the population coverage of safety net/humanitarian assistance programs during the pandemic was low. Over the first six rounds of high frequency survey between July 2020 and October 2021, between 1 and 4 percent of the population was covered by COVID-19 emergency cash support.[85] [86]The national average masks the difference across urban and rural areas. Although the coverage of COVID-19 cash assistance started out low in both urban and rural areas soon after the pandemic, the coverage in urban areas was significantly higher in rounds 2, 3, 5, and 6. As such, a much higher proportion of the urban population was covered by the COVID-19 cash transfers than the rural population (Figure 4.6). The coverage of other forms of cash support remained low – between 0 and 3 percent – over this period.[87]

The only social assistance with meaningful coverage were food assistance programs in rural areas. About a quarter and a fifth of rural households in rounds 1, 3, and 4 received food assistance, while the coverage was very low in round 2, 5, and 6 (0 to 3 percent). This pattern is likely related to the seasonality in food availability. The Food Deficit Mitigation program and WFP's Lean Season Assistance program provide food assistance to

[85] The dates for the first six rounds of household survey are as follows: First round – 6-24 July 2020; second round – 24 August - 23 September 2020; third round – 15 December 2020 - 10 March 2021; fourth round – 1-27 May 2021; fifth round – 14 June – 26 July 2021; sixth round – 12 September - 23 October 2021.
[86] Given the structure of the questionnaire, COVID-19 emergency cash support is likely a combination of government and humanitarian agency-funded emergency cash transfers. These include government-funded cash transfers for informal workers, WFP's Urban Social Assistance program and UNICEF's Emergency HSCT.
[87] Although we cannot tell definitively from the survey data, the other cash transfer program is likely the HSCT program.

food insecure households during the hunger season which spans approximately from November to April, which is why the coverage is low in the post-harvest period (September 2020, June 2021, October 2021). The coverage in July 2020 may have been high because many households were food insecure that year due to the poor harvest in the 2019-2020 agriculture season in addition to the COVID-19 shock.

Figure 4.6: Coverage of safety net programs (direct and indirect beneficiaries)



Source: Authors' calculations using Rapid-PICES 2020-2022

The analysis again indicates emergency support was not well-targeted. The high-frequency survey data show no significant difference in the coverage rate of emergency assistance between households that experienced and did not experience shocks. Panel A of Figure 4.7 shows the marginal difference in the coverage rate of cash support for households experiencing shocks. The difference is statistically insignificant for all types of shocks.[88] The same pattern is observed with the incidence of any type of assistance is considered: households that experienced a shock are no more likely to have benefitted from assistance than households that did not experience a shock. Finally, households that experienced the most acute forms of food distress are no more likely to receive food assistance than households that did not experience it (Figure 4.7, Panel C).[89]

[88] The shocks data are missing for round 1.

[89] We consider a household to be in acute food distress if someone in the household had to skip a meal because there was not enough to eat, the household ran out of food, someone was hungry but there was not enough money to buy food, or someone went whole day without eating. These are the last four categories in the Food Intensity Experience Scale (FIES).

Figure 4.7: Targeting of assistance during COVID-19

Source: Authors' calculations using Rapid-PICES 2020-2021

Note: A household is defined to be in acute food insecurity if a household member skipped a meal, the household ran out of food, a household member was hungry but did not eat, or a household member went a whole day without eating.

The bars show the difference in the proportion of households with and without shocks receiving assistance. The "whiskers" show the 95 percent confidence interval of the point estimate.

This analysis leads us to the conclusion that the safety net/humanitarian assistance programs did not sufficiently adapt their targeting methodologies to select households had suffered from income shock or experienced food insecurity during the pandemic. Had the programs been targeted to the poorest and most vulnerable households before the pandemic, and if the incidence of shocks was correlated to household's poverty and vulnerability status, households that experienced shocks after the crisis should have had a higher coverage rate of emergency assistance. At the same time, had the programs been able to adapt to reach households in distress after the crisis, they would have been able to extend the benefits to those households. Though urban coverage of emergency cash support did increase during the pandemic, it was not commensurate to the need considering that urban households were disproportionately affected by job loss.

iv. Opportunities for reform

In this section, we consider how the social assistance system in Zimbabwe could be reformed to achieve greater poverty reduction. Specifically, we examine the impact on poverty from improving the targeting of social assistance (including through budget neutral reforms) and illustrate how the existing system is not well placed to help households respond to shocks (using the example of adaptive social protection responses to a drought). We focus on social assistance as it is the main form of social protection in Zimbabwe and one of its primary purposes is to reduce poverty. While considering alternative targeting scenarios, we are not prescriptive of the targeting indicators and mechanisms. For example, we do not develop a targeting tool that achieves 60 percent coverage of the poor. The scenarios are for illustration only. Our aim is to demonstrate the potential poverty-reducing effects of the current system without any associated increase in fiscal commitment if the targeting scenarios were realized.

Budget-neutral reforms

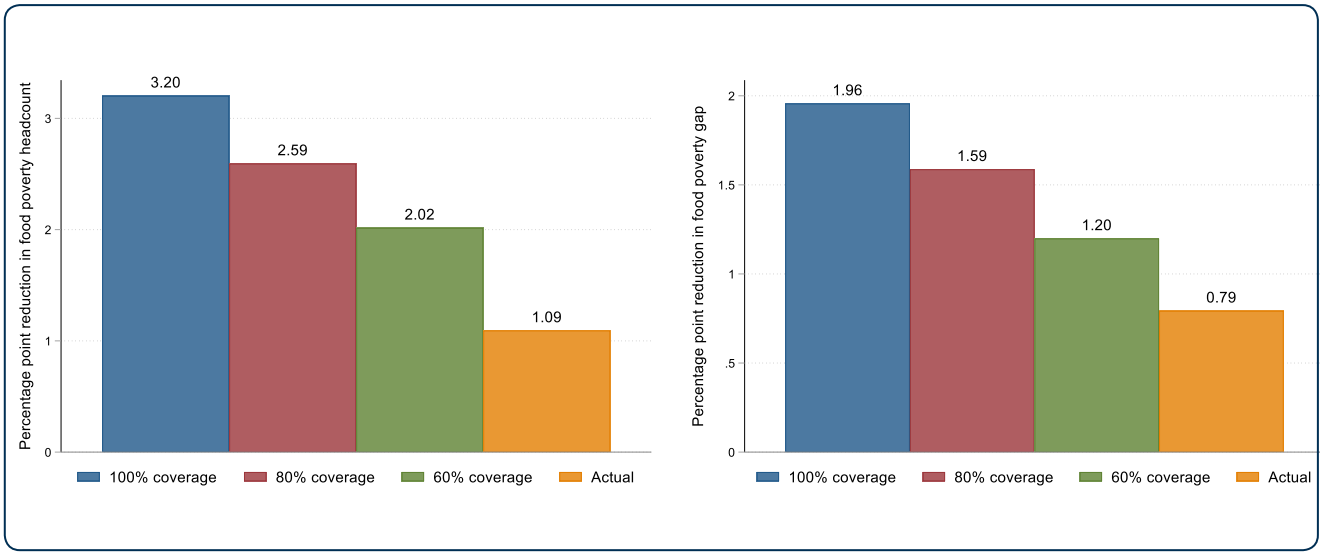
The lack of coverage of most food poor households, along with the high inclusion of non-poor households, suggests there are ample opportunities to reform the existing social assistance system. Section II shows that social assistance programs in Zimbabwe only had a small impact on food poverty in 2017, reducing the headcount ratio by 1.1 percentage points and the poverty gap by 0.8 percentage points. The limited impact is mainly because only 17 percent of poor households were covered by social assistance programs (this means there was a large exclusion error[90] , as many poor households were not beneficiaries). In addition, almost half of beneficiary households (46 percent) lived above the poverty line (this means there was a large inclusion error[91], as many non-poor households were beneficiaries).

To illustrate how improved targeting of social assistance could have led to greater poverty reduction, we consider three scenarios where the coverage of food poor households was higher than what is observed in PICES 2017. The share of poor households covered under these scenarios is 60, 80 and 100 percent.[92] While achieving 100 percent coverage is unlikely and is presented only for benchmarking purposes, with good targeting tools and mechanisms, reaching 60 to 80 percent of poor households is not out of the realm of possibility as it has been achieved in many low and middle-income countries. [93] Importantly, we primarily focus on the impact on poverty from these reforms, keeping the social assistance budget constant. In other words, the additional reductions in poverty under the budget-neutral scenarios are solely due to improvements in targeting. As such, in these budget-neutral scenarios, lower benefit levels are provided than what was actually the case because a higher share of poor households are covered (e.g., when twice as many households were covered than usual, then only half of the existing benefit level was provided).

[90] This is based on "exclusion" defined according to household's poverty status, as opposed to specific criteria for a program (e.g., whether eligible school-aged children are not receiving BEAM payments).
[91] This is based on "inclusion" defined according to household's poverty status, as opposed to specific criteria for a program (e.g., whether ineligible school-aged children are receiving BEAM payments).
[92] The simulation was conducted with hypothetical beneficiary households randomly selected within each decile. This ensured equal share of poor households covered across the three poorest deciles (as the poverty rate was approximately 30 percent).
[93] For example, see Grosh, Leite and Wai-Poi (2022) and Hanna and Olken (2018).
Grosh, Margaret, Phillippe Leite, and Matthew Wai-Poi. 2022. A New Look at Old Dilemmas: Revisiting Targeting in Social Assistance. Washington, DC: World Bank Hanna, Rema, and Benjamin A. Olken. 2018. "Universal Basic Incomes versus Targeted Transfers: Anti-Poverty Programs in Developing Countries." Journal of Economic Perspectives. 32 (4): 201-26.

This analysis illustrates that through a better targeting of social assistance transfers, far greater poverty reduction could have been achieved, even with the same budget. Figure 4.8 shows the percentage point reduction in the poverty headcount and poverty gap that would have been achieved from reaching 60, 80 or 100 percent of poor households with social assistance (keeping the budget constant), alongside what actually took place. Without costing more money, far fewer households in Zimbabwe would have been living in poverty if more poor households had been covered by social assistance programs. Even the most conservative scenario (with 60 percent coverage) would have almost doubled the impact of social assistance on the poverty headcount ratio and had a 50 percent larger impact on the poverty gap. The optimistic scenario (with 100 percent coverage) suggests an almost tripling of the impact on the poverty headcount ratio and poverty gap.

Figure 4.8: Impact of budget-neutral reforms of the social assistance system on poverty reduction

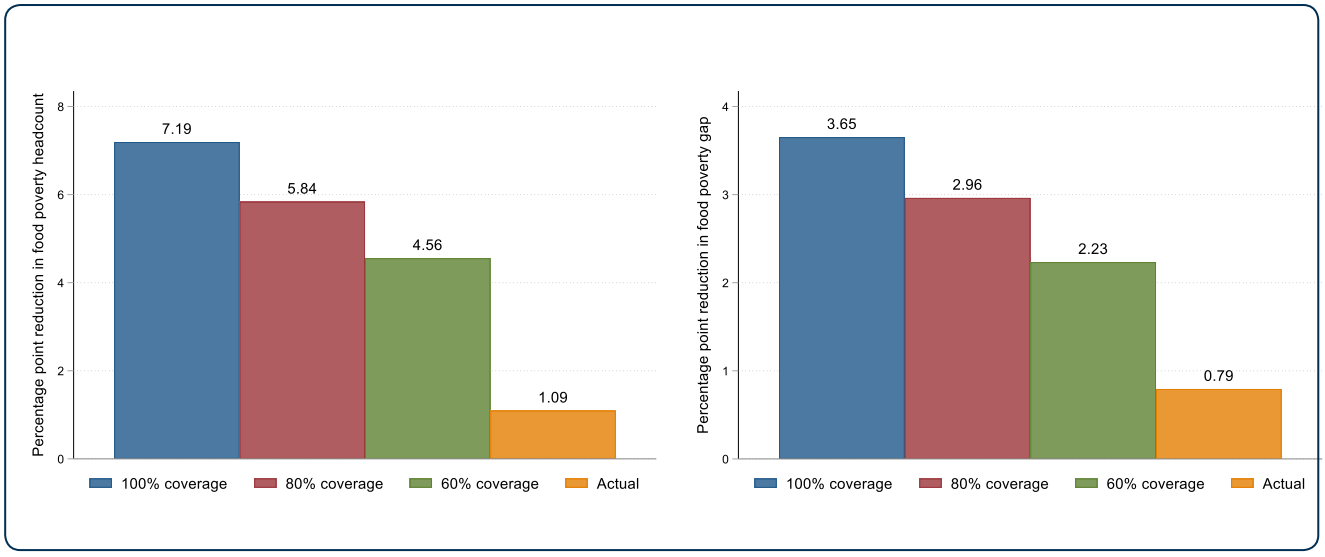


Box 4.3: Impact on poverty with a higher social assistance budget

Far greater poverty reduction could have been achieved if, alongside improvements in targeting, additional resources were directed towards social assistance. For illustrative purposes, we consider the impact on poverty if the social assistance budget was twice as high in 2017. A scale-up of social assistance spending of this magnitude is broadly in line with what has occurred in countries neighboring Zimbabwe such as Zambia and Malawi in recent years. We also adopt the same scenarios as those used in the budget-neutral reforms discussed earlier in this section (i.e., the share of poor households covered under three separate scenarios is 60, 80 and 100 percent).

The results of this analysis are shown in Figure 4.9. A far greater reduction in the poverty headcount and poverty gap would have been achieved from reaching 60, 80 or 100 percent of poor households with social assistance (with twice the 2017 budget) than what actually took place. Even the most conservative scenario (with 60 percent coverage) would have led to four times the impact of social assistance on the poverty headcount ratio and almost three times the impact on the poverty gap. The optimistic scenario (with 100 percent coverage) suggests more than five times the impact of social assistance on the poverty headcount ratio and poverty gap could have been achieved. As such, the poverty headcount ratio in Zimbabwe in 2017 could have been as low as 23.2 percent (as opposed to 30.4 percent) under the most optimistic scenario. For comparison, the food poverty rate in 2011 was 22.5 percent, which means a doubling of the social protection budget and perfect targeting of the poor would have almost completely reversed the increase in the poverty headcount ratio since 2011. While this scenario is likely to have been beyond what could have realistically been achieved, it does illustrate how very large reductions in poverty can occur through increased spending, alongside improved targeting, of social assistance.

Figure 4.9: Impact of expansionary budget reforms on poverty headcount and poverty gap



Adaptive social protection

Households around the world are increasingly experiencing multiple shocks at the same time, shocks that often amplify each other's impact. Natural disasters, weather fluctuations, crop failure, conflict, and displacement are but a few examples of shocks that are interconnected and together multiply the risks. Climate change is further expected to exacerbate the situation. It is increasingly clear that social safety nets system must be responsive to shocks to fulfill its function of protecting household welfare at times of acute distress. Variously known as shock-responsive or adaptive social protection system, its core feature is to enhance resilience to shocks by helping households prepare for, cope with, and adapt to a shock (Bowen et al., 2020; World Bank, 2018) (see Box 4.4). But low coverage, low level of benefits, and program rigidities often limit the ability of safety nets system to buffer households from the impact of shocks. The existing system in Zimbabwe is no exception because it was not designed with this purpose in mind.

Box 4.4: What is Adaptive Social Protection?

Adaptive social protection aims to reduce the negative impacts of global challenges and shocks such as climate change, natural and man-made disasters. It is therefore a tool to build the resilience of poor and vulnerable households to covariate shocks by investing in their capacity to prepare for, cope with, and adapt to shocks. This helps protect their wellbeing and ensure that households do not fall into poverty or become trapped in poverty because of external events. As such, adaptive social protection involves the combination of social protection, disaster risk management, and climate change adaptation are mutually reinforcing to reduce household vulnerability and build resilience.

In practice, this means that social protection programs are adapted to expand in response to shocks in a rapid and efficient way. A key focus of adaptive social protection systems has been the expansion of social assistance to support poor and vulnerable households. However, social insurance and labor market programs can also play a critical role in building resilience to shocks. Adaptive social protection systems have been successful in various countries including Ethiopia, Pakistan, and the Sahel. Adaptive social protection programs enable the pooling of funding and resources towards a set of national priorities with a clear framework for shock responsiveness.

Droughts are a frequent shock to households in Zimbabwe and they often push many households into poverty, particularly in rural areas. To understand the role a shock-responsive social protection system can play in mitigating the welfare loss due to drought, we approximate the impact of a moderate drought by reducing household consumption by 10 percent among the subset of households where the head is working in agriculture. A 10 percent drop in consumption is within the range of what has been observed during moderate droughts in the previous decade in Zimbabwe.[94] A 10 percent drop in consumption of agricultural households

[94] Zimbabwe suffered a historic drought in the 2015-2016 planting season. Partly as a result, average nominal consumption was percent lower in 2017 than in 2011.

would increase the poverty headcount ratio by 4.9 percentage points and the poverty gap by 2.3 percentage points. It is important to recognize that this is a first round indication of how a moderate drought could shock household consumption. There are likely to be non-trivial, second round effects on other households, such as through higher food prices, as well as general equilibriums effects affecting factor allocation which we do not factor into the analysis. Consequently, we are almost certainly underestimating the impact of a moderate drought on poverty.

We illustrate the limitations of using the existing social assistance system to support households to respond to a moderate drought by considering alternative ways to target additional spending. We assume that in the event of a moderate drought there could be scope to temporarily double the existing social assistance budget (this could be government or donor funded) and consider four ways in which these additional resources could be distributed[95] The first approach is to rely on the prevailing social assistance system by doubling the transfer amount that existing beneficiary households receive (also known as vertical expansion). The second approach involves doubling the number of beneficiary households, often known as horizontal expansion (and for illustrative purposes they are chosen at random from non-beneficiary households). This means the average transfer amount is equal to the prevailing level. The third approach involves reaching all households in rural areas (including those in the existing social assistance system). As a much larger number of beneficiaries are reached, the transfer size for this third approach is much smaller (only 12 percent of the size of the first two approaches). Finally, as a point of comparison we include a "perfect targeting" approach whereby all poor households (both the existing and "new" poor from the drought) are covered and additional resources are spread evenly among them. The perfect poverty targeting approach is for benchmarking purposes only. In practice, no targeting scheme will be that accurate. This approach provides a transfer amount 29 percent of the size of the first two approaches.

This analysis reveals three key findings showing the inadequacy of relying on the existing social assistance system to help poor households respond to a moderate drought. Firstly, doubling the transfer level that existing beneficiary households receive (often referred to as vertical expansion) would have minimal impact on reducing the additional poverty created by a drought. Figure 4.10 shows that this approach would reduce the poverty headcount by only 1.0 percentage point, while a moderate drought would increase poverty by 4.9 percentage points. A similar order of magnitude exists in terms of the poverty gap, whereby only around one-fifth of the additional poverty created from the drought would be eradicated.

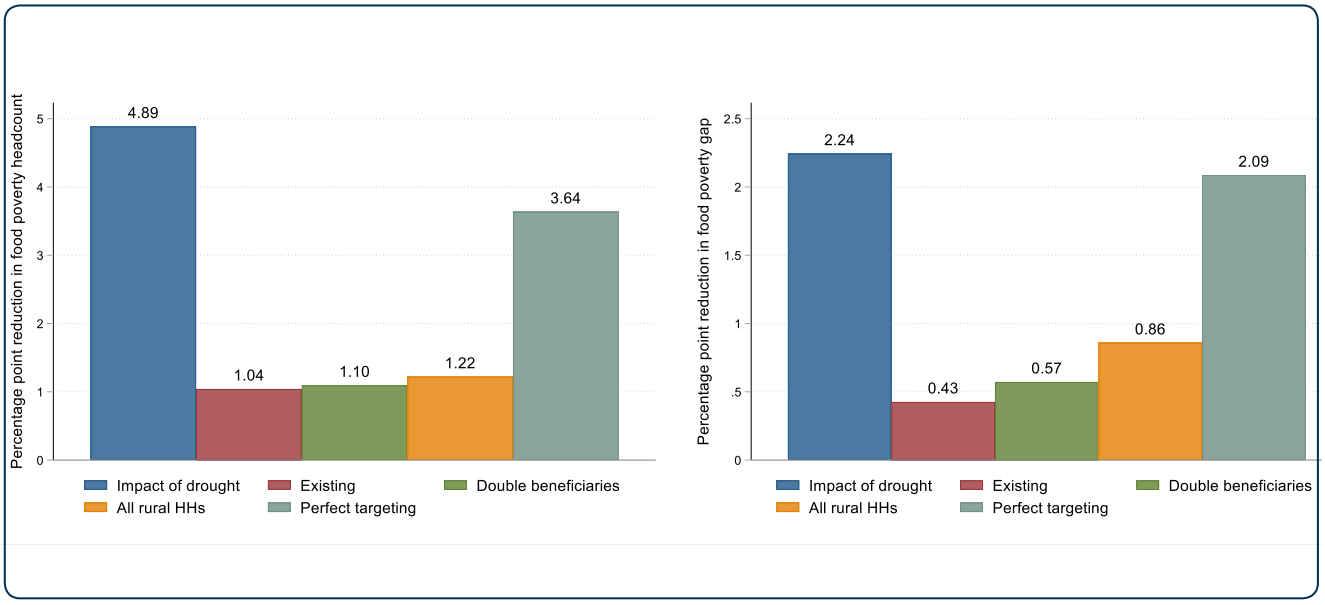
The second key finding is that the small impact of using the existing social assistance system is largely due to its limited coverage of poor households. Figure 4.10 shows that the "perfect targeting" approach, which has the same budget envelope as the vertical expansion, almost entirely eliminates the additional poverty created from the drought based on the poverty gap and makes large inroads according to the poverty headcount measure. While this approach is unlikely to be feasible because it assumes perfect identification of the poor, it does provide a helpful point of comparison of what can be achieved from the same budget when social assistance is well targeted.

The third key finding is that alternative approaches with minimal targeting would still outperform using the existing social assistance system to respond to a shock. Figure 4.10 illustrates that for the same

[95] The scenarios are as follows: Scenario A – Double the budget and double the transfer level to existing beneficiaries (vertical expansion); Scenario B – Double the budget and double the number of beneficiaries (randomly selected); Scenario C – Double the budget and reach all rural households; Scenario D – Double the budget and reach all poor households.

budget, doubling the number of beneficiaries (often referred to as horizontal expansion) in an untargeted way or with "light" targeting such as providing a small transfer to all rural households would have a larger impact on the poverty gap (only slightly larger on the poverty headcount) than the first approach of doubling the transfer level to existing beneficiary households. As such, although horizontal expansion also did not significantly reduce additional poverty created from a moderate drought, bringing more people into the ambit of the program temporarily with some form of targeting in response to drought is superior to simply providing larger benefits to existing beneficiaries or selecting new beneficiaries haphazardly. Collectively, this analysis shows that improving the targeting of social protection programs together with horizontal expansion during shocks has the most potential to reduce the additional poverty created from a moderate drought.

Figure 4.10: Alternative ways social assistance could reduce additional poverty created from a drought



v. Electricity subsidies[96]

Energy subsidies are intended to protect consumers by keeping prices low, but they come at a high cost to the fiscus, cause inefficient allocation of resources, and encourage pollution and greenhouse gas emission. More importantly, subsidies may not even achieve its purported objective of helping the less well-off as they often end up benefitting higher income households. Using the revenue gained from removal of subsidies can better support low-income households and promote long-term growth through targeted social programs and expenditure in productive investments.

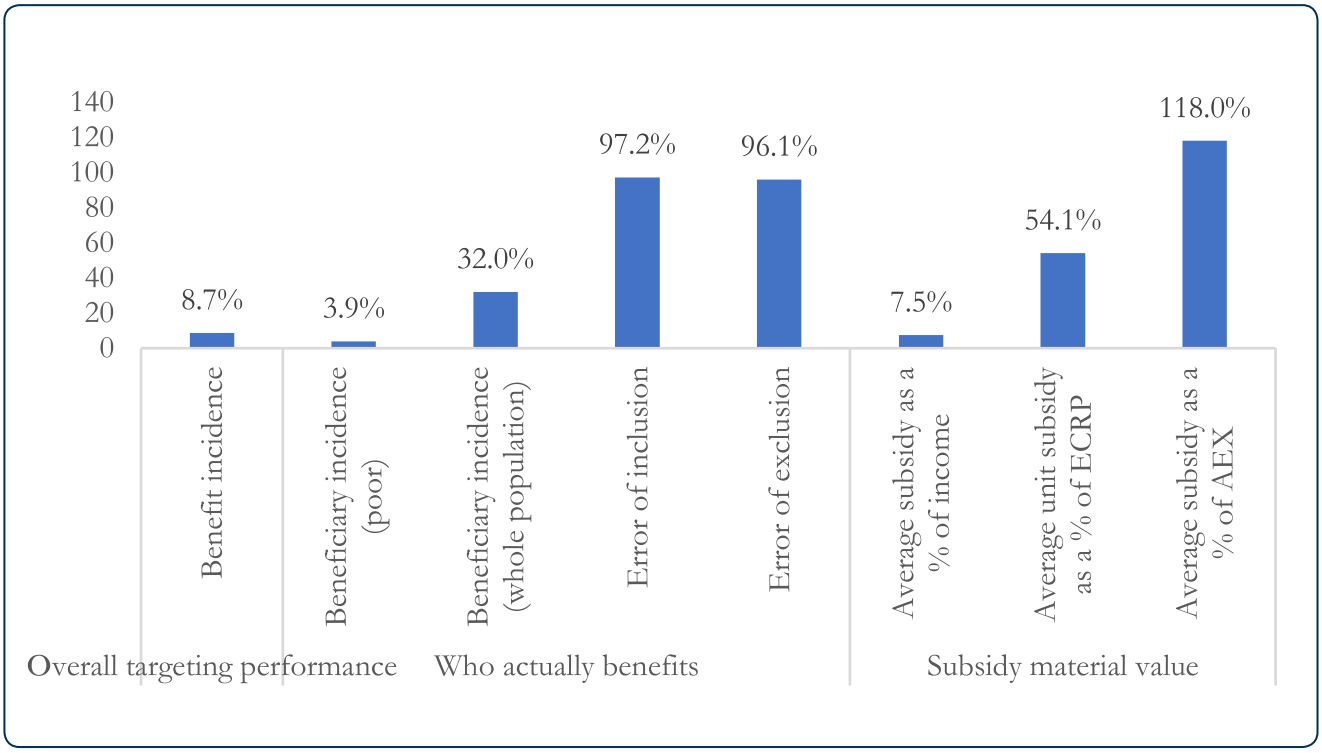
Electricity in Zimbabwe is heavily subsidized, but most of the benefits go to the non-poor. Zimbabwe's post-tax electricity subsidies in 2015 was equivalent to 20.5 percent of GDP, an outlier not just among Sub-Saharan African countries but in the world (IMF, 2015). At the same time, while 32 percent of the total population benefitted from electricity subsidies, only 4 percent of the extreme poor did. Beneficiary and benefit incidence of electricity

[96] This subsection draws on the background paper by Bara et al., (2020) prepared under the first call for research proposal.

subsidies depends on connection to the national grid and use of electricity. Households that are not connected to the grid or are connected but do not consume or consume less of grid-supplied electricity avail little or none of the benefits. That was indeed the case in Zimbabwe. Only 5 percent of poor were connected to the grid, compared to 46 percent of non-poor households, and not all households that have the grid connection used electricity. The error of inclusion is high, partly because of the increasing block tariff (IBT) pricing structure which heavily subsidizes electricity consumption in the first two blocks.[97] Thus, everyone who consumes electricity receives subsidy for part of their consumption.

Benefit incidence, defined as the share of the benefit to the poor divided by the share of the poor in the total population, was also low (9 percent) (Figure 4.11). In other words, extreme poor households received only 9 percent of what they would have received if the subsidies were distributed equally across all households. This is due to a combination of low rate of connection and low quantity of electricity consumed. For instance, among the households that consumed electricity, average monthly consumption was 118 kWh for poor households but 228 kWH for all households. For the poor households that do consume electricity, the amount of subsidy is significant as it totals more than their out-of-pocket electricity expenditure and about 8 percent of total household income.

Figure 4.11: Performance of electricity subsidy (2017 IBT schedule)



Source: Bara et al. (2020) using PICES 2017
Note: ECRP=efficient cost recovery price of electricity per kWh. AEX=average expenditure on electricity

[97] For example, for the tariff rate introduced in June 2020, the tariff rates for the first two blocks (0-50 kWh, 51-200 kWh, 201-300 kWh) are 88 and 73 percent below the cost of supply.

There is scope to improve the targeting performance by modifying the IBT schedule. For example, the IBT schedule introduced in June 2020 introduced a fourth consumption block (more than 300 kWh) where the marginal price is 17 percent above the efficient cost recovery price. As a result, every unit of electricity consumed above 300 kWh cross-subsidizes consumption in the lower blocks. Simulations show that this IBT schedule can raise benefit incidence of subsidies to 21 percent by reducing the level of subsidies to large consumers. This an improvement from the current level, but only 21 percent of benefits going to the extreme poor compared to the equal distribution is far from ideal. The poor will benefit relatively little from any subsidy model as long as their connection to and use of grid-supplied power remains limited. In addition to reconfiguration of the IBT schedule that levies tariff at or above cost recovery price at higher consumption brackets, subsidies for connection and power infrastructure development will be required to enhance access, connection, and uptake of power.

vi. Conclusion and policy directions

To summarize, despite not having an explicit poverty targeting criteria, a proportionately larger share of social protection benefits in Zimbabwe go to the poorer segments of the population, but because of their low coverage, inefficient targeting, and low generosity, the transfers do not make a significant impact on household welfare and equity. The prevalence of social insurance schemes mostly among formal workers means that most households, especially poorer households without access to formal jobs, do not have access to social insurance benefits. The social protection system is also not well-equipped to respond to shocks as evidenced by its inability to expand coverage and reach the neediest households during the pandemic. There are clear opportunities to improve the efficiency of social assistance programs, even without additional fiscal commitment, through improving the targeting of poor households. But increasing coverage and adequacy (which comes with additional fiscal commitment) is equally important to make a significant dent on poverty and equity.

The priority in the short term is increasing the coverage and improving targeting of social assistance programs. Maintaining the real value of transfers is equally important in the face of continuing currency volatility and inflation. Improvements in targeting, coverage and efficiency can be achieved by building on existing data systems such as the Management Information System (MIS) and payment systems. Consolidation of multiple, fragmented programs into a few focused programs could also contribute to efficiency gains. Nationally representative data on social protection that can be linked to household welfare and consumption distribution are necessary to measure and improve the social protection system's performance. Therefore, strengthening the coordination between ZIMSTAT, MPSLSW and MOPSE in preparation of the next comprehensive household budget survey (PICES) to better capture social protection programs in the survey is also important.

In the medium to long term, the priority should be laying the foundations of a shock-responsive social protection system that can quickly respond to changing and emerging needs. One of the core elements of such a program is an agreement on how the program(s) will be expanded vertically and horizontally when a shock happens to ensure a timely response. Identifying sources of finance such as disaster risk financing is also important to reduce the lag between incidence of a shock and mobilization of resources. Strengthened data systems such as a robust beneficiary registry, a functional Management Information System (MIS), and a periodic updating of the data can help minimize duplication and maintain the focus of the programs.

Annex

Table A1: District Poverty Headcount and Gini Coefficient, 2011 – 2017

District	2011	2017		2011	2017	
	Poverty Headcount Rate (%)		Absolute change	Gini Coefficients		Absolute change
Bulawayo	3.5	1.3	-2.2	0.429	0.363	-0.066
Buhera	28.4	56.8	28.4	0.334	0.306	-0.028
Chimamimani	20.5	36.3	15.8	0.356	0.391	0.035
Chipinge	28.6	55.8	27.2	0.404	0.383	-0.021
Makoni	11.7	32.2	20.5	0.392	0.345	-0.047
Mutare	14.4	27.2	12.8	0.453	0.418	-0.035
Mutasa	17.3	38.6	21.3	0.362	0.335	-0.027
Nyanga	19.1	45.3	26.2	0.376	0.36	-0.016
Bindura	13.7	37.8	24.1	0.393	0.433	0.04
Centenary	41.3	57.9	16.6	0.345	0.339	-0.006
Guruve	24.6	59.6	35	0.403	0.366	-0.037
Mazowe	15.8	49.8	34	0.421	0.344	-0.077
Mt Darwin	22.5	64.1	41.6	0.449	0.305	-0.144
Rushinga	31.5	65	33.5	0.329	0.309	-0.02
Shamva	22.3	43.7	21.4	0.423	0.318	-0.105
Chikomba	4.9	22	17.1	0.402	0.342	-0.06
Goromonzi	9.3	26.5	17.2	0.402	0.41	0.008
Hwedza	11.3	27.4	16.1	0.421	0.367	-0.054
Marondera	9.8	24.1	14.3	0.451	0.358	-0.093
Mudzi	44.9	60.6	15.7	0.416	0.376	-0.04
Murebwa	16.6	27.7	11.1	0.445	0.375	-0.07
Mutoko	32.2	50.7	18.5	0.365	0.372	0.007
Seke	13.7	22.4	8.7	0.387	0.356	-0.031
UMP	31.6	48.1	16.5	0.358	0.352	-0.006
Chegutu	12.9	20.8	7.9	0.38	0.371	-0.009
Hurungwe	41.8	50.3	8.5	0.374	0.413	0.039
Kadoma	10.2	31.1	20.9	0.341	0.388	0.047
Kariba	29.4	27.5	-1.9	0.481	0.384	-0.097
Makonde	26.3	22.1	-4.2	0.406	0.369	-0.037
Zwinba	23.5	53.6	30.1	0.407	0.477	0.07
Binga	41.9	59.6	17.7	0.376	0.317	-0.059
Bubi	49.1	42.5	-6.6	0.388	0.314	-0.074
Hwange	19.3	16.9	-2.4	0.446	0.408	-0.038
Lupane	46.3	45.8	-0.5	0.379	0.319	-0.06
Nkayi	75.8	52.6	-23.2	0.354	0.261	-0.093
Tsholotsho	52.4	30.3	-22.1	0.382	0.373	-0.009

District	2011	2017		2011	2017	
	Poverty Headcount Rate (%)		Absolute change	Gini Coefficients		Absolute change
Umguza	32.2	36.8	4.6	0.433	0.369	-0.064
Beitbridge	21.1	25.6	4.5	0.382	0.348	-0.034
Bulilima (North)	26.5	32.9	6.4	0.411	0.317	-0.094
Mangwe (South)	24.8	43.5	18.7	0.387	0.378	-0.009
Gwanda	16.5	18.9	2.4	0.379	0.448	0.069
Insiza	33.7	33.9	0.2	0.398	0.322	-0.076
Matobo	30.7	33.8	3.1	0.413	0.351	-0.062
Umzingwane	40.7	39.5	-1.2	0.447	0.388	-0.059
Chirumhanzu	14	40.6	26.6	0.371	0.348	-0.023
Gokwe North	16.6	55.7	39.1	0.332	0.338	0.006
Gokwe South	34.4	19.9	-14.5	0.433	0.406	-0.027
Gweru	9.3	19.3	10	0.411	0.392	-0.019
Kwekwe	13.4	26.1	12.7	0.437	0.321	-0.116
Mberengwa	14.4	35.7	21.3	0.359	0.351	-0.008
Shurugwi	5.8	31.7	25.9	0.365	0.419	0.054
Zvishavane	20.6	50.1	29.5	0.379	0.428	0.049
Bikita	24.7	33.3	8.6	0.388	0.299	-0.089
Chiredzi	13.3	35.6	22.3	0.436	0.412	-0.024
Chivi	13.2	34.3	21.1	0.377	0.365	-0.012
Gutu	15	28.3	13.3	0.37	0.353	-0.017
Masvingo	11.4	12.7	1.3	0.44	0.403	-0.037
Mwenezi	28.8	28.1	-0.7	0.425	0.347	-0.078
Zaka	12.8	26	13.2	0.346	0.353	0.007
Harare	3.4	4.1	0.7	0.386	0.422	0.036

Table A2: Poverty rate, vulnerability rates, source of vulnerability, type of vulnerability, by province, 2017

			Type of vulnerability		Source of vulnerability	
	Poverty rate	Vulnerability rate	Idiosyncratic vulnerability	Covariate vulnerability	Poverty-induced vulnerability	Risk-induced vulnerability
Manicaland	0.44	0.53	0.50	0.35	0.26	0.27
Bulawayo	0.05	0.10	0.09	0.06	0.03	0.07
Mashonaland Central	0.52	0.54	0.51	0.35	0.26	0.28
Mashonaland East	0.34	0.38	0.37	0.24	0.18	0.20
Mashonaland West	0.40	0.36	0.32	0.21	0.14	0.22
Matebeleland North	0.49	0.59	0.57	0.45	0.34	0.25
Matebeleland South	0.30	0.51	0.49	0.36	0.29	0.22
Midlands	0.32	0.43	0.41	0.29	0.22	0.22
Masvingo	0.29	0.47	0.45	0.30	0.22	0.24
Harare	0.05	0.09	0.07	0.06	0.03	0.06

Table A3: Regression of extreme poverty on household head characteristics, 2011

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**Dependent variable: Household is in extreme poverty**					
Household Head Employment Sector						
Mining, quarrying, manufacturing			-0.23***			
			(0.01)			
Construction			-0.17***			
			(0.02)			
Service			-0.24***			
			(0.01)			
Other			-0.27***			
			(0.01)			
Unemployed/Inactive			-0.17***			
			(0.01)			
Household Head Gender						
Female	-0.00	-0.02***				
	(0.00)	(0.01)				
Household Head Job Type						
Wage-employed without contract				0.08***		
				(0.01)		
Non-agriculture own account				0.07***		
				(0.01)		
Agriculture own account				0.27***		
				(0.01)		
Unpaid family worker				0.08		
				(0.07)		
Unemployed				0.12***		
				(0.02)		
Inactive				0.08***		
				(0.01)		
Household Head Income Source						
Own business					0.03***	
					(0.01)	
Sale of ag products					0.26***	
					(0.01)	
Gifts and transfers					0.15***	
					(0.01)	
Other					0.21***	
					(0.02)	
Unpaid family worker/Unemployed/ Inactive					0.06***	
					(0.01)	

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**Dependent variable: Household is in extreme poverty**					
Household Head Education						
Some primary						-0.08***
						(0.01)
Completed primary						-0.12***
						(0.01)
Some secondary						-0.16***
						(0.01)
Completed secondary						-0.27***
						(0.01)
Diploma/Graduate/Postgraduate						-0.38***
						(0.01)
Constant	0.23***	0.23***	0.32***	0.05***	0.08***	0.40***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
Observations	137,057	29,747	29,563	29,734	29,572	29,739
R-squared	0.00	0.00	0.07	0.08	0.08	0.07

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Base categories for categorical variables: Agriculture for employment sector; Male for gender; Wage employment with contract for job type; Salaries and Wages for income source; None for education.
Source: PICES, 2011. World Bank Staff Calculations.

Table A4: Regression of extreme poverty on household head characteristics, 2017

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	**Dependent variable: Household is in extreme poverty**						
Household Land Use							
Small scale commercial farms	-0.10***						
	(0.01)						
Large scale commercial farms	-0.11***						
	(0.01)						
Resettlement areas	-0.05***						
	(0.00)						
Urban areas	-0.42***						
	(0.00)						
Household Head Gender							
Female		-0.00*	-0.03***				
		(0.00)	(0.01)				
Household Head Employment Sector							
Mining, quarrying, manufacturing				-0.33***			
				(0.01)			
Construction				-0.36***			
				(0.02)			
Service				-0.41***			
				(0.01)			
Other				-0.31***			
				(0.01)			
Unemployed/Inactive				-0.32***			
				(0.01)			
Household Head Job Type							
Wage-employed without contract					0.16***		
					(0.01)		
Non-agriculture own account					0.07***		
					(0.01)		
Agriculture own account					0.41***		
					(0.01)		
Unpaid family worker					0.12		
					(0.07)		
Unemployed					0.05***		
					(0.02)		
Inactive					0.09***		
					(0.01)		
Household Head Main Income Source							
Own business						-0.02**	
						(0.01)	
Sale of agricultural products						0.36***	
						(0.01)	
Gifts and transfers						0.20***	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	**Dependent variable: Household is in extreme poverty**						
						(0.01)	
Other						0.28***	
						(0.02)	
Unemployed/Inactive						0.01	
						(0.01)	
Household Head Education							
Preschool							0.03
							(0.03)
Primary							-0.04
							(0.03)
Secondary							-0.20***
							(0.03)
Tertiary							-0.40***
							(0.03)
Constant	0.45***	0.30***	0.31***	0.45***	0.05***	0.12***	0.45***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.03)
Observations	130,286	130,259	30,140	30,140	29,987	30,052	30,140
R-squared	0.17	0.00	0.00	0.16	0.15	0.14	0.07

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Base categories for categorical variables: Communal farms for land use; Agriculture for employment sector; Male for gender; Wage employment with contract for job type; Salaries and Wages for income source; None for education.
Source: PICES, 2017. World Bank Staff Calculations.

Table A5: Regression of extreme poverty on household head characteristics, 2019

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**Dependent variable: Household is in extreme poverty**				
Household Land Use					
Small scale commercial farms	-0.35***				
	(0.07)				
Large scale commercial farms	-0.09***				
	(0.02)				
Resettlement areas	0.00				
	(0.01)				
Urban areas	-0.42***				
	(0.01)				
Household Head Gender					
Female		-0.01	-0.03		
		(0.01)	(0.02)		
Household Head Employment Sector					
Mining, quarrying, manufacturing				-0.25***	
				(0.04)	
Construction				-0.50***	
				(0.08)	
Service				-0.40***	
				(0.03)	
Other				-0.45***	
				(0.06)	
Unemployed/Inactive				-0.28***	
				(0.03)	
Household Head Job Type					
Non-agriculture own account					-0.03
					(0.04)
Agriculture own account					0.33***
					(0.02)
Unpaid family worker					-0.20
					(0.69)
Unemployed					0.13**
					(0.06)
Inactive					0.03
					(0.04)
Constant	0.52***	0.39***	0.39***	0.52***	0.20***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Observations	9,877	9,877	2,199	2,199	2,199
R-squared	0.16	0.00	0.00	0.13	0.11

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Base categories for categorical variables: Communal farms for land use; Agriculture for employment sector; Male for gender; Wage employment with contract for job type; Salaries and Wages for income source.
Source: PICES, 2019. World Bank Staff Calculations.

Table A5: Incidence of Benefits

	Quintiles of per capita consumption, net of all SP transfers						Poverty Status			
	Total	Poorest quintile	Q2	Q3	Q4	Richest quintile	Food Poor	Non-poor	Urban	Rural
Direct and indirect beneficiaries										
All social protection	100.0	21.6	9.7	12.6	16.2	39.8	26.5	73.5	55.3	44.7
All social insurance	100.0	8.9	6.7	9.7	18.6	56.1	11.4	88.6	67.3	32.7
Pension benefits	100.0	9.8	7.4	7.4	16.2	59.2	11.8	88.2	66.4	33.6
Social security benefits	100.0	7.2	5.5	14.3	23.6	49.5	10.8	89.2	69.1	30.9
All labor market programs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employment agencies	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
All social assistance	100.0	45.2	15.3	18.0	11.8	9.7	54.3	45.7	33.2	66.8
HSCT	100.0	43.1	22.7	16.9	13.7	3.5	53.3	46.7	5.6	94.4
Education benefits by BEAM, STEM, other gov	100.0	26.6	13.7	26.4	17.2	16.1	34.5	65.5	48.1	51.9
Food for works	100.0	33.0	18.0	23.6	17.6	7.9	40.9	59.1	2.1	97.9
Cash for works	100.0	80.0	7.6	4.4	2.9	5.0	85.7	14.3	81.2	18.8
Food (disaster relief)	100.0	37.3	21.5	21.9	13.6	5.7	50.2	49.8	1.9	98.1
Food mitigation program	100.0	34.4	23.1	23.9	12.0	6.5	49.3	50.7	6.0	94.0
Smallholder Farm Input Support Scheme	100.0	67.4	12.8	6.1	6.3	7.5	78.1	21.9	1.5	98.5
Other social assistance	100.0	42.2	13.3	13.8	9.6	21.0	51.2	48.8	23.5	76.5

Source: Authors' calculations using the PICES 2017.

Annex 1: Methodology to estimate the performance of Social Protection programs

This section analyses the distributional performance of Zimbabwe's social protection system using the PICES 2017. This is the latest most comprehensive survey with representativity at the district level and captures information not only on SP recipients but on the socioeconomic characteristics of beneficiaries and non-beneficiaries. This information makes possible to address the effect of SP programs on the poor and then nonpoor, including simulations of the effect of changes in program design parameters (i.e., size of the transfer or program caseload).

Performance indicators generated with PICEs data provide answers to important development questions that cannot be addressed with administrative data. Coverage indicates the percentage of the population benefitting from a program. The survey allows analysis of coverage gaps or those households or individuals that may meet poverty and vulnerability criteria but do not receive a program. It also accounts for program duplication and overlaps (individuals receiving benefits from more than one program); giving a clear picture of the overall size of a social protection system. Incidence of benefits, indicates how program benefits are distributed along different welfare groups and thus it sheds light on the progressivity of social protection programs. In the case of poverty targeted programs, the indictor assesses if the program is reaching the intended population. Adequacy of benefits or share of the transfer with respect of household welfare, indicates if the transfer is too small to make an impact or too big to promote dependency or disincentivize work. Finally, impact on poverty and inequality shows the reduction in poverty headcount, poverty gap and Gini index as result of the transfers. This is done by comparing the pre-transfer consumption or counterfactual (household welfare in the absence of a program) with the observed consumption (including the SP transfers) and analyzing the welfare gains. This is a mechanical approximation since it does not take into account possible behavioral responses to the program or to its absence. Still, it is a helpful counterfactual to address the impact of the SP transfers on welfare. Each of these indicators is disaggregated by quintile of pretransfer per capita consumption and by food/extreme poor (under 29.80 US$/month). To generate pre-transfer consumption, 100 percent of the social assistance transfers and 50 percent of the social insurance transfers were subtracted from consumption.

The analysis is structured by areas of social protection based on the World Bank's ASPIRE classification. Social insurance are contributory programs designed to help individuals and households to insure themselves against sudden income reductions due to old age, sickness, or loss of the breadwinner. Social assistance refers to non-contributory programs commonly designed to help individuals and households cope with poverty or transient declines in income. Labor market programs can be contributory or non-contributory programs that include passive and active labor measures. Passive measures protect against sudden income loss due to unemployment while active measures promote opportunity by building skills and connecting individuals to labor markets. Table 1 shows the social protection programs captured in the 2017 PICES survey and how they were organized under the three SP areas for analysis.

There are however important caveats regarding the analysis. Most household surveys do not capture the universe of social protection programs existing in a country but only the main programs. The 2017 PICES is not the exception. Most SP transfers in the PICES are captured in the module on "Transfers and other benefits received" under the "Social welfare benefits" section. Additional information on public employment agencies and BEAM and other education programs are found in the Labor and Education modules, respectively. There are two issues that are important to highlight: 1) Many social assistance programs in Zimbabwe are seasonal, bimonthly or face arrears; the recall period of the transfer module is "during the (last) month", therefore, based on when interviews were conducted there may be significant underreporting of some programs. 2) Many SP

programs are too small to be captured effectively by the survey sample, so the number of positive responses collected may not be enough to derive statistically significant results. For this reason, program variables that were less than 0.5% of the sample size were grouped into program categories before conducting the analysis. For example, early retirement was aggregated with pensions benefits into a single pensions variable. Similarly, several BEAM and other education variables were aggregated into one, as well as ten small social assistance variables were aggregated into "other social assistance" (see Table 1, column "aggregated program variables"). In addition, social protection programs included in the transfer module are captured at the household level, thus, in the case of programs targeted to the individuals, it is not possible to generate indicators for the direct beneficiary (e.g., public pensions, public works, etc.). In this sense the coverage indicators are generate for both, direct and indirect beneficiaries (all individuals belonging to a household were at least one individual benefit from a SP program). Given these factors, performance indicators are likely to be underestimated and should be interpreted with caution.

Social Protection Programs Captured in the 2017 PICES

SP Area	Aggregated Program Variables	Programs
Social Insurance	Pensions and early retirement (total)	Early retirement package public Pension benefits public
	Social security benefits	Social security benefits e.g., NSSA
Labor Market	Public employment agencies	Registered or checked at Public Employment agencies
Social Assistance	Harmonized Social Cash Transfer	Harmonized Social Cash Transfer
	Education Benefits (total)	Basic Education Assistance Module (BEAM) Primary Basic Education Assistance Module (BEAM) Secondary STEM Other Government Assistance Programs
	Food for work	Food for work
	Cash for work	Cash for work
	Food (Disaster Relief)	Food (Disaster Relief) - estimate value of food
	Food mitigation program	Food mitigation program - estimated value of food
	Smallholder Farm Input Support Scheme	Smallholder Farm Input Support Scheme
	Other Social Assistance (total)	Public Assistance
		Assistance Medical Transfer Order (AMTO)
		Pauper burial
		Support to Children in Difficult Circumstances
		Maintenance of Disabled Persons
		Maintenance of Older Persons
		Community Recovery and Rehabilitation Program
		Street Children
		Health in cash and in kind
		Other current transfers e.g., for disasters Public

Source: ZIMSTAT, 2017

Annex 2: Simulation scenarios and methodology for the "Opportunities for reform" section

This annex provides the details about the methodology used in the budget-neutral and adaptive social protection microsimulations presented in the "Opportunities for reform" section of this chapter.

Budget-neutral microsimulations

There are three key steps in conducting the budget-neutral microsimulations presented in this chapter. Firstly, the budget envelope on social assistance is calculated using the existing PICES data from Zimbabwe in 2017. Specifically, the weighted average monthly transfer amount for all social assistance programs reported by households is determined, which came out to approximately $0.61 per person per household per month in 2017 prices. This nominal amount is adjusted to reflect price differences overtime and across the country. It serves as the basis for the size of the budget in the scenarios that follow.[98] Importantly, this "within-survey" approach of estimating the social assistance budget is likely to underestimate the impact of social assistance on poverty because many households may be benefiting but do not report the receipt of social assistance in the survey. Due to this and other reasons (e.g., the survey not including the richest household and the richer households not reporting their income accurately), the values of consumption or transfer levels obtained from household surveys often do not coincide with the totals from administrative accounts.

The second key step in implementing the microsimulations is deciding how many households are modelled to receive social assistance. The purpose of the budget-neutral scenarios is to consider what would be the impact on poverty from spending the existing budget on a higher share of poor households. Recall that in 2017, only 11 percent of the population and 17 percent of the food poor received social assistance. In the "ideal" case, all food poor households (30 percent of the population) would be covered by social assistance, which is a substantially higher level of coverage than what did occur. This "ideal" scenario (i.e., where 100 percent of poor households are covered) is included for illustrative purposes only. As we are focusing on budget neutral reforms, expansion of coverage also implies lower transfer amounts than what actually occurred for existing social assistance beneficiaries. This is a consequence of covering 30 percent of the population as opposed to only 11 percent while keeping the total budget the same.[99]

International evidence suggests that with good targeting instruments, up to 80 percent of intended beneficiaries can be covered by social assistance programs (Hanna and Olken 2018). Thus, we consider two more realistic scenarios where only 60 and 80 percent of poor households receive social assistance, with an associated "inclusion error" of 40 and 20 percent respectively. In these scenarios, all households living below the poverty line are targeted meaning that in each scenario, 30 percent of the population is covered. Consequently, the transfer amount for each recipient household is the same. The only difference between the scenarios is targeting accuracy (i.e., the share of poor households reached).

[98] Administrative and delivery costs, beyond those that already exist, which could be generated in the different scenarios are ignored. It is not clear that differences in these costs would exist across the scenarios and even if they did the differences are unlikely to be substantial. Across a variety of social assistance programs around the world, the total administrative and delivery costs involved in social assistance programs are typically below 10 percent of the program cost (World Bank 2018).

[99] For a given budget, targeting a higher share of the population (that is, greater coverage) means that, on average, beneficiaries receive a lower payment (that is, a lower transfer amount) and vice versa. Consider the example whereby 1 percent of GNI per capita is spent. If 20 percent of the population is covered than the transfer amount is equal to 5 percent of GNI per capita (that is, 1 percent of GNI per capita divided by 20 percent), whereas if 50 percent of the population is covered then the transfer amount is equal to 2 percent of GNI per capita (that is, 1 percent of GNI per capita divided by 50 percent).

The third step involves randomly selecting poor and non-poor households to receive the transfers. Specifically, as the coverage of the total population is fixed at 30 percent (i.e., the poverty rate), the probability of selection among the poor and non-poor households can be determined for each scenario (see Table A2). Reaching 80 percent of poor households corresponds with 8.6 percent of non-poor households receiving social assistance. Reaching 60 percent of poor households corresponds with 17.1 percent of non-poor households receiving social assistance. To minimize the risk that the findings were influenced by the random draw, the microsimulations were conducted with hypothetical beneficiary households randomly selected from within each decile. This "stratification" ensured that an equal share of poor households were covered across the three poorest deciles (as the poverty rate was approximately 30 percent). As a robustness check, the random selection of households was conducted numerous times and the overall results were qualitatively similar. This is partly because the differences in the probability of random selection between the eligible and ineligible populations are constant (and very large) for every random draw.

Table A2 – Targeting errors corresponding to each of these scenarios

Share of poor households covered	Share of non-poor households covered
60%	17.1%[100]
80%	8.6%[101]
100%	0%

Once the budget and targeting rates were determined, microsimulations were conducted by adding the hypothetical transfer amount to the existing pre-transfer consumption level in the 2017 PICES. The pre-transfer consumption levels are calculated by subtracting the existing social assistance transfer amounts from households' existing consumption level. The poverty status of each household is then determined based on their revised consumption level (i.e., revised consumption level = existing consumption level – existing social assistance transfer amount (if any were received) + new social assistance transfer amount (eligibility will vary based on the scenarios)). The overall poverty headcount ratio and poverty gap is determined using the revised consumption distribution from 2017 for each of the scenarios (i.e., with 60, 80 or 100 percent of poor households receiving social assistance).

The expansionary budget scenarios presented in Box 4.3 use the identical approach, except with double the budget. As discussed in Box 4.3, the purposes of these scenarios are to illustrate how additional spending, alongside improved targeting, could result in even greater poverty reduction.

Adaptive social protection microsimulations

The adaptive social protection (ASP) microsimulations presented in this chapter share many similarities in terms of the methodology of the budget-neutral microsimulations except there are three major distinctions. Firstly, prior to considering the role of social assistance, a new consumption distribution is determined that takes into account a "hypothetical" shock from a moderate-sized drought. To do this, we reduce household consumption by 10 percent among the subset of households where the head is working in agriculture. A 10 percent drop

[100] Calculated by dividing the 12% of the population that benefits who are not meant to from the 70% of the population that is ineligible.
[101] Calculated by dividing the 6% of the population that benefits who are not meant to from the 70% of the population that is ineligible.

in consumption for these households is well within the range of what has been observed during moderate droughts in the previous decade in Zimbabwe. It is important to recognize that this a first round indication of how a moderate drought could shock household consumption. There are likely to be non-trivial, second round effects on other households, such as through higher food prices, as well as general equilibriums effects impacting factor allocation which we do not incorporate into the analysis.

Secondly, ASP involves providing a temporary increase in spending on social assistance following a shock. For illustrative purposes we consider a temporary doubling of spending on social assistance. This one-off expansion of the social assistance budget could be government or donor funded and is well within the realms of possibility following a moderate shock like a drought. With this budget amount we then turn our attention to how the additional resources could be allocated. Importantly, we are only considering the allocation of the additional resources (i.e., the ASP budget) and assume that the existing social assistance budget still goes to the existing beneficiaries as per standard practice.

Thirdly, the most significant departure from the budget-neutral microsimulations is that we consider alternative ways in which the ASP budget could be allocated that varies the coverage of households (and consequently the benefit levels). The first approach is to use the existing social assistance system by doubling the transfer amount that existing beneficiary households receive (also known as vertical expansion). The second approach involves doubling the number of beneficiary households, also known as horizontal expansion. For illustrative purposes, they are chosen at random from non-beneficiary households[102] This means the average transfer amount is equal to the existing transfer amount. The third approach involves reaching all households in rural areas (including those already receiving social assistance). As a larger number of beneficiaries are reached, the transfer size for this third approach is much smaller (only 12 percent of the size of the first two approaches). Finally, as a point of comparison we include a "perfect targeting" approach whereby all poor households (both the existing and "new" poor from the drought) are covered and additional resources are spread evenly among them. This approach means that all poor households are treated equivalently, and distinctions are not made between those that were poor prior to the drought and those that weren't. This approach provides a transfer amount 29 percent of the size of the first two approaches. In summary, the scenarios are as follows: Scenario A – Double the transfer size to existing beneficiaries; Scenario B – Double the number of beneficiaries (randomly selected); Scenario C – Reach all rural households; and Scenario D – Reach all poor households.

Using the ASP budget with these targeting approaches, microsimulations were conducted by adding transfers amounts to the shock-affected consumption levels. The poverty status of each household is then determined based on the ASP consumption level (i.e., ASP consumption level = shock-affected consumption level + ASP transfer (eligibility will vary based on the scenarios)). The overall poverty headcount ratio and poverty gap is determined using the ASP consumption distribution for each of the scenarios (i.e., Scenario A, B, C and D).

[102] This means that around 12 percent of households that currently do not receive any social assistance would receive a one-off transfer of the equivalent amount that existing beneficiaries usually receive. The 12 percent figure is calculated by dividing the share of total households that received social assistance by the share of households that did not receive social assistance.

References

Alderman, Harold, and Ruslan Yemtsov. "How Can Safety Nets Contribute to Economic Growth?" *The World Bank Economic Review* 28, no. 1 (February 1, 2014): 1–20.

Bara, Alex, Wellington J. Matsika, Tobias Mudzingwa, and Arnold Mabasa Damba. "Energy and Poverty: The Efficacy of Electricity Subsidy in Alleviating Poverty in Zimbabwe," 2020.

Beegle, Kathleen, and Luc Christiaensen. *Accelerating Poverty Reduction in Africa*. Washington, DC: World Bank, 2019.

Beegle, Kathleen, Aline Coudouel, and Emma Monsalve. Realizing the Full Potential of Social Safety Nets in Africa. Africa Development Forum. Washington, DC: World Bank Group, 2018.

Bezu, Sosina, Christopher B. Barrett, and Stein T. Holden. "Does the Nonfarm Economy Offer Pathways for Upward Mobility? Evidence from a Panel Data Study in Ethiopia." *World Development* 40, no. 8 (2012): 1634–46.

Brauw, Alan de, Valerie Mueller, and Hak Lim Lee. "The Role of Rural–Urban Migration in the Structural Transformation of Sub-Saharan Africa." *World Development* 63 (November 1, 2014): 33–42.

Christiaensen, Luc, and Yasuyuki Todo. "Poverty Reduction During the Rural–Urban Transformation – The Role of the Missing Middle." *World Development* 63 (November 1, 2014): 43–58.

CIAT, and World Bank. "Climate-Smart Agriculture in Zimbabwe." Washington D.C., 2017.

Dimes, John, Peter Cooper, and K.P.C Rao. "Climate Change Impact on Crop Productivity in The Semi-Arid Tropics of Zimbabwe in the 21st Century," 2008.

Fox, Louise, and Thomas Pave Sohnesen. "Household Enterprises and Poverty Reduction in Sub-Saharan Africa." *Development Policy Review* 34, no. 2 (2016): 197–221.

Frischen, Janna, Isabel Meza, Daniel Rupp, Katharina Wietler, and Michael Hagenlocher. "Drought Risk to Agricultural Systems in Zimbabwe: A Spatial Analysis of Hazard, Exposure, and Vulnerability." *Sustainability* 12, no. 3 (January 21, 2020): 752.

Gollin, Douglas, David Lagakos, and Michael Waugh. "The Agricultural Productivity Gap." Cambridge, MA: National Bureau of Economic Research, 2013.

Hao, Ying, Zengchao Hao, Sifang Feng, Xuan Zhang, and Fanghua Hao. "Response of Vegetation to El Niño-Southern Oscillation (ENSO) via Compound Dry and Hot Events in Southern Africa." *Global and Planetary Change* 195 (2020): 103358.

International Organization for Migration (IOM). "World Migration Report 2020." International Organization for Migration (IOM), 2019.

Jann, Ben. "The Blinder–Oaxaca Decomposition for Linear Regression Models." *The Stata Journal: Promoting Communications on Statistics and Stata* 8, no. 4 (2008): 453–79.

Kinsey, Bill, Kees Burger, and Jan Willem Gunning. "Coping with Drought in Zimbabwe: Survey Evidence on Responses of Rural Households to Risk." *World Development* 26, no. 1 (1998): 89–110.

Kolenikov, Stanislav, and Anthony Shorrocks. "A Decomposition Analysis of Regional Poverty in Russia: REGIONAL POVERTY IN RUSSIA." *Review of Development Economics* 9, no. 1 (2005): 25–46.

Larochelle, C., J. Alwang, and N. Taruvinga. "Inter-Temporal Changes in Well-Being During Conditions of Hyperinflation: Evidence from Zimbabwe." *Journal of African Economies* 23, no. 2 (2014): 225–56.

Lucas, Robert E.B. "Internal Migration in Developing Economies: An Overview." *KNOMAD Working Paper*, 2015.

Maboshe, Mashekwa, Chathebert Mudhunguyo, Grown Chirongwe, Eziwe Mutsikiwa, and Erinah Chipumho. "The Role of Social Policies in Reducing Poverty and Vulnerability in Zimbabwe," 2022.

Makochekanwa, Albert, and Prosper Kambarami. "Zimbabwe's Hyperinflation: Can Dollarization Be the Cure?" In *Zimbabwe: Picking Up the Pieces,* edited by Hany Besada, 107–28. New York: Palgrave Macmillan US, 2011.

Masiyandima, Nicholas, Teresa Nyika, and Nobuhle Maphosa. "Linking the Spatial Distribution of Poverty and Income Inequality to Infrastructure Development in Zimbabwe," 2022.

Mbiba, Beacon. "On the Periphery: Missing Urbanisation in Zimbabwe." Africa Research Institute, 2017.

Munoz, Sonia. "Central Bank Quasi-Fiscal Losses and High Inflation in Zimbabwe: A Note." IMF e-Library, 2007.

Pindiriri, Carren, Fortune Mazvita Nyajena, and Grown Chinrogwe. "What Do We Know about Poverty and Climate Change Relationship? Exploring Precipitation Uncertainty and Climate Change Implications on Rural Poverty in Zimbabwe," 2022.

Potts, Deborah. "Urban Data and Definitions in Sub-Saharan Africa: Mismatches between the Pace of Urbanisation and Employment and Livelihood Change." Urban Studies 55, no. 5 (2018): 965–86.

Statistics South Africa. "Census 2011: Migration Dynamics in South Africa," 2015.

Stoeffler, Quentin, Jeffrey Alwang, Bradford Mills, and Nelson Taruvinga. "Multidimensional Poverty in Crisis: Lessons from Zimbabwe." *The Journal of Development Studies* 52, no. 3 (March 3, 2016): 428–46.

UN-DESA. "International Migration Report 2019," 2019.

Van den Broeck, Goedele, and Talip Kilic. "Dynamics of Off-Farm Employment in Sub-Saharan Africa: A Gender Perspective." *World Development* 119 (2019): 81–99.

Wilhite, Donald A., and Michael H. Glantz. "Understanding: The Drought Phenomenon: The Role of Definitions." *Water International* 10, no. 3 (January 1, 1985): 111–20.

World Bank. *Poverty and Shared Prosperity 2020 : Reversals of Fortune.* Washington, DC: World Bank, 2020.

———. "Supporting the Informal Sector in Zimbabwe: An Initial Scoping Note," 2020.

———. *The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19*. The World Bank, 2020.

———. "The Impact of COVID-19 on the Welfare of Households with Children: An Overview Based on High Frequency Phone Surveys." Washington D.C., 2022.

———. "Zimbabwe Climate Smart Agriculture Investment Plan." Washington, D.C., 2019.

———. "Zimbabwe Economic Update: Overcoming Economic Challenges, Natural Disasters, and the Pandemic." 2021.

———. "Zimbabwe Poverty Update 2017-2019." Washington, D.C., 2020.

———. "Zimbabwe Public Expenditure Review." Washington, D.C., 2017.

———. "Zimbabwe Public Expenditure Review: Agriculture." Washington, D.C., 2019.

———. "Zimbabwe Public Expenditure Review: Cross-Cutting Issues." Washington, D.C., 2017.

———. "Zimbabwe Public Expenditure Review: Local Government Service Delivery." Washington, D.C., 2017.

———. "Zimbabwe Public Expenditure Review: Primary and Secondary Education." Washington D.C., 2017.

———. "Zimbabwe Public Expenditure Review: Social Protection." Washington, D.C., 2016.

———. "Zimbabwe Urbanization Review." Washington D.C., 2021.

ZIMSTAT. "Census 2012 National Report." Harare, 2013.

ZIMSTAT and UNFPA. "Population Projections Thematic Report," 2015.

ZIMSTAT and Unicef. "Zimbabwe Multiple Indicator Survey 2019, Survey Findings Report." Harare, 2019.

WORLD BANK GROUP

RD-GRAPHIX