ZIMBABWE

Economic Report

Building a New Zimbabwe

Targeted policies for growth and job creation

AFRICAN DEVELOPMENT BANK GROUP

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This new Country Economic Report series seeks to bring the best possible knowledge to bear on policy and institutional reforms in Africa. It also seeks to develop and help implement the African Development Bank's High Five strategies, while guiding the design of individual country assistance strategies. And it seeks to enhance the quality and impact of the Bank's analytical and advisory activities and development policy operations—and to foster a community of economists (across sectors) on the continent. The series is produced by the Country Economics Department, in close collaboration with teams in other departments of the Bank's Vice-Presidency for Economic Governance and Knowledge Management and Office of the Chief Economist.

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Foreword

It took a long time for economic historians and development theorists to explain the mystery of modern economic growth. Some researchers suggested that a combination of cheap energy costs at the time and high wages incentivized business people in the western world to devote more resources to technological innovation. Others focused on the benefits of colonial resource extraction, or on the social and political institutions that encouraged entrepreneurship.

These traditional arguments sounded convincing for a long while. Today, they are insufficient at best. Material and political conditions alone could not have done it. The Industrial Revolution was primarily the result of ideas. People and business leaders found innovative ways of adopting technology and making it commercially viable so that it could boost productivity. Some great inventions had been sitting on the shelves for many decades. It took some wise and very practical people to design the institutions that would create the appropriate incentives and conditions for their broader use by firms and households, bring benefits and rewards to all stakeholders—and stimulate economic growth.

In a world where labor and capital are quite mobile, the main explanation of the economic differences between rich and poor countries is not just money: It is also and increasingly the difference in their ability to generate, or borrow and use, the best ideas out there.

Zimbabwe has investment opportunities requiring minimal additional investments to realize medium-term growth targets. Deep structural reforms can improve Zimbabwe's business climate and attract private investment and the return of the skilled labor force. In particular, measures are needed to increase transparency in the mining sector, strengthen property rights, reduce fears of expropriation, and control widespread corruption. The most likely possibility for longer term change is the regeneration of civil society and a renewed engagement with political powers in a positive social contract, which plays a role both in tackling economic problems and bringing positive and peaceful political reform.

With the generous endowment of natural resources, existing stock of public infrastructure, and comparatively skilled labor force, Zimbabwe has an unprecedented opportunity to join existing supply chains in Africa via the African Continental Free Trade Area. To take advantage of such opportunities the government should adopt a three-pronged strategy in the near term with agriculture as the foundation, eco-tourism as the green job–generator, and special economic zones as the growth pillar.

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Preface

Over the last decade or so, Zimbabwe's economy has faced a number of headwinds resulting in a collapse in growth. Following the political transition in November 2017, the new government requested the African Development Bank to urgently prepare an economic report on the country to support renewal and transformation. The government also approached the Bank to assist and advice on re-engagement with the international community. The Bank responded positively to this request, as Zimbabwe is an important regional member country, strategically located in Southern Africa, with enormous potential given its generous endowments of natural resources, its stock of public infrastructure, and its comparatively skilled human resources. Zimbabwe has cleared its arrears with the IMF in October 2016 and will now need to clear its arrears to the World Bank and the African Development Bank, in order to be relieved from sanctions and to access development finance from MDBs.

In this context, the Bank undertook economic and sector work in areas deemed critical for enhancing the country's competitiveness and public sector effectiveness. This report, entitled "Building a New Zimbabwe: Targeted Policies for Growth and Job Creation," is part of this analytical work. It provides the government with alternative growth scenarios to the year 2030. It also identifies sectors for potential investment to achieve sustainable and inclusive growth. It is premised on the assumption that the arrears clearance will be expedited for economic restoration to commence.

The report is important for several reasons. First, it provides the government, the donor community, and the private sector with a detailed assessment of investment opportunities in Zimbabwe. Second, it proposes options to develop these opportunities and, in so doing, helps fill the gap created by the absence of sectoral investment priorities. Third, it can be used to inform and support the government's dialogue with donors and the business community about further development of these sectors. Increased coordination and partnership will improve the alignment of investments with the national objectives, as set out in Zimbabwe's Transitional Stabilization Programme (2018–20) and subsequent medium-term plans. I have no doubt that the report can contribute to the overall efficiency of the development process in Zimbabwe.

Kapil Kapoor
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Abbreviations

AfDB	African Development Bank
FDI	Foreign direct investment
GDP	Gross domestic product
GIF	Growth Identification and Facilitation Framework
IMF	International Monetary Fund
MDG	Millennium Development Goal
RCA	Revealed comparative advantage
SDG	Sustainable Development Goals
SEZ	Special economic zone
Zanu-PF	Zimbabwe African National Union—Patriotic Front

Overview

Zimbabwe has been undergoing political and economic transformation following the November 2017 resignation of President Robert Mugabe and the February 2018 passing of long-time opposition leader Morgan Tsvangirai. The current government remains committed to economic and structural reforms, notably to rebuild confidence by restoring private property rights, ensuring macroeconomic stability and growth, achieving fiscal consolidation, clearing external debt arrears, and improving governance and the business environment to generate broad-based growth and jobs. The government has also committed to amicable settlement arrangements, including compensation of farmers whose land was expropriated during the land reform program.

Zimbabwe's economy continues to grapple with fiscal and monetary misalignments, chronic cash shortages, high unemployment (especially among young people), low investment and savings, industrial stagnation, reduced agricultural output, and high domestic and foreign debt (which has reduced the country's potential to borrow from foreign financial institutions).

Zimbabwe is characterized by abundant land and natural resources, a relatively educated and skilled human capital base, and existing but inadequate physical infrastructure. The agricultural sector focuses on tobacco (for export) and food crops (for domestic consumption). Dependence on natural capital for development is high. Mining is the main driver of the economy: the country has the world's third largest platinum reserves and is the fifth largest producer of lithium, which is essential for rechargeable batteries. The manufacturing sector has seen a rapid decline, while natural resource extraction has been rising.

Alternative growth scenarios to 2030

With qualified assumptions, the SDGSIM-based analysis concludes that Zimbabwe has the potential to realize average growth above 4 percent a year between 2019 and 2030. In the base case scenario, growth averages 4.2 percent a year, which corresponds to 2.2 percent growth per capita. This scenario assumes an unchanged economic policy environment subject to long-term debt sustainability where most macro aggregates expand at the same pace as the economy, which is achieved by keeping fixed tax rates and imposing exogenous and unchanged shares of GDP for other items with macro significance, including investment and transfers payments. Balance between foreign exchange inflows and outflows is realized via a flexible real exchange rate, which influences both export and import quantities. A depreciation of the real exchange rate, at 0.6 percent a year, is needed to maintain external balance.

The nonbase scenarios explore the economic impact of scaled-up investment in infrastructure, helping the country close its infrastructure gap. The scenarios differ in the expansion of infrastructure investment, the marginal product of new infrastructure capital, the sectoral targeting of new infrastructure capital (reflected in a higher total factor productivity in one or more production activities), and the financing source of extra spending. To realize 6 percent growth a year, the real additions infrastructure investment

amounts to 2 percent of base scenario GDP in 2019, 4 percent in 2020, and 6 percent in 2021–30. Investing half as much (1 percent of base scenario GDP in 2019, 2 percent in 2020, and 3 percent in 2021–30) yields half the return (3 percent).

The scenarios assume that the government finances the investment program, but in the real world, involving the private sector and considering other financing mechanisms may be beneficial. While closing the infrastructure gap may be necessary for accelerated progress in Zimbabwe, it is not sufficient: to benefit and become competitive, firms need access to the right inputs (human and other) as well as an enabling policy and institutional environment. In this regard, lessons from policymaking in other parts of the world can offer ideas for adaptation to Zimbabwe's realities.

Identifying opportunities for sustainable and inclusive growth

Zimbabwe has investment opportunities requiring minimal additional investment to realize medium-term growth targets. Deep structural reforms can improve Zimbabwe's business climate and attract private investment and the return of the skilled labor force. In particular, measures are needed to increase transparency in the mining sector, strengthen property rights, reduce fears of expropriation, and control widespread corruption. The most likely possibility for longer term change is the regeneration of civil society and a renewed engagement with political powers in a positive social contract, which plays a role both in tackling economic problems and bringing positive and peaceful political reform.

With the generous endowment of natural resources, existing stock of public infrastructure, and comparatively skilled labor force, Zimbabwe has an unprecedented opportunity to join existing supply chains in Africa through the African Continental Free Trade Area. To take advantage of such opportunities the government should adopt a three-pronged strategy in the near term with agriculture as the foundation, eco-tourism as the green job generator, and special economic zones as the growth pillar.

The agricultural sector can be a foundation for inclusive growth, export diversification, and structural upgrading. The focus should be on diversifying agricultural export earnings and developing supply chain trade (processing and market access to high-value products).

Eco-friendly tourism and associated light manufacturing such as handbags and handicrafts are an engine for job creation and export growth and diversification. With Zimbabwe's enormous natural resources endowment for tourism, targeting tourism represents possibly the quickest way to deliver growth and job creation.

Developing special economic zones as an engine and pillar for growth and diversification could improve competitiveness in first- and later-stage processing of natural resources (agriculture, precious metals, and minerals) as well as manufacturing capacity (electronic and medical equipment that use the country's reserve of precious metals). Given the right investment climate and investor interest, several sectors could be developed, including assembly lines of farm machinery, nonmotor vehicles, home appliances, and technology-intensive services (such as supply value chains and logistics). Special economic zones also provide the potential for scaling up to achieve economies of scale and generate links with the domestic economy.

New financing for development

With some established donors constrained by heavy debt and slow growth since 2015,

development finance will need to "go beyond aid" to combine trade aid and investment. Financing will come less from official development assistance and more from other official flows, other official flow–like loans, and other official flow–like investments from development banks and sovereign wealth funds and new strategic investment funds in emerging economies. Developing countries' (including China) share of global investment overtook that of high-income countries in 2015, and most new finance comes in the form of patient capital, long-term investment with a maturity of 10 years or more.

Patient capital plays an important role in financing infrastructure. Evidence of rising patient capital is reflected in the growing number of sovereign wealth funds and government-sponsored strategic investment funds established by countries such as Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, the Philippines, Senegal, South Africa, and Vietnam.

Global leaders and the international development community (multilateral and bilateral donors) are looking east for new ideas, new momentum, and new financing. In recent years, China has become the largest single trading partner for Africa and a key investor and provider of aid, and a 1 percentage point increase in China's real domestic fixed asset investment growth has tended to increase Sub-Saharan Africa's export growth rate on average by 0.6 percentage point.[1]

China and Zimbabwe have long had an "all-weather" friendly relationship, with mutual support, cooperation, and benefit. In particular, China has emerged as Zimbabwe's largest aid, investment, and South–South cooperation partner in the last decade. Zimbabwe is estimated to be one of the top recipients of China's official development assistance, receiving $3.6 billion. Zimbabwe could grasp the opportunities provided by the large number of Chinese enterprises "going global" and join existing global supply chains in food, cotton, wool, leather, footwear, garments, and assembly lines of farm machinery, motorcycles, or buses and become a light manufacturing and construction logistic center for Southern and East Africa and eventually the entire continent.

PART 1

Zimbabwe's economy

CHAPTER 1

Country context

This report on Zimbabwe's economic growth opportunities and trajectory was prepared at the government's request following a political transition in November 2017. After recent political changes, Zimbabwe is searching to break away from its disappointing development record of recent decades and identify a path toward faster growth in gross domestic product (GDP), employment, and incomes accompanied by more rapid progress in poverty reduction and other parts of the global sustainable development agenda. But this search for a new path is undertaken in a difficult economic context, including the need to address budget and balance of payments deficits and major structural challenges such as large infrastructure gaps, an inefficient government, and inhospitable business climate.

The country has enormous potential given its natural resource endowment, public infrastructure stock, and skilled human resources. But the country has long-standing debt arrears with several development partners and lenders. While Zimbabwe cleared its arrears with the International Monetary Fund in October 2016, the country has yet to clear its arrears with the African Development Bank (AfDB) and the World Bank, a requirement for relief from sanctions and for access to development finance from multilateral development banks.

Recent political developments

Zimbabwe has been undergoing political and economic transformation following the November 2017 resignation of President Robert Mugabe and the February 2018 passing of longtime opposition leader Morgan Tsvangirai. The current government remains committed to economic and structural reforms, notably to rebuild confidence by restoring private property rights, ensuring macroeconomic stability and growth, achieving fiscal consolidation, clearing external debt arrears, and improving governance and the business environment to generate broad-based growth and jobs. The government has also committed to amicable settlement arrangements, including compensation of farmers whose land was expropriated during the land reform program.

Despite the positive messages from the government, adherence to the rule of law and citizen voice remain poor compared with Africa as a whole and the Southern Africa subregion. Although among the top performers in Africa on the 2017 Ibrahim Index of African Governance, Zimbabwe's ranking remains low, and its overall governance score is 45.4 (out of 100), up from 40.4 in 2014.

In July 2018, the country successfully conducted a national and local election. The ruling party, the Zimbabwe African National Union—Patriotic Front (ZANU-PF), secured a two-thirds majority in the House of Assembly with 145 seats, followed by 63 seats for the main opposition party, the Movement for Democratic Change Alliance and 1 seat each for the National Patriotic Front and an independent candidate. The incumbent Emmerson Mnangagwa of ZANU-PF was re-elected president with 50.8 percent of the vote.

Economic and social developments

Zimbabwe's once vibrant economy collapsed following a prolonged period of policy missteps and international isolation. The country

had achieved lower-middle-income status with GDP per capita of $1,205 and life expectancy of 61.3 years in 1982, just two years after independence, but dropped to low-income status with GDP per capita of $878.20 and life expectancy of 57 years in 2016. Poor macroeconomic management and a reduced supply of goods because of widespread price controls resulted in record hyperinflation, which peaked at 231,000,000 percent in 2008 before stabilizing after a multicurrency regime was adopted in 2009.[2] Price stability and the removal of numerous economic controls improved business confidence, narrowed arbitrage opportunities, and reduced parallel market activities as goods became available on the formal market.

Real GDP growth decelerated from 4.5 percent in 2013 to 1.5 percent in 2015 to 0.7 percent in 2016 before recovering to 2.6 percent in 2017, driven largely by agriculture, mining, electricity and tourism activity. Growth is projected to reach 3.5 percent in 2018 and rise to 4.2 percent in 2019 and 4.4 percent in 2020. Growth in manufacturing and services is anticipated to remain subdued because of liquidity constraints. Significant economic challenges remain: a high fiscal deficit, rising inflation, cash shortages, high public debt, high informality, and an overvalued exchange rate which undermines the economy's competitiveness.

Over 2013–17, fiscal pressures persisted on the back of declining revenues due to the slowdown in the economy and high recurrent expenditures. The budget deficit stood at 9.4 percent of GDP at the end of 2017, up from 2.4 percent at the end of 2015, financed mainly through domestic borrowing. In 2018, the government proposed strong fiscal consolidation measures such as freezing recruitment, retiring all staff above age 65, and introducing a voluntary retirement scheme to deal with the unsustainable budget deficit, which was driven largely by the wage bill (86 percent of revenue). These measures aimed to halve the budget deficit to below 4 percent of GDP in 2018 and to less than 2 percent in 2019. Despite these constraints, the government plans to increase spending on infrastructure from 11 percent in 2017 to 15 percent in 2018 to 25 percent in 2020.

Despite the cash shortages and liquidity constraints, the banking sector has remained stable on the back of adequate capitalization, improved earnings, and asset quality. Nonperforming loans declined from a peak of 20.5 percent in 2014 to 7.1 percent at the end of 2017, as a result of stronger management of credit risk. The government has noted that the cash shortages are a result of the increasing mismatch between electronic money balances created to finance the budget deficit and the physical stock of foreign currency available. To mitigate this challenge, the authorities urge continued use of noncash (plastic and electronic) transaction methods while other export-boosting measures and foreign exchange management (such as administrative arrangements for repatriating foreign exchange and assets) are addressed. Meanwhile, inflation—driven mainly by money creation to finance the fiscal deficit—stood at 0.06 percent in February 2017 and closed the year at 3.46 percent before climbing to 3.52 percent in January 2018. Inflation is projected to average 3.6 percent in 2018.

Zimbabwe's exports fell from $3.6 billion in 2011 to $2.8 billion in 2016—an annualized rate of 5.7 percent. Imports totaled $5.2 billion in 2016, resulting in a trade deficit of $2.4 billion (figure 1.1). The current account deficit declined from 4.2 percent of GDP in 2016 to 4 percent in 2017 as export incentive schemes introduced in May 2016 stimulated exports and is projected to decline to 3.8 percent of GDP in 2018 as the government envisages new limits and controls on imports (Statutory Instrument 64). Nevertheless, merchandise imports (mainly finished goods, fuel, and electricity) continue to exceed exports, putting pressure on the supply of urgently needed foreign exchange: about

85 percent of Zimbabwe's foreign exchange comes from five products (tobacco, gold, platinum, chrome, and diamonds), making it critical to diversify exports.

Zimbabwe remains in debt distress,[3] constraining the country's ability to attract investment and access fresh capital. The AfDB Group has been a leader in Zimbabwe's re-engagement with international financial institutions and other creditors since the first Friends of Zimbabwe High Level Debt Forum in 2012. The country is following an arrears clearance strategy, a staggered process that cleared arrears to the International Monetary Fund in October 2016 and that projects clearing arrears to the AfDB Group and the World Bank by the end of 2019. Consultations with Paris Club creditors are also ongoing, critical to addressing the more than $3 billion in outstanding arrears.

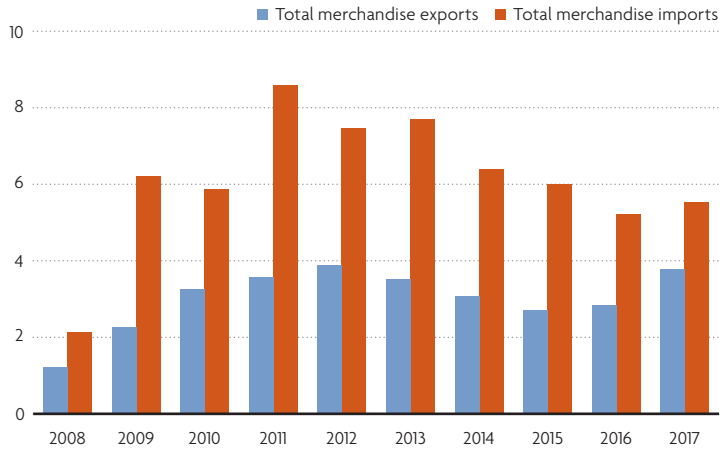
Zimbabwe's rank on the World Bank's Ease of Doing Business Index remains low because of lack of policy consistency and coordination and because of high corruption in the public and private sectors. The level of corruption, particularly in state-owned enterprises, increased the country's risk premium, resulting in resource mobilization constraints and further capital flight. Zimbabwe ranked 159 out of 190 countries in 2018, down from 161 in 2017 but still a retreat from the jump of 16 places to 155 out of 189 countries in 2016. Small changes in dealing with construction permits, registering property, and resolving insolvency continue to be outweighed by losses in all the other measures except enforcing contracts, which remained unchanged.

The Special Economic Zones Act was enacted in October 2016 to provide incentives to investors to boost private sector growth. The country's industrial development policy focuses on five key sectors—agriculture and agro-processing, manufacturing, mining, tourism, and services—because of their quick turnaround and impact. The government has also passed a joint venture law to boost private sector participation in infrastructure development.

FIGURE 1.1

Zimbabwe's total merchandise exports and imports, 2008–17

$ billion



Source: ZIMSTAT.

Zimbabwe's poverty rate dropped from 75.6 percent in 1995 to 70.9 percent in 2001 then rose to 72.3 percent in 2011. The poverty rate was higher in Matabeleland North (85.7 percent) and lower in Harare (36.4 percent) and Bulawayo (37.2 percent).[4] Real GDP per capita declined 1.6 percent from 2016 to 2017 as rising inflation and low productivity reduced real earnings. The country's most recent Gini index was 43.2 in 2011. Despite the economic slowdown, Zimbabwe's Human Development Index value improved from 0.452 in 2010 to 0.516 in 2015, owing to progress in life expectancy, from 49.6 years in 2010 to 57 years in 2016. The country also made progress in universal primary education (Millennium Development Goal [MDG] 2), gender equality and women's empowerment (MDG 3) and combating HIV/AIDS, malaria and other diseases (MDG 6). The government is committed to achieving the Sustainable Development Goals (SDGs), which have been integrated into the Zimbabwe

TABLE 1.1

Structure of Zimbabwe's GDP, 2016

Item	$ million	% of GDP
Absorption	18,949	114.0
Private consumption	12,791	77.0
Government consumption	4,131	24.9
Fixed investment	2,015	12.1
Private fixed investment	1,525	9.2
Government fixed investment	491	3.0
Change in inventories	12	0.1
Exports	4,098	24.7
Imports	–6,427	–38.7
GDP at market prices	16,620	100.0
Net indirect taxes	–2,073	–12.5
GDP at factor cost	14,547	87.5

Source: Calculated based on 2016 Zimbabwe social accounting matrix.

TABLE 1.2

Structure of Zimbabwe's balance of payments, 2016

Item	$ million	% of GDP
Current account, inflows of foreign exchange	6,842	41.2
Exports	4,098	24.7
Transfers to nongovernment	1,942	11.7
Factor income	211	1.3
Foreign savings	591	3.6
Current account, outflows of foreign exchange	6,842	41.2
Imports	6,427	38.7
Transfers from nongovernment	16	0.1
Transfers from government	0	0.0
Factor income	399	2.4
Capital account	591	3.6
Net foreign financing to nongovernment	90	0.5
Net foreign financing to government	76	0.5
Foreign direct investment	426	2.6

Source: Calculated based on 2016 Zimbabwe social accounting matrix.

Agenda for Sustainable Socio-Economic Transformation to ensure synergies.

Economic and policy challenges

This section reviews key aspects of Zimbabwe's economic and policy challenges to provide context for the scenario analysis. The information is an important input and starting point for analyzing the SDGSIM results, which depend on changes in prices, quantities, and tax rates. Much of the data are from the 2016 Zimbabwe macro and meso social accounting matrixes, which are part of the model database.[5] Data from World Bank (2018b) were used to analyze Zimbabwe's economy and its performance since 2000 from a regional African perspective.

Economic structure in 2016

Absorption (domestic final demand) exceeds total GDP by 14 percent thanks to a trade deficit of the same magnitude (table 1.1). The private sector accounts for 86.1 percent of domestic final demand, and the government accounts for 27.8 percent. Government final demand is more investment-focused than private final demand is: the ratio of investment to consumption is 0.24 for the government and 0.11 for the private sector.

In the current account, foreign savings (a current account deficit) of 3.6 percent of GDP and a surplus of nontrade items in the current account of 10.5 percent of GDP (with nongovernment transfers or worker remittances as the main inflow) made the trade deficit and absorption in excess of GDP possible (table 1.2). In the capital account, foreign direct investment of 2.6 percent of GDP and government and nongovernment financing cover the current account deficit.

At 20.1 percent of GDP, taxes are the main receipt in the government budget, and nontax revenue amounts to 1.8 percent (table 1.3). Government savings are thus negative (–3.0 percent of GDP), while government investment is 3.0 percent. The resulting government deficit (6.0 percent) is covered by domestic and foreign financing.

While agriculture's share in value added is just 11.1 percent, the sector accounts for 33.1 percent of export revenue and is strongly export-oriented, with an export–output ratio of 39.4 percent (table 1.4). Likewise, manufacturing, which includes semi-manufactured forms of gold (Zimbabwe's main export product), makes an important contribution to exports and is highly export-oriented (though less so than agriculture). However, compared with agriculture, manufacturing accounts for a smaller share of value added (9.9 percent versus 11.1 percent) and a much larger share of imports (73.8 percent versus 6.8 percent) and has a higher import–demand ratio (46.8 percent versus 20.3 percent). By contrast, service sectors (except trade, hotels, and restaurants and transport and communications) have no direct links to the international economy.

Agriculture is intensive in unskilled labor and land, while public administration, education, and health are intensive in skilled labor (see

TABLE 1.3

Structure of Zimbabwe's government budget, 2016

Item	$ million	% of GDP
Recurrent receipts	3,629	21.8
Direct taxes	1,261	7.6
Activity taxes	195	1.2
Commodity taxes	1,605	9.7
Tariffs	273	1.6
Domestic transfers	295	1.8
Recurrent spending	4,131	24.9
Consumption	4,131	24.9
Foreign transfers	0	0.0
Savings[a]	–502	–3.0
Investment	491	3.0
Surplus[b]	–992	–6.0
Financing	992	6.0
Net domestic financing	917	5.5
Net foreign financing	76	0.5

a. Difference between recurrent receipts and recurrent spending.

b. Difference between savings and investment.

Source: Calculated based on 2016 Zimbabwe social accounting matrix.

TABLE 1.4

Sectoral structure of Zimbabwe's economy, 2016

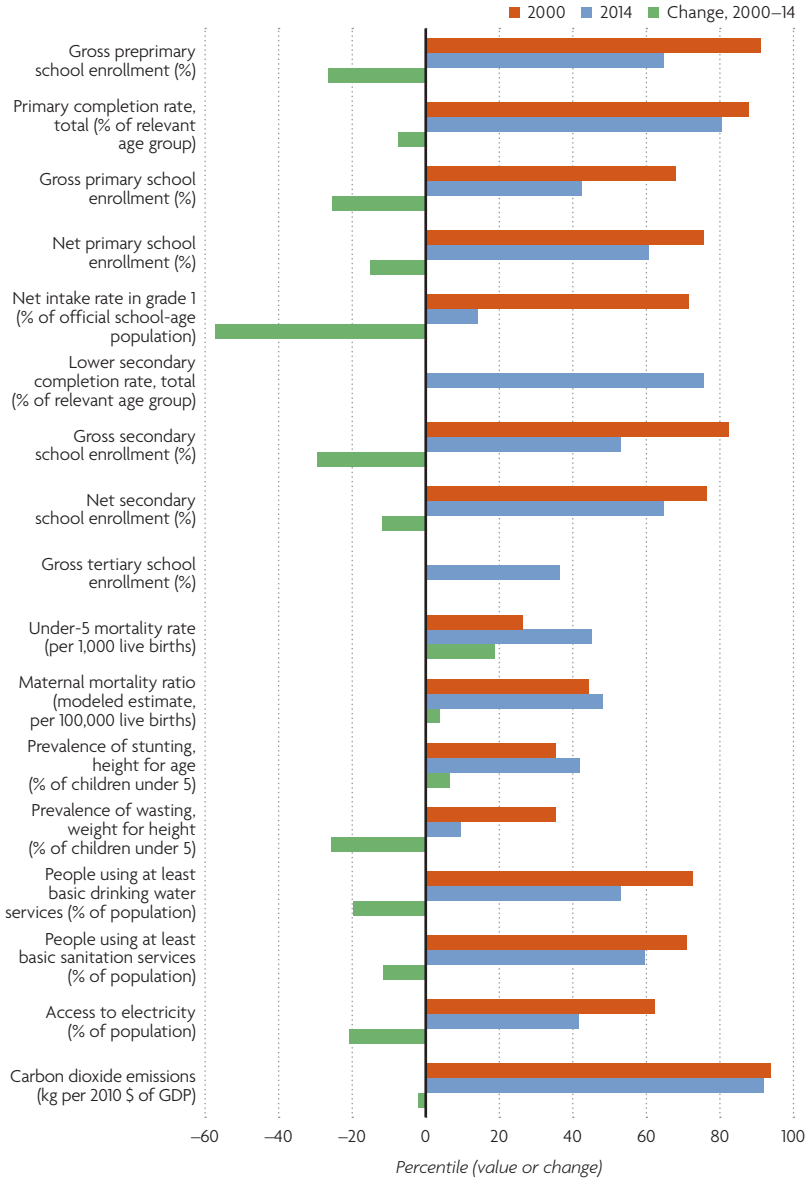
Percent

Sector	Value added	Production	Exports	Export–output ratio	Imports	Import–demand ratio
Agriculture, forestry, and fishing	11.1	10.7	33.1	39.4	6.8	20.3
Mining and quarrying	8.0	5.3	16.6	39.6	0.2	1.5
Manufacturing	9.9	22.9	39.6	22.0	73.8	46.8
Electricity and water supply	2.0	1.2	0.2	2.3	2.3	31.4
Construction	2.6	1.6	0.0	0.0	0.0	0.0
Financial intermediation	6.7	12.5	0.0	0.0	0.0	0.0
Real estate and business activities	4.8	4.0	0.0	0.0	0.0	0.0
Trade, hotels, and restaurants	15.3	9.2	6.6	9.1	4.0	10.7
Transport and communications	10.3	16.4	3.9	3.0	12.9	16.8
Public administration	11.1	6.4	0.0	0.0	0.0	0.0
Education	13.0	7.0	0.0	0.0	0.0	0.0
Health	2.9	1.7	0.0	0.0	0.0	0.0
Domestic services	0.3	0.2	0.0	0.0	0.0	0.0
Other services	2.0	1.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	12.7	100.0	21.5

Source: Calculated based on the 2016 Zimbabwe social accounting matrix.

FIGURE 1.2

Zimbabwe's percentile ranking among Africa countries on selected Sustainable Development Goal indicators, 2000 and 2014



Note: Indicators are shown only if data are available for at least 18 countries (that is, a third of the countries in Africa, including Zimbabwe). Indicators shown for both 2000 and 2014 have identical country coverage for the two years. The maximum number of countries is 54. Data for 2000 refer to the average over 1998–2002, and data for 2014 refer to the average over 2012–16.

Source: Calculated based on data from World Bank (2018b).

table A1 in appendix A). And more than 60 percent of mining output is used as intermediate input by the manufacturing sector (see table A2 in appendix A).

Performance and structural change in Zimbabwe and Africa since 2000

Zimbabwe's percentile ranking among African countries declined between 2000 (reflecting the average or 1998–2002) and 2014 (reflecting the average for 2012–16) for all education SDG outcome indicators with data (figure 1.2). Except for prevalence of wasting, which showed strong improvement, the picture is similar for health SDG outcome indicators (for which a low ranking is better for indicators measuring undesirable outcomes such as mortality). Zimbabwe has been falling behind other African countries on infrastructure-related indicators (access to water, sanitation, and electricity). The ranking for carbon dioxide emissions per unit of GDP remained roughly unchanged between 2000 and 2014.

Zimbabwe's declining rankings in education indicators are underpinned by unchanged or declining enrollment, intake, and completion in the country while the median for Africa increased noticeably (see table A3 in appendix A). Among health indicators (except prevalence of wasting), the situation in Zimbabwe has improved, but not as much as in the region as a whole. In infrastructure, access rates changed little in Zimbabwe while improving in the region as a whole. Finally, despite reducing carbon dioxide emissions more than other African countries did, Zimbabwe is still at more than twice the regional median. Zimbabwe's unweighted average ranking across all indicators declined from the 73rd percentile to the 56th (which translates to a drop from 15 to 23 out of 54 countries).[6]

Higher real GDP per capita may have contributed to and been reinforced by better SDG outcomes across the board through multiple

channels (including links related to household income and government revenue). Zimbabwe's real GDP per capita declined between 2000 and 2014 while the median for Africa increased significantly, causing Zimbabwe's percentile ranking to fall by 20 points (figure 1.3; see also table A4 in appendix A).

Zimbabwe's final demand composition switched toward consumption and away from investment, which may have caused growth to suffer given that consumption tends to be directed more toward satisfying current needs. Among government final demand, Zimbabwe ranks very high for consumption (and increasingly so) but very low for investment, while total government final demand is high.

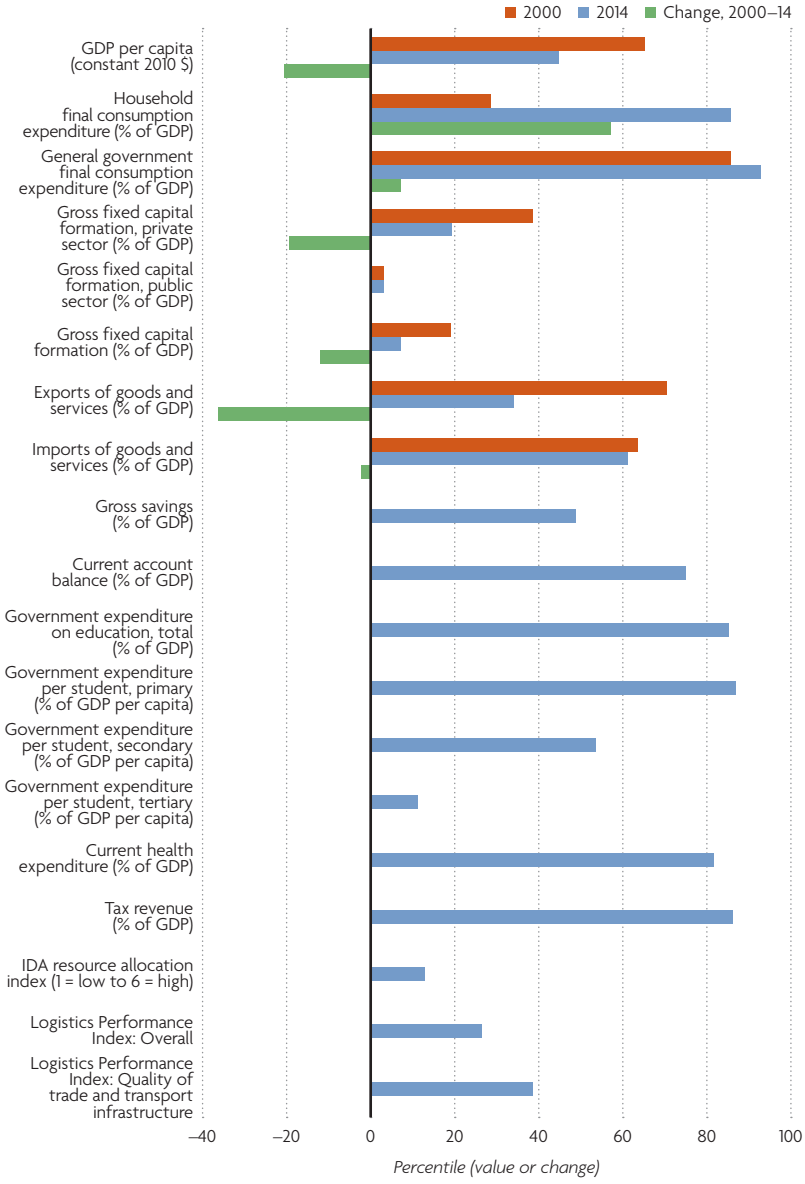
The data are consistent with Zimbabwe's severe external imbalances, manifested as lower exports and higher imports than in other countries, which eventually contributed to foreign debt default. Among other things, Zimbabwe's export percentile ranking fell by more than 36 points. While the increased trade deficit made it possible to maintain higher domestic absorption for a given level of GDP, the resulting macro imbalance may have contributed to low growth. These developments took place in the context of sanctions imposed by the European Union, the United States, and others to encourage more democratic rule.

Zimbabwe led Africa in education spending relative to GDP in 2014. Its spending per student (relative to GDP per capita) was also high, in the 80th–90th percentile for primary, secondary, and tertiary education. Similarly, the country's current spending on health (which represents most of health spending) is among the highest in the region (in the 94th percentile). The country is in the 77th percentile for tax revenue, suggesting that the scope for raising tax revenue may be limited.

Apart from the level and composition of private and government spending, institutions and infrastructure may be important determinants

FIGURE 1.3

Zimbabwe's percentile ranking among Africa countries on selected determinants of economic performance, 2000 and 2014



Note: Indicators are shown only if data are available for at least 18 countries (that is, a third of the countries in Africa, including Zimbabwe). Indicators shown for both 2000 and 2014 have identical country coverage for the two years. The maximum number of countries is 52. Data for 2000 refer to the average over 1998–2002, and data for 2014 refer to the average over 2012–16.

Source: Calculated based on data from World Bank (2018b).

of economic performance. In this regard, the World Bank International Development Association resource allocation index for Zimbabwe is low (in the 12th percentile), suggesting that the country's policies and institutional arrangements do not support growth and poverty reduction. And the country is positioned in the bottom half of African countries for the overall Logistics Performance Index—which reflects how well infrastructure and institutions facilitate trade, an essential component of successful development throughout the world—and for its trade- and transport-related infrastructure subindex.

Zimbabwe meets just 25–30 percent of its infrastructure needs in transport, electricity, information and communications technology, and water and sanitation but still ranks in the 67th percentile (18 out of 53 countries). Closing infrastructure gaps remains necessary to accelerate development in Zimbabwe and most other countries of the region, but progress in infrastructure must be accompanied by advances in other areas, including human development and the broader policy environment.[7] To meet its needs, the country may have to raise spending on infrastructure from $0.2 billion a year to $2.0 billion for the next decade.[8]

In sum, the comparison of Zimbabwe and the rest of the Africa shows that Zimbabwe has performed worse than Africa as a whole on almost all SDG outcome indicators and that this result is consistent with the evolution of development drivers, including the prioritization of consumption over investment and weak policies and institutions. Weak policies and institutions prevent high spending on education and health from yielding stronger performance in these areas. To generate the growth needed to improve well-being and reduce poverty, Zimbabwe must close its infrastructure gap.

CHAPTER 2

Structural transformation is key to economic development

In the early stages of development, structural transformation is one of the main engines of economic growth. Manufacturing, in particular, offers new and boundless possibilities for production of tradable goods, including technology. Manufacturing plays a crucial role in generating employment, accounting for almost 500 million jobs worldwide in 2013—about a fifth of the global workforce—and allowing for greater inclusiveness and gender equality.[9]

Transforming from resource extraction and agriculture to manufacturing activities to services is crucial for increasing productivity, creating jobs, and reducing poverty. But mainstream economics has paid little heed to structural transformation and industrialization, with too few resources invested in the economic and industrial infrastructure, causing deindustrialization in many countries. Africa has seen its share of manufacturing in gross domestic product (GDP) decline for 40 years.

In the globalized world, structural transformation is even more critical and harder to achieve because goods and services are relatively freely traded across borders, but other factor endowments—human, natural, and physical capital (land)—face barriers to movement across borders or are completely immobile. Many developing countries have attempted to catch up with industrial countries but failed, some seemingly trapped as exporters of natural resources and primary products. In the last half-century, only 28 countries have closed the income gap with industrial countries by 10 percent or more—only 12 of them were non-European and non-resource-based countries.[10]

Many African countries are net exporters of primary products. Intra-African trade accounted for only 15 percent of total African trade in 2017, while intra-Asian trade accounts for 58 percent of total Asian trade and intra-European trade accounts for 67 percent of total European trade. Having realized the challenges associated with inadequate regional integration, African leaders agreed in March 2018 to create the African Continental Free Trade Area, a single continentwide market for goods and services with free movement of business persons and investment. If all African countries join, by 2030, the market will include 1.7 billion people and $6.7 trillion in cumulative consumer and business spending.[11]

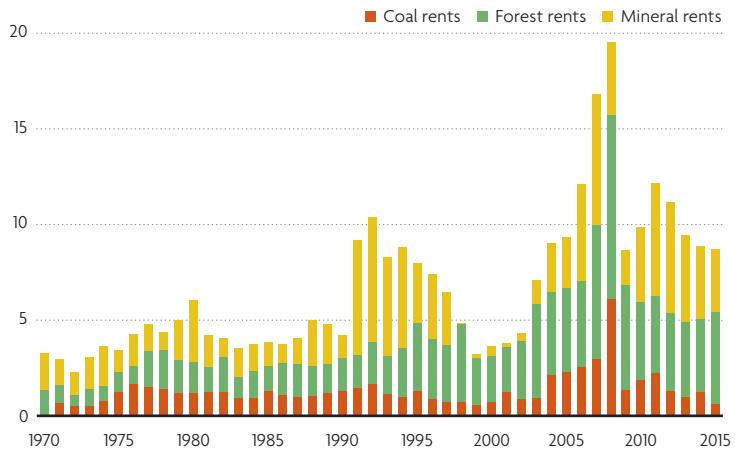
Zimbabwe and many other African countries now face an unprecedented opportunity to be more integrated with the continent's regional supply chains and with global value chains through supply chain trade.[12] Lower transport costs, thanks to recent public and private investment in cross-regional infrastructure, allow African countries to target the larger markets in the European Union, which account for 35 percent of world trade, and in Asia, which account for 33 percent of world trade, by using the importing to export model to join existing supply chains in the region, an option previously unavailable because of high transport costs. Major emerging market economies such as China, India, and South Africa can serve as conduit countries.[13]

Deep structural reforms are needed to improve Zimbabwe's business climate and attract private investment and the return of the skilled labor force. In particular, measures are needed to increase transparency in the mining sector, strengthen property rights, reduce fears of expropriation, and control widespread

FIGURE 2.1

Composition of Zimbabwe's natural resource rents, 1970–2015

Percent of GDP



Source: World Bank World Development Indicators database.

corruption.[14] The most likely possibility for longer term change is the regeneration of civil society and a renewed engagement with political powers in a positive social contract, which plays a role both in tackling economic problems and bringing positive and peaceful political reform.[15]

While structural reforms are fundamental to sustain the recovery and growth trajectory, carefully sequencing reform programs is crucial to the success of economic recovery—particularly in a fragile policy environment such as Zimbabwe's. As the country embarks on new initiatives to revive its economy,[16] the key issue is to identify opportunities that catalyze growth and structural change in the short to medium term without needing large-scale policy reforms.[17]

Zimbabwe's great potential

Zimbabwe is characterized by abundant land and natural resources, a relatively educated and skilled human capital base, and existing but inadequate physical infrastructure. The agricultural sector focuses on tobacco (for export) and food crops (for domestic consumption). Dependence on natural capital for development is high (figure 2.1). Mining is the main driver of Zimbabwe's economy: the country has the world's third largest platinum reserves and is the fifth largest producer of lithium, which is essential for rechargeable batteries. The manufacturing sector has seen a rapid decline, while natural resource extraction has been rising. Mining—extraction of precious and other metals such as gold, coal, iron ore, chromium ore, vanadium, asbestos, nickel, copper, lithium, tin, and platinum group metals—brings in half the country's export earnings. Extraction exports grew from 24 percent of total exports in 2005 to 62 percent in 2016.[18]

The manufacturing sector is small and declining, accounting for 9.7 percent of GDP. The tertiary sector depends largely on primary industrial activities (such as farming and mining) as well as manufacturing. The tertiary sector is the largest in the country and accounts for 57 percent of GDP.

Zimbabwe is ranked 33rd in the world in overall natural resources endowment for tourism by the World Travel and Tourism Council, and at its peak, the tourism sector employed 10 percent of the labor force and accounted for a fifth of exports.

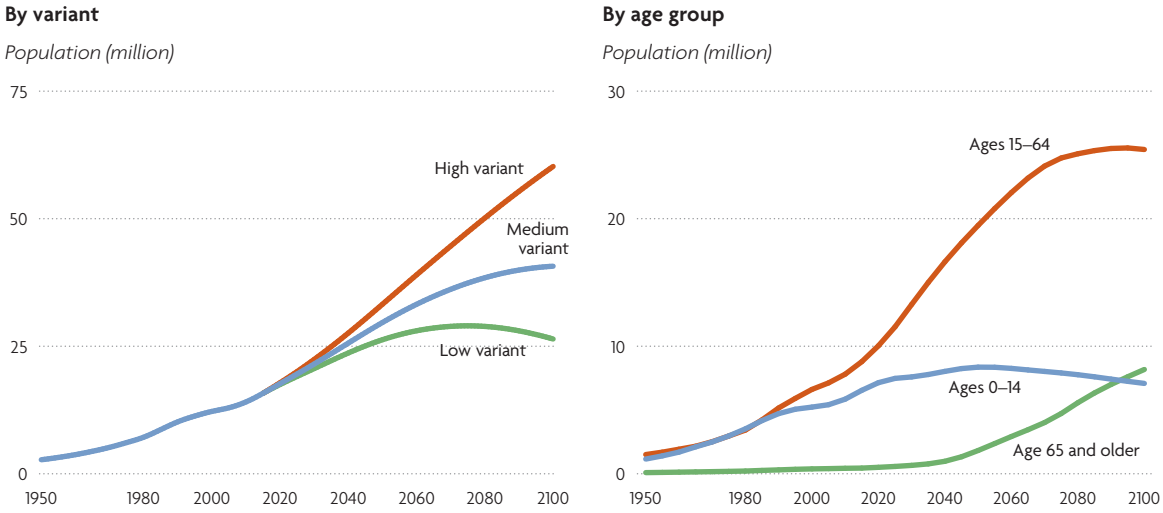
Population and employment

Zimbabwe's population is roughly 16 million, 41 percent of which is ages 0–14, 59 percent of which is age 15 or older, and 3 percent of which is age 65 or older (figure 2.2). The population growth rate is 2.3 percent. The population of Harare, the capital and most populous city, is about 1.6 million, with 2.8 million in its metropolitan area. Some 32 percent of the population lives in urban areas, and urban population growth is 2 percent a year.[19]

The share of informal employment in total employment increased from 80 percent in 2004 to 94.5 percent in 2014. There has been

FIGURE 2.2

Zimbabwe's rapidly growing labor force, 1950–2100



Source: UN Population Division projections.

a gradual shift in resources from high- to low-productivity sectors and a deepening informalization of the economy, which has also resulted in lower wages and a higher poverty rate. The rise in informality has also weakened the tax base.

Human capital and total wealth per capita

Zimbabwe has considerable human capital and a wealth of natural resources. It continues to spend more on education as a percentage of GDP than any other country in Sub-Saharan Africa.[20] Literacy is high: 84 percent among adults age 15 and older and 91 percent among young people ages 15–24 in 2011.[21]

Education accounts for a substantial share of overall public spending, 30 percent in 2017, indicating the high priority given to the sector. Government spending on education accounted for 9 percent of the wealth created by the economy in 2014, high compared with other countries.

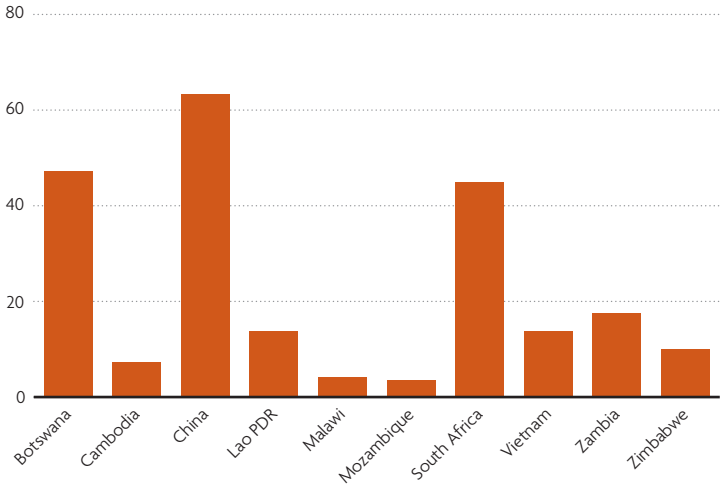
Infant and junior education accounted for 50 percent of the education budget in 2014, secondary education 27 percent, and higher education 17 percent. Infant education has the lowest average expenditure per student ($159), followed by junior education ($216) and secondary education ($328). Universities had the highest average expenditure per student ($3,309), followed by teacher education ($3,101). Technical education averaged $319 per student. The government spends 15 times as much per student at the higher education level than at lower levels, leading to excessive concentration of public resources in the hands of the few students who have access to higher education. The most educated 10 percent of students benefit from 53 percent of total public spending on education, making Zimbabwe one of the least equitable countries in Sub-Saharan Africa.[22]

Human capital per capita in Zimbabwe is lower than in South Africa and Zambia but higher than in Cambodia, Malawi, and Mozambique (figure 2.3). Produced capital per capita is also higher in Zimbabwe than in Cambodia, Malawi, and Mozambique (figure 2.4). And

FIGURE 2.3

Human capital per capita in Zimbabwe, neighbor countries, and select rapidly growing Asian countries, 2014

2014 $ (at market exchange rates)

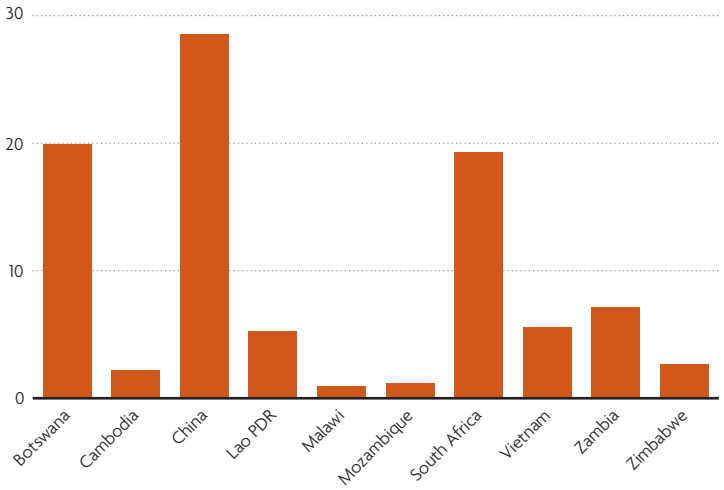


Source: Lange, Wodon, and Carey 2018.

FIGURE 2.4

Produced capital per capita in Zimbabwe, neighbor countries, and select rapidly growing Asian countries, 2014

2014 $ (at market exchange rates)



Source: Lange, Wodon, and Carey 2018.

Zimbabwe's total wealth per capita (which takes into account produced capital, natural capital, human capital, and net foreign assets) was $18,958 in 2014, also higher than in Cambodia, Malawi, and Mozambique (figure 2.5).[23] This allows for some optimism: what was achieved in Cambodia and other Asian nations could be achieved in Zimbabwe.

Lack of growth and structural transformation

Like other landlocked developing countries, Zimbabwe incurs substantially higher transport and other trade costs than coastal countries do. Being far from the world's large markets in the Americas and Europe leaves the country cut off from ports, and difficulty moving goods from country to country limits its intracontinental trade potential. Trading costs are driven up by tariffs, border delays, and deterioration in the physical infrastructure of the major trade transit routes.

The targeted sanctions imposed by the United States and the European Union against Zimbabwe beginning in 2000 led to devastating economic challenges for the country. In particular, agriculture value added fell from 18.7 percent of GDP in the mid-1990s to 11.0 percent in 2016 (table 2.1). Agriculture accounts for 65.8 percent of total employment, industry for 9.1 percent. Industry's share of value added fell from 26.8 percent in the mid-1990s to 22.8 percent in 2016. Manufacturing's share fell from 19.5 percent in 1995 to 9.6 percent in 2016.

The shrinking of the formal economy through deindustrialization has resulted in the informalization of the economy. Informality discourages investment and weakens the economy's overall competitiveness because numerous informal enterprises are stuck in a low-productivity trap.[24] Being outside the regulatory framework implies that informal enterprises are less productive than formal

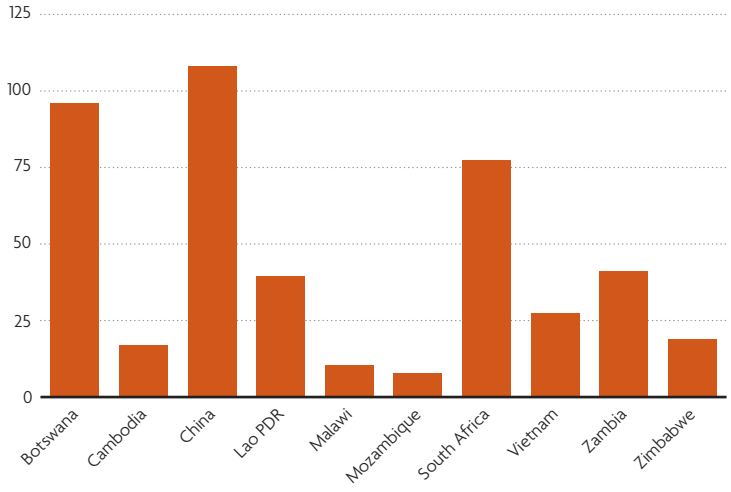
enterprises because informal enterprises are locked out of markets for finance, technology, and other resources that would enable them to close the gap. Informal firms do not always "grow up" and join the formal sector. In many cases, especially in developing countries, they remain stuck in an informality trap.

Data from ZIMSTAT show a similar structure of the economy, with only slightly different sectoral percentages (table 2.2 and figure 2.6). The economy was stagnant during 2009–16, with manufacturing declining markedly from 12.7 percent of GDP in 2009 to 8.3 percent in 2016. The share of agriculture, hunting, fishing, and forestry declined from 12.4 percent in 2009 to 9.4 percent in 2016. The services and public administration sectors expanded, as did the mining sector, which increased from 6.7 percent of GDP in 2009 to 8.6 percent in 2016.

FIGURE 2.5

Total wealth per capita in Zimbabwe, neighbor countries, and select rapidly growing Asian countries, 2014

2014 $ (at market exchange rates)



Source: Lange, Wodon, and Carey 2018.

TABLE 2.1

Value added by sector, Zimbabwe, comparator countries in Africa, and comparator countries in Asia, 1995–2016 (% of GDP)

Percent

Sector	1995–97	1998–2000	2001–03	2004–06	2007–09	2010–12	2013–15	2016
Zimbabwe								
Agriculture	18.65	19.74	15.98	19.48	18.30	11.92	11.28	10.98
Industry	26.84	—	—	29.14	30.51	27.67	25.28	22.76
Manufacturing	19.53	16.20	13.82	16.13	15.78	12.07	4.02	9.55
Services	54.51	—	—	51.38	51.19	60.41	63.45	66.26
Comparator countries in Africa								
Botswana								
Agriculture	4.22	3.24	2.79	2.28	0.76	0.25	0.08	2.20
Industry	48.07	48.79	46.26	46.41	39.86	36.75	36.18	34.71
Manufacturing	5.92	1.97	6.34	5.85	6.88	2.29	4.16	5.68
Services	47.71	47.97	50.95	51.32	17.11	60.44	61.36	63.09
Mozambique								
Agriculture	34.30	26.81	24.52	25.93	28.61	28.58	25.61	24.77
Industry	16.11	22.22	21.50	21.76	20.09	19.11	20.32	21.64
Manufacturing	12.39	16.58	16.10	15.97	13.57	10.82	9.81	9.53
Services	49.59	50.96	53.98	52.30	51.30	52.31	54.07	53.59
South Africa								
Agriculture	4.03	3.54	3.53	2.78	3.04	2.52	2.36	2.43
Industry	33.78	31.87	31.88	29.98	30.47	29.89	29.46	28.93
Manufacturing	20.60	19.17	19.20	17.73	15.69	13.56	13.23	13.34
Services	62.19	64.59	64.60	67.24	66.49	67.59	68.18	68.63

TABLE 2.1 *(continued)*

Value added by sector, Zimbabwe, comparator countries in Africa, and comparator countries in Asia, 1995–2016 (% of GDP)

Sector	1995–97	1998–2000	2001–03	2004–06	2007–09	2010–12	2013–15	2016
Zambia								
Agriculture	15.67	18.95	17.46	15.98	12.71	10.02	7.09	6.54
Industry	37.85	27.70	9.23	3.08	33.72	34.82	35.12	36.60
Manufacturing	11.70	11.49	10.81	10.79	9.35	7.82	7.28	8.07
Services	46.48	53.35	55.76	53.50	53.57	55.17	57.79	56.86
Comparator countries in Asia								
Cambodia								
Agriculture	47.98	42.96	34.52	32.07	34.52	36.54	31.17	26.66
Industry	16.03	20.06	25.35	27.32	24.83	23.97	27.74	31.74
Manufacturing	10.85	14.84	18.64	19.62	16.96	16.12	16.79	17.24
Services	35.99	36.98	40.13	40.61	40.65	39.49	41.10	41.60
China								
Agriculture	18.94	15.97	13.21	11.73	10.11	9.46	9.06	8.56
Industry	46.99	15.66	44.96	46.83	46.56	46.02	42.68	39.81
Manufacturing	33.15	31.53	31.61	32.17	32.00	31.65	30.10	—
Services	34.08	38.47	41.83	41.44	43.33	44.52	48.26	51.63
Lao PDR								
Agriculture	53.94	50.73	42.56	36.82	35.32	27.13	19.68	19.48
Industry	20.48	20.58	19.31	24.29	27.37	34.16	32.06	32.51
Manufacturing	15.36	13.45	7.95	9.08	8.69	8.31	9.24	8.78
Services	25.58	28.69	38.13	38.89	37.3	38.71	48.26	48.01
Myanmar								
Agriculture	—	—	54.07	46.26	40.57	33.31	28.05	25.46
Industry	—	—	12.62	17.71	22.54	30.04	33.77	35.02
Manufacturing	—	—	8.94	12.79	16.60	19.89	20.22	22.79
Services	—	—	33.31	36.04	36.90	36.64	38.18	39.52

— is not available.

Source: Calculated based on data from World Bank World Development Indicators database.

Total public debt stock was $13.8 billion in 2017 (80 percent of GDP), with $6.3 billion in public domestic debt and $7.5 billion in foreign debt. The attendant burden of the debt and debt service payments are compounded by the serious structural weaknesses of the local economy, such as lack of diversified export base, which makes it difficult for the country to adjust to changing world demand for tradable goods and changing production patterns. Public borrowing in itself is not bad—it becomes bad when it is unsustainable (when the government cannot service its debt or the debt crowds out key development expenditures) or when it is not used for development purposes. However, higher borrowing is often a symptom of a wider and deeper systemic crisis reflecting political and economic instability, especially if the debt was contracted to finance recurrent expenditure, as is the case in Zimbabwe.

Rationalizing of foreign currency by the Reserve Bank of Zimbabwe is affecting a lot of manufacturers that import materials for production. The lack of foreign currency coupled

TABLE 2.2

Structure of Zimbabwe's economy, 2009–16

Percent of GDP

Industry	2009	2010	2011	2012	2013	2014	2015	2016
Agriculture, hunting, fishing, and forestry	12.4	11.5	10.0	9.5	8.8	10.4	9.9	9.4
Mining and quarrying	6.7	8.0	8.5	8.1	8.6	7.9	8.0	8.6
Manufacturing	12.7	11.3	11.0	10.2	9.6	8.8	8.8	8.3
Electricity and water	3.3	3.4	3.2	2.8	2.8	2.8	2.6	2.0
Construction	1.6	1.6	2.3	2.5	2.5	2.5	2.6	2.7
Finance and insurance	6.8	6.4	6.0	6.7	7.1	7.3	5.8	7.0
Real estate	1.3	1.2	1.5	2.1	2.1	2.1	2.3	2.3
Distribution, hotels, and restaurants	14.4	13.6	12.2	11.2	11.1	10.8	11.3	12.0
Transport and communication	12.9	11.7	10.1	9.5	9.6	9.3	9.8	9.3
Public administration	3.9	4.7	7.3	9.0	8.6	9.0	9.1	9.7
Education	3.6	6.5	8.1	9.5	10.3	10.3	9.8	9.8
Health	0.8	1.3	1.8	2.1	2.2	2.4	2.7	2.8
Domestic services	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Other services	4.1	4.1	3.9	3.1	2.8	2.6	2.4	2.8

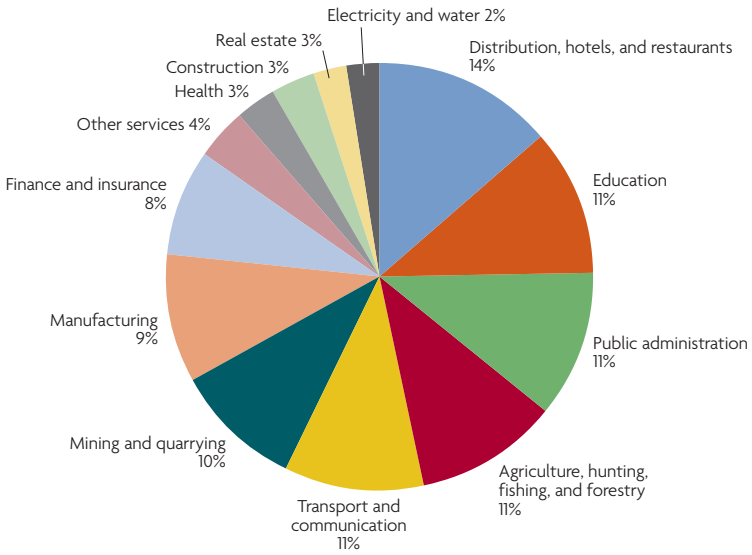
Source: ZIMSTAT national accounts data.

with high production costs has choked capacity utilization. The Zimbabwe Fertilizer Company, the country's largest manufacturer and supplier of fertilizers and agricultural chemicals, cannot meet domestic demand because of the lack of foreign currency to import raw materials. Most raw materials used in fertilizer manufacturing come from as far as the Middle East through Durban and Beira. Electricity is another major challenge because the national grid fails to supply enough electricity to sustain industry.

Unemployment in Zimbabwe is estimated at 7 percent, and 64 percent of the unemployed are male.[25] The share of informal employment in total employment increased from 80 percent in 2004 to 84.2 percent in 2011 to 94.5 percent in 2014.[26] Young people are the most affected because they have little labour market experience. In 2014 as much as 98 percent of young people ages 15–24 and 96 percent of young people ages 15–34 who were employed were in informal employment. The country has been unable to generate enough jobs for young, new entrants into the labor force. In addition, contracting agricultural output has disproportionately affected poor households, particularly

FIGURE 2.6

Zimbabwe's GDP by industry at current prices, 2016



Source: ZIMSTAT national accounts data.

in rural areas. The number of Zimbabweans in extreme poverty rose from 2.3 million in 2014 to 2.6 million in 2015 to 2.8 million in 2016 and is projected to continue rising.[27]

Many college graduates are unemployed, suggesting both limited job creation for these young entrants and a mismatch between skills and labor market demand. High youth unemployment is a potential source of instability and conflict. So generating employment, through the proposed Growth Identification and Facilitation Framework, is critical.

CHAPTER 3

Investment in Zimbabwe: alternative growth scenarios to 2030

With the aim of informing policymaking, this chapter explores the consequences of alternative scenarios for Zimbabwe's economy on standard economic indicators as well as some Sustainable Development Goal (SDG) indicators. The scenarios, which cover 2016–30, address the consequences of alternative levels of and priorities for government spending and resource mobilization (domestic and foreign).

The chapter first describes the model and database used to create the scenarios and briefly discusses Zimbabwe's economic and policy challenges as they relate to the model. It then presents the scenarios and summarizes the main findings. See appendixes B–D for details on the model structure, data, and additional results.

Model and database

SDGSIM is a recursive dynamic computable general equilibrium model designed for country-level analysis of medium- and long-run development policies with a focus on the SDG agenda.[28] The model comprises a set of simultaneous linear and nonlinear equations and is economywide, providing a comprehensive and consistent view of the economy, including the links among production and the income it generates, households, the government (its budget and fiscal policies), and the balance of payments. In each period, the different agents (producers, households, government, and the country in its dealings with the outside world) are subject to budget constraints: receipts and spending are fully accounted for—and by construction equal (as they are in the real world). The decisions of each agent—producers' objective is to maximize profits, and households' objective is to maximize utility—are made subject to these budget constraints. For example, households set aside part of their income to direct taxes and savings and allocate the remainder to utility-maximizing consumption. The real exchange rate and foreign financing adjust to ensure that the country's external accounts are in balance. Wages, rents, and prices play a crucial role by clearing markets for factors and commodities (goods and services). Domestic prices for internationally traded (exported or imported) commodities are influenced by international price developments. Because Zimbabwe is a small country, international markets are assumed to demand and supply exports and imports at world prices.

Over time, production growth is determined by growth in factor employment and growth in total factor productivity. Growth in capital is endogenous, depending on investment and depreciation. Growth in labor (disaggregated by skill) and natural resources (with sector-specific factors for agriculture and mining) is exogenous, reflecting projections based on available data. For labor, the projections reflect the evolution of the labor force age distribution, labor force participation rates, and the impact of expanded education. The unemployment rate for labor is endogenous. Growth in total factor productivity has two components: one that responds positively to growth in government infrastructure capital stock and one that, unless otherwise noted, is exogenous.

SDGSIM was adapted to the Zimbabwean context and calibrated to a newly constructed database for 2016, the most recent year with

sufficient data, and ensuring that the scenarios start with an economic structure that is close to today's.[29] It was calibrated through several iterations to obtain baseline growth trajectory, in this case to 2030, and additional controls were applied to establish alternative growth scenarios that consider alternative policies and shocks starting from 2019.

The basic accounting structure and much of the data required for SDGSIM are derived from a social accounting matrix. Most features are similar to those of social accounting matrixes for other models, but a social accounting matrix for SDGSIM has some nonstandard features that provide data for the explicit treatment of financial flows and different investment types (table 3.1). The required social accounting matrix disaggregation is often fine in areas related to the SDGs (such as labor and education).

Scenario analysis

The scenarios include a base scenario and seven counterfactual scenarios. The analysis treats 2018 as the base year and considers alternative scenarios for 2019–30.[30] The assumptions for the initial years ensure that the structural changes from 2016 to 2018 are limited.

Base scenario

The base scenario provides a business-as-usual picture of the evolution of Zimbabwe's economy to 2030 without major changes in economic policy. It serves as a benchmark of comparison for the results of the nonbase scenarios.

TABLE 3.1

Accounts used in disaggregation of the Zimbabwe SDGSIM model

Category	Item
Sectors (activities and commodities) (14)	Agriculture, forestry, and fishing
	Mining and quarrying
	Manufacturing
	Electricity and water supply
	Construction
	Financial intermediation
	Real estate and business activities
	Trade, hotels, and restaurants
	Transport and communications
	Public administration
	Education
	Health
	Domestic services
	Other services
Factors (6)	Labor, unskilled
	Labor, skilled
	Capital, private
	Capital, government
	Land
	Extractive resource

Category	Item
Distribution margins (3)	Margin, domestic
	Margin, imports
	Margin, exports
Taxes (4)	Tax, activities
	Tax, commodities
	Tariffs
	Tax, institutions incomes
Institutions, current account (4)	Household, rural
	Household, urban
	Government
	Rest of the world
Institutions, capital account (4)	Capital account, rural household
	Capital account, urban household
	Capital account, government
	Capital account, rest of the world
Investment (3)	Investment, nongovernment
	Investment, government
	Change in stocks

Source: SDGSIM Zimbabwe database.

The overall expansion of the economy is driven by growth in GDP at factor cost, which is exogenous for the base scenario (but not for the other scenarios). GDP growth estimates and projections for 2017–19 are based on AfDB (2018); over 2019–23 the growth rate increases until reaching the International Monetary Fund projection of 5.0 percent, which is maintained to 2030. For 2019–30, the average growth rate is thus 4.2 percent, or about 2.2 percent per capita.[31]

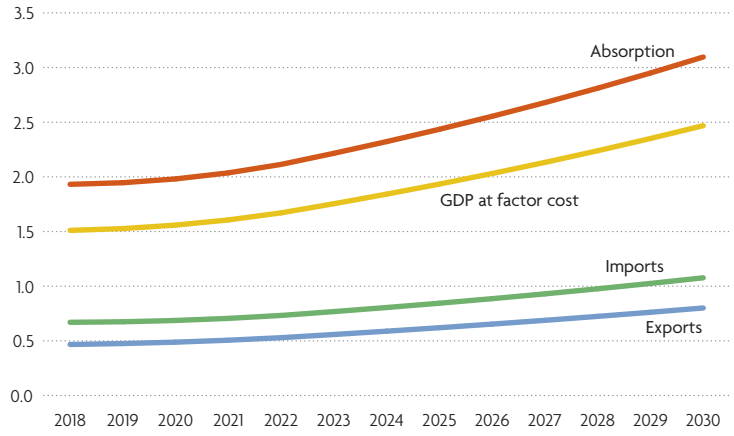
The macroeconomic assumptions for the base scenario mimic an unchanged economic policy environment subject to long-term debt sustainability, domestically for the government and externally for the government and the private sector. Most macro aggregates expand at the same pace as the economy. This is achieved by keeping rates fixed for taxes and by imposing exogenous and for the most part unchanged shares of GDP or absorption (total consumption and investment spending) for other items with macro significance, including investment (government and private, including foreign direct investment) and transfers payments involving the government or the rest of the world. For domestically financed private investment, the absorption share increases over time, bringing Zimbabwe close to the median for Africa. Given that domestic financing of the government relative to GDP declines at the same time, the household savings rate remains close to its initial level. (Foreign investment is self-financed from abroad while government investment is financed as part of the budget.) Balance between foreign exchange inflows and outflows is realized via a flexible real exchange rate, which influences both export and import quantities. The rate adjusts via changes in the domestic price level rather than the nominal exchange rate (reflecting the fact that Zimbabwe's economy is largely dollarized).[32] Depreciation of the real exchange rate at 0.6 percent a year is needed to maintain the external balance.

During 2019–30, the economy grows along a smooth path. Thanks to a persistent substantial trade deficit, absorption is well above GDP at factor cost (and to a lesser extent above GDP at market prices; figure 3.1)[33] Private (household) consumption is the largest component of domestic final demand (absorption) by a

FIGURE 3.1

Selected macro indicators for Zimbabwe under the base scenario, 2018–30

2016 $ trillion

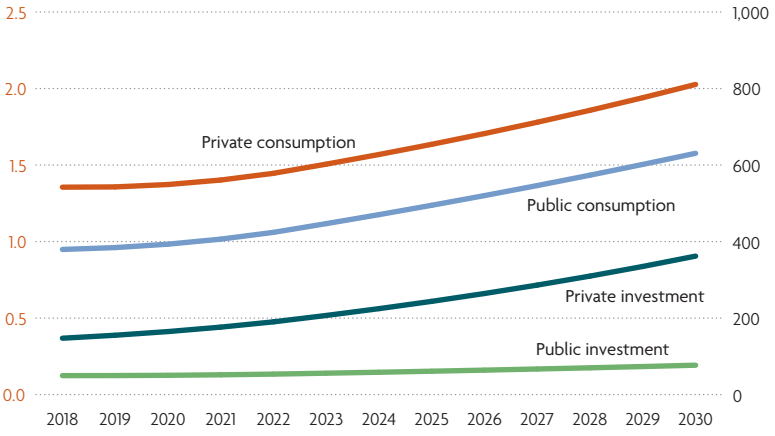


Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.2

Zimbabwe's domestic final demand under the base scenario, 2018–30

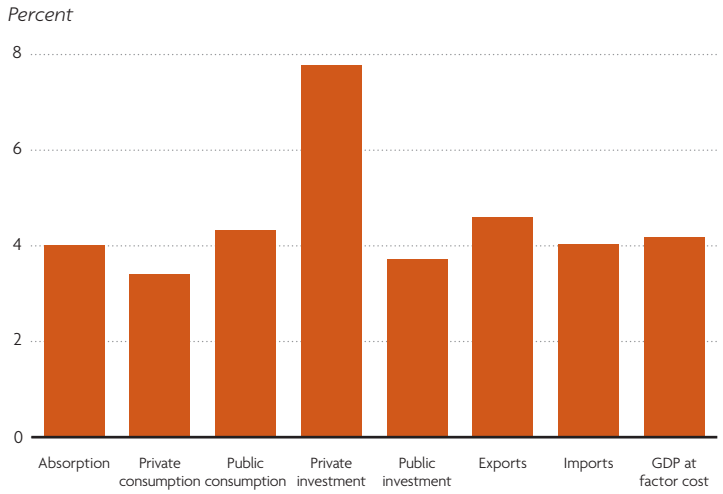
2016 $ trillion *2016 $ billion*



Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.3

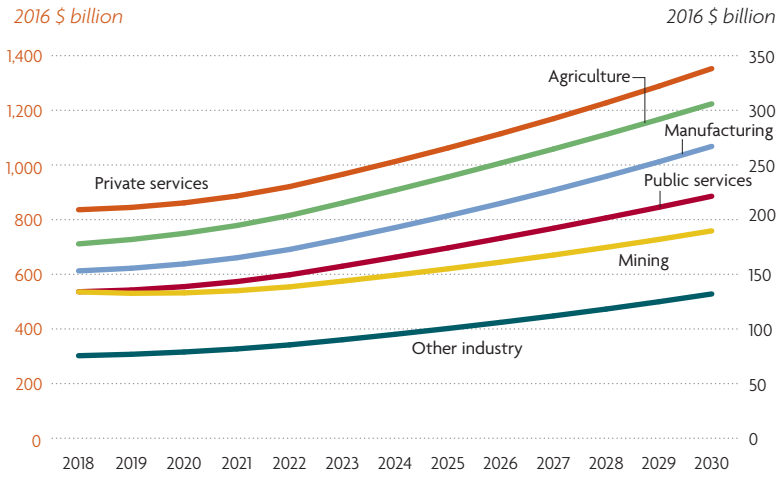
Annual growth of Zimbabwe's macro indicators under the base scenario, 2019–30



Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.4

Zimbabwe's aggregated sectoral GDP under the base scenario, 2018–30



Source: Authors' calculations based on results from simulations with SDGSIM.

wide margin, with public consumption a distant second (figure 3.2). Average annual growth is 3–5 percent for all macro aggregates except private investment for which it is close to 8 percent (figure 3.3). Slightly faster growth for exports than for imports reflects real exchange rate depreciation, needed for Zimbabwe to live within its balance of payments constraint in the context of a projected decline in mining export prices (3 percent a year for gold, Zimbabwe's main export, over 2018–30).[34]

Private services (which includes education and health) have the largest GDP by a wide margin (figure 3.4), followed by agriculture and manufacturing (see table C5 for detailed sector data). Annual growth is even (4–5 percent) for all sectors except mining, which grows slower, partly because of the downward trend in export prices (figure 3.5). Similarly, among exports, mining has the lowest growth (a slight decline) while growth in other sectors is in the range of 4–6 percent (figure 3.6). (Exports account for a large share of output for agriculture, mining, and manufacturing; see table 1.4 in chapter 1).

Given population growth of 2 percent a year, aggregate household consumption growth of 3.4 percent translates to growth per capita of around 1.3 percent—or a 17 percent increase per capita between 2018 and 2030 (figure 3.7).[35] Growth in consumption per capita is 1.9 percent a year for rural households and 1.0 percent for urban households—or a 25 percent increase between 2018 and 2030 for rural households and a 13 percent increase for urban households. The main reason that income per capita grows more rapidly for rural households is a large share of their income is agricultural land rents, which grow faster than other factor incomes. The change in the national poverty rate is driven by the change in national private consumption per capita: between 2018 and 2030, the poverty rate declines by 6.7 percentage points (figure 3.8).[36]

Nonbase scenarios

The nonbase scenarios explore the economic impact of scaled-up investment in infrastructure that helps the country close its infrastructure gap. The scenarios differ in the level of

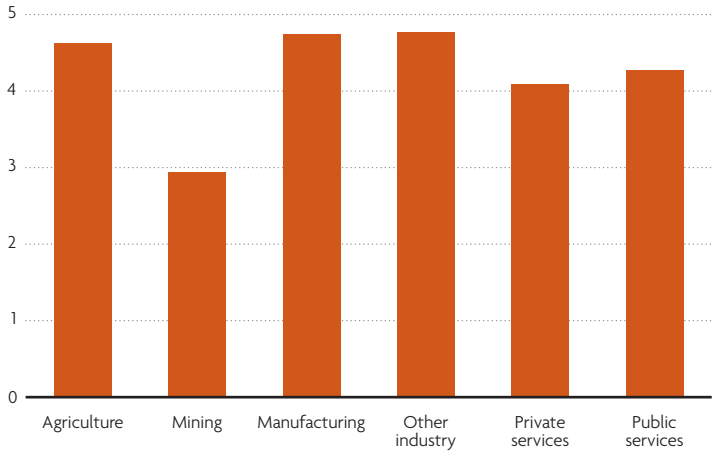
infrastructure investment expansion, the marginal product of new infrastructure capital, its sectoral targeting (reflected in a higher total factor productivity in one or more production activities), and how the extra spending is financed (table 3.2). Assumptions in nonbase scenario 1 are referred to as the central case, and other assumptions are referred to as alternative cases.

All nonbase scenarios deviate from the base scenario starting in 2019—in the absence of any new shocks, the results for 2017 and 2018 are always identical to the base (figures 3.9–3.13). All nonbase scenarios assume that GDP is endogenous and that private savings (more specially the part that is domestically financed) drive private investment (instead of letting private investment drive savings, as in the base scenario, with private investment defined as a share of absorption). This means that, other things being equal, an increase in household income translates to increases in private savings, private investment spending, private real investment, private capital stocks, and GDP. But the precise link among changes in investment spending, real investment (the investment quantity), and change in the capital stock depends on how prices change. Public investment is a policy tool that is covered in the government budget. Across the nonbase scenarios, real government consumption and real government investment in noninfrastructure both follow the base trajectory (in real quantities). Real government investment in infrastructure is changed as part of the scenarios. Except for factor income outflows (primarily profits due to past foreign direct investment), nontrade payments to and from the rest of the world (financing and transfers) are the same as under the base scenario (measured in foreign currency). As a result, except for the scenarios in which infrastructure is financed from abroad, the changes in Zimbabwe's net foreign assets are uniform and the same as under the base scenario.

FIGURE 3.5

Annual growth of Zimbabwe's sectoral GDP under the base scenario, 2019–30

Percent

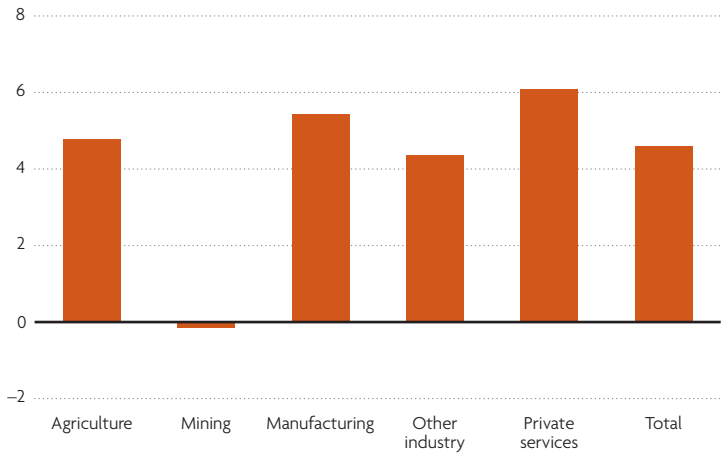


Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.6

Annual growth of Zimbabwe's sectoral exports under the base scenario, 2019–30

Percent

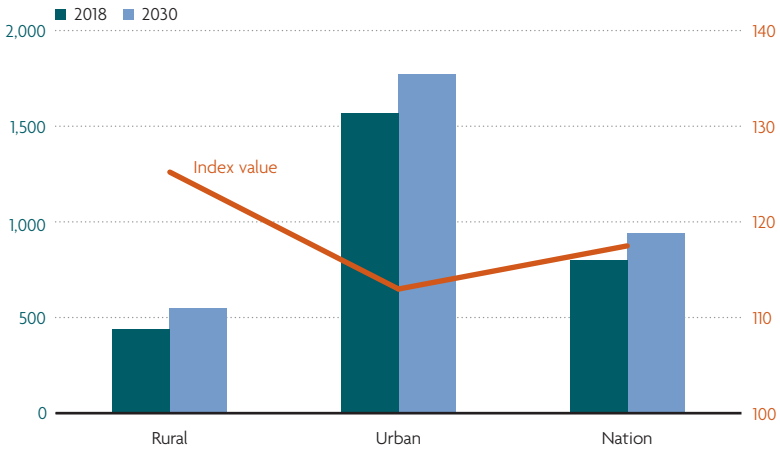


Source: Authors' calculations based on results from simulations with SDGSIM.

It is possible to implement investment packages that have a relatively uniform impact across all sectors, including areas such as roads, mobile phone networks, and electricity access, all of which benefit the economy broadly

FIGURE 3.7

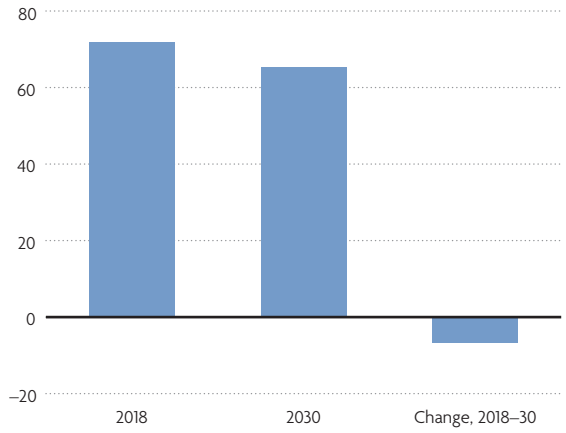
Zimbabwe's household consumption per capita under the base scenario, 2018 and 2030



Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.8

Zimbabwe's poverty rate under the base scenario, 2018 and 2030



Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE 3.2

Definitions of nonbase scenarios

	Name	Sector targeting	Marginal product of new infrastructure capital	Marginal government revenue source	Investment expansion (% of GDP[a])
1	Central case (*all-30-tx+3*)	All	0.30	Domestic taxes	3
2	Foreign financing (*all-30-ff+3*)	All	0.30	*Foreign financing*	3
3	Low marginal product of new investment (*all-00-tx+3*)	All	*0.00*	Domestic taxes	3
4	High marginal product of new investment (*all-60-tx+3*)	All	*0.60*	Domestic taxes	3
5	Focus on tradables with low marginal product of new investment (*trd-30-tx+3*)	*Traded*[b]	0.30	Domestic taxes	3
6	Focus on tradables with high marginal product of new investment (*trd-60-tx+3*)	*Traded*[b]	*0.60*	Domestic taxes	3
7	Stronger infrastructure investment expansion (*all-30-tx+6*)	All	0.30	Domestic taxes	*6*

a. Refers to the value of the real investment expansion under base scenario GDP and prices.

b. Refers to agriculture, manufacturing, and trade, hotels, and restaurants (including tourism), all of which are highly traded and employment generating.

Note: Italics indicate assumptions that differ from those in nonbase scenario 1.

Source: Estimated from SDGSIM simulation files.

(albeit still with different impacts across sectors for a specific investment). By contrast, sector targeting may be narrower, as with investment in irrigation or in industrial zones that facilitate export-oriented manufacturing. In the central case, the impact is uniform across all sectors, and in the alternative case, the country's major labor-absorbing export sectors —agriculture, manufacturing, and the trade, hotels, and restaurants sector—are targeted.

Assessments of the marginal product of public capital vary widely, as they do in the real world, because of differences in government investment management record and infrastructure capital stock scarcity. The central case uses a marginal product of 0.30, which translates, other things being equal, into a direct GDP increase (because of the gain in total factor productivity) of $0.30 for every $1 of new capital stock. However, the total impact differs because of the effects of the GDP changes in selected sectors on prices, incomes, production, and trade throughout the economy and because of the repercussions of creating the fiscal space needed for the investment.[37] In the absence of sufficient continued investment, the gain declines over time because of depreciation. In relative terms, the gain from one unit of capital becomes less significant as time passes if total factor productivity increases for other reasons (including the trend imposed under the base simulation). Alternative simulations consider marginal products of 0.60 and 0. With a marginal product of 0, the investment has a negative impact on economic indicators because it absorbs resources without producing benefits.[38] While targeted investment may yield higher returns when they are at a smaller scale, it may be difficult to scale them up without facing diminishing returns—that is, for a large scale-up of investment spending, the marginal product of new infrastructure capital may be higher if the targeting is broad. Technically, the marginal product of new infrastructure capital (0.30 for the central case) is allocated across targeted sectors on the basis of their 2016 GDP shares—that is, for any given marginal product, the broader the sectoral focus, the smaller the relative total factor productivity and GDP gains in any individual sector. If the marginal product is zero, targeting is irrelevant.

The models consider two sources for meeting marginal government revenue needs from investment expansion: domestic taxes (by scaling of all direct and indirect tax rates, not including trade taxes) and foreign financing (government borrowing net of interest payments). The more positive the growth impact of the investment expansion, the smaller the need for additional government revenue—if strong enough, the investment expansion could pay for itself and generate a decline in taxes or foreign financing.

Finally, real investment expansion is measured relative to GDP using base scenario prices and introduced gradually. Two expansions are considered: 3 percent and 6 percent of GDP. For 3 percent expansion, the additional public investment value amounts to 1 percent of the base scenario GDP in 2019, 2 percent in 2020, and 3 percent in 2021–30, which may be compared to simulated infrastructure investment of 1.5 percent of GDP in 2018—so infrastructure investment grows very rapidly during 2019–21 and at a speed similar to or somewhat slower than the rest of the economy. The case of 6 percent expansion is constructed the same way, but the real additions to infrastructure investment amount to 2 percent of base scenario GDP in 2019, 4 percent in 2020, and 6 percent in 2021–30.

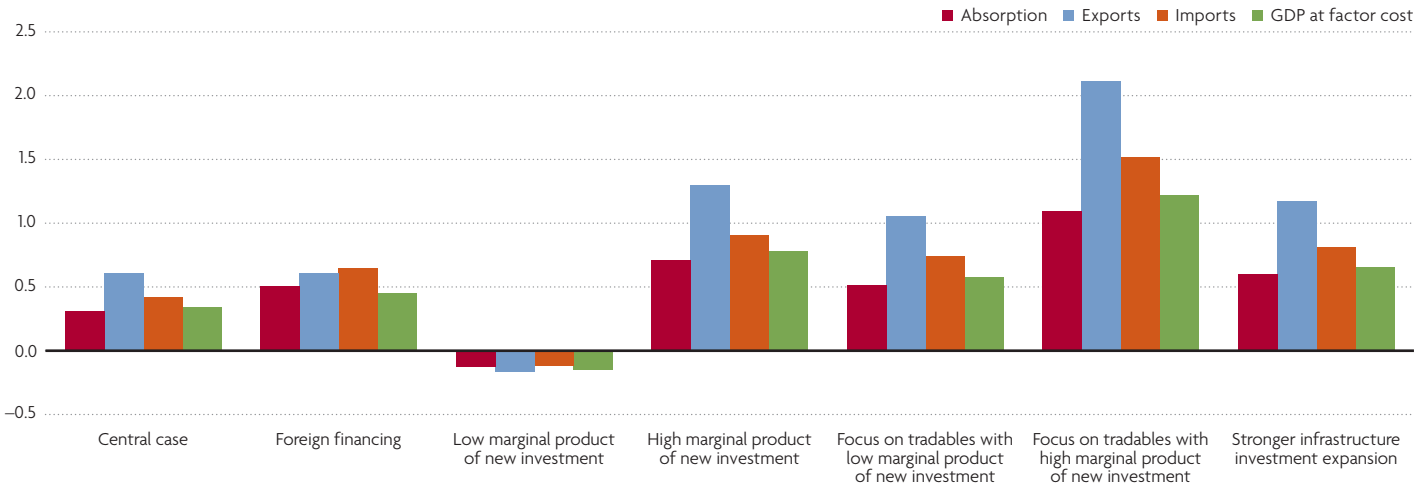
The central case: infrastructure investment expansion

Under the central case scenario (*all-30-tx+3*), the government undertakes a tax-financed expansion of infrastructure investment that amounts to 3 percent of GDP and for which

FIGURE 3.9

Deviation of Zimbabwe's absorption, GDP, and trade growth from the base scenario, by nonbase scenario

Percentage points



Source: Authors' calculations based on results from simulations with SDGSIM.

the resulting new capital stock has a marginal product of 0.30.

The growth rates for absorption and GDP at factor cost increase by roughly 0.3 percentage point (see figure 3.9).[39] Given the trade deficit and the absence of accelerated growth for the foreign exchange inflows that finance it, export growth has to increase relative to import growth, a trend that is encouraged by a slight increase in depreciation compared with the base scenario (see table D1 in appendix D). Aggregate public investment growth increases by more than 6 percentage points compared with the base scenario, while private consumption growth gains only 0.1 percentage point and private investment gain is even more marginal (see figure 3.10). By assumption, growth in real government consumption is the same as in the base scenario.

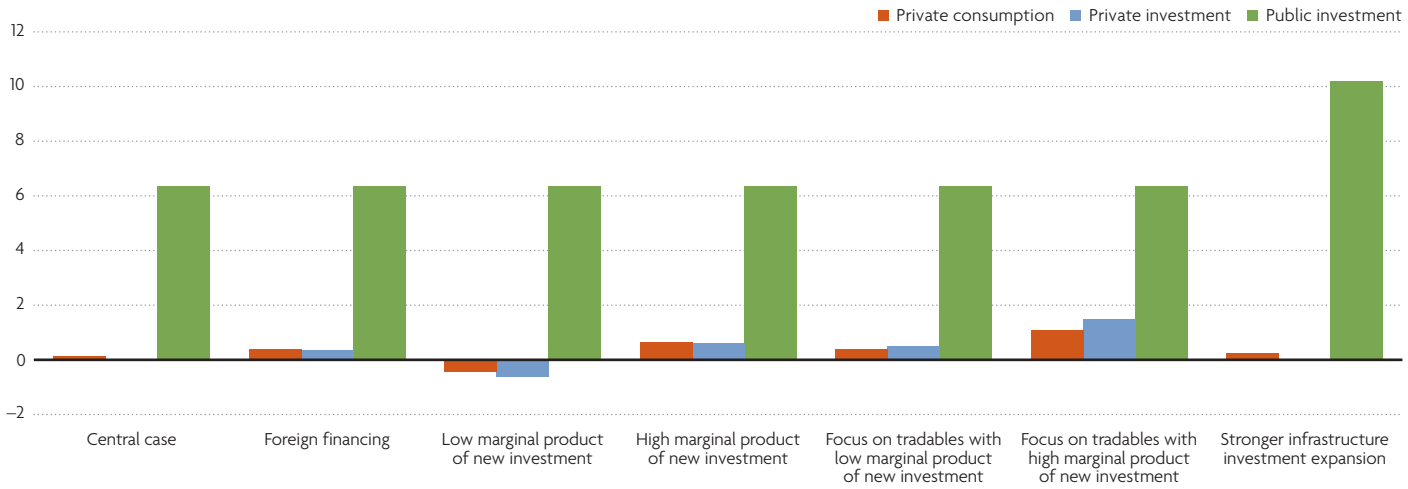
The increased government tax revenue needed to finance the investment expansion peaks in 2021, when the total tax burden as a share of GDP increases by 2.7 percentage points compared with the base scenario, to 23.1 percent. However, over time, the increased GDP growth translates into an increased government revenue, which gradually reduces the need to tax (relative to GDP). By 2030, the burden declines to 22.4 percent of GDP, 1.6 percentage points above the 20.8 percent in the base scenario. From a different angle, if in 2030 the government reduces its infrastructure investment to the GDP share in 2030 under the base scenario (2.9 percent) and cut taxes, private consumption increases by close to 4 percentage points (from 72.0 percent of GDP to 75.9 percent), raising annual growth by nearly 0.5 percentage point compared with the base scenario.

GDP growth accelerates by 0.5–0.7 percentage point compared with the base scenario for all sectors except private services, which are relatively nontraded (compare sector export–output and import–demand ratios in table 1.4. As a result, private services suffer from real depreciation and grow only about 0.2 percentage point compared with the base scenario (see figure 3.11). The gain in export growth is uniform across sectors, though the importance of the growth varies according to each sector's export–output ratio (see figure 3.12).

FIGURE 3.10

Deviation of Zimbabwe's consumption and investment growth from the base scenario, by nonbase scenario

Percentage points



Source: Authors' calculations based on results from simulations with SDGSIM.

The 0.1 percentage point gain in private consumption growth means that in 2030, consumption per capita is just 1.5 percent above the level in the base scenario (see figure 3.13). Consumption per capita declines from 2019 to 2021 and does not exceed the level in the base scenario until 2027. This trajectory is influenced strongly by the increase in taxation, which peaks in 2021 and declines gradually thereafter.

Foreign financing

The foreign financing scenario (*all-30-ff+3*) deviates from the central case in one respect: marginal revenue adjustments come through foreign financing instead of domestic taxes. The change in net foreign financing (government borrowing net of government interest payments) compared with the base scenario and the central case (which has the same foreign financing as the base scenario) follows the pattern of the tax change, peaking in 2021 at 2.3 percent of GDP and declining to 1.1 percent by 2030. Foreign government debt is 58 percent of GDP in 2030 (assuming that the government borrows at a real interest rate of 2 percent) for the foreign financing scenario (but is no longer increasing by 2030), compared with 48 percent in 2018 for all scenarios and 45 percent in 2030 for the base scenario (see table D2 in appendix D).

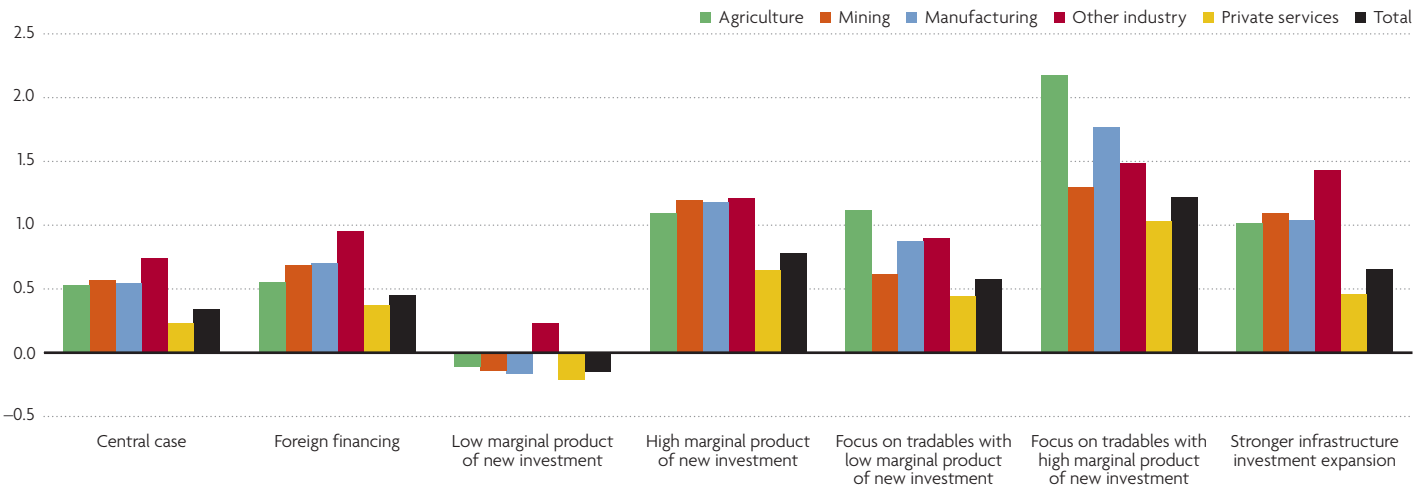
While debt increases, growth is higher because domestic resources are not diverted from private investment. Growth in absorption, GDP, private consumption, and private investment is 0.4–0.5 percentage point higher compared with the base scenario and 0.1–0.2 percentage point higher compared with the central case (see figures 3.9 and 3.10). The gains are facilitated by more rapid import growth. In sectors other than government services, GDP growth rates are also 0.1–0.2 percentage point above those for the central case, whereas in exports, growth rates are very close to those in the central case (see figures 3.11 and 3.12).

In addition to a 4.5 percent gain in private consumption in 2030 compared with the base scenario, the switch from taxes to foreign

FIGURE 3.11

Deviation of Zimbabwe's sectoral GDP growth from the base scenario, by nonbase scenario

Percentage points

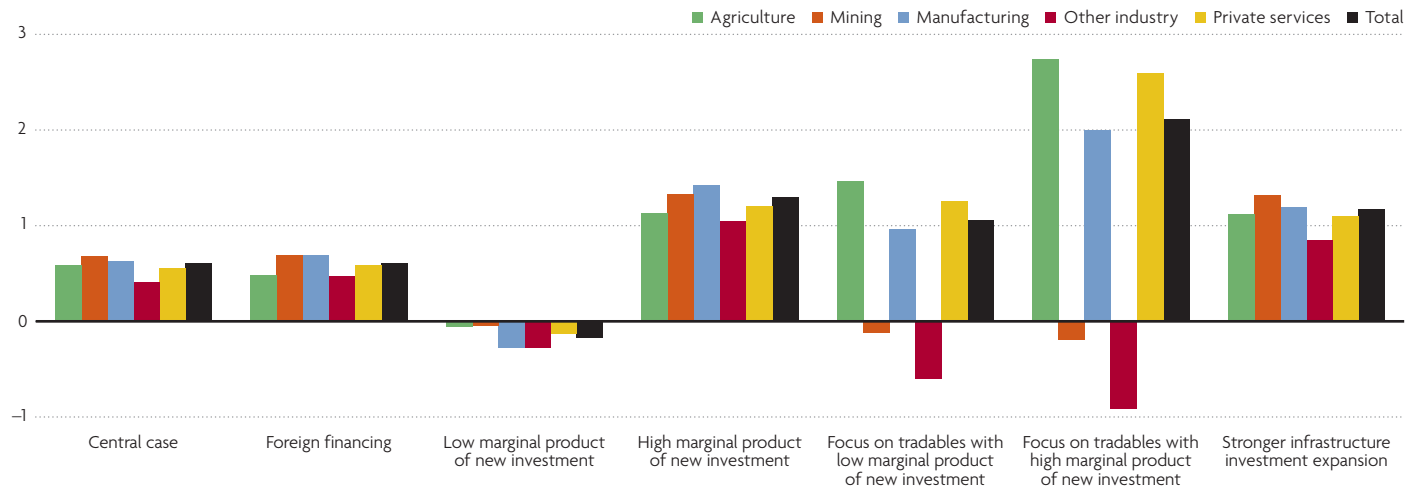


Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.12

Deviation of Zimbabwe's sectoral exports growth from the base scenario, by nonbase scenario

Percentage points



Source: Authors' calculations based on results from simulations with SDGSIM.

financing also has a noticeable impact on the path to 2030 (see figure 3.13): private consumption is above the level in the base scenario throughout period 2019–30 thanks to higher GDP and real exchange rate appreciation.

Low and high marginal products of new investment

The next two scenarios explore the role of the marginal product of new infrastructure investment, considering the cases of marginal

product at zero (*all-00-tx+3*) and at 0.60 (*all-3-tx+3*). Otherwise they are identical to the central case scenario. (For the case of a zero marginal product, sector targeting is irrelevant.)

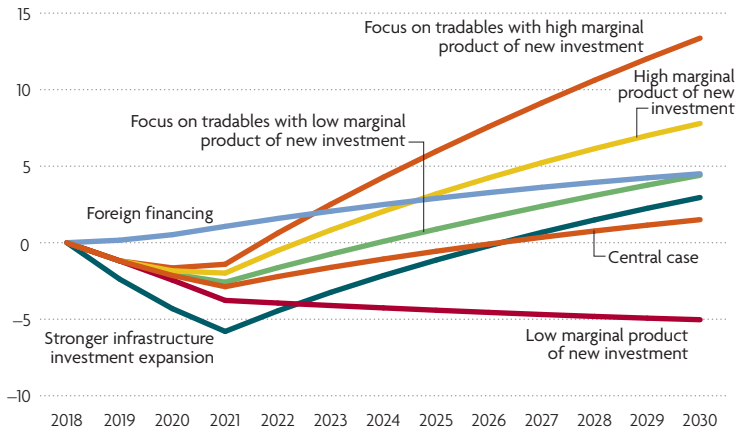
A zero marginal product reduces the absorption, GDP, and trade growth rates by 0.1–0.2 percentage point compared with the base scenario (see figure 3.9). In absorption, the increase is public investment is the same as for the central case, which in the context of lower GDP growth requires a 0.4–0.6 percentage point decline in private consumption and investment growth (see figure 3.10). The decline in private demand is brought about by a gradual increase in the tax burden, which in 2030 reaches close to 24 percent of GDP (compared with 22 percent for the central case). Private consumption (total and per capita) in 2030 is 5 percent lower than in the base scenario and 6.5 percent lower than in the central case scenario (see figure 3.13). Growth in other industry (which includes the construction sector) is 0.2 percentage point higher compared with the base scenario but 0.1–0.2 percentage point lower in other sectors, with the largest loss in private services that depend on growth in domestic demand.

The picture is very different a marginal product of new infrastructure investment of 0.60. GDP, absorption, and trade growth rates, private consumption, and private investment are 0.4–0.7 percentage point higher compared with the central case (see figures 3.9 and 3.10). GDP and export growth are in the same range across sectors, with the strongest gains for tradable sectors (agriculture, mining, and manufacturing) (see figures 3.11 and 3.12). The initial increase in the tax burden is similar to that in the central case but declines more rapidly: by 2030, it is only 0.2 percent above the level in the base scenario. Thanks to more rapid growth, private consumption reaches the level in the base scenario by 2023 and exceeds it by more than 8 percent by 2030 (compared with only 1.5 percent in the central case; see figure 3.13).

FIGURE 3.13

Deviation of Zimbabwe's private consumption per capita from the base scenario, by nonbase scenario, 2018–30

Percent



Source: Authors' calculations based on results from simulations with SDGSIM.

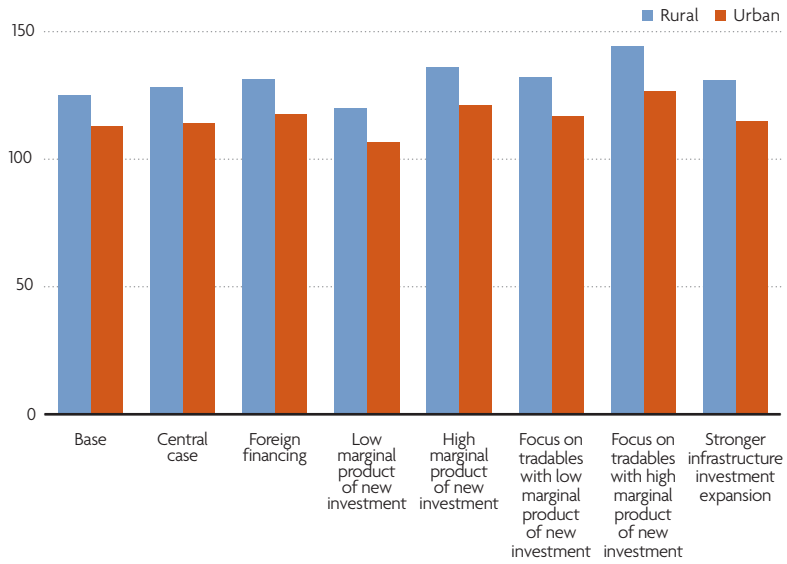
Focusing on tradables

Instead of the broad sector focus of the preceding simulations, infrastructure investment may be designed to meet the needs of sectors that seem more attractive due to export potential (making them less constrained by domestic demand growth), import substitution, employment creation, and diversification. A narrower focus might make it possible to maintain a higher marginal product for limited scale-up of investment but might be more difficult for a larger increase. The focusing on tradables with low marginal product of new investment scenario (*trd-30-tx+3*) is identical to the central case except that productivity gains are limited to agriculture, manufacturing, and trade, hotel, and restaurant services (which include tourism). These three sectors account for the bulk of employment, exports, and imports (in 2018, the simulated shares are 84 percent, 80 percent, and 82 percent, respectively) but a much smaller share of value added (38 percent).

FIGURE 3.14

Rural and urban household consumption per capita in Zimbabwe

Index (2018 = 100)



Source: Authors' calculations based on results from simulations with SDGSIM.

Growth in GDP, absorption, and private consumption is 0.2 percentage point higher and investment growth is as much as 0.4 percentage point higher in the focusing on tradables with low marginal product for new investment scenario (*trd-30-tx+3*) than in the focusing on tradables with high marginal product for new investment scenario (*all-30-tx+3*). Moreover, compared to the latter scenario, boosting productivity for tradables reduces real depreciation (see table D1 in appendix D), raising domestic purchasing power and lowering the price of new capital (because manufactured goods are the main component in new capital; see figures 3.9 and 3.10). GDP growth gains are particularly strong for agriculture and manufacturing and for the trade, hotels, and restaurant sector; the same patterns apply to exports (see figures 3.11 and 3.12). The strong growth gain means that the economy can better benefit from the total factor productivity gain. It is related to the fact that these sectors are less constrained than others by a limited domestic market, which reduces prices and profitability in the face of total factor productivity–driven supply expansions. In 2030, private consumption is the same as in the foreign financing scenario and almost 3 percentage points higher than in the central case. However, because of the effect of taxation, private consumption is below the level in the base scenario during 2019–23 (see figure 3.13). In 2030, the tax burden is 22.3 percent of GDP, marginally above the central case.

To explore the impact of greater success in identifying high-productivity trade-focused investment projects, the scenario with a higher marginal product of new infrastructure capital, 0.60 (*trd-60-tx+3*) was implemented; it is otherwise identical to the preceding scenario (*trd-30-tx+3*) It may also be compared to the high marginal product of new investment scenario, which does not have a specific sector focus. Compared with the preceding scenario, the gains are all roughly twice as large for absorption, GDP, and trade growth (see figures 3.9, 3.11, and 3.12) and close to three times as large for the private final demands—private consumption and private investment—that respond to changes in prices and incomes (see figure 3.10). Private consumption reaches the level in the base scenario by 2023 and exceeds it by more than 13 percent in 2030 (see figure 3.13). The tax burden in 2030 is only 0.3 percent of GDP above the level in the base scenario (see table D3 and appendix D).

Stronger infrastructure investment expansion

The stronger infrastructure investment expansion scenario (*all-30-tx+6*) is the same as the central case except infrastructure investment expansion is 6 percent of base GDP. The stronger expansion adds to the challenge of identifying and managing a larger investment project portfolio without sacrificing productivity gains.

Gains in absorption, GDP, and trade growth (including at the sectoral level) are almost double those in the central case (see figures 3.9, 3.11, and 3.12). The gains for GDP and absorption growth increase from 0.3–0.4 percentage point to 0.6–0.7. But among domestic final demand, only public investment registers a substantial growth boost. The gains in private final consumption remain small, including larger initial losses (6 percent in 2021), but reach the base by 2027 and exceed it by 3 percent in 2030 (see figures 3.10 and 3.13).

Rural and urban consumption, poverty, and employment

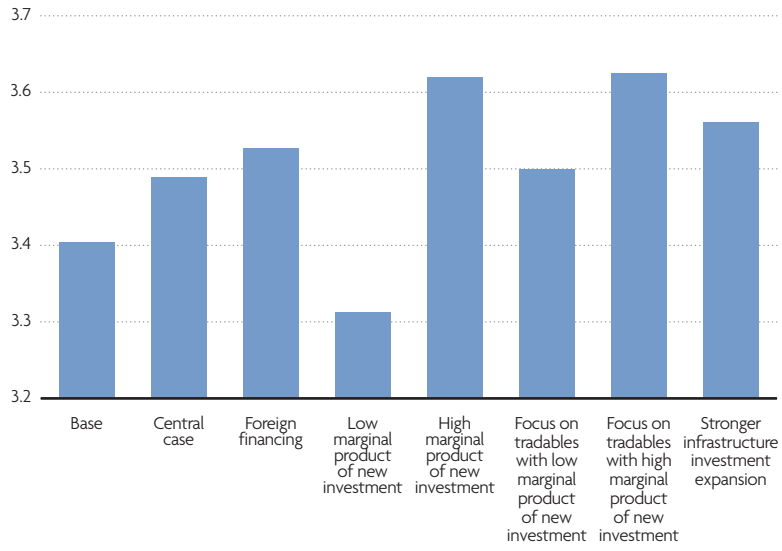
As indicated in the discussion of the base scenario, rural households gain relative to urban households because of the importance of land rents in their income flows: the exogenous annual growth rate for agricultural land use is 1 percent, below the rate of labor and capital stock growth. In terms of consumer price index income growth, land rental income grows at 6 percent a year while other factors grow 3–4 percent. The stronger rural gains reduce average urban–rural consumption inequality: rural consumption increases from 28 percent of urban consumption in 2018 to 31–32 percent in 2030 (figure 3.14).

Job creation and unemployment reduction are major items on the policy agenda of most countries, and labor is the main income source for many poor people. In the scenarios, the unemployment rate invariably declines (see table D1 in appendix D), reflecting the fact that the labor force (and the population in the labor force age group) grows 2.8 percent a year while employment grows 3.3 percent a year or more (figure 3.15). Employment growth and unemployment reduction are strongly correlated with GDP growth: the correlation coefficient between GDP growth and employment growth is 0.94.[40] The only deviation from a perfect

FIGURE 3.15

Average annual growth in Zimbabwe's employment, by scenario, 2019–30

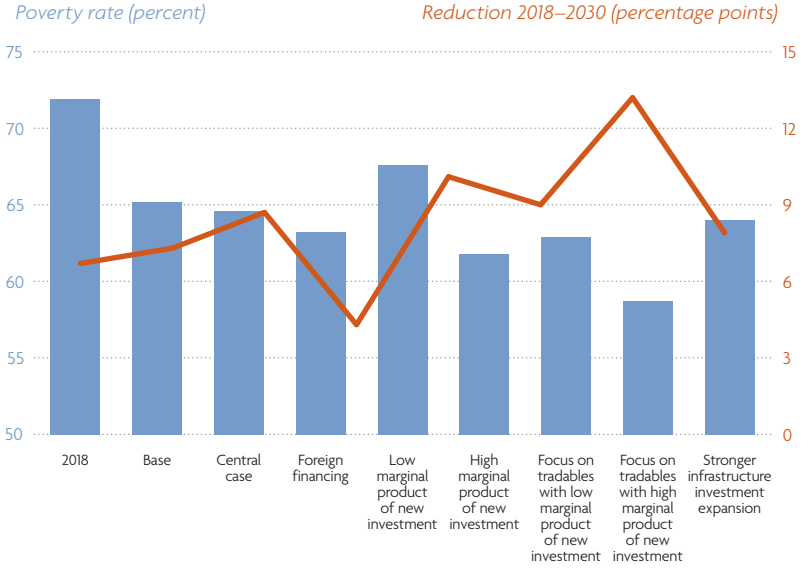
Percent



Source: Authors' calculations based on results from simulations with SDGSIM.

FIGURE 3.16

Zimbabwe's national poverty rate, by scenario, 2018 and 2030



Source: Authors' calculations based on results from simulations with SDGSIM.

correlation is that for the focusing on tradables with low marginal product of new investment scenario, employment growth is higher than for the foreign financing scenario despite slightly lower GDP growth. (The deviation is the same for poverty reduction.) This suggests that a focus on tradables has a strong payoff in job creation and poverty reduction relative to GDP growth.

By definition, the ranking of scenarios by poverty reduction matches the ranking by growth in household consumption per capita. All scenarios with a positive marginal product for infrastructure capital reduce poverty compared with the base scenario (figure 3.16).

Conclusion

This analysis offers a macro and economywide perspective of scaled-up infrastructure investment in Zimbabwe, highlighting the broader repercussions of micro and sector-level actions by producers, households, and the government. The results give a numerical sense of the consequences of different investment programs in terms of productivity gains (high or low), revenue sources (taxes or foreign borrowing), sector focus (spreading benefits across all sectors or focusing on tradables), and scale (expansions of 3 percent or 6 percent of GDP). The differences across the scenarios in GDP growth, household consumption, and poverty point to the importance of strong public investment management and, other things being equal, of targeting total factor productivity gains to tradable sectors.

The scenarios assume that the government finances the investment program, but in the real world, involving the private sector and considering other financing mechanisms may be beneficial. However, the bulk of the macroeconomic issues raised in this analysis would remain relevant. Finally, while closing the infrastructure gap may be necessary for accelerated progress in Zimbabwe, it is not sufficient: to benefit and become competitive, firms need access to the right inputs (human and other) as well as an enabling policy and institutional environment. In this regard, lessons from policymaking in other parts of the world can offer ideas for adaptation to Zimbabwe's realities.

PART 2

Targeted policies for growth and job creation

CHAPTER 4

Zimbabwe's medium-term options

For developing countries whose economies depend heavily on natural resources, it is critical to apply the rents generated from natural resources to facilitate diversification to other non-resource-based industries. Many developing countries have abundant land and resources, so they are primary product exporters in the first stage of their development. To upgrade their industrial structure, they must first close the endowment gap with advanced industrial countries by investing in human and institutional (intangible) capital and physical infrastructure.

The strategy to get there is to follow a country's comparative advantage at each stage of development. When firms enter industries and adopt technologies that are consistent with the country's comparative advantage, the economy is most competitive. These firms will claim the largest possible market shares and create the greatest possible economic surplus. Because the industries are so competitive, reinvested surpluses earn the highest return, which allows the economy to accumulate even more physical and human capital over time. This dynamic can lead to a virtuous circle: it can upgrade the country's factor endowment structure as well as the industrial structure and make domestic firms more competitive in more capital- and skill-intensive products over time. China, the Republic of Korea, and many other countries have been following their comparative advantages (box 4.1).

Priority sectors should be compatible with a country's endowment structure and comparative advantages. But identifying growth pillars or sectors is challenging, as economic theories provide few clues for determining which industries are "right" and which are "wrong." As one analyst cautions, "[t]he first problem for the government in carrying out an industrial policy is that we actually know precious little about identifying … a 'winning' industrial structure. There does not exist a set of economic criteria that determine what gives different countries preeminence in particular lines of business."[41]

A pragmatic process for identifying growth pillars is to analyze latent comparative advantage, defined as the "comparative advantage of an economy that is embedded in the factor costs of production to be determined by the economy's endowment structure."[42] Latent comparative advantage could lie in a new industry that is not yet successful in today's economy, most likely because of high transaction costs, logistics, or other poor business conditions. If these conditions are improved, the economy could be competitive in the world market in this industry.

The Growth Identification and Facilitation Framework provides a practical guide for identifying a country's latent comparative advantage—or what it could potentially do well (box 4.2).

BOX 4.1

From a commodity exporter to a manufacturing powerhouse: China's economic transformation

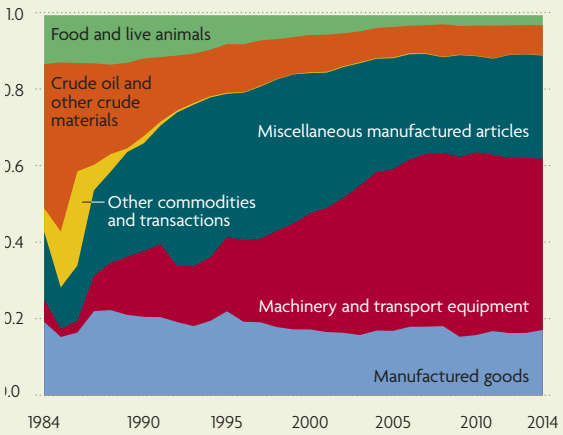
China was a primary product exporter in the late 1970s and early 1980s, when its income per capita was less than a third of the average of Sub-Saharan African countries. China had abundant land and labor, but capital was scarce. Exports were concentrated in resource-intensive raw materials and primary products, such as crude oil, crude coal, minerals, and food and vegetables. Until 1984, crude oil and agricultural products accounted for more than half of China's exports (see figure 1).

After 40 years of gradually opening up and reforming, China has transformed its natural capital into produced and human capital as well as intangibles. China followed its comparative advantages by initially engaging in labor-intensive light manufacturing and then upgrading, allowing rural people access to jobs in urban areas (see figure 2). Opening to foreign direct investment through special economic zones allowed the transfer of technology and tacit knowledge through learning by doing and learning by exporting. Manufactures now account for 98 percent of exports, and China is integrated with the world's most important supply chains.[1]

China's transformation is attributable in part to continuing domestic investment and opening to foreign direct investment in its endowment structure. With annual savings of around 40 percent of GDP and dramatic improvement in education, China's endowment of human, physical, and financial capital has grown significantly. Indeed, the composition of assets in national wealth has changed dramatically. The share of natural capital fell from 34 percent in 1995 to 25 percent in 2005 to 14 percent in 2014,[2] while the share of produced capital and intangible and human capital increased. Most important, China's technological capabilities have benefited from learning by importing, learning by exporting, and adopting foreign technologies of production and mastering their use, reflecting the importance of learning by doing[3] and of tacit knowledge transmission in economic growth.

FIGURE 1

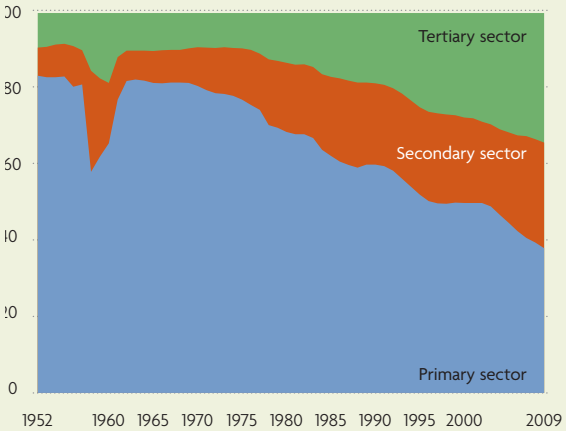
China's rapid transformation in export structure: following the comparative advantage



Source: Lin and Wang (2008), updated based on UN Comtrade data.

FIGURE 2

The employment structure transformed more slowly



Source: Lin and Wang (2008), updated based on UN Comtrade data.

Notes

1. Lin and Wang 2008.
2. Lange, Wodon, and Carey 2018.
3. Greenwald and Stiglitz 2013.

BOX 4.2

The Growth Identification and Facilitation Framework

The six-step Growth Identification and Facilitation Framework can help policy makers in developing countries identify industries with latent comparative advantage and facilitate competitive private sector development:

- *Choosing the right target.* Policy makers should select as comparator countries dynamically growing countries with a similar endowment structure to their own and with about 100 percent higher incomes per capita measured in purchasing power parity or those with similar incomes per capita 20 years ago. They should then identify tradable goods and services that have grown well in those countries for the past 15–20 years. These are likely to be new industries in their own countries that are consistent with their country's latent comparative advantage, as countries with similar endowments are likely to have similar comparative advantage. A fast-growing country that has produced certain goods and services for about 20 years will begin to lose its comparative advantage as wages rise, leaving space for countries with lower wages to enter.
- *Assessing domestic private firms' capacity and production costs.* Private domestic firms that are present in those industries will need tacit knowledge to lower costs and be competitive.[1] Policy makers should identify the obstacles that prevent these firms from upgrading their products and the barriers that limit entry by other firms and then implement policies to remove the constraints and facilitate entry.
- *Attracting global investors.* For industries in which no or only a few domestic firms are present, policy makers should try to attract foreign direct investment from the countries identified in step 1 or from other higher income countries producing those goods. Foreign investors could bring in the general and tacit knowledge about a product's design, production technology, supply chain, and distribution channels. The government should also set up incubation programs to encourage startups in these industries.
- *Scaling up self-discoveries.* In addition to the industries identified in step 1, the government should pay attention to spontaneous self-discovery by private enterprises and support the scaling up of successful private innovation in new industries. Rapid technological change may give rise to new opportunities that would not have existed a decade or two earlier in the rapidly growing comparator countries. Examples include mobile phones and related e-services, social media, and green technologies.
- *Recognizing the power of industrial parks.* In countries with poor infrastructure and an unfriendly business environment, the government can set up special economic zones or industrial parks to reduce barriers to firm entry and foreign investment. These zones can create preferential business environments that most governments, constrained by low budgets and capacity, are unable to implement quickly economywide. Establishing industrial parks or zones can also facilitate sustainable and green industrial clusters and reduce production and transaction costs.
- *Providing limited incentives to the right industries.* Policy makers can compensate pioneer firms in the industries in which the country has a latent comparative advantage with time-limited tax incentives, co-financing for investments, and access to foreign exchange to compensate for the externalities created by first movers and to encourage firms to form clusters. Because the identified industries are consistent with the country's latent comparative advantage, the incentives should be limited in both time and cost. To prevent rent-seeking and political capture, governments should avoid incentives that create monopoly rents, high tariffs, or other distortions. Moreover, incentives should be linked to performance and be continuously evaluated against stated objectives.[2]

Notes

1. Hausmann 2013.
2. Lin 2012b.

Source: Lin and Monga 2010, 2011.

CHAPTER 5

Choosing the right target

The first step in the Growth Identification and Facilitation Framework process is to choose the right target by identifying comparator countries—dynamically growing countries with a similar endowment structure to their own and an income per capita that is not too far ahead of the home country—and the tradable goods and services that they have been producing for about 20 years and that are declining, thereby providing opportunities for the home country.

For Zimbabwe, comparator countries were selected based on three criteria: an income per capita not exceeding 300 percent of Zimbabwe's, consistent growth over the past 21 years (1995–2016), and good performance in manufacturing development as measured by manufacturing value added in GDP. The most relevant comparator countries are Cambodia, China, Lao PDR, Myanmar, and Vietnam (table 5.1).

Zimbabwe's average income in 2011 international dollars in purchasing power parity terms declined from $2,488 in 1995 to $1,880 in 2016, in part because of macroeconomic mismanagement, poor governance, and trade sanctions. Its structure of production remains that of a primary product exporter, similar to many countries in Africa. Manufacturing value added in GDP was 9.6 percent in 2016.

The comparator countries include dynamically growing countries such as China (with manufacturing value added of 31 percent of GDP), Cambodia (17.2 percent), Lao PDR

TABLE 5.1

Zimbabwe and identified comparator and peer countries

Country	GDP per capita (2011 international dollars in purchasing power parity terms)						Average GDP growth per capita 1990–2016 (%)	Manufacturing value added, 2016 (% of GDP)
	1995 ($)	Share of Zimbabwe (%)	2010 ($)	Share of Zimbabwe (%)	2016 ($)	Share of Zimbabwe (%)		
Zimbabwe	2,488	100	1,475	100	1,880	100	–1.0	9.6
Comparator countries								
Cambodia	1,103	44	2,523	171	3,465	184	5.5	17.2
China	2,564	103	9,526	646	14,399	766	8.6	30.1
Lao PDR	2,023	81	4,219	286	6,073	323	5.5	8.8
Myanmar	927	37	3,721	252	5,305	282	8.6	22.8
Vietnam	2,042	82	4,486	304	5,955	317	5.5	15.6
Peer countries								
Botswana	8,904	358	13,334	904	15,723	836	2.9	5.7
Mozambique	373	15	918	62	1,128	60	5.2	9.5
South Africa	9,177	369	12,029	816	12,260	652	1.5	13.3
Zambia	2,029	82	3,279	222	3,647	194	2.7	8.1

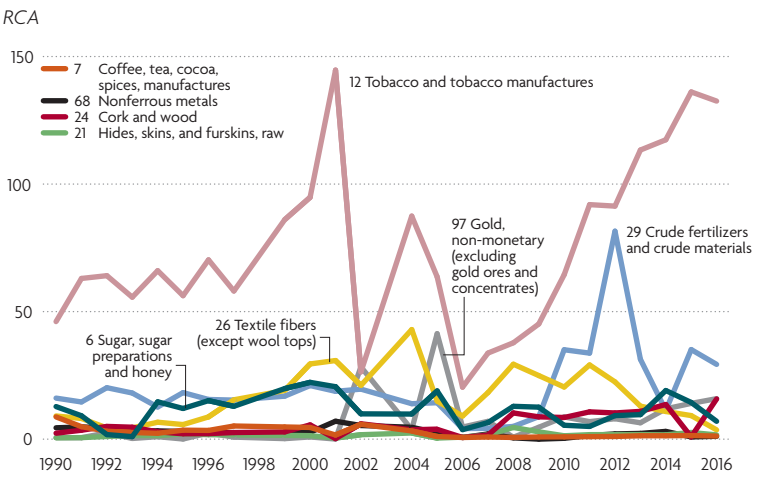
Source: Calculated based on data from World Bank World Development Indicators database.

(8.8 percent), Myanmar (22 percent), and Vietnam (15.9 percent). Although China's income per capita is higher than that of Zimbabwe, it was selected because its development experience 20 years ago is highly relevant to Zimbabwe and because it is one of Zimbabwe's top trade, aid, and foreign direct investment partners.

South Africa does not meet the criteria on economic growth but was selected as a peer country because of its geographic proximity. Mozambique is growing rapidly but does not meet the criteria on income per capita but was selected as a peer country.

FIGURE 5.1

Zimbabwe's revealed comparative advantage at the two-digit level, 1990–2016



Note: Revealed comparative advantage is the industry's share in the country's exports divided by its share in world exports, multiplied by 100. Data are at the two-digit classification code level (Standard International Trade Classification revision 3).

Source: Calculated based on data from UN Comtrade.

Zimbabwe's existing comparative advantage

What is the best way to measure the comparative advantage of a country like Zimbabwe? A widely used measure for comparing one country's export structure with that of other countries is revealed comparative advantage (*RCA*). If Zimbabwe's exports of commodity A account for a larger share in Zimbabwe's total exports than commodity A's share in world exports, Zimbabwe has a revealed comparative advantage in commodity A ($RCA > 1$).[43] This method is described in box 5.1.

At the two-digit classification code level (Standard International Trade Classification revision 3), Zimbabwe has a revealed comparative advantage in primary sectors such as agriculture and mining-related subsectors (figure 5.1).

BOX 5.1

Measuring revealed comparative advantage

Identifying existing comparative advantages is straightforward,[1] as several established indicators can be used. One established indicator is revealed comparative advantage (*RCA*), which is calculated as follows:

$$RCA_{ij} = \frac{x_{ij} / X_{it}}{x_{wj} / X_{wt}}$$

where x_{ij} is country i's exports of product j, x_{wj} is world exports of product j, X_{it} is the country's total exports, and X_{wt} is world total exports. Thus, if $RCA < 1$, the country has a revealed comparative disadvantage in the product, and if $RCA > 1$, the country has a revealed comparative advantage in the product.

Note

1. Balassa 1965.

Not surprisingly, Zimbabwe has a very strong comparative advantage in tobacco, nickel ores, ferro-alloys, diamonds, and gold—its top exports in 2016. At the four-digit code level, Zimbabwe has a revealed comparative advantage in 52 products, most notably cotton, cotton linters, and leather, which could be used as raw materials for labor-intensive industries such as textiles, garments, and footwear (table 5.2).

What sectors could Zimbabwe enter?

As labor and other costs rise in China (particularly the eastern regions) and other emerging market countries, large and medium-size firms in those countries are "going global," seeking new investment frontiers to relocate to other lower cost countries. In doing so, they bring much-needed capital, technology, technical knowhow, tacit knowledge, experience, and market channels. If Zimbabwe has latent (potential) comparative advantage in the sectors in which those firms operate, with lower transaction and logistic costs, and can provide a stable and reliable investment climate with low land and quality infrastructure in several special economic zones, it can attract multinational corporations from advanced economies as

TABLE 5.2

Zimbabwe's revealed comparative advantage at the four-digit level, 2015 and 2016

		Revealed comparative advantage	
Product code	Product description	2015	2016
9710	Gold, nonmonetary (excluding gold)	14	16
8965	Collections and collectors' pieces	55	53
6715	Other ferro-alloys (excluding radioactive ferro-alloys)	48	33
6117	Leather of other animals, without hair on	19	27
5322	Tanning extracts of vegetable origin	9	9
2842	Nickel mattes and nickel oxide sinters	35	63
2841	Nickel ores and concentrates	586	302
2789	Minerals, crude, not elsewhere specified	20	24
2771	Industrial diamonds, sorted	561	1,032
2731	Building or monumental (dimension)	48	64
2632	Cotton linters	188	53
2631	Cotton (other than linters)	27	26
2473	Wood rough, painted, preserved	184	265
1223	Other manufactured tobacco	12	14
1213	Tobacco refuse	208	255
1212	Tobacco, wholly/partly stemmed/stripped	549	599
1211	Tobacco, not stemmed/stripped	10	10
741	Tea, whether or not flavored	19	21
611	Sugars, beet or cane, raw, in solid	52	37
593	Juice of any other single citrus fruit	10	15
14	Poultry, live (fowls)	6	7

Note: Revealed comparative advantage is the industry's share in the country's exports divided by its share in world exports, multiplied by 100. Data are at the four-digit classification code level (Standard International Trade Classification revision 3).

Source: Calculated based on data from UN Comtrade.

well as from dynamic emerging market economies such as China, India, Malaysia, Turkey, and South Africa.

The second part of step 1 is to identify the sectors in comparator countries in which revealed comparative advantages are declining by running a regression and identifying coefficients that are negative and significant. The changes in revealed comparative advantage in comparator countries are then examined over time. Only subsectors in which revealed comparative advantage is declining in at least two (out of four) comparator countries are considered suitable for Zimbabwe to enter (table 5.3). Though international opportunities exist in those sectors, investors may look to different countries based on investment climate and location, so the results here must be juxtaposed with those from step 2, assessing domestic private firms.

China has many sectors with a declining revealed comparative advantage, especially in labor-intensive and resource-intensive sectors such as agricultural products, footwear, textiles, garments, other vehicles, other manufacturing products, and travel goods, handbags and similar products (figure 5.2). This is due in part to scarcity of land, water, and other resources and to rising labor costs. In other words, China is losing comparative advantage in producing those goods at home, and many companies are going abroad to find low-cost locations for their production base. Zimbabwe and other African countries are well positioned to improve their investment climate and attract these companies, to become the next global manufacturing base.

TABLE 5.3

Subsectors in which revealed comparative advantage is declining in at least two comparator countries and which Zimbabwe could potentially enter

Sector	Is RCA for the sector declining?					Number of countries where RCA for the sector is declining
	Cambodia	China	South Africa	Lao PDR	Vietnam	
Animals, live, zoo animals, dogs, cats	No	Yes	No	No	Yes	2
Cereals and cereal preparations	No	Yes	No	No	Yes	2
Coal, coke, and briquettes	No	Yes	Yes	Yes	No	3
Coffee, tea, cocoa, spices, manufacture	No	Yes	No	No	Yes	2
Crude animal and vegetable material	No	Yes	No	No	Yes	2
Feeding stuff for animal	Yes	Yes	No	No	No	2
Fixed vegetable oils and fats	Yes	Yes	No	No	No	2
Footwear	No	Yes	No	No	Yes	2
Inorganic chemicals	No	Yes	Yes	No	Yes	3
Miscellaneous edible products and preparation	No	No	Yes	No	Yes	2
Oil seeds and oleaginous fruit	No	Yes	No	No	Yes	2
Travel goods, handbags and similar	No	Yes	No	Yes	No	2

RCA is revealed comparative advantage.

Note: The calculation involved three steps: calculating the revealed comparative advantage over time for each sector at the three-digit level; regressing the revealed comparative advantage for each sector on time and determining whether it was declining (that is, if the coefficient was negative and statistically significant); and determining which sectors Zimbabwe could enter (those in which two or more countries have a declining revealed comparative advantage).

Source: Calculated based on data from the World Bank World Integrated Trade Solution.

Identifying sectors for quick wins in the short to medium term

The analyses presented so far provide the basis for identifying Zimbabwe's international market opportunities and its latent comparative advantage. These analyses must be complemented by an examination of major constraints to and opportunities for the development of existing products and sectors. Four criteria are used to winnow down the list of identified sectors:

- Production requires low capital, and there is a significant domestic or regional market.
- Domestic production does not require significant power (electricity) or does not have high transport costs (no short-term need for substantial improvements in road and rail networks to move raw materials and output).
- Production in comparator countries is by small and medium-sized enterprises, which shows the potential for job creation in Zimbabwe.
- Zimbabwe's factor endowment is well suited for production—some elements of the supply chain are in place, revealed comparative advantage indexes or export specialization indexes indicate potential, and labor skill requirements are low or easily transferable.

Several sectors emerge as priorities in the short to medium term (1–5 years) by satisfying all four criteria (table 5.4). Some industries with potential for profitability (such as iron and steel, where a China-sponsored project was completed in 1999 and a new memorandum of understanding was signed in June 2018) are not listed as priority sectors because of their large capital requirements, sophisticated technology, and constraints in power (electricity), capital, and labor skills in Zimbabwe.

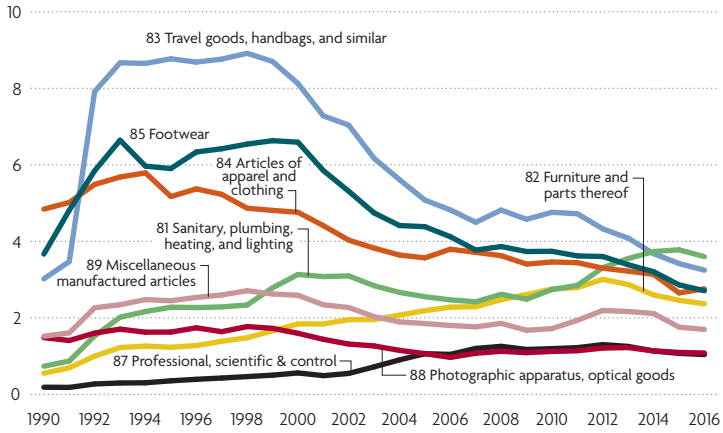
There is scope for promoting links across priority sectors through value chains and clusters. The Confederation of Zimbabwe Industries and Ministry of Industry and Trade have identified 18 value chains that will link the resource sectors (agriculture and mining) with manufacturing. Backward, forward, and horizontal links with the mining industry can also be promoted.

- *Agriculture, animal husbandry, and agri-business.* Because there are thousands of products in this sector, the specific products to be encouraged will depend on decisions made by firms in a self-discovery process (see chapter 8). This is Zimbabwe's current export sector and existing comparative advantage. The government should provide more support by establishing agri-ecological zones (see chapter 10) and focus on rebuilding and strengthening the eight agriculture commodity industry clusters (horticulture, livestock and meat, legumes and oilseeds, tree crops, grains, cotton, tobacco, and forestry and timber). Useful lessons for building capacity across selected value chains and program governance can

FIGURE 5.2

China's revealed comparative advantage, by sector, 1990–2016

RCA



Note: Revealed comparative advantage is the industry's share in the country's exports divided by its share in world exports, multiplied by 100. Data are at the two-digit classification code level (Standard International Trade Classification revision 3).

Source: Calculated based on data from UN Comtrade.

TABLE 5.4

Priority subsector identification using the four criteria for identifying subsectors for quick wins in the short to medium term in Zimbabwe

Subsectors	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Decision
Sector[a]	Production requires low capital, and there is a significant domestic or regional market	Domestic production does not require significant electricity and does not entail high transport costs	Production in comparator countries is by small and medium-size enterprises	Zimbabwe's factor endowment is well suited for production	Selected as priority sector or not
Agriculture and agri-business: animal husbandry, meat preparation, dairy production, cereals and cereal preparation (0–4), sugar, tea, coffee, animal feed (5–9), tobacco and similar (12), and cotton and similar (26)	Yes	Yes	Yes	Yes	Yes (existing revealed competitive advantage)
Textile fibers, crude fertilizer, mineral, metal ores, and metal scrap (25–29)	No (capital intensive)	No (needs stable power)	No (large companies)	No	No
Raw hide, skin, and fur (11–24); leather manufactures, rubber, and paper board (61–64)	Yes	Yes	Declining	Yes	Yes
Textile yarn, fabric, and art; iron and steel; nonferrous metals (65–69)	No (capital intensive)	No (needs stable power)	No. Rising	No	No
Assembly opertions of bicycles, other road vehicles, and other (farm) machinery (71–79)	Yes (assembly only)	Yes (assembly only)	Yes (assembly only)	Yes (assembly only)	Yes (assembly only)
Travel goods and handbags and related handicrafts (81–83)	Yes	Yes	Yes	Yes	Yes
Building fixtures (81–84)	Yes	Yes	Yes	Yes	Yes
Footwear and accessories (code 85)	Yes	Yes	Yes	Yes	Yes

a. Drawn from 99 sectors from the standard World Integrade Trade Solution data. Numbers in parentheses are Standard International Trade Classification codes.

Source: Based on authors' analysis.

be drawn from the interventions to support and strengthen agri-business value chains by bilateral and multilateral partners since 2009. Several such programs are being implemented on the ground, while others have recently ended, including the U.S. Agency for International Development–supported Zimbabwe Agricultural Competitiveness Program and Zimbabwe Agricultural Income and Employment Development Program, the CreateFund supported by the U.K. Department for International Development and the Danish International Development Agency, the EU Programme, and others.

- *Tobacco.* Zimbabwe is one of the largest tobacco producers and exporters in the world and could move from the low end of the value chain (raw tobacco) to high value added products (manufactured cigarettes). Tobacco makes a vital contribution to GDP, export revenues, and employment and is an important source of government revenue. The number of registered growers increased from 81,801 in 2016 to 98,927 in 2017—or 21 percent. Tobacco exports were 182.3 million kilograms in 2017, up 11 percent from 2016, though export earnings were $904.4 million in 2017, down from $933.6 million in 2016. China is the leading importer of Zimbabwean tobacco exports—consuming 60.8 million kilograms (at an average of $7.88 per kilogram) in 2017, which accounted for

33 percent of total tobacco exports, down from 42 percent in 2016—followed by South Africa, Belgium, and Indonesia.[44]

Tobacco is sold at auction and then undergoes further processing by merchant companies to remove stems and tips from the leaf before being shipped abroad. This adds 30–50 percent to the crop's final export value. About 99 percent of the tobacco that is produced is for export, which leaves only 1 percent for local processing and consumption. Tobacco Processors Zimbabwe, founded in 1987, is one of the biggest leaf processing companies in Africa. It processes over 42 percent of Zimbabwe's annual tobacco crop and exports the processed tobacco to cigarette manufacturers around the globe.

- *Cotton.* Exports are expanding in this sector, which has the potential to create a large number of jobs. In just 10 years, Cambodia's garment sector created 335,400 jobs. In Vietnam, the textile and garment sector employs 1 million workers. If Zimbabwe can boost the sector's growth rate to comparable levels, tens of thousands of jobs could be created in the medium term.

  The Zimbabwean cotton value chain comprises five levels: seed cotton production, ginning, yarn spinning, textiles and dyeing, and clothing. Zimbabwe has a comparative advantage in seed cotton production, and cotton remains the mainstay of smallholder farmers in the drier regions of Midlands, Lowveld, and the Zambezi Valley of Zimbabwe. It contributes to income, employment, and export earnings. More than 200,000 farmers directly depend on seed cotton production for their livelihood.[45] Over 90 percent of cotton grown in Zimbabwe is contract growing through input funding arrangements by various ginners and merchants who are members of the Cotton Ginners Association. Cotton is sold as lint or seed. Lint is used to make clothes, blankets, and furniture fabrics in the textile industry, while seed is used to manufacture vegetable oil and livestock protein cake. The lint and the seed is also exported for foreign currency.

  In August 2014, Zimbabwe launched the Cotton to Clothing strategy with the technical assistance of the International Trade Centre. The strategy is to maximize value addition throughout the entire value chain of cotton to clothing. It targets objectives that can be implemented in the short term with resources that are realistically available in the short term. The strategy aims to create a foundation for even greater development of cotton to clothing in the long run.
- *Assembly operations of farm tractors/machinery and motorcycles.* Few companies in Zimbabwe assemble farm tractors, buses, and other vehicles.[46] The country's automotive sector includes four motor vehicle assemblers—Willowvale, Quest Motors, Deven Engineering, and AVM Africa Limited. But the country's only assembly plant, Willowvale Mazda Motor Industries, stopped assembling vehicles in 2012 when annual production declined to below 4,000, from a peak of 18,000 in 1997. There is also a cluster of companies that have developed international franchise arrangements with global brands such as Audi, Chevrolet, Ford, Isuzu, Mercedes Benz, Mitsubishi, Nissan, Toyota, Volkswagen, and Volvo.[47]

  In February 2018, the Government launched the Zimbabwe Motor Industry Development Policy 2018–30 to promote the growth of the local motor industry and increase capacity utilization by over 90 percentage points by 2030. More firms can be attracted to assemble similar equipment and machinery such as well-drillers, solar water heaters, and solar equipment using complete knock-down kits.

- *Building materials/fixtures and storage/logistic facilities.* This sector has declined in comparator countries, and there is a huge demand for these materials in Zimbabwe and neighboring countries. It is a labor-intensive sector that does not need high-skilled workers. Constructing a storage and logistic center near Harare would not be difficult. Several companies operate in this sector, including Bak Logistics, a subsidiary of Tobacco Sales Limited. Several cement factories also operate, including Lafarge Cement Zimbabwe, PPC Zimbabwe, and Sino-Zimbabwe Cement Company. Lafarge Zimbabwe has a cement grinding capacity of 0.4 million ton per year, compared with 3.2 million tons for South Africa and 1.4 million tons for Zambia. Lafarge Zimbabwe has a market capitalization of $112 million.[48]
- *Tourism and light manufacturing related to tourism.* Zimbabwe saw 2,422,930 tourist arrivals in 2017, up 12 percent from 2,167,686 in 2016. Growth in arrivals came from all source regions and most major markets, particularly Europe, North America, and Asia. Tourism receipts were $917 million in 2017, up 12 percent from $819 million in 2016, in line with the increase in tourist arrivals.[49]

  Examples of light manufacturing related to tourism include handicrafts and handbags made of cotton and wool.
- *Leather.* The leather sector peaked in 2000, at more than 17 million pairs of leather shoes a year, but production has fallen because of the economic crisis and stiff competition from cheap imports, especially from China. In 2011, Zimbabwe produced around 1 million shoes a year. Some 63 percent of the hide that is exported from Zimbabwe is in its raw form, with no value added to it. This has led to a serious shortage of raw material and forced half the country's tanneries to shut down or incur debt to pay premium prices for hides.[50] Out of nine tanneries, only four were reported to be operating in 2013. This shows the need for companies that process and manufacture leather products. Opportunities exists across the whole leather value chain, from cattle ranching (given that the national heard is depleted) to processing and manufacturing.

  Bata Shoe Company is one of the biggest players in the footwear industry. It has helped some of its former employees by leasing them machinery to produce leather uppers for shoes. This has led to the formation of several small and medium-size enterprises that employ up to 40 workers with reliable equipment and a steady buyer (Bata). But because of the economic challenges and high operating costs, Bata finds it difficult to compete with imports from other countries.
- *Clothing.* The clothing industry was heavily affected by the economic meltdown and influx of cheap imports. Textile manufacturing was once an important industry but became uncompetitive in the face of cheap imports, which flooded the country. The economic meltdown resulted in the vast majority of Zimbabweans relying on secondhand clothes that came in bales from Mozambique. These cheap imports coupled with economic turmoil resulted in the collapse of the clothing industry.

  Carousel (Private) Limited is the manufacturing division of Edgars Stores Limited and has been one of the main producers of clothing in Zimbabwe since 1974. Located in Bulawayo, it produces a wide range of denim, ladies wear, and men's casual wear for Edgars' retail divisions and other retailers. Carousel is the second biggest employer in the industry after Paramount Garments (also known as Archer Clothing). Established in 1953, Paramount has built a strong reputation and supplies various retailers and brand houses such as Dayton Hudson Corporation,

Eddie Bauer, Edgars, Gap, Haggar, Nicole Miller, Pringle, Sanetta, and Woolworths. It employs more than 1,000 workers and is currently the biggest employer in the sector. These companies have been able to survive because of economies of scale and because of the niche market of people in the formal sector who can afford to buy clothes that are considered expensive by an average Zimbabwean.

- *Cooking oil.* Surface Wilmar is a fast growing company at the forefront of oil processing and expressing technology. Founded in 2006 and situated in Chitungwiza, Surface Wilmar is the largest cooking oil manufacturer in Southern Africa. Its business activities include oil seed crushing, edible oils refining, manufacturing of consumer products and soya meal, and cotton hulls production. Its consumer products include Puredrop cooking oil, Excella rice, and Golden Glow. United Refineries manufactures cooking oil under the brands Roil (one of the leading cooking oil brands in the country and certified by the Standard Association of Zimbabwe) and Sunshine (a 100 percent soya bean–based brand that is not as common as Roil), washing soap under the brands Impala and Olive, and bath soap under the brands Imperial Leather and Vogue.
- *Cereal.* Cereal production has been rising, and in 2017, Zimbabwe recorded a surplus in maize production. The forecast for cereal production 2018 is just under 2 million tons, down 24 percent from 2017 but still above the previous five-year average. Maize production is expected to decrease by 21 percent in 2018, while sorghum and millet production are expected to be half their 2017 levels. Factors weighing down production include low productivity, environmental challenges and climate change, pricing regime, high cost of inputs and utilities, and funding challenges. Price floors are a serious challenge to the competitiveness across the value chain because the government sets price floors that are above regional prices to encourage local millers to support its agriculture schemes or command agriculture.

  Nestlé Zimbabwe is one of the biggest cereal production companies in Zimbabwe, with offices in all major cities (Bulawayo, Gweru, Harare, Mutare, and Masvingo). Nestlé Zimbabwe supplies its products to the local market and exports to Malawi and Zambia. National Foods is a diversified conglomerate and one of the largest manufacturers and marketers of food products in Zimbabwe and Southern Africa. It has been milling for more than 90 years in Zimbabwe. When the company was established in 1920, its main focus was small-scale milling, but it now has the resources, technology, and workforce to feed millions of people. The company's flagship brands include Gloria, Red Seal, NF Stockfeeds, Pearlenta, Mahatma, Rosetta, Snow White, and Better Buy.

CHAPTER 6

Assessing domestic private firms' capacity and production costs

After identifying the target countries and sectors that Zimbabwe could enter, it is necessary to assess whether domestic private firms already operate in those sectors and identify any constraints and how to overcome them. Private domestic firms that are present in those industries will need tacit knowledge to lower costs and be competitive.[51] Policy makers should identify the obstacles that prevent these firms from upgrading their products and the barriers that limit entry by other private firms and then implement policies to remove the constraints and facilitate entry. In Zimbabwe, private sector development is hampered by macroeconomic instability; lack of financing, land tenure, and conducive investment regulations; high input costs; outdated machinery; inefficient government bureaucracy; and inadequate infrastructure (particularly in energy). These factors have led to Zimbabwe's low ranking on the World Bank's Ease of Doing Business Index. Small improvements in dealing with construction permits, registering property, and resolving insolvency were outweighed by losses in all the other measures except enforcing contracts, which remained unchanged. Private investments were severely depressed because of high credit risk and lack of credit. Zimbabwe ranked 159 out of 190 countries in 2018, down from 161 in 2017.

Weighted capacity utilization in manufacturing fell from 47.4 percent in 2016 to 45.1 percent in 2017. Table 6.1 outlines the constraints identified from the 2017 manufacturing sector survey.

According to *The Global Competitiveness Report 2017–2018*, the 10 most problematic factors for doing business in Zimbabwe are policy instability (19.3 percent), foreign currency regulations (15.9 percent), inefficient government bureaucracy (13.6 percent), access to finance (10.5 percent), corruption (9.2 percent), government instability (8.8 percent), inadequate supply of infrastructure (8.3 percent), tax rates (4.6 percent), restrictive labor regulations (4.4 percent), and tax regulations (4.1 percent).[52]

This step also assesses the labor and logistics costs that private firms in the targeted sectors face as major impediments. Zimbabwe has higher labor costs than neighboring countries do (tables 6.2 and 6.3). It had the highest minimum wage in the construction sector in 2010 ($311), followed by South Africa ($243) and Namibia at ($215; table 6.4). And the average real earnings index (which includes all nonwage costs related to employing workers) for

TABLE 6.1

Capacity constraints in Zimbabwe, 2017

Constraint	Share of total (%)
Cost or shortage of raw materials	19.6
Low local demand	17.8
Forex shortage	13.8
Competition from imports	8.6
Antiquated machinery and machine breakdowns	8.6
Capital constraints	6.9
High cost of doing business	6.5
Liquidity crisis	6.2
Drawbacks from current economic environment	4.5
Access to finance	4.5
Competition from local producers	1.4
Power and water shortages	1.0
Other	0.7

Source: 2017 Confederation of Zimbabwe Industries Manufacturing Sector Survey.

TABLE 6.2

Entry-level blue collar labor costs in Zimbabwe and selected countries

Country and year	Entry-level monthly wage or minimum wage[a] ($)
Bangladesh, 2013	68 in garment industry; 19 in other sectors
China (Southern coastal areas), 2017	659
India (varies by region and sector), 2014	48–116
Kenya, 2013	57 in rural areas 139 in urban areas
Lesotho (varies by sector), 2014	102–112
Nigeria, 2011	115
Vietnam (varies by region), 2015	101–145
Ethiopia, 2014	35–40 in the garment and shoemaking industries
Zimbabwe	267 for low-skilled labor; 275 living wage per individual[b]

a. Except for Ethiopia, the official minimum monthly wage is used as a proxy for entry-level labor costs.

b. https://tradingeconomics.com/zimbabwe/unemployment-rate.

Source: Calculated based on data from http://www.wikipedia.org and staff estimates.

TABLE 6.4

Minimum wages in the construction sector in Zimbabwe and selected countries, 2017

Country	Minimum wage ($)
Zimbabwe	310.76
South Africa	242.88
Namibia	214.72
Zambia	108.00
Botswana	102.08
Mozambique	89.34
Malawi	30.00

TABLE 6.3

Minimum wage in Zimbabwe, by sector, 2012–18

$

Sector	2012	2013	2014	2015	2016	2017	2018
Agriculture	59.00	65.00	72.00	72.00	72.00	75.00	75.00
Banking	633.49	633.49	636.00	636.00	636.00	636.00	636.00
Cement and lime	298.10	314.50	328.70	338.50	338.50	345.30	355.60
Clothing	155.09	166.57	166.57	166.57	166.57	166.57	166.57
Construction	258.72	276.32	310.76	310.76	310.76	310.76	310.76
Commercial	—	—	246.00	246.00	253.00	253.00	253.00
Detergents, edible oils, and fats	192.24	202.81	202.81	202.81	212.88	212.88	212.88
Engineering	240.00	270.00	275.40	275.40	275.40	275.40	275.40
Food processing	242.35	246.89	246.89	246.89	246.89	259.44	264.63
Hotel and catering	175.00	186.00	275.00	275.00	275.00	275.00	275.00
Soft drinks	211.00	237.00	241.74	241.74	241.74	241.74	241.74
Baking	—	230.00	235.00	241.00	244.00	248.00	255.00
Poverty line	539.80	504.05	506.25	491.25	478.90	509.05	—

— is not available.

Source: Data derived from National Employment Councils.

TABLE 6.5

Real average earnings index in Zimbabwe, by sector, 2009–14

Sector	2009	2010	2011	2012	2013	2014
Agriculture	100	106.7	96.7	95.3	113.3	126.7
Mining	100	270.8	112.5	114.8	107.8	114.5
Manufacturing	100	130.7	108.3	112.0	104.9	105.3
Electricity and water	100	98.7	171.7	107.3	121.8	98.9
Construction	100	182.5	98.6	128.1	131.0	66.9
Financial services and real estate	100	223.2	111.1	124.7	131.7	78.5
Distribution	100	211.3	106.6	109.7	95.1	94.0
Transport and communication	100	149.5	119.2	147.0	95.2	104.3
Public administration	100	143.6	171.4	106.0	123.5	98.2
Education	100	142.6	157.0	98.9	100.0	100.0
Health	100	414.3	146.0	185.9	105.1	77.5
Private domestic services	100	435.8	12.0	135.2	105.9	104.8
Other	100	53.2	139.0	123.8	139.9	76.5
Total	100	159.0	119.7	113.0	111.5	95.7

Source: ZIMSTAT.

Zimbabwe's whole economy declined markedly from 159 in 2010 to 95.7 in 2014, which reflects a weakening economy (table 6.5).

Logistics costs stem from poor infrastructure and logistics services. The ease of moving goods and services across borders is an indicator of the quality of trade and facilitation in a country. The World Bank ranked Zimbabwe 172 out of 183 countries—not good given that the country is landlocked and that connectivity to the regional transport system is needed to promote economic activity and cross-border trade.[53] The World Bank Logistic Performance Index ranked Zimbabwe 151 out of 160 countries in 2016.

In 2016, the lead time for sea port or airport supply chain was 5 days for Zimbabwe, compared with 2–3 days for comparator countries, the lead time for land export was 9 days for Zimbabwe, compared with 3–6 days for comparator countries, and the lead time for sea and airport import was 10 days for Zimbabwe, compared with 3–5 days for comparator countries (table 6.6).[54] In 2014, the cost associated with the land export supply chain was $1,500 for Zimbabwe, compared with $2,236 for Ethiopia, $1,846 for South Africa, $707 for Cambodia, $683 for China, and $274 for Vietnam. The cost associated with the land import supply chain was $1,732 for Zimbabwe, compared with $2,739 for Ethiopia, $2,141 for South Africa, $2,000 for Lao PDR, $514 for China, $465 for Cambodia, and $354 for Vietnam.

TABLE 6.6

Logistic Performance Index indicators, Zimbabwe and comparator countries, 2016

Indicator	Zimbabwe	Cambodia	China	Ethiopia	Lao PDR	South Africa	Vietnam
Logistics Performance Index rank	151	73	27	126	152	20	64
Export time and cost (sea port or airport supply chain)							
Distance (kilometers)	760	87	130	—	750	278	141
Lead time (days)	5	3	3	—	2	3	3
Cost ($)[a]	1,732	469	494	1,500	2,000	1,688	237
Export time and cost (land supply chain)							
Distance (kilometers)	2,381	178	402	750	—	1,281	249
Lead time (days)	9	5	6	6	—	6	3
Cost ($)[a]	1,500	707	683	2,236	—	1,846	274
Import time and cost (sea port or airport supply chain)							
Distance (kilometers)	941	87	187	—	—	224	102
Lead time (days)	10	4	5	—	—	3	3
Cost ($)[a]	750	397	683	1,500	—	1,623	281
Import time and cost (land supply chain)							
Distance (kilometers)	2,706	407	649	750	750	730	230
Lead time (days)	34	6	9	3	2	4	3
Cost ($)[a]	1,732	465	514	2,739	2,000	2,141	354
Other indicators							
Shipments meeting quality criteria (%)	73.08	92.13	71.64	82.50	99.50	76.26	57.38
Clearance time without physical inspection (days)	1	2	2	2	1	1	1
Clearance time with physical inspection (days)	3	2	3	3	1	4	3
Physical inspection (%)	34.74	21.09	9.68	4.83	75.00	3.75	16.71
Multiple inspection (%)	5.35	9.65	3.38	8.18	1.00	2.11	9.38

— is not available.

a. Data are for 2014.

Source: World Bank 2016a.

CHAPTER 7

Attracting global investors

For industries in which no or only a few domestic firms are present, policy makers should try to attract foreign direct investment (FDI) from the countries identified in step 1 or from other higher income countries producing those goods. Foreign investors could bring in the general and tacit knowledge about a product's design, production technology, supply chain, and distribution channels. The government should also set up incubation programs to encourage startups in these industries.

Since 2009, the government has attempted to attract FDI through several measures. But barriers such as the indigenization law and economic empowerment laws and limited protection of property rights are significant. BMI ranks Zimbabwe 45 out of 48 countries in Sub-Saharan Africa for investment attractiveness because of deteriorating economic growth, political instability, and doubts over creditworthiness of the government (which does not have a sovereign credit rating).[55]

In the first half of 2018, Zimbabwe received FDI commitments of $11 billion, up from $330 million in 2016. No information is available on the decomposition by sectors. Inward FDI flows rose from $23 million in 2000 to $545 million in 2014 before declining to $319 million in 2016 (table 7.1). Inward FDI flows as a percentage of GDP rose from 0.31 percent in 2000 to 3.84 percent in 2014 before declining to 2.35 percent in 2016. Inward FDI flows have been affected by the high cost of doing business, which adversely affects the return on investment. The current government reforms to the business environment are expected to have a positive impact on inward FDI flows. By contrast, inward FDI stock rose from $1.2 billion in 2000 to $4.3 billion in 2016. The country accounts for a very small share of total world FDI flows: 0.018 percent in 2016.

Manufacturing, mining, and services led in foreign investment projects approved over 2010–17 (table 7.2). Total investments approved increased from $521 million in 2010 to $6.6 billion in 2011 before declining to about $1.5 billion in 2017.

TABLE 7.1

Zimbabwe's inward foreign direct investment, 2000–16

Indicator	2000	2005	2010	2011	2012	2013	2014	2015	2016
Inward flows ($ million)	23	103	166	387	400	400	545	421	319
Inward stock ($ million)	1,238	1,383	1,814	2,201	2,601	3,001	3,546	3,967	4,286
Inward flows (% of GDP)	0.31	1.65	1.76	3.53	3.22	2.97	3.84	3.03	2.35
Inward flows (% of gross fixed capital formation)	2.61	82.58	8.10	18.75	19.22	22.82	29.09	22.97	—
Inward flows (% of world total)	0.002	0.011	0.012	0.024	0.025	0.028	0.041	0.024	0.018

— is not available.

Source: UNCTADstat.

TABLE 7.2

Foreign investment (including joint ventures) approved by the Zimbabwe Investment Authority, by sector, 2010–17

$ million

Sector	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture	2.1	444.8	20.8	2.5	10.5	12.7	88.6	12.8
Construction	258.8	120.9	119.8	129.5	33.5	71.6	24.1	106.1
Manufacturing	53.1	670.0	58.1	158.0	646.8	1,936.5	160.4	488.5
Mining	186.1	3,687.3	688.1	214.9	159.7	488.8	156.9	576.6
Services	18.1	128,099.3	41.7	172.4	286.3	263.5	167.5	153.5
Tourism	510.0	1,583.1	1.1	3.4	3.3	0.5	3.3	17.0
Transport	1.7	—	0.2	5.3	2.4	2.6	6.5	0.3
Energy	—	—	—	—	—	424.0	1,692.5	162.5
Total	520.5	6,634.2	929.9	685.9	1,142.5	3,200.3	2,299.7	1,517.3

— is not available.

Source: Zimbabwe Investment Authority database.

TABLE 7.3

Employment at firms with foreign investment (including joint ventures) enterprises approved by the Zimbabwe Investment Authority, by sector, 2009–16

$ million

Sector	2009	2010	2011	2012	2013	2014	2015	2016
Agriculture	548	7	518	370	24	240	637	856
Construction	319	689	2,120	427	428	1,017	1,892	171
Manufacturing	3,201	2,912	6,049	1,655	2,805	3,685	6,284	2,003
Mining	6,483	2,694	8,256	4,554	3,361	3,241	1,974	2,966
Services	665	742	5,749	2,422	1,787	1,175	2,320	2,129
Tourism	163	38	3,160	22	227	103	36	148
Transport	82	89	0	19	91	126	65	246
Energy	—	—	—	—	—	—	240	750
Total	11,461	7,171	25,852	9,469	8,723	9,587	13,449	9,270

— is not available.

Source: Zimbabwe Investment Authority database.

Total employment in Zimbabwe Investment Authority–approved investments peaked at 25,852 in 2011 before declining to 9,270 in 2016 (table 7.3).

China has emerged as Zimbabwe's largest trade and investment partner. Mining, manufacturing, and services are again the leading sectors in approved foreign investment from China (table 7.4). Chinese investment also focuses on infrastructure development, manufacturing, agricultural development, and mining (platinum, gold, diamonds, iron ore, and coal; box 7.1).

TABLE 7.4

Foreign investment (including joint ventures) from China approved by the Zimbabwe Investment Authority, by sector, 2010–17

$ million

Sector	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture	—	444.8	18.6	2.5	9.5	3.1	1.0	0.8
Construction	1.2	30.5	7.4	123.3	25.0	4.2	22.7	1.3
Manufacturing	27.2	114.4	35.6	99.4	149.4	74.5	107.3	32.8
Mining	39.9	494.5	583.1	105.9	35.1	57.6	65.2	163.9
Services	4.2	13.6	23.0	58.1	18.9	9.2	21.3	28.4
Tourism	—	0.5	0.3	0.4	—	—	0.6	—
Transport	—	—	—	—	1.0	1.6	2.5	0.3
Energy	—	—	—	—	—	—	—	65.0
Total	72.5	1,098.2	668.0	389.5	238.9	188.6	220.5	292.5

— is not available.

Source: Zimbabwe Investment Authority database.

BOX 7.1

Chinese investment in Zimbabwe and its decomposition

In the last two decades, China has emerged as Zimbabwe's largest aid, investment, and South–South cooperation partner. Chinese investment focuses on four areas:

- *Infrastructure development.* Building roads, power stations, schools, and hospitals has been the most visible part of Chinese investment. In 2015, the state-owned Power Construction Corporation of China signed a $1.2 billion deal to expand the Hwange Thermal Power Station, Zimbabwe's largest thermal power plant. The project will add 600 megawatts to the plant's total capacity. And China's Sinohydro Group is expanding the Kariba South Power Station in a $355 million project to be completed in 2018.[1]
- *Manufacturing.* With the support of buyer's credit from the Export Import Bank of China, the China Capital Iron and Steel Corporation took part in the reconstruction of the number 4 blast furnace of the Zimbabwean Iron and Steel Corporation. The project was completed in June 1999.
- *Agricultural development.* China has made significant investments in Zimbabwe's farm mechanization program and in the tobacco industry. Chinese investors also till land under contract farming,[2] meaning that they manage the land but do not have freehold ownership of it (interview with the Embassy of Zimbabwe in Beijing, 2012).
- *Mining.* Chinese investments are found mainly in the mining of platinum, gold, diamonds, iron ore, and coal. In 2009 China paid $3 billion for exclusive access to Zimbabwe's extensive platinum rights, a contract estimated to be worth $40 billion.[3]

Notes

1. Zhou 2018.
2. On Chinese investment in Zimbabwe's agricultural development, see https://www.youtube.com/watch?v=L3UcdfaOD50.
3. Smith 2011.

Source: Mapaure 2014.

CHAPTER 8

Scaling up self-discoveries, recognizing the power of industrial parks, and providing limited incentives to the right industries

Scaling up self-discoveries

In addition to the industries identified in step 1, the government should pay attention to spontaneous self-discovery by private enterprises and support the scaling up of successful private innovation in new industries. Rapid technological change may give rise to new opportunities that would not have existed a decade or two earlier in the rapidly growing comparator countries. Examples include mobile phones and related e-services, social media, and green technologies.

The government has taken some actions to improve investment climate by:

- Approving the SME Infrastructure Development Policy, which compels local authorities to provide adequate infrastructure for small and medium-size enterprises in both urban and rural areas.
- Setting up a one-stop-shop to reduce the time needed to register a new business.
- Ring fencing at least 30 percent of revenue collection from small and medium-size enterprises by local authorities.
- Recapitalizing the Small and Medium Enterprises Development Corporation by $2 million in the 2018 budget.
- Launching a $90 million funding package in 2017 aimed at capacitating various up-and-coming businesses.[56]
- Licensing of the Zimbabwe Women Microfinance Bank Limited in May 2018, which provides deposit and lending services to female entrepreneurs to enhance their financial inclusion through access credit at concessionary rates. The bank, which is wholly owned by the Reserve Bank of Zimbabwe, will partner with the government-owned People's Own Savings Bank, which has 34 branches countrywide, largely in rural areas.

These were steps in the right direction. Going forward, the government and private stakeholders must pay attention to the relevant policies needed to encourage self-discoveries.

Recognizing the power of industrial parks

Many African countries, including Zimbabwe, have identified special economic zones (SEZs) as a key pillar to attract foreign direct investment and increase competitiveness in the production of goods and services. The Zimbabwe government passed the Special Economic Zones Act (Chapter 14:34) in 2016. The SEZs model is aligned to Africa's Agenda 2063 with a focus on value addition. Zimbabwe plans to set up SEZs in new areas to attract foreign direct investment. Bulawayo and Harare are focusing on reindustrialization, while agriculture-based provinces are focusing on agro-processing,

TABLE 8.1

Identified special economic zone projects in Zimbabwe

Project	Location
Tourism-focused	Victoria Falls
Integrated industrial park (technology hub)	Sunway City, Harare
Leather and textile manufacturing	Bulawayo
Diamond cutting and polishing	Harare and Mutare
Chemical manufacture (exploiting coal bed methane)	Lupane

Source: Ministry of Macro-Economic Planning and Investment Promotion 2017.

TABLE 8.2

Types of special economic zone projects in Zimbabwe

Type of project	Description
Single factory	Factories and companies operating at very low capacity or idle infrastructure
Product specific	Priority products to qualify for special incentives
Multisectoral	Designating specific sectors and geographic areas
Industrial park	For industrial development
Knowledge based	Using human capital

Source: Ministry of Macro-Economic Planning and Investment Promotion 2017.

with tourism centers being turned into tourist zones (tables 8.1 and 8.2).

While the Special Economic Zone Act was finalized in 2016, its implementation has been slow. One of the main issues is inadequate policy research and guidance on which sectors should be targeted, how to target promotion of foreign direct investment, and what policy measures have been announced but not implemented (see chapter 10). Implementation of SEZs is also being hampered by the delays in the gazetting of the nonfiscal regulations and incentives by the government. No investment projects have yet been processed under an SEZ.

Providing limited incentives to the right industries

Policy makers can compensate pioneer firms in the industries in which the country has a latent comparative advantage with time-limited tax incentives, co-financing for investments, or access to foreign exchange to compensate for the externalities created by first movers and to encourage firms to form clusters. Because the identified industries are consistent with the country's latent comparative advantage, the incentives should be limited in both time and cost. To prevent rent-seeking and political capture, governments should avoid incentives that create monopoly rents, high tariffs, or other distortions. Moreover, incentives should be linked to performance and be continuously evaluated against stated objectives.[57]

According to Zimbabwe government regulations, SEZs will offer foreign investors tax and administrative benefits and incentives, though it is unclear how many of these policies have been implemented (table 8.3). In addition, foreign investors will not have to comply with the indigenization laws in the SEZs.

TABLE 8.3

Proposed fiscal and nonfiscal incentives for special economic zones in Zimbabwe

Incentive	Description
Fiscal incentives	
Corporate tax	Exemption from corporate income tax for the first five years of operation. Thereafter, a corporate tax rate of 15 percent applies.
Special initial allowance	Special initial allowance on capital equipment to be allowed at the rate of 50 percent of cost from year one and 25 percent in the subsequent two years.
Employees' tax	Specialized expatriate staff will be taxed at a flat rate of 15 percent
Nonresident withholding tax on fees	Exemption from nonresident tax on fees on services that are not locally available.
Nonresident withholding tax on royalties	Exemption from nonresident tax on royalties.
Nonresident withholding tax on dividends	Exemption from nonresident tax on dividends.
Customs duty on capital equipment	Capital equipment for special economic zones will be imported duty free.
Customs duty on raw materials	Inputs that include raw materials and intermediate products imported for use by companies set up in special economic zones will be imported duty free. However, the duty exemption will not apply where such raw materials are produced locally.
Nonfiscal incentives	
Land tenure	Investors shall enjoy a 50-year lease, and where they purchase urban land, they shall duly receive their title deeds.
One-stop-shop investment services	Single-window facility for investment registration, clearances through the one-stop-shop investment center in each enclave/zone.
New clean technologies	All importation of clean technologies, those that pretreat effluent, solid waste, and emissions to the blue and green bands shall be duty free to promote the use of environmentally friendly technology.
Ownership	Ownership of companies in special economic zones should be 100 percent, as per international best practice.
Capital and profit repatriation	Investors are entitled to repatriate 100 percent of capital and profits.
Medium of exchange	The use of the multicurrency regime shall persist.
Work and residence permits	Automatic work and residence permits for expatriates and investors.
Water and energy supply	Dedicated water and energy supply in special economic zones.
Offshore borrowing	Investors will be allowed to borrow offshore without Reserve Bank of Zimbabwe approval.
Local government taxes and levies on land	Exemption from local government taxes and levies on underdeveloped land.

Source: Ministry of Macro-Economic Planning and Investment Promotion 2017.

CHAPTER 9

Two promising sectors to spur growth

This chapter discusses the opportunities in two sectors for spurring growth. First is agricultural development, which can be a foundation for inclusive growth, export diversification, and structural upgrading in Africa through diversification of agricultural export earnings and development of supply chain trade (processing and market access to high-value products).[58] Second is eco-tourism, which given Zimbabwe's enormous natural resources endowment and tourism's success elsewhere as an engine for job creation and export growth and diversification presents one of the quickest paths to prosperity.

Agricultural development as the foundation

The optimism in agriculture as a driver for growth and transformation has been widely shared in Zimbabwe since the peaceful transition of power in 2017. As Theo de Jager, president of the World Farmers' Organisation in Africa, said, "Zimbabwe was once a very productive agricultural country and in the lead in many agricultural industries. It has a strong educational system, a highly competitive spirit and definitely a lot of potential. The country's infrastructure is still in relatively good condition and a turnaround in its agricultural sector is a definite possibility if certain factors are put in place."

But transforming the strategy of agriculture-led growth and structural upgrading into reality faces major challenges. Agricultural growth since 2010 has been remarkably uneven, with a major contraction in 2015 and 2016, while manufacturing has been steadily declining (table 9.1). Exports depend heavily on primary commodities, with agricultural exports concentrated on a single commodity: tobacco (table 9.2). The key questions are how to overcome these challenges to start structural upgrading and which African countries with a similar agricultural endowment can set an example for

TABLE 9.1

Growth of gross domestic product in current prices, by sector, 2010–16

Percent

Industry	2010	2011	2012	2013	2014	2015	2016
Agriculture, hunting, and fishing	11.44	5.61	12.66	–0.93	25.00	–3.00	–2.16
Mining and quarrying	43.08	25.41	5.70	11.55	–2.49	–5.84	11.89
Manufacturing	4.00	16.66	9.77	2.62	–0.48	–3.31	0.41
Electricity and water	28.81	21.62	2.73	9.77	11.05	–2.43	–46.20
Construction	33.26	58.35	30.37	5.96	6.88	0.07	3.62
Finance and insurance	8.26	13.70	33.98	13.78	7.62	–1.31	10.05

Source: Zimbabwe National budget statement 2017.

TABLE 9.2

Zimbabwe's main exports and imports, 2014–16

Commodity	2014	2015	2016
Exports (% of total)			
Precious metals	30	31	36
Tobacco	27	33	33
Mineral ores	12	8	11
Iron and steel	9	6	4
Imports (% of total)			
Fuels	25	26	29
Cereals	5	7	10
Machinery	9	9	9
Vehicles	9	8	7

Source: International Trade Centre Trade Map database.

Zimbabwe in pursuing agriculture-led growth and structural change.

Of three African countries that have comparable agricultural endowment and close proximity to Zimbabwe, Ethiopia is the most suitable comparator, and its recent growth experience—in particular its successful agriculture-led industrialization strategy—presents a good case study for Zimbabwe (table 9.3).[59]

Ethiopia's experience in agricultural development

Ethiopia has seen rapid and stable growth since the early 2000s. Real GDP growth averaged 10.9 percent during 2004–14, the highest in Sub-Saharan Africa. It jumped from being the 2nd poorest country in the world in 2000 to being the 11th poorest in 2014 and is on course to reach middle-income status by 2025.[60] Agriculture has played a key role in sustaining growth, creating jobs, and diversifying exports. Of the 10.9 percent average growth in 2004–14, services accounted for 5.4 percentage points, agriculture 3.6 percentage points, and industry 1.7 percentage points.

Ethiopia's agricultural output more than doubled over the last decade, with annual growth averaging 7.6 percent, mainly because of a significant improvement in productivity. Total factor productivity grew 2.3 percent a year, thanks to increased use of modern inputs (such as chemical fertilizers and improved seeds), significant land expansion, an improved road network, higher rural education levels, and favorable international and local price incentives.[61] The agricultural sector accounted for more than 72 percent of the 11.6 million jobs created over the past 15 years.

Export growth in agriculture was also accompanied by diversification. The expansion of horticulture and the cut flower industry, together with other high-value cash crops, marks a spectacular export success, contributing to rapid export growth and diversification. Ethiopia ranks among the top eight exporters worldwide in three products: sesame seeds (second), cut flowers (fourth), and coffee beans (eighth).

Ethiopia's success in developing its horticulture industry is attributable largely to targeted public investment in air services exports. Indeed, a decisive factor in the exponential growth of the flower industry is the expansion of Ethiopian Airlines' cargo capacity and passenger flights, with new routes to the Republic of Korea and Singapore. Investment in key infrastructure is critical to an agriculture-led industrialization strategy.[62]

Ethiopia's sustained and inclusive growth was achieved through an agriculture-led industrialization strategy that was compatible with local comparative advantage combined with

TABLE 9.3

Agricultural endowment: a cross-country comparison

Country	Rural population (% of total population) 2016	Land area (thousand sq. km) 2016	Land use (% of total)			Arable land (hectares per person) 2015
			Forest area 2015	Permanent cropland 2015	Arable land 2015	
Ethiopia	80	1,000.0	12.5	1.1	15.1	0.15
Kenya	74	569.1	7.8	0.9	10.2	0.12
South Africa	35	1,213.1	7.6	0.3	10.3	0.23
Zimbabwe	68	386.9	36.4	0.3	10.3	0.25

Source: World Bank data.

strong government support of infrastructure investment and adoption of a wide range of financing policies.[63] First, the government followed a path that was compatible with local comparative advantage. For example, agriculture features much more prominently in the Ethiopian development strategy than in the strategies of East Asian countries, where the economic transformation has been driven mainly by private small-scale manufacturing firms.

Second, the government demonstrated a strong commitment to agricultural development and made a large investment in infrastructure and extension services early on, laying the foundation for the agriculture-led structural upgrading. The country's budget prioritizes sectors with large growth and poverty reduction impact, including agriculture and food security, water and sanitation, roads, health, and education. In 2012/13, public investment in those areas accounted for over 70 percent of general government spending. These policies laid the foundation for the 10.9 percent annual growth in 2004–14.

Third, infrastructure development was financed through a variety of arrangements, including prioritizing investment in public infrastructure (by restraining government consumption) and mobilizing external concessional and nonconcessional financing.

Is Ethiopia's growth model replicable in Zimbabwe?

Ethiopia's agriculture-led industrialization strategy is highly applicable in Zimbabwe given the countries' similar agriculture endowments, and it can succeed there with strong government commitment and investment in essential infrastructure. Despite the many serious challenges facing Zimbabwe's economy, this optimistic outlook rests on three factors. First, the new government's economic recovery plan names revitalizing agriculture as a priority.

Second, in addition to the traditional EU market, now accessible since the lifting of trade sanctions, South East Asia—in particular China—has emerged as a giant new market for Zimbabwe's agricultural and horticultural exports. Zimbabwe's exports of horticultural produce to the European Union rose to $54 million in 2015 from $21.3 million in 2014. Demand for peas and macadamia nuts has been booming in China; Hong Kong, China; Malaysia; and Vietnam. In 2016, Zimbabwe exported $9.2 million worth of macadamia nuts to China; Hong Kong, China; and South Africa.

Third, China has emerged as both the major export market for and the biggest source of foreign direct investment in Zimbabwe's agricultural sector. The Chinese tobacco company Tianze has helped revive Zimbabwe's tobacco output by investing $40 million a year in interest-free loans and subsidized inputs and providing technical support, training, and other services to contracted farmers. Zimbabwe's tobacco output has rebounded to 217 million kilograms in 2014, just short the peak of 231 million kilograms in 2001.[64] The Chinese investment and collaboration can be game changers in modernizing Zimbabwe's agriculture (box 9.1).

To replicate Ethiopia's successful agriculture-led industrialization strategy in Zimbabwe, the first step is to diversify exports and develop the agricultural processing sector. In contrast to Ethiopia, one of the major constraints facing Zimbabwe's government is a shortage of financing. So the government's strong commitment to financing extension services and infrastructure investment is likely constrained in the short term. But relying on the large inflow of foreign direct investment in agriculture from China and other countries presents both opportunities and challenges. For example, tobacco's contribution to total exports increased by 6 percentage points from 2014 to 2016, possibly as a result of the massive Chinese investment (see table 9.2).

BOX 9.1

China's agricultural technological assistance and investment in Zimbabwe

Since the 2006 Forum on China–Africa Cooperation Summit in Beijing, the Chinese government has provided major technical assistance programs, in particular deploying Chinese agricultural experts to African countries to introduce and transfer new agricultural technology developed in China, develop agricultural demonstration centers, train local staff, and provide a variety of technical advice to local farmers.

After a decade of implementation of this program, the Chinese government has proposed further investment to enhance the program's impact. These include helping Zimbabwe's government develop a database to promote research and corporation, improving project management oversight, and encouraging close coordination with local institutes to scale up successful projects.

According to China's Ministry of Commerce, Anhui province started to implement 20 projects in Zimbabwe on agricultural cultivation and processing. The most prominent ones are being implemented by a company called Anhui Agriculture Development. During the first state of development cooperation, from December 2010 to 2012, Anhui Agriculture Development rented 5,000 hectares of land and had an average yield of 6 tons per hectare of wheat, 6.75 tons per hectare of corn, 2.25 tons per hectare of soybean, and 2.25 tons per hectare of tobacco. These yields far exceeded local averages. In 2012, the second stage began to expand the project to 50,000 hectares.

Anhui Agriculture Development and Anhui WaiJingJian, another major Chinese investor in Zimbabwe, have also invested in manufacturing, mining, infrastructure, tourism, and real estate projects.

The Inspur Group, an information technology company, has been providing training to Zimbabweans, aiming to help transform its agricultural sector into a "smart agriculture business." "Inspur Group hopes to help Zimbabwe develop a knowledge-based ag business utilizing information technology—we call it a "smart granary" project," said Huang Gang, Inspur vice president of overseas investment.[1]

Note

1. CRI Online, 3 April 2018.

Source: Li 2018; http://en.inspur.com/en/2402170/2400037/index.html.

So one policy priority needs to be managing private investment in agriculture. This raises the question of what policy instruments and incentive mechanisms effectively channel private investment to activities that support export diversification and scale up job-creating activities such as processing and local supply chain development. One policy options is special economic zones (see chapter 10).

Ecotourism as a path to prosperity

As one of the world's largest economic sectors, tourism has been an engine for job creation and export growth and diversification over the past two decades. Its growth has spread prosperity across the world. In 2017, the sector accounted for 10.4 percent of global GDP and 313 million jobs, or 9.9 percent of total employment.[65] Evidence from a diverse group of developing countries, such as Cabo Verde, the Dominican Republic, Egypt, Indonesia, Mauritius, Mexico, Morocco, South Africa, Tanzania, Thailand, Tunisia, and Turkey, consistently shows that proactive government support can make tourism a powerful instrument for generating jobs and inclusive growth.[66]

There are several reasons why tourism can be a path to prosperity. First, tourism

development creates numerous links with the local economy (agriculture, transportation, and services), generating employment, particularly for women, young people, migrant workers, rural communities, and indigenous peoples. Second, with the digital revolution in the last few decades, tourism plays a leading role in the adoption and diffusion of new technologies and skill upgrading of the workforce in developing countries.

From the perspective of sustainable development, tourism also plays a role in protecting environmental and cultural assets—when a sound management system put in place. Many developing countries have rich natural or cultural heritage assets (such as national parks, coral reefs, rare species, ancient cities, or monuments) that are under threat due to poverty, resource constraints, and weak regulatory and enforcement capacity. Promoting sustainable and socially responsible tourism, such as nature-based tourism (box 9.2), can empower local communities to become key stakeholders in tourism to safeguard local natural resources because of their local knowledge and the economic incentives when their livelihoods depend on natural resources.[67]

Zimbabwe's natural heritage is a key asset for tourism development. The country's tourism product has three main aspects: people, culture, and history; natural resources (such as Victoria Falls); and existing infrastructure (such as hotels and lodges).

Before the major political and economic disruption of the early 2000s, the tourism sector played an important role in exports, employment, and GDP (figure 9.1). Tourism as a source of export earnings has shown remarkable resilience to economic shocks: despite the country's serious economic meltdown in 2000–08, tourism's contribution to exports

BOX 9.2

Nature-based tourism

Nature-based tourism—tourism whose main purpose is the viewing or enjoyment of the natural environment, including hiking, birdwatching, or safaris—has been increasingly recognized as an important path to achieving both conservation and sustainable development. While empirical evidence is difficulty to collect, the development benefits of nature-based tourism rests on the premise that local communities receiving economic benefits from nature-based tourism will have an incentive to conserve natural habitats. Several case studies show that in these communities, wages in nature-based tourism can be substantially higher than those in other activities, indicating nature-based tourism can create demand for specialized skills or local knowledge such as guides or rangers.

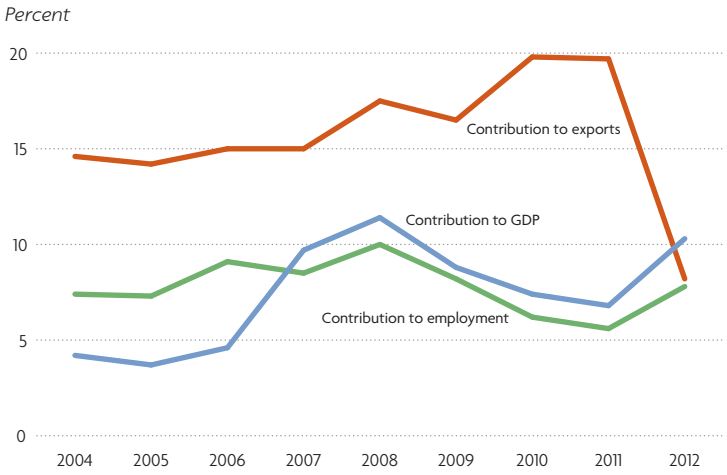
In Zambia, nature-based tourism accounts for nearly 16 percent of exports, 6.5 percent of GDP, more than 6 percent of wages and net income of unincorporated business, 7 percent of government revenue, and nearly 10 percent of formal employment.[1] More important, in recent years the internet and digital trade such as Airbnb have become engines of growth for nature-based tourism across the globe. In Scotland, communities, local businesses, and cultural venues across the country have seen an increase in sustainable tourism and economic development from internet access and Airbnb, with the income from Airbnb averaging £3,600 in 2016, or about 16 percent of the average household income.

Note

1. NRCF 2007.

FIGURE 9.1

Tourism's contribution to Zimbabwe's gross domestic product, exports, and employment, 2004–2012



Source: Zimbabwe Tourism Authority.

increased from 13 percent in 2005 to about 20 percent in 2011, before declining to 7.8 percent in 2012.

Although restoring tourism was a pillar in the 2011–15 National Development Plan to revive the economy, transforming policy planning into a reality remains a major challenge. The most urgent investment needed is the rehabilitation and upgrading of tourist resorts, airports, safety and security, the national road network, internet access, and water and electricity supply.[68] The lack of infrastructure investment is the root cause of the high costs associated with access to tourism destinations. Continuing difficulties in accessing land to scale up tourism to achieve the economies of scale that improve price competitiveness are also a factor.

How Zimbabwe's recent tourism performance compares with that of other African countries

Despite ranking 33 in tourism resource endowment in 2017, Zimbabwe has largely failed to unleash its natural resource potential. The country ranks poorly in tourism's contribution to GDP, to exports, and to employment, far behind comparable countries in Africa such as Namibia, South Africa, and Tanzania (table 9.4).

TABLE 9.4

Tourism's contribution to gross domestic product, exports, and employment, by country, 2017

Rank	Country	Share of GDP (%)
32	Gambia	21.9
51	Namibia	14.9
63	Tanzania	13.3
74	Senegal	11.0
92	Kenya	9.8
99	South Africa	9.3
117	Zimbabwe	8.1
130	Malawi	7.2
135	Zambia	7.0
147	Swaziland	6.1
	Sub-Saharan Africa	7.1
	World	10.2

Rank	Country	Share of exports (%)
24	Gambia	46.5
53	Tanzania	21.4
65	Kenya	16.5
74	Senegal	13.3
81	Zambia	11.4
91	South Africa	9.9
108	Zimbabwe	7.3
109	Namibia	7.0
173	Malawi	1.6
180	Swaziland	0.4
	Sub-Saharan Africa	8.6
	World	6.6

Rank	Country	Share of employment (%)
38	Gambia	18.8
51	Namibia	14.9
72	Tanzania	11.6
85	South Africa	9.8
89	Senegal	9.6
97	Kenya	9.2
135	Malawi	6.2
152	Zimbabwe	5.2
156	Swaziland	5.0
159	Zambia	5.0
	Sub-Saharan Africa	6.0
	World	9.6

Source: WTTC 2017.

A roadmap for reviving the tourism sector in Zimbabwe

Promoting tourism as a driver for sustainable and inclusive growth depends on meeting three conditions. First, tourism needs to generate strong links with local economies, in particular with the agricultural and services sectors. Second, it needs to stimulate the provision of financial services (such as micro-financing) to help households set up hosting businesses such as accommodations and restaurants) and for investment in basic infrastructure (through the construction of roads, ports, and airport facilities). Third, tourism must minimize the adverse impact on the environment and cultural heritage. Meeting these conditions requires a national strategy with policy, regulatory, and institutional frameworks that offer sufficient incentives to promote private participation and limit financial leakage from the domestic economy (the latter of which is a perennial problem in the tourism sector in many Sub-Saharan African countries[69]).

Guidelines developed to help Zambia's government expand the tourism sector are highly relevant for Zimbabwe. Those guidelines focused on building links with the local economy and leveraging private participation and on mobilizing resources to finance investment for tourism development.

Building links with the local economy and leveraging private participation

Like Zambia, Zimbabwe needs a long-term (5–10 years) national plan focused on removing impediments to tourism growth. The plan should incorporate achievable tourism targets, improved data collection and management systems, balanced development of the country's tourism circuits, financing for infrastructure projects (road, air, telecommunications, water, and electricity), the "soft" but critically important supporting framework of policy and legislation (establishing standards, licensing, and training capacity; improving marketing; and managing and regulating the sector), which is crucial to encourage private investment.

Achieving the necessary economies of scale (that is, the critical mass) in tourism is crucial for building local links and promoting private participation. High-volume tourism entities (hotels and large lodges) are vital to linking tourists and destinations, building a robust supply chain, and attracting private investors. For example, a certain quantity of accommodation is essential to create the critical mass needed to convince airlines to establish routes and tour operators to promote the destination. In expanding new areas of tourism, attracting "first-mover" investors is critical. Effective policy instruments are similar to those proposed for development of special economic zones (see chapter 10). They should focus on the "soft" supporting framework of policy and legislation to improve the investment and business climate (such as fewer licenses and value added tax and visa exemptions), financial incentives (such as special concessions) to compensate the higher investment risk faced by first-mover investors, and targeted investment to leverage private participation. For example, $1 million in financing for the Zambia Wildlife Authority led to a sharp increase in international nature-based tourists visiting national parks, which generated $5–$8 million in 2015, demonstrating the scale of financial returns from targeted public investment.

Mobilizing financing resource to support tourism

In Zimbabwe, where acute shortage of government financial resources has posed the biggest impediment to economic growth, a variety of public–private partnership approaches should be examined. Policy instruments that ensure that government agencies in the tourism sector are held accountable for improved performance and cost efficiency are critical to boost the private sector's confidence. These

instruments includes public–private partnerships, improved revenue collection, and increased management efficiency. In particular, this involves passing on to the private sector the day-to-day cost of managing nature-based tourism while the government focuses on oversight and enforcement.

The policy instruments should also focus on leveraging private participation from Chinese investors and targeting investment in locations with high returns in the tourism sector. Successful public–private partnership models include community-based joint venture partnerships in South Africa and Zambia and broader partnerships among the government, the private sector (both local and foreign investors), and the World Bank in Mozambique (box 9.3). Given the huge potential from scaling up nature-based tourism in Zimbabwe, the broader partnership approach, involving development organizations such as the African Development Bank or the World Bank and private Chinese investors could be crucial to building local capacity to use tourism as a path to prosperity.

BOX 9.3

Case studies on public–private partnerships: Namibia and South Africa

Community-based joint venture partnerships in nature-based tourism typically involves the communities to provide the land and the private sector to provide the capital for investment. Wilderness Safaris was the first operator to invest in joint venture agreements with local communities in Namibia and South Africa. A land claim settlement allowed the local community to take ownership in Namibia, and Wilderness Safaris became the lessee. At the national level, the conservancy program in Namibia, enacted in 1996, uses land tenure and responsibility for wildlife as mechanisms for financial and economic growth. This has led to the sustainable use of wildlife resources, stable land tenure by rural Namibians, and improved livelihoods. It has also provided the basis for communities to develop tourism enterprises, either through joint ventures or as community-based operations. Following registration of the first four conservancies, annual income grew from $87,000 in 1998 to $5.7 million in 2008. The private sector has invested more than $19 million in communal conservancies since 1998. There are now 31 formal joint venture lodges, most owned by the private sector, and another 15 in negotiation.[1]

Note

1. NRCF 2007; Spenceley 2010.

CHAPTER 10

Special economic zones: key institutions for structural upgrading

Special economic zones (SEZs) have grown rapidly across the globe over the past few decades as a policy instrument to speed up structural upgrading. Although it is difficult to quantify the success of SEZs and single out key factors underpinning their performance, numerous comparative studies provide some evidence indicating that successful SEZs share a few common factors. This chapter discusses these factors then covers how SEZs could serve as engines and pillars for growth and diversification and improve competitiveness in first- and later-stage processing of natural resources in Zimbabwe.

Rationale for special economic zones

In many developing countries, SEZs[70] have been established as part of an overall development strategy to catalyze growth and structural transformation, including industrialization and upgrading. Their wide implementation across many low-income countries has been driven by the belief that SEZs can remove impediments to structural transformation such as market failure, weak institutions and the consequent poor policy coordination, and lack of financial resources for investment in essential infrastructure. In countries with a fragile political system and weak governance, where the economy is often distorted by patronage-driven rent cycling, SEZs can be an economic instrument and a special governance zone.[71] The prevalence of rent seeking and elite capture of public investment are why these countries have been trapped in stagnation, and the political economy factors are the key obstacles to major economic and institutional reforms. In many respects, Zimbabwe presents a case in point, and SEZs are a rational policy choice to catalyze growth and structural changes without large-scale policy reforms.

Special economic zones across regions

SEZs are established with one or more of four policy objectives: to attract foreign direct investment and promote technology transfer, to support industrial upgrading and structural change, to pilot new policies and approaches (for example, transition from a centrally planned system to a market economy or reforms in customs, legal, labor market, and public–private partnership aspects), or to mobilize resources and coordinate investment in related industries and achieve the required infrastructure improvements.

In the 1970s and 1980s, SEZs were critical in facilitating the industrial development and upgrading of East Asia's "tiger economies." Similarly, since the early 1980s, China has used SEZs—initially as a policy experiment to test economic reform programs and a platform for attracting foreign direct investment to develop the export-oriented manufacturing sector. Chinese SEZs, which now account for 44 percent of GDP, have indeed played a key role in China's structural transformation and industrial upgrading.[72] In Latin America, the Dominican Republic, El Salvador, and Honduras used free zones to take advantage of preferential access to U.S. markets and have developed large-scale manufacturing sectors, transforming economies that previously

depended heavily on agricultural commodities. In the Middle East and North Africa, SEZs have promoted export diversification in Egypt, Morocco, and the United Arab Emirates.[73]

Except in Kenya and Mauritius, SEZs in Africa established before 2010 have generally underperformed compared with those in other regions and have prematurely shifted to a slow-growth path.[74] They have generally performed poorly in static economic outcomes measured with short-term indicators (including foreign direct investment, employment, and exports); in dynamic outcomes measured by technology transfer, integration with the domestic economy, and structural change (including diversification, upgrading, and increased openness); and in socioeconomic outcomes, including the quality of employment created and impact on poverty reduction.

Chinese foreign direct investment and its implications for developing special economic zones in Zimbabwe

The launch of the China–Africa Cooperation Action Plan (2016–2018) at the 2015 Johannesburg Summit reignited the expectations of SEZs as a catalyst to revive Africa's growth and structural change. The Chinese government pledged $60 billion to 54 African countries at the summit, and the China–Africa Production Capacity Cooperation Fund, with an initial pledge of $10 billion, has propagated a new wave of SEZs in Africa. Called Chinese Economic and Trade Cooperation Zones, they have generated broad interest from international investors in Ethiopia, Nigeria, and Zambia.[75] In addition to the SEZs established under the Forum on China–Africa Cooperation framework, private Chinese enterprises have created smaller SEZs, such as industrial parks and free trade zones, in Botswana, Nigeria, Sierra Leone, South Africa, and Uganda.[76] Given the scale of Chinese FDI in Africa and the strong commitment from both the Chinese and African governments, SEZs present a real opportunity for Africa to start structural transformation, learning from the Chinese experience in SEZ design and implementation.

China has become Zimbabwe's biggest economic partner in Zimbabwe. Approved foreign investment (including joint ventures) from China totaled $292.5 million in 2017, with the mining sector receiving 56 percent, the energy sector 22.2 percent, the manufacturing sector 11.2 percent, and the services sector 9.6 percent.[77] In April 2018, Zimbabwean President Emmerson Mnangagwa visited China, and Chinese President Xi Jinping said that he was willing to work with Mnangagwa to jointly map out future cooperation and write a new chapter in China–Zimbabwe relations for the benefit of both countries.[78] Evidently, the China effect is significant and has important implications in the identification of opportunities in Zimbabwe to catalyze growth and structural change.[79]

China granted Zimbabwe over $1 billion in low-interest loans between 2010 and 2015 and accounted for over half the foreign direct investment approved by the Zimbabwe Investment Authority in 2015. In 2016, China announced an additional $4 billion in foreign direct investment for Zimbabwe for 2016–18, equivalent to about 7 percent of 2016 GDP. With China's financial support, the government of Zimbabwe has started a new SEZ initiative to attract foreign direct investment to revive the economy, in particular the manufacturing sector. Three locations have been designated as pilots before the SEZ initiative is expanded to the rest of the country: Sunway City Integrated Industrial Park in Harare as a financial hub, the Victoria Falls, and the Bulawayo industrial hub (targeted for agriculture business, tourism, mining, services and

manufacturing).[80] Transforming these emerging opportunities into a reality that benefits the local economy requires addressing three key questions.

Which special economic zone model is most suitable in the Zimbabwe context?

Experience over the past few decades across the globe shows that no orthodox model exists for developing SEZs and that policy makers must adopt a strategy that is responsive to the rapidly changing domestic and international environment. Countries like China, with a large domestic market and an abundant source of labor, have adopted the model of expanding labor-intensive manufacturing sectors to achieve export-led growth and structural change in the initial stage of development. SEZs have also played a key role in facilitating the transfer of foreign technology to develop domestic industrial capacity, which gradually increases trade in the manufacturing supply chain.

African countries, including Zimbabwe, face different challenges to replicate the labor-intensive export-driven model. First, they have relatively small domestic markets, and the regional market is fragmented because of poor infrastructure and lack of regionwide economic coordination. Second, their SEZs started almost two decades later than those in the rest of world, so they face bigger obstacles in developing a manufacturing sector, in particular in the presence of "factory Asia," which dominates the global market in a wide range of manufacturing products.

Many have argued that instead of replicating the low-skilled labor-intensive manufacturing models, African countries could explore their comparative advantages in natural resource–based sectors such as agriculture, minerals, oil and gas, and tourism in the medium term and develop manufacturing and services opportunities (including trading and logistics) in the long term. Indeed, SEZs can improve competitiveness in first- and later-stage processing of resources and provide the potential for scaling up SEZ programs to achieve economies of scale and generate spillovers to the rest of the economy.

The experiences of Ghana and Nigeria provide supporting for the natural resource– and agriculture-based SEZ model. Ghana had attempted to attract investment in the labor-intensive garment sector (through its Textiles Village project) and in the human capital–intensive information and communication technology sector (through an information technology park initiative), but these sectors never took off. Instead, about 80 percent of exports from Ghana's SEZs in 2008 came from the cocoa and wood processing sectors, which align much more closely with the country's comparative advantage in natural resource–intensive sectors. Nigeria had a similar story. SEZs originally established to expand labor-intensive manufacturing have largely failed, but the country quickly attracted large-scale investment in its oil and gas free zones. For example, the Onne zone at Port Harcourt has attracted at least 80 international investors and created more than 20,000 jobs.[81]

SEZs in natural resource–based sectors holds promise for Zimbabwe, which has the world's third largest reserves of platinum (used in electronic and medical equipment) and is the fifth-largest producer of lithium (an essential input in rechargeable batteries). With skyrocketing global demand for smartphones and electric cars, Zimbabwe is already attracting increasing interest from mining companies. Other industries with the potential foreign direct investment through SEZs are machinery, fertilizer, seeds, and agricultural equipment. The pharmaceutical and construction sectors —with their large domestic market—could also be good targets.

What lessons can Zimbabwe learn from past special economic zone development?

Four key factors are critical to the successful operation of SEZs:[82]

- *Strong policy commitment from the government.* SEZs development should be part of the broader national development strategy. High-level and active involvement of government agencies (minister-level policy makers) for a long period (5–10 years) is essential to ensure policy consistency and stability. In developing China's first four SEZs in the 1980s, Chinese leader Deng Xiaoping specifically referenced the SEZs as an instrument in China's outward-looking transformation strategy, describing them as "a window of technology, a window of management, a window of knowledge as well as a window of international policy." In Ethiopia, the Growth and Transformation Plan 2010/11–2014/15 called for the establishment of the two biggest SEZs (the Eastern Industrial Zone and the Bole Lemi Industrial Zone). As part of the plan, the two SEZs were designed to develop medium- and large-scale manufacturing industries in textiles and garments, leather and leather products, sugar, cement, metal and engineering, chemicals, pharmaceutics, and agro-processing products. The Ministry of Industry has actively promoted SEZs and entered into SEZ development agreements with private investors from China, Turkey, and international development agencies such as the World Bank.[83]
- *Comprehensive legal and regulatory framework.* While reducing uncertainties and business risks are key to attracting FDI, promoting environmentally and socially responsible SEZs is fundamental to sustainable development. Successful SEZs are regulated by a transparent legal and regulatory framework that outlines the program strategy and establishes the rules of operation for all stakeholders. The framework provides the guidelines for addressing difficult land issues, facilitating infrastructure provision, and ensuring compliance with labor and environmental standards. While its presence is no guarantee of success, the absence of an effective legal and regulatory framework and poor enforcement are key reasons why SEZ programs have not taken off or succeeded in many African countries.[84] China's early SEZ development provides important lessons in environmental and labor standards. The legal and regulatory framework developed for the Shenzhen SEZ does not cover any environmental and labor regulations (box 10.1). After two decades of the SEZ's rapid expansion, water pollution had reached an alarming level. And the widespread of violations of workers' rights and poor working conditions resulted in many waves of protests from workers.[85]
- *SEZ management and governance capacity.* While developing a sound legal and regulatory framework is straightforward on paper, effective enforcement of it underpins the fate of SEZs. In many successful zone programs, the regulatory agency is anchored to a central ministry (the president, prime minister, or ministry of finance) and supported by a sustainable budget to ensure effective management and governance. In contrast, in many African countries, the agency responsible for developing, promoting, and regulating SEZs lacks resources and capacity to carry out the mandate and a systematic monitoring and evaluation mechanism rarely exists.
- *Prioritization of infrastructure development.* Access to basic services is a prerequisite for SEZs. China has made infrastructure development a priority in the new SEZ development in Xinjiang and elsewhere by implementing the so-called "five accesses plus one leveling" policy for all SEZs and

BOX 10.1

The Chinese government's commitment in setting policy and regulatory framework

China's government has played a dominant role in developing the legal framework and regulations and in planning infrastructure for SEZs. In 1980, it established the first legal framework and regulations for Guangdong SEZ, which were modified for SEZs in other provinces based on the local business environment. The first SEZ legal framework covered three areas critical to attracting foreign direct investment:

- *Protection of private property rights.* The SEZ encouraged foreign citizens, Chinese expatriates, compatriots from Hong Kong, China, and Macau, China, and their companies and enterprises (referred to here as investors) to open factories and set up enterprises and other establishments with their own investment or in joint ventures with Chinese firms. The SEZ guaranteed to protect their assets, including profits, and other rights in accordance with the law.
- *Tax incentives.* Foreign investors enjoyed a reduced corporate income tax rate (15–24 percent, compared with 33 percent for domestic firms), paid zero custom duties, and had duty-free allowances for imported production materials. There were also income tax exemptions for foreigners working in SEZs.
- *Land use policy.* Foreign investors were given the rights for land development, use, and business. They were also allowed to transfer and lease land rights or mortgage them (in accordance with the law, within the stipulated purposes and terms of use). When foreign firms invested in projects encouraged by the state (such as technologically advanced projects or projects with large links to the local economy), the land use right was guaranteed and the construction land was exempt from land use fees.

Source: Zeng 2011, 2015.

industrial parks. This policy ensures that all SEZs have access to five basic facilities (water, electricity, gas, telecommunication, and roads) and levels the site within SEZ for construction before any firms are permitted to register.

How can special economic zone initiatives generate economic and social benefits in the local economy?

As Zimbabwe embarks on new SEZ initiatives, the policy priority should be developing the local capacity to coordinate and manage the large flow of Chinese foreign direct investment by strengthening absorptive capacity at all levels. At the national level, policy makers should heed lessons from other countries' experiences and develop a policy framework for economic corporation that meets the development objectives of both China and Zimbabwe. In particular, policies should enhance local capacity to promote links between SEZs and the domestic economy through local supply chain development, knowledge, and technology spillovers. Doing so requires human capital, a skilled labor force, and entrepreneurship.

BOX 10.2

Foreign direct investment and knowledge diffusion in Ethiopia

Do foreign investors that are attracted by preferential policies in special economic zones promote knowledge dissemination and help reduce the productivity gaps between rich and poor countries? In Ethiopia, a causal link exists between greenfield foreign direct investment and knowledge spillover in the manufacturing sector. Four years after a foreign plant opened, the total factor productivity of domestic plants was 8 percent higher. Foreign plants also attracted new economic activity to recipient districts.

How is knowledge transferred from foreign to domestic plants? Domestic plants report adopting technology from foreign plants by learning by observation, hiring workers who previously worked at foreign plants, making direct contact through customer and supplier relationships, licensing technology from foreign plants, taking advantage of competitive pressures. Knowledge transfer through more informal channels is also important. Knowledge of production processes is the most common type of benefit associated with foreign direct investment, but domestic plants also learn from foreign plants about managerial and organizational practices and logistical aspects of the supply chain, including exporting.

Domestic plants do not pay higher labor costs to obtain these productivity spillovers, a finding consistent with the idea of unlimited supplies of labor in underdeveloped countries.In addition, although domestic plants report some competition from foreign plants, total factor productivity estimates reveal that on average foreign direct investment entry raised total factor productivity.

The findings underscore the importance of locating foreign plants in close proximity to domestic plants (via special economic zones) and provide some support for the Ethiopian government's industrial policy, though more research is needed to quantify the cost of the incentives provided to foreign plants and to compare the costs with the benefits of knowledge spillovers.

Note

1. Lewis 1954.

Source: Abebe, McMillan and Serafinelli 2018.

Chinese investment in Zimbabwe has focused primarily on activities related to agriculture and natural resources, for which local supply relationships are fundamental and for which there is significant scope to improve competitiveness in first- and later-stage processing of resources. Zimbabwe is thus in a better position to negotiate the rules and conditions of foreign direct investment to ensure transfer of knowledge and technology and generate jobs—but removing the binding constraint of human resources is crucial. Human capital development can be achieved by actively collaborating with Chinese investors to target resources for training and skills development and knowledge sharing (see box 10.2 for how knowledge transfer and productivity growth are related in Ethiopia). A long-term human development strategy should focus on forging links between exiting education

institutions and developing new institutions that are continually upgraded and adapted to evolving skill needs, providing up-to-date training and education programs to ensure that the training meets the needs of structural change in the economy.

The best example of success is the Penang Skills Development Centre in Malaysia, a public–private effort that is a key factor in Malaysia's economic transformation over the past two decades. It was the first industry-led training center established in Malaysia in 1989 in response to an acute shortage of skilled workforce. State and federal governments provide financial support, and foreign private companies played a leading role in establishing the center, providing trainers, equipment, and training programs to meet their respective needs. The center has become a key agency, pooling resources among SEZs in Penang to provide up-to-date training and education programs and to stay abreast of technology to ensure that programs are continually upgraded and adapted to industry's evolving skill needs.[86]

Chinese private investment in Zimbabwe's SEZs presents both opportunities and challenges. A key challenge is ensuring that SEZs achieve growth targets without comprising social and environmental standards. The environmental standards are particularly important given the poor environmental records of many SEZs in China, especially among early SEZs. The mindset of "grow first and clear afterward" at all levels of government in China has proven costly. The cost of environmental degradation from China's rapid industrial growth, driven

TABLE 10.1

Key factors underlying the success of special economic zones in China's provinces: three case studies

Special economic zone	Governance	Human capital development	Logistics and connection to value chains
Shenzhen Special Economic Zone (located near Hong Kong, China, started in 1980)	• In 1981, implemented major reforms in administrative management system in trade, traffic management, investment, and city management. • In 1993, introduced open bidding system in government-financed construction projects • In 1998, launched an electronic monitoring system for licensing management, online access to public procurement, and monitoring and auditing system of public-financed projects.	• Developed social security system, including pension, medical insurance, and housing subsidies to attract skilled workers from other regions. • Designated financial resources to attract highly qualified personas, including generous research grants and awards for innovation.	• Developed modern logistics park (Futian tariff-free zone) with its bridge linking Shenzhen and Hong Kong, China. • Used the marketing and retail network developed by firms in Hong Kong, China, to enter into a global market in Europe and North America.
Kunshan Economic and Technological Development Zone (located near Shanghai, started in 1991)	• Initiated a joint task force between Kunshan municipal government and the zone's administrative commission. • Launched government service evaluation system, including effectiveness assessment, accountability systems, and internet-based monitoring.	• Adopted "people first" policies and set up national overseas scholar pioneer center to attract overseas and domestic postgraduates with generous benefits and preferential treatment for setting up business.	• Focused on developing logistics capacity and marketing through targeted service-oriented foreign direct investment, which reached 38 percent of total foreign direct investment in 2008. • Targeted leading multinationals and tracked down their domestic and overseas production network to identify entry points in supply chains (for example, through Infovision Optoelectronics to target its supplier Dexing Electronics into the Kunshan Special Economic Zone). • Targeted finance to support brand products and develop regulatory systems to set up standards and quality control and protect intellectual property rights.
Tianjin Industrial Park (located near Tianjin port, started in 2000)	• Maintained prominent role of environmental protection agency for planning econ-industrial park. • Established the service-oriented and independent government agency in the park to simplify business operation procedures and improve business administration efficiency.	• Attracted highly qualified labor force through housing subsidies, children's education allowance, and research funding, • Encouraged local universities (such as Nankai) to establish campuses in the park to provide vocational training and exchange programs with multinationals.	• Targeted government financing to support logistics and marketing development and tax incentives for enterprises in the modern service sector.

largely by SEZs across the country, was about 8 percent of GDP in 2010.

Because Chinese foreign direct investment has become the largest source of external financing for SEZs in Zimbabwe, the government should develop a strategic public–private partnership while broadening financing sources to improve social and environmental outcomes. The public–private partnership should aim to involve multilateral development banks, including the World Bank and the International Finance Corporation, whose strength lies not in the scale of financing, but in their capacity to enforce environment and social safeguards in SEZs investment. The public–private partnership also presents an important opportunity for building the management and governance capacity of government agencies for scaling up SEZ development, given the long tradition of rigorous oversight of multilateral development bank operations.

The partnership model adopted by the Ethiopia government provides a good example. In developing the Kilinto and Bole Lemi Industrial Zones, the Ministry of the Interior successfully engaged different partners, including Chinese investors and the World Bank.[87] The Chinese partners provided a large share of infrastructure financing, training, and technical support for development and management of the zones, and the World Bank support focused on capacity building in the development and enforcement of the overall institutional and regulatory framework. While private investors in the two zones focused narrowly on attracting large investment and improving enterprise competitiveness, the World Bank project assessment identified several potential violations of environmental safeguards that had been largely excluded in the investment decisions of private investors. Another example is the Resettlement Policy Framework for the Kilinto Industrial Zone in Ethiopia, developed under the public–private partnership program with the World Bank, which the Ministry of Interior intends to use as blueprint for addressing the social and environmental aspects of future SEZ development.

Table 10.1 summarizes the mechanisms adopted in three Chinese SEZ to enhance management and governance. For example, government agencies in Shenzhen SEZ launched an electronic monitoring system for licensing management, online access to public procurement, and a monitoring and auditing system of public-financed projects in 1990. The Kunshan SEZ, established in the 1990s, was under the management of a joint task force between the Kunshan municipal government and the zone's administrative commission, which introduced an open bidding system in government-financed construction projects and later launched a government-sponsored evaluation system (covering economic performance, accountability systems, and internet-based monitoring).

CHAPTER 11

New development financing comes in different forms

With some established donors constrained by heavy debt and slow growth since 2015, development finance will need to "go beyond aid" to combine trade aid and investment. Financing will come less from official development assistance[88] and more from other official flows, other official flow–like loans, and other official flow–like investments from development banks and sovereign wealth funds and new strategic investment funds in emerging economies.[89] Numerous new financing platforms, facilities, and instruments have already been established.[90]

Global leaders are looking east for development financing, because emerging and developing countries have much higher savings rates and thus will have higher investment rates in the next 15 years (2015–30). Developing countries' (including China) share of global investment overtook high-income countries' share in 2015 (figure 11.1). Most of the finance comes in the form of patient capital, long-term investment with a maturity of 10 years or more.[91] Based on a culture of Confucianism, China and many East Asian economies are ranked high in long-term orientation.[92]

Patient capital

Patient capital can be seen as capital invested in a relationship in which the stakeholder or investor is willing to take a stake in the host country's development, aiming for a win-win. Thus it can finance the huge infrastructure gaps in Africa and elsewhere. Owners of patient capital are equity-like investors but willing to sink money in the real sector or unlisted infrastructure projects for a long time—10 years or more—and are willing and better able to take risks. In addition, evidence suggests that net foreign assets are positively and significantly associated with long-term orientation.[93]

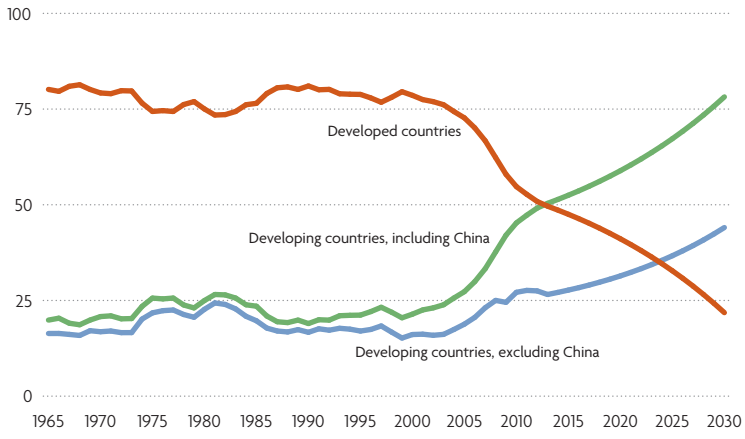
Patient capital thus has several important features:

- It depends heavily on the domestic banking sector and institutional investors that can turn the long-term savings of citizens into loanable funds. The development of commercial and investment banks and institutional investors such as sovereign wealth funds, pension funds, and strategic investment funds should be encouraged in every country, including Zimbabwe.
- International multilateral financial organizations such as the World Bank, regional development banks such as the African Development Bank, and bilateral donor–funded development banks such as the

FIGURE 11.1

Developed and developing country shares of world investment, 1965–2030

Percent



Source: World Bank data.

Export-Import Bank of China and China Development Bank play critical roles in turning domestic public savings into international long-term development funds (a part of patient capital). Establishment of new institutions such as the Asian Infrastructure Investment Bank and the New Development Bank, the Silk Road Funds, and other infrastructure funds should be supported. These are among the providers of patient capital.

- Patient capital is highly correlated with entrepreneurial capital and direct investment from the private sector. Governments everywhere should improve the investment climate so that the private sector can invest directly in infrastructure via public–private partnerships such as special economic zones, eco-industrial parks, eco-cities, as well as in the manufacturing sectors.

Total external financing flows to developing economies were $1.4 trillion in 2016, of which 45 percent was foreign direct investment, 28 percent was remittances, 12 percent was official development assistance, 9 percent was foreign portfolio flows, and 6 percent was other investments (mainly bank lending). Foreign direct investment was the most stable and resilient flow to developing counties; foreign portfolio flows fluctuate drastically over the years.[94] The share of patient capital flows (foreign direct investment, official development assistance, and half of bank lending) would thus be around 60 percent of total external financing flows to developing economies.[95] This implies that $840 billion could be invested in developing countries.

Patient capital plays an important role in financing infrastructure. Successful countries with future orientation[96] have seen their infrastructure better financed. Other evidence of rising patient capital is reflected in the rising number of sovereign wealth funds and government-sponsored strategic investment funds established by countries such as Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, the Philippines, Senegal, South Africa, and Vietnam.[97] The number of multilateral strategic investment funds, including those for infrastructure, is also rising rapidly. The World Bank recently established a new private sector window using International Development Association funding, to be implemented by the International Finance Corporation, to invest in the private sector. This is in effect using public money to finance private equity (an approach that is similar to what China has been doing) and an innovative approach worth supporting.

The International Financial Corporation has established a new equity fund in infrastructure called the InfraVenture Fund and has attracted private insurance companies to co-invest in it. Large private insurance companies such as Allianz, Munich Re, Liberty Mutual, and Prudential have already joined.[98]

China's state-led capitalism is an important form of patient capital, characterized by a longer term horizon. "Chinese state-to-state lending reduces governments' reliance on conditionality-linked Western financing, giving them more autonomy to use budget deficits to intervene in their economies." "These results suggest that Chinese financing could be a developmental opportunity, but only if governments invest wisely. Otherwise, by lending without policy conditions, China may be encouraging developing country governments to spend without bounds, sowing the seeds for future debt problems."[99]

China's South–South development cooperation for structural transformation

Global leaders and the international development community (multilateral and bilateral donors) are looking east for new ideas, new momentum, and new financing. Over the last 10 years, emerging economies, including

nontraditional donor organizations such as Arab organizations, have become major sources of international development finance, infrastructure investment, and outward foreign direct investment. "In recent years, China has become the largest single trading partner for Africa and a key investor and provider of aid," and "a 1 percentage point increase in China's real domestic fixed asset investment growth has tended to increase Sub-Saharan Africa's export growth rate on average by 0.6 percentage point."[100]

China's approach in South–South development cooperation differs from that of established donors in that China combines trade, aid, and public and private investment to strive for mutual respect and mutual benefit, or win-win. Africa–China trade has been growing at approximately 20 percent a year since 2000. Foreign direct investment has grown 40 percent in the last 10 years.[101] Official development assistance from China is small compared with that from other Organisation for Economic Co-operation and Development countries but is commensurate with its income per capita.[102] Moreover, China has been using its comparative advantage in constructing infrastructure with the advantage of economies of scale to help others invest in large-scale development projects. China is the largest source of construction financing, and it has supported many of Africa's most ambitious infrastructure development in recent years, including hydropower, railways, and roads.[103]

Chinese official development assistance has been found to have a significant positive effect on economic growth in recipient countries. One additional Chinese aid project increased economic growth by 0.7 percentage point two years after the aid project was committed, in a sample of recipient countries whose average growth rate was 2.8 percent. This result held for official development assistance projects only; there was no effect for other official flows.[104]

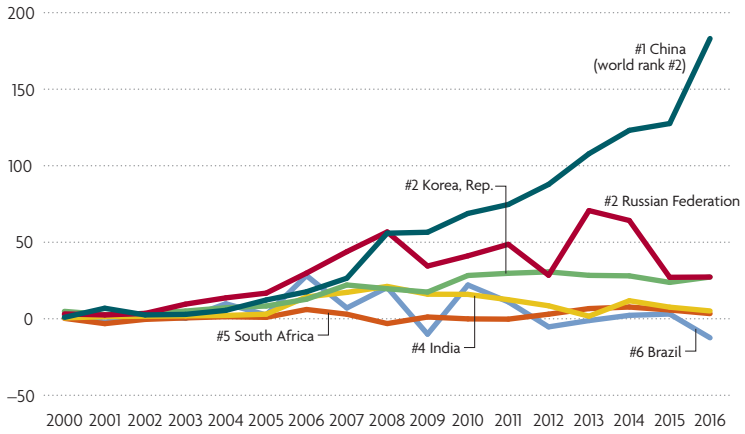
As China's gross national income and fiscal revenue have continued to grow, its development financing has risen dramatically, to close to $100 billion in 2015–16 (including grants, concessional loans, and export buyer credits, as well as contributions to the Silk Road Fund, the Asian Infrastructure Investment Bank, the New Development Bank, and other multilateral banks).[105] China will gradually take more responsibilities and explore its new roles in global affairs. Official *development* assistance is likely to grow from the current 0.1 percent of gross national income to 0.3 percent.[106] But the pace of the increase depends on the global governance system. China has tried to set up the "right" platforms for its contribution to global development, including its contribution to setting up the Asian Infrastructure Investment Bank and other new groupings such as the New Development Bank, the Silk Road Fund, the Forum on China–Africa Cooperation, and the African Capacity Development Fund.

In particular, China's outward foreign direct investment soared to over $183 billion in 2016

FIGURE 11.2

Outward foreign direct investment from "BRICKS" countries, 2000–16

$ billion

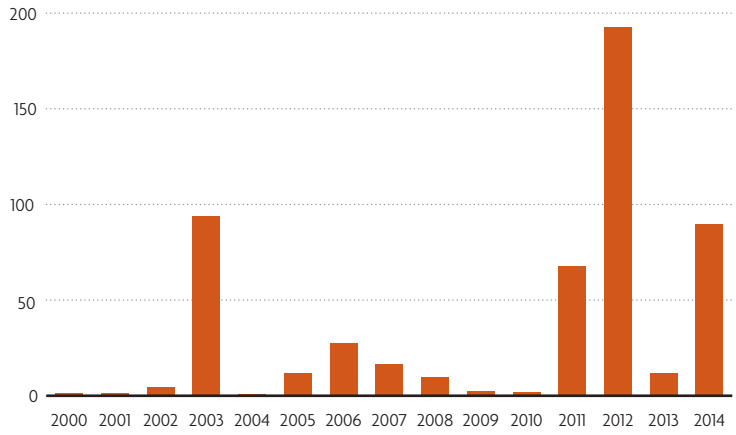


Source: Calculated based on data from the United Nations Conference on Trade and Development.

FIGURE 11.3

Costs of China-sponsored official development assistance–like projects completed in Zimbabwe, 2000–14

2014 $ million



Source: Calculated based on data from AidData's Global Chinese Official Finance Dataset, 2000–2014, version 1.0.

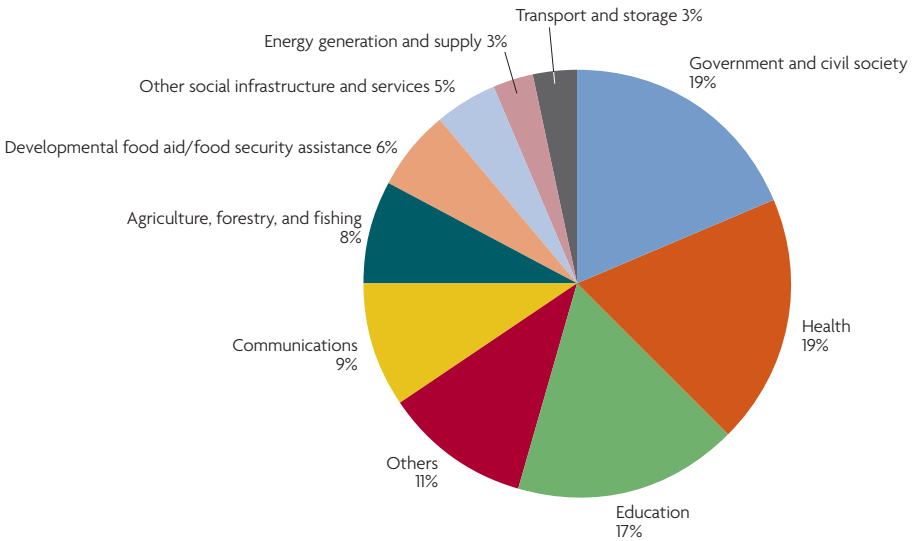
(figure 11.2), ahead of all other emerging market economies and second only to the United States.

China and Zimbabwe: aid, trade, and investment

China and Zimbabwe have long had an "all-weather" friendly relationship, with mutual support, cooperation, and benefit. Chinese President Xi Jinping has reiterated his willingness to join President Emmerson Mnangagwa to "write a new chapter" in China–Zimbabwe relations.[107] In particular, China has emerged as Zimbabwe's largest aid, investment, and South–South cooperation partner in the last decade. Zimbabwe is estimated to be one of the top recipients of China's official development assistance, receiving $3.6 billion.[108] In December 2017, Zimbabwe signed a $153 million loan agreement with China to expand and refurbish its international airport in Harare, in a bid to attract investors and tourists. This was

FIGURE 11.4

China-sponsored official development assistance projects completed in Zimbabwe in 2000–14, by sector



Note: Data refer to the share of 64 completed projects.

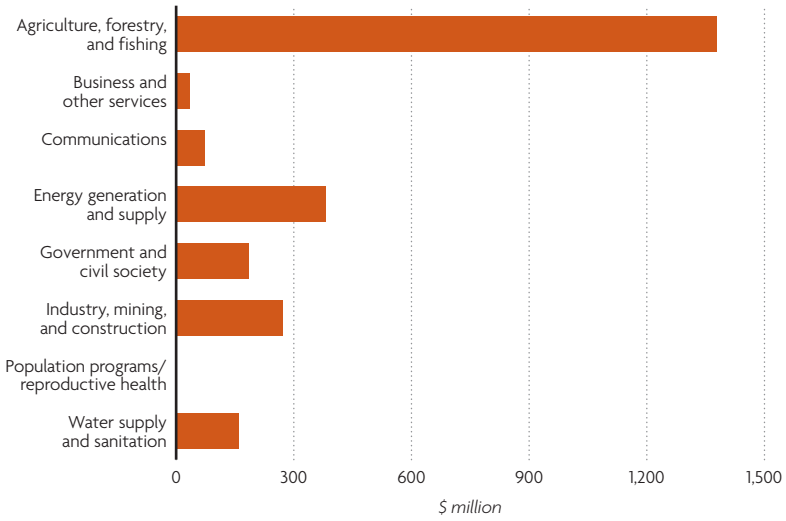
Source: Calculated based on AidData's Global Chinese Official Finance Dataset, 2000–2014, version 1.0.

the first such large loan deal under the new government.[109] In March 2018, China agreed to fund the expansion of the Kariba South hydro power station by 300 megawatts. Zimbabwe requires 1,400 megawatts but can produce only 900 megawatts. It imports 300 megawatts each from South Africa and 50 megawatts from Mozambique, so the expansion would help reduce Zimbabwe's power import bill.[110]

Over 2000–14, China supported at least 64 completed developmental projects and programs totaling $533 million (in 2014 prices) in grants, no-interest loans, and some official development assistance–like projects (figure 11.3).[111] Health projects and government and civil society projects each accounted for 19 percent of the projects; education projects accounted for 17 percent; communications projects for 9 percent; agriculture, forestry, and fishing projects for 8 percent; developmental food aid projects for 6 percent; other social infrastructure and services projects for 5 percent; energy generation and supply projects for 3 percent; transport and storage projects for 3 percent; and projects in other sectors for 11 percent (figure 11.4).

FIGURE 11.5

Value of other official flows from China to Zimbabwe, by sector, 2004–14



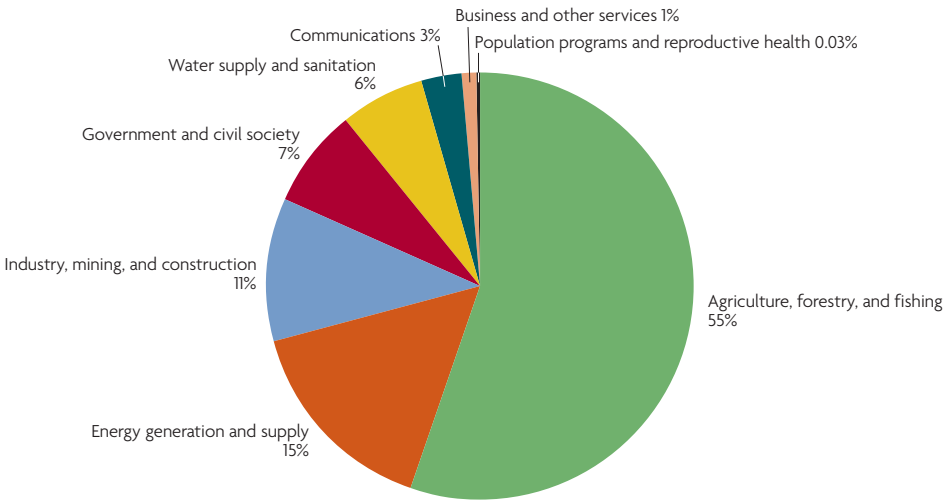
Source: Calculated based on data on other official flows and vague official flows from AidData.com.

Other official flows and investment

Over the last decade, China has provided significant concessional and nonconcessional loans, export credit, and other official flows

FIGURE 11.6

Distribution of other official flows from China to Zimbabwe, by sector, 2004–14



Source: Calculated based on data on other official flows and vague official flows from AidData.com.

CASE STUDY

Chinese investment in the textile and apparel sector in Sub-Saharan Africa

Under the "flying geese" model, economists expect the textile and apparel sector to boost industrialization in Africa. Chinese companies' engagements in this sector in Africa are thus particularly interesting, as they are the world's major players and have the potential to shape the continent's industrialization.

Chinese investors in the garment-making sector have focused their investment in Botswana, Lesotho, South Africa, and Swaziland. Some were originally from Taiwan, China; their business in the region started as early as the 1970s. These companies recruited technicians from China; many of those technicians later opened their own factories. As the Chinese economy grew, more and more investors from China came to Southern Africa, usually forming clusters to share information, build connections, and seek business. The more established clusters machinery sales agents and expatriate technicians of Chinese origin.

Chinese producers in Southern Africa used to export garments to the European and U.S. markets when African governments offered generous financial incentives to encourage foreign investment in export businesses. But as the tax holidays ended, most Chinese firms left the export business. The main reason was that clients in those two markets have strict requirements on quality and lead time, which African factories were unable to guarantee, and some manufacturers even had to pay huge penalties for infractions. Other issues, such as increasing labor conflicts, deficient facilities, cumbersome export processes, and lack of local industrial suppliers, greatly raised transaction costs and left the factories unable to compete with those based in China and other Asian countries.

Most Chinese garment producers left in Africa sell their products almost exclusively to the South African market. Major retailers in South Africa have adopted a fast-fashion business model, requiring one-week responses to changes in fashion. Local suppliers have the advantage of short lead times against Asian imports and are thus able to survive in this niche market. Hundreds of private investors from China and Taiwan, China, are operating cut, make, trim or cut, make, pack factories. They are all small, averaging 100–200 people, and require little capital (as low as $20,000) to start. They can easily relocate to places with lower production costs.

Yet JD Group, a giant Chinese apparel maker, set up a long-term production base in Tanzania in 2011. Its motives are different. In 2005, feeling pressure from rising production costs, the company set up factories in Cambodia, where today it has 13 plants that employ more than 20,000 workers. However, average monthly wages there have risen from $40 to $150. So the company, whose clients are mainly in the United States, began to search for a new production site.

It came to Tanzania through an old aid project, Urafiki Textile Co., in Dar es Salaam. Tanzania's stable political situation, good relations with China, and a new special economic zone helped the chief executive officer make up his mind. Within a year of his first visit in May 2011, the company had opened a factory in Dar es Salaam. By August 2014, the factory had hired more than 1,000 local workers. A second factory was completed in October 2015 with 2,500 local workers. All products are exported to the U.S. market.

The first factory served more as an experiment. The experience was used to set up many more factories, just as the company had done in Cambodia, getting a foothold before expanding. "When we establish a factory with tens of thousands of employees, it cannot be a short-term investment. We want to stay at least twenty to thirty years," Wang Wenping said.[1]

CASE STUDY *(continued)*

Chinese investment in the textile and apparel sector in Sub-Saharan Africa

A main bottleneck that all Chinese apparel makers in Africa face is supply of fabrics and accessories, so most are imported from China, raising costs and operational difficulties and causing production delays. Only a few textile mills in Sub-Saharan Africa still produce fabric for apparel, and they do not achieve scale economies. Chinese factories run the complete value chain of textile–apparel production, with a vast number of mills and many accessory suppliers, and can supply amounts and varieties required by garment makers at good prices.

Seeing the gap, several companies from China and Taiwan, China, set up textile mills in Africa, including Urafiki in Tanzania and Taiyuan in South Africa. Their performance has been unsatisfactory, due mainly to local workers' low productivity and unstable power supplies. "If we had done a better investigation, we would not have invested here," the CEO of Taiyuan has said, expressing regret over the venture.[2] JD Group has plans to extend to weaving and dyeing in Tanzania in a few years, as the firm's operations in China cover textile processing. However, Wang Wenping is cautious. "A textile mill needs a lot of equipment. The investment amount is big. We are not in hurry to unfold all the plans immediately. We should do it step by step."

In 2013 and 2014, a small Chinese textile–apparel cluster emerged in Ethiopia, as three textile mills and one garment maker set up in a Chinese-run industrial park. They did not coordinate with each other—but made the almost simultaneous investments coincidentally. Rising wages and environmental standards in China pushed the textile manufacturers to seek cheaper manufacturing space overseas. The Ethiopian government's support and incentives attracted them.

These companies target primarily the Ethiopian and East African markets. All produce only polyester cloth and garments, which are technically less demanding to make and more affordable to African consumers. Since the start of operations, sales have been very promising, but the firms found many unexpected problems on the production side: delays in customs clearance, frequent leave of local workers, unprofessional service providers, and the like. The owner of one of the mills summarized his experience in Ethiopia: "As long as people can make the products, they can make money."[3]

Scattered Chinese textile–apparel investments can be found elsewhere in Africa, often driven by China's industrial upgrading. Yet not all African countries will benefit from relocation. Chinese investors will be attracted only to countries with government commitments to provide investors with a reasonable business environment. Access to domestic and international markets, functioning infrastructure, political stability, financial incentives, and other elements will influence Chinese investors' choice of destination. Additionally, governments need to make more effort to strengthen foreign factories' links with local supplies, for them to expand and stay longer in Africa.

Notes

1. Interview with Wang Wenping, JD Group Tanzania Branch, Dar es Salaam, August 2013.
2. Interview with CEO of Taiyuan Textile Mill, Ladysmith, South Africa, July 2013.
3. Interview with owner of Kaipu Spinning, Dukem, Ethiopia, January 2015.

Source: Based on Tang (2014), with updates drawing on authors' visits and interviews.

(figure 11.5). The majority of other official flows has been invested in the agricultural sector (55.5 percent), which is where Zimbabwe has a comparative advantage, followed by energy generation and distribution (15 percent) and industry, mining, and construction (10 percent; figure 11.6).

Zimbabwe could grasp the opportunities provided by the large number of Chinese enterprises "going global" and join existing global supply chains in food, cotton, wool, leather, footwear, garments, and assembly lines of farm machinery, motorcycles, or buses (see table 5.4 in chapter 5) and become a light manufacturing and construction logistic center for Southern and East Africa and eventually the entire continent.

Conclusion

Zimbabwe holds lots of promise to regain growth and structural transformation, through a three-pronged strategy of agriculture-led industrialization, eco-tourism sector development, and special economic zones. But in the short term, these growth strategies hinge on the country's capacity to finance infrastructure investment—identified as the binding constraint across all sectors.[112] After clearing the arrears with the World Bank Group and the African Development Bank, there are opportunities for Zimbabwe to seek investment from these multilateral development banks and other investment funds.

A range of policy recommendations has been proposed to address the infrastructure financing shortage, including the short-term measure of linking mining sector rents to infrastructure development financing, the medium-term measure of gaining access to international financial markets, and the long-term measure of adopting policies that support macroeconomic stability, increase investors' confidence, encourage allocation of capital to long-term investment, and enhance the country's absorptive capacity, in particular the large amount of foreign direct investment from China. Although this report does not address the financing issue, further studies should focus on financial sustainability, including tax revenue, government spending, and instruments to leverage external financial resources, such as public–private partnerships.

Appendixes

APPENDIX A

Supplemental tables

TABLE A1

Zimbabwe's sectoral factor intensity, 2016

Percent

Activity	Labor, unskilled	Labor, skilled	Capital	Land	Extractive resource	Total
Agriculture, forestry, and fishing	41.4	21.1	17.8	19.7	0.0	100.0
Mining and quarrying	6.0	55.2	25.2	0.0	13.6	100.0
Manufacturing	8.5	51.7	39.9	0.0	0.0	100.0
Electricity and water supply	6.5	56.6	36.9	0.0	0.0	100.0
Construction	12.9	62.3	24.8	0.0	0.0	100.0
Financial intermediation	5.3	12.9	81.8	0.0	0.0	100.0
Real estate and business activities	17.6	42.5	39.9	0.0	0.0	100.0
Trade, hotels, and restaurants	12.1	33.4	54.5	0.0	0.0	100.0
Transport and communications	9.9	27.4	62.6	0.0	0.0	100.0
Public administration	6.9	85.6	7.6	0.0	0.0	100.0
Education	6.7	83.3	10.0	0.0	0.0	100.0
Health	6.5	80.8	12.8	0.0	0.0	100.0
Domestic services	100.0	0.0	0.0	0.0	0.0	100.0
Other services	24.8	60.1	15.1	0.0	0.0	100.0
Total	13.2	49.6	33.9	2.2	1.1	100.0

Source: Authors' calculations based on 2016 Zimbabwe social accounting matrix.

TABLE A2

Composition of Zimbabwe's sectoral demand, 2016

Percent

Sector	Intermediate use	Distribution margin	Private consumption	Government consumption	Exports	Gross fixed capital formation	Stock change	Total
Agriculture, forestry, and fishing	57.5	0.0	8.5	0.0	33.9	0.0	0.1	100.0
Mining and quarrying	60.9	0.0	0.0	0.0	38.1	0.0	0.9	100.0
Manufacturing	35.4	0.0	41.1	0.0	11.9	11.8	−0.1	100.0
Electricity and water supply	38.8	0.0	59.7	0.0	1.6	0.0	0.0	100.0
Construction	43.2	0.0	2.0	0.0	0.0	54.8	0.0	100.0
Financial intermediation	67.9	0.6	31.5	0.0	0.0	0.0	0.0	100.0
Real estate and business activities	0.3	0.0	99.7	0.0	0.0	0.0	0.0	100.0
Trade, hotels, and restaurants	36.7	52.8	2.2	0.0	8.2	0.0	0.0	100.0
Transport and communications	42.9	5.2	49.4	0.0	2.5	0.0	0.0	100.0
Public administration	0.1	0.0	1.0	98.9	0.0	0.0	0.0	100.0
Education	0.2	0.0	10.5	89.2	0.0	0.0	0.0	100.0
Health	3.4	0.0	27.9	68.7	0.0	0.0	0.0	100.0
Domestic services	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Other services	59.1	0.0	40.9	0.0	0.0	0.0	0.0	100.0
Total	38.0	4.8	31.7	10.2	10.2	5.0	0.0	100.0

Source: Authors' calculations based on 2016 Zimbabwe social accounting matrix.

TABLE A3

Sustainable Development Goal indicators for Zimbabwe and Africa, 2000 and 2014

	Zimbabwe		Africa median[a]		Zimbabwe percentile ranking		
Indicator	2000	2014	2000	2014	2000	2014	Change, 2000–14
Gross preprimary school enrollment (%)	58.7	41.5	10.8	24.3	91.1	64.7	–26.4
Primary completion rate, total (% of relevant age group)	90.7	88.5	52.3	74.9	87.8	80.4	–7.4
Gross primary school enrollment (%)	103.2	100.0	91.8	103.7	68.0	42.5	–25.5
Net primary school enrollment (%)	85.8	86.2	65.5	82.3	75.7	60.6	–15.1
Net intake rate in grade 1 (% of official school-age population)	45.3	37.8	36.3	59.1	71.4	14.2	–57.2
Lower secondary completion rate, total (% of relevant age group)		64.1		44.5		75.5	
Gross secondary school enrollment (%)	43.8	46.8	26.2	43.7	82.3	52.9	–29.4
Net secondary school enrollment (%)	41.0	43.5	19.6	35.2	76.4	64.7	–11.7
Gross tertiary school enrollment (%)		6.8		8.8		36.5	
Under-5 mortality rate (per 1,000 live births)	96.8	65.3	125.4	69.3	26.4	45.2	18.8
Maternal mortality ratio (modeled estimate, per 100,000 live births)	589.2	398.0	654.6	400.5	44.2	48.0	3.8
Prevalence of stunting, height for age (% of children under 5)	33.7	27.6	37.6	30.7	35.4	41.9	6.5
Prevalence of wasting, weight for height (% of children under 5)	8.5	3.3	9.4	6.5	35.4	9.6	–25.8
People using at least basic drinking water services (% of population)	70.5	67.0	54.3	66.2	72.5	52.9	–19.6
People using at least basic sanitation services (% of population)	41.7	38.9	24.7	33.3	71.1	59.6	–11.5
Access to electricity (% of population)	34.6	35.6	21.3	39.0	62.2	41.5	–20.7
Carbon dioxide emissions (kg per 2010 $ of GDP)	0.89	0.74	0.33	0.31	93.8	91.8	–2.0

Note: Indicators are shown only if data are available for at least 18 countries (that is, a third of the countries in Africa, including Zimbabwe). Indicators shown for both 2000 and 2014 have identical country coverage for the two years. The maximum number of countries is 54. Data for 2000 refer to the average over 1998–2002, and data for 2014 refer to the average over 2012–16.

a. Values for indicators with data available in both periods refer to the same countries in both periods.

Source: Authors' calculations based on data from World Bank (2018b).

TABLE A4

Determinants of economic performance: Zimbabwe and Africa in 2000 and 2014

	Zimbabwe		Africa median[a]		Zimbabwe percentile		
Indicator	2000	2014	2000	2014	2000	2014	Change, 2000–14
GDP per capita (2010 $)	1,266.2	929.3	876.1	1,153.1	65.3	44.8	–20.5
Household final consumption expenditure (% of GDP)	67.9	84.2	75.4	72.0	28.5	85.7	57.2
General government final consumption expenditure (% of GDP)	18.7	23.8	14.0	15.1	85.7	92.8	7.1
Gross fixed capital formation, private sector (% of GDP)	9.6	9.9	12.0	14.6	38.7	19.3	–19.4
Gross fixed capital formation, public sector (% of GDP)	1.9	2.5	7.1	7.0	3.2	3.2	0.0
Gross fixed capital formation (% of GDP)	11.4	12.4	17.3	22.9	19.0	7.1	–11.9
Exports of goods and services (% of GDP)	37.2	26.2	26.0	30.5	70.4	34.0	–36.4
Imports of goods and services (% of GDP)	36.5	46.1	33.6	40.3	63.6	61.3	–2.3
Gross savings (% of GDP)		–7.2		16.3		48.7	
Current account balance (% of GDP)		–11.3		–7.9		75.0	
Government expenditure on education, total (% of GDP)		7.4		4.5		85.2	
Government expenditure per student, primary (% of GDP per capita)		19.2		10.4		87.0	
Government expenditure per student, secondary (% of GDP per capita)		30.4		19.7		53.5	
Government expenditure per student, tertiary (% of GDP per capita)		224.9		92.2		11.1	
Current health expenditure (% of GDP)		8.8		5.5		81.6	
Tax revenue (% of GDP)		21.4		15.3		86.2	
IDA resource allocation index (1=low to 6=high)		2.5		3.2		12.8	
Logistics performance index: overall		2.3		2.5		26.5	
Logistics performance index: quality of trade and transport infrastructure		2.2		2.3		38.7	

Note: Indicators are shown only if data are available for at least 18 countries (that is, a third of the countries in Africa, including Zimbabwe). Indicators shown for both 2000 and 2014 have identical country coverage for the two years. The maximum number of countries is 52. Data for 2000 refer to the average over 1998–2002, and data for 2014 refer to the average over 2012–16.

a. Values for indicators with data available in both periods include the same countries in both periods.

Source: Authors' calculations based on data from World Bank (2018b).

APPENDIX B

Structure of SDGSIM

This appendix provides additional detail on SDGSIM as applied to Zimbabwe.[113] Figure A1 summarizes the payment flows that the model captures in in any year; figure A2 describes the labor market.

Activities produce, selling their output at home or abroad and using their revenue to cover their costs (of intermediate inputs, factor hiring, and taxes). Activity decisions about factor hiring, which determine output level, are driven by profit maximization. The shares exported and sold domestically depend on the relative prices of their output in world and domestic markets.

SDGSIM includes three core institutions: households, government, and the rest of the world.

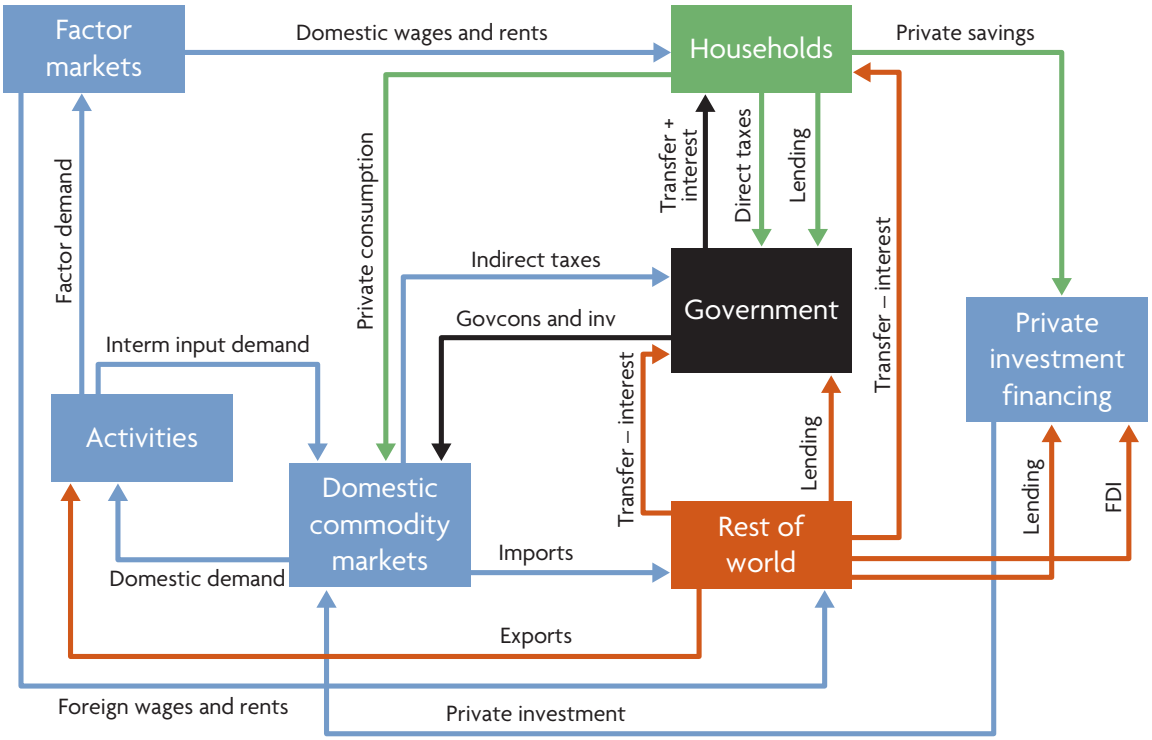
- *Households* (split into rural and urban in the Zimbabwe application) earn incomes from factors, transfers from the government, and transfers from the rest of the world. Incomes are used for direct taxes, savings, and consumption. The savings share is exogenous or endogenous depending on the mechanism for balancing private investment and available financing. Consumption changes in response to income and price changes. By construction (and as required by the household budget constraints), consumption equals income net of direct taxes and savings.
- The *government* gets its receipts from taxes and transfers from abroad; it uses these for consumption, transfers to households, and investments (providing capital stocks used in the production of government services), drawing on domestic and foreign financing for supplementary funding. To remain within its budget constraint, it either adjusts some part of its spending on the basis of available receipts or mobilizes additional receipts of one or more types to finance its spending.
- The *rest of the world* (which appears in the balance of payments) sends foreign currency to Zimbabwe in the form of transfers to government and households, foreign direct investment, loans, and export payments. Zimbabwe uses these inflows to finance its imports. The balance of payments clears (inflows and outflows are equalized) via adjustments in the real exchange rate (through changes in the domestic price level, changing the ratio between the international and domestic price levels in domestic currency), which take place when the balance is in surplus or deficit.

Private investment financing is provided from domestic household savings (net of financing to the government) and foreign investment. It is assumed that household investment spending will adjust in response to changes in available funding or that household savings will adjust to finance a predetermined investment level.

In *domestic commodity markets,* flexible prices ensure balance between demands for domestic output from domestic demanders and supplies to the domestic market from domestic suppliers. The part of domestic demands that is for imports faces exogenous world prices—Zimbabwe is viewed as a small country in world markets without any impact on the import and export prices that it faces. Domestic demanders decide on import and domestic shares in their demands on the basis of the relative prices of commodities from

FIGURE B1

Aggregate payment flows in SDGSIM



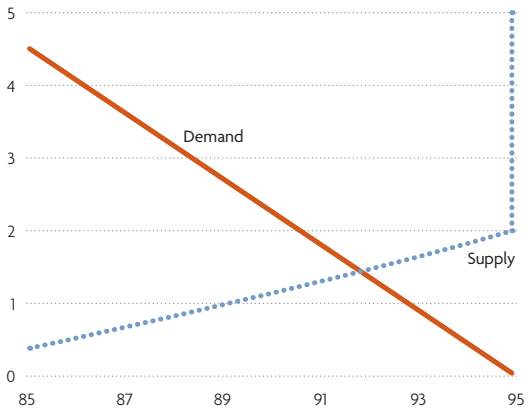
Source: Authors' construction.

these two sources. Similarly, domestic suppliers (the activities) decide on the shares for exports and domestic supplies on the basis of the relative prices received in these two markets.[114]

Factor markets reach balance between demands and supplies via wage (or rent) adjustments. Across all factors, the factor demand curves are downward-sloping, reflecting the responses of production activities to changes in factor wages. On the supply side of the labor market, unemployment is endogenous—the model includes a wage curve (a supply curve) that is upward-sloping until full employment is reached, at which point it becomes vertical (see figure B2). Over time, the labor force grows due to demography (working-age population and its labor force participation rates). For non-labor factors, the supply curves are vertical in any single year (the supply is fixed) but switch over time as supplies change (see next point).

FIGURE B2

The labor market in SDGSIM



Source: Authors' construction.

The above discussion refers to the functioning of the model economy in a single year. In SDGSIM, growth over time is endogenous. The economy grows because of accumulation of capital (determined by investment and depreciation), labor (determined by demography), and other factors (following exogenous growth trends) and because of improvements in total factor productivity. Apart from an exogenous component, total factor productivity depends on government capital stocks.

In a postcalculation module, information poverty rates and Gini coefficients for an initial year and the evolution of real consumption per capita from the simulations are used to generate one or more synthetic household surveys, assuming a log-normal distribution within each household group for which poverty results are generated. Poverty results are currently generated only at the national level for an aggregate household.

APPENDIX C

Description of SDGSIM model database

The SDGSIM database for Zimbabwe developed for this analysis has 2016 as its base year. The construction of the social accounting matrix is explained in detail in Cicowiez and Lofgren (2018), and the related model and database disaggregation is shown in table 2.1 in chapter 2. The other key data are elasticities (in trade, production, and consumption), factor stocks, and projections for gross domestic product (GDP) and other indicators.

The elasticities used are displayed in table C1. They were defined on the basis of the literature and author assessments, drawing on a combination of econometric evidence and experience from similar country applications.[115] For the extractive industry activity, the value added elasticity and constant elasticity of transformation are at low levels to let production and export growth be driven by exogenous assumptions regarding use of the resource factor. For household consumption, expenditure elasticities are based on Muhammad et al. (2011). These were then recalibrated to reflect the consumption structure in the Zimbabwe social accounting matrix. In the context of the linear expenditure system demand functions, which are used in SDGSIM, estimates are also needed for the so-called Frisch parameter (technically the elasticity of the marginal utility of income with respect to income) for each household group. Using a relationship in Lluch et al. (1977), which expresses an inverse relationship between the Frisch parameter and real consumption per capita, the rural Frisch parameter was estimated at –7.3, and the urban Frisch parameter was estimated at –4.4. These values were used, in particular since they were consistent with Global Trade Analysis Project estimates for different countries and regions.[116] Population data are based on UNDESA (2017).

For poverty and inequality, the most recent information was for 2011, covering national, rural, and urban headcount poverty rates as well as a national Gini coefficient.[117] To conduct rudimentary poverty analysis, the national 2011 figures were considered valid for 2016, but the rural and urban ones were not.

Among the factors, base-year stocks are needed for private capital and labor. The private capital stock was estimated based on capital rents in the social accounting matrix and typical rates for depreciation (4.5 percent) and a modest rate of net profits (10 percent). For government capital, estimates are not needed for base-year stocks because the simulation results depend only on deviations of the stock from base scenario levels. Apart from simulated investment levels, these deviations depend on government capital depreciation rates, which were set at 3.5 percent.

The fact that the model is solved over time generates additional data needs. As noted in the main body of the text, the base scenario is calibrated to replicate a path of growth in GDP at factor cost—that is, based on data and projections from AfDB (2018) and IMF (2018). Projections are also needed for growth in the labor and mining factors. For labor, which is disaggregated into skilled and unskilled, these projections are based on projected changes in the educational composition of the labor force. For mining, growth in resource extraction is a major determinant of mining sector growth; the relevant factor growth rate was set to generate growth in the mining sector that is close to overall GDP growth.

TABLE C1

Value-added, trade, and consumption elasticities

Sector	VA	CET	Armington	LES, rural	LES, urban
Agriculture, forestry and fishing	0.90	2.20	0.90	0.43	0.44
Mining and quarrying	0.90	1.10		1.16	1.18
Manufacturing	0.90	2.20	0.90	1.16	1.18
Electricity and water supply	0.90	1.10	0.60	0.56	0.57
Construction	0.90	0.00	0.00	0.56	0.57
Financial intermediation	0.90	0.00	0.00	1.16	1.18
Real estate and business activities	0.90	0.00	0.00	1.16	1.18
Trade, hotels and restaurants	0.90	2.20	0.90	1.06	1.08
Transport and communications	0.90			0.66	0.67
Public administration	0.25			1.16	1.18
Education	0.25			0.48	0.49
Health	0.25	0.00		2.22	2.26
Domestic services	0.90	0.00	0.00	1.16	1.18
Other services	0.90	0.00	0.00	1.16	1.18

VA is the constant elasticity of substitution value added function. Armington is the constant elasticity of substitution aggregation function for domestic demand (elasticities of substitution between imports and domestic output). CET is the constant elasticity of transformation function for domestic output (elasticities of transformation between exports and domestic supply). LES is the linear expenditure system (elasticities of household consumption with respect to total consumption spending) for rural and urban households.

Source: Annabi, Cockburn, and Decaluwé 2006 and authors' assessments.

Though some of the data used are clearly rough estimates, for most simulations, most parameters play a qualitatively minor role as long as their values stay within accepted bounds because of the consistency features of an economywide model like SDG-SIM (in markets for factors and commodities, quantities demanded and supplied must be equal, and all agents live under budgetary constraints). However, for any given simulation, specific parameters may be important, so it is important to design the simulations so that the role played by such parameters is carefully considered.

APPENDIX D

Additional SDGSIM simulation results

TABLE D1

Average annual growth of real macro indicators in Zimbabwe, by simulation, 2019–30

Percent, unless otherwise indicated

		2030							
Indicator	2018[a]	Base	Central case	Foreign financing	Low marginal product of new investment	High marginal product of new investment	Focus on tradables with low marginal product of new investment	Focus on tradables with high marginal product of new investment	Stronger infra-structure investment expansion
Absorption	1,931.9	4.0	4.3	4.5	3.9	4.7	4.5	5.1	4.6
Consumption, private	1,355.4	3.4	3.5	3.8	3.0	4.1	3.8	4.5	3.7
Consumption, government	379.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Fixed investment, private	147.4	7.8	7.8	8.1	7.2	8.4	8.3	9.2	7.8
Fixed investment, government	49.6	3.7	10.1	10.1	10.1	10.1	10.1	10.1	13.9
Exports	466.8	4.6	5.2	5.2	4.4	5.9	5.7	6.7	5.8
Imports	669.7	4.0	4.5	4.7	3.9	4.9	4.8	5.6	4.8
GDP at factor cost	1,510.4	4.2	4.5	4.6	4.0	5.0	4.8	5.4	4.8
Total factor employment (index)		3.0	3.3	3.4	3.2	3.4	3.4	3.5	3.6
Total factor productivity (index)		1.2	1.2	1.2	0.9	1.5	1.4	1.9	1.2
Gross national income	1,698.6	4.2	4.5	4.7	4.0	5.0	4.8	5.4	4.9
Gross national disposable income	1,893.1	4.1	4.4	4.6	4.0	4.8	4.7	5.3	4.7
Gross national income per capita	1.0	2.1	2.5	2.6	2.0	2.9	2.7	3.3	2.8
Gross national disposable income per capita	1.1	2.0	2.4	2.5	1.9	2.8	2.6	3.2	2.7
Real exchange rate (index)		0.6	0.7	0.7	0.6	0.8	0.4	0.2	0.8
Unemployment rate (%)[b]	13.9	7.8	6.9	6.5	8.8	5.5	6.8	5.5	6.2
Headcount poverty rate (%)[b]	71.9	65.2	64.6	63.2	67.6	61.8	62.9	58.7	64.0

a. Unless otherwise noted, data are 2016 $ billion.

b. The base-year column shows the base-year rate, and the simulation columns show simulation-specific final-year rates.

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D2

Macro indicators in Zimbabwe, 2018 and 2030, by simulation

Percent of nominal GDP

		2030							
Indicator	**2018[a]**	**Base**	**Central case**	**Foreign financing**	**Low marginal product of new investment**	**High marginal product of new investment**	**Focus on tradables with low marginal product of new investment**	**Focus on tradables with high marginal product of new investment**	**Stronger infra-structure investment expansion**
Absorption	112.0	111.8	111.3	112.2	111.9	110.7	110.4	109.2	110.8
Consumption, private	78.8	73.6	72.0	72.9	71.3	72.7	71.3	71.3	70.5
Consumption, government	21.7	21.6	20.3	20.2	21.4	19.2	20.5	19.8	19.0
Investment, private	8.6	13.6	13.3	13.5	13.1	13.4	13.2	13.3	12.9
Investment, government	2.9	2.9	5.7	5.6	6.1	5.4	5.4	4.9	8.4
Exports	27.8	30.8	31.9	31.3	30.4	33.2	31.5	32.3	32.9
Imports	39.9	42.5	43.1	43.5	42.3	43.9	41.9	41.5	43.7
GDP at market prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Net indirect taxes	12.8	13.6	14.8	14.0	15.7	14.0	14.7	13.9	16.0
GDP at factor cost	87.2	86.4	85.2	86.0	84.3	86.0	85.3	86.1	84.0
Gross national income	98.2	97.9	97.9	97.9	97.9	97.8	97.9	97.8	97.8
Gross national disposable income	109.7	109.5	109.1	108.9	109.6	108.6	108.3	107.3	108.7
Foreign savings	2.3	2.3	2.2	3.3	2.3	2.1	2.1	1.9	2.1
Foreign savings	9.2	14.2	16.8	15.8	16.8	16.8	16.5	16.3	19.2
Foreign government debt	47.7	45.0	43.5	58.4	45.4	41.9	40.7	36.9	42.1
Foreign private debt	23.7	27.1	26.2	25.7	27.3	25.2	24.5	22.2	25.4
Domestic government debt	29.4	30.3	29.5	29.1	30.5	28.6	27.8	25.6	28.7

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D3

Government receipts and spending in Zimbabwe, 2018 and 2030, by simulation

Percent of nominal GDP

Indicator	2018	2030							
		Base	Central case	Foreign financing	Low marginal product of new investment	High marginal product of new investment	Focus on tradables with low marginal product of new investment	Focus on tradables with high marginal product of new investment	Stronger infrastructure investment expansion
Receipts									
Direct taxes	7.5	7.2	7.6	7.1	8.2	7.0	7.6	7.2	7.9
Import tariffs	1.7	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9
Export taxes									
Other indirect taxes	11.1	11.8	12.9	12.1	13.8	12.1	12.8	12.1	14.0
Private transfers	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Foreign transfers									
Factor income	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.5
Domestic financing	2.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Foreign financing	0.4	0.4	0.4	1.6	0.5	0.4	0.4	0.4	0.4
Total	24.6	24.5	26.0	25.8	27.5	24.6	25.9	24.6	27.4
Spending									
Consumption	21.7	21.6	20.3	20.2	21.4	19.2	20.5	19.8	19.0
Fixed investment	2.9	2.9	5.7	5.6	6.1	5.4	5.4	4.9	8.4
Stock change									
Private transfers									
Foreign transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commodity subsidies									
Total	24.6	24.5	26.0	25.8	27.5	24.6	25.9	24.6	27.4

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D4

Balance of payments in Zimbabwe, 2018 and 2030, by simulation

Percent of nominal GDP

		2030							
Indicator	**2018**	**Base**	**Central case**	**Foreign financing**	**Low marginal product of new investment**	**High marginal product of new investment**	**Focus on tradables with low marginal product of new investment**	**Focus on tradables with high marginal product of new investment**	**Stronger infra-structure investment expansion**
Outflows									
Imports	39.9	42.5	43.1	43.5	42.3	43.9	41.9	41.5	43.7
Private transfers to rest of world	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Official transfers to rest of world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Factor income to rest of world	3.1	3.4	3.4	3.3	3.4	3.4	3.3	3.2	3.4
Change in foreign reserves									
Total	43.1	46.0	46.6	46.9	45.7	47.4	45.2	44.8	47.1
Inflows									
Exports	27.8	30.8	31.9	31.3	30.4	33.2	31.5	32.3	32.9
Private transfers from rest of world	11.7	11.7	11.3	11.1	11.8	10.9	10.6	9.6	10.9
Official transfers from rest of world									
Factor income from rest of world	1.3	1.3	1.2	1.2	1.3	1.2	1.1	1.0	1.2
Private financing	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5
Government financing	0.4	0.4	0.4	1.6	0.5	0.4	0.4	0.4	0.4
Foreign investment	1.3	1.3	1.2	1.2	1.3	1.2	1.1	1.0	1.2
Total	43.1	46.0	46.6	46.9	45.7	47.4	45.2	44.8	47.1

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D5

Average annual growth of real GDP at factor cost in Zimbabwe, 2018 and 2030, by simulation

Percent

Indicator	2018	2030							
		Base	Central case	Foreign financing	Low marginal product of new investment	High marginal product of new investment	Focus on tradables with low marginal product of new investment	Focus on tradables with high marginal product of new investment	Stronger infra-structure investment expansion
Aggregate sectors									
Agriculture	176.5	4.6	5.2	5.2	4.5	5.7	5.7	6.8	5.6
Industry	354.0	4.1	4.7	4.9	4.1	5.3	4.9	5.7	5.3
Mining	132.0	2.9	3.5	3.6	2.8	4.1	3.6	4.2	4.0
Manufacturing	148.9	4.7	5.3	5.4	4.6	5.9	5.6	6.5	5.8
Other	73.1	4.8	5.5	5.7	5.0	6.0	5.7	6.2	6.2
Services	934.3	4.1	4.3	4.4	3.9	4.7	4.5	5.0	4.5
Private	806.6	4.1	4.3	4.5	3.9	4.7	4.5	5.1	4.6
Government	127.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Disaggregated sectors									
Agriculture	176.5	4.6	5.2	5.2	4.5	5.7	5.7	6.8	5.6
Mining and quarrying	132.0	2.9	3.5	3.6	2.8	4.1	3.6	4.2	4.0
Manufacturing	148.9	4.7	5.3	5.4	4.6	5.9	5.6	6.5	5.8
Electricity and water supply	29.5	3.3	3.4	3.6	2.9	3.9	3.3	3.6	3.6
Construction	43.7	5.6	6.7	6.9	6.2	7.2	7.0	7.7	7.6
Financial intermediation	100.9	3.9	4.1	4.3	3.5	4.7	4.4	5.1	4.4
Real estate and business activities	43.0	3.5	3.6	3.9	2.8	4.2	3.6	4.3	3.6
Trade, hotels and restaurants	223.4	4.8	5.2	5.3	4.7	5.7	5.7	6.6	5.6
Transport and communications	155.3	3.6	3.8	4.0	3.3	4.3	4.0	4.6	4.1
Public administration	127.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Education	188.5	3.8	3.9	3.9	3.8	4.0	3.9	4.0	3.9
Health	41.5	4.4	4.5	4.6	4.3	4.7	4.5	4.7	4.6
Domestic services	5.2	3.6	3.8	4.1	3.2	4.4	3.9	4.4	4.1
Other services	48.9	3.9	4.2	4.4	3.6	4.8	4.4	5.0	4.5
Total	1,464.8	4.2	4.5	4.6	4.0	5.0	4.8	5.4	4.8

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D6

Sector structure in Zimbabwe, 2018 and 2030

Percent

	Value added	Production	Employment	Exports	Imports	Export/ output	Import/ demand
2018							
Agriculture	12.1	11.1	68.8	31.1	7.5	41.7	20.7
Industry	23.6	31.6	7.0	59.5	73.0	25.6	42.0
Mining	8.6	5.6	1.4	15.9	0.2	42.8	1.5
Manufacturing	10.4	23.3	4.0	43.4	70.1	24.4	47.5
Other	4.6	2.8	1.5	0.2	2.6	1.1	17.1
Services	64.3	57.2	24.3	9.4	19.5	2.5	7.1
Private	55.6	51.1	23.1	9.4	19.5	2.8	7.9
Government	8.7	6.1	1.2	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	14.2	22.0
2030							
Agriculture	14.4	12.4	71.7	32.7	7.8	42.8	20.8
Industry	23.6	33.7	6.5	55.8	74.4	24.2	41.5
Mining	7.6	4.9	1.1	6.4	0.2	21.2	1.5
Manufacturing	11.0	25.8	3.8	49.2	71.8	27.5	47.6
Other	4.9	3.0	1.6	0.2	2.3	1.1	15.0
Services	62.1	53.9	21.8	11.5	17.8	3.5	7.2
Private	53.3	47.9	20.6	11.5	17.8	3.9	8.1
Government	8.7	6.0	1.1	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	15.4	23.0
Change, 2018–30							
Agriculture	2.3	1.3	3.0	1.6	0.3	1.1	0.0
Industry	0.0	2.0	–0.4	–3.7	1.4	–1.3	–0.5
Mining	–1.0	–0.7	–0.3	–9.5	0.0	–21.5	–0.1
Manufacturing	0.6	2.5	–0.2	5.8	1.7	3.0	0.1
Other	0.3	0.2	0.1	0.0	–0.3	0.0	–2.0
Services	–2.3	–3.3	–2.5	2.1	–1.7	1.0	0.1
Private	–2.3	–3.2	–2.4	2.1	–1.7	1.1	0.2
Government	0.0	–0.1	–0.1	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	1.2	0.9

Source: Authors' calculations based on results from simulations with SDGSIM.

TABLE D7

Back-of-the-envelope calculation of marginal product of infrastructure investment

No.	Calculation	Central case	Focus on tradable with low marginal product of new investment
1	Δ K	436.1	436.1
2	Δ GDP–productivity	139.3	210.1
3	Δ GDP–financing*	–41.7	–41.7
4	Δ GDP–total	97.6	168.4
5	MP—productivity = 2/1	0.319	0.482
6	MP—financing = 3/1	–0.096	–0.096
7	MP—total = (2+3)/1	0.224	0.386

Δ K = change in 2030 infrastructure stock compared to base. Δ GDP productivity = change in 2030 GDP for scenario compared to all-00-tx+3. Δ GDP financing = change in 2030 GDP for scenario all-00-tx+3 compared to base.

Note: The scenarios have identical investment financing costs since sector targeting appears only in the distribution of productivity gains.

Source: Authors' calculations based on results from simulations with SDGSIM.

Notes

1. IMF 2013.
2. Despite authorities' commitment, the multicurrency regime made the country's exports less competitive. To provide credibility to the multicurrency system and promote consumer and business confidence, the central bank undertook a demonetization process between June and September 2015, based on cash held by the public and nonloan bank accounts at the end of 2008, effectively removing the legal status of the Zimbabwe dollar.
3. IMF 2017.
4. ZIMSTAT 2015 Zimbabwe Poverty Atlas.
5. For more information on the data sources and the construction of the social accounting matrix, see Cicowiez and Lofgren (2018, pp. 17–23), which this section draws on.
6. To calculate the average, the percentile ranking for indicators measuring undesirable outcomes such as mortality were reversed so that a high ranking corresponds to a low value. Given that the countries that are underrepresented in the database may do worse than others (including little or no data for Somalia and South Sudan), Zimbabwe's ranking in a database with full country coverage would probably be slightly higher.
7. AfDB 2018.
8. New Zimbabwe 2018.
9. UNIDO 2013.
10. Lin 2012b.
11. Signé 2018.
12. See, for example, Baldwin and Lopez-Gonzalez (2013), who argue that lower transport costs allow importing to export and that joining global supply chains (rather than building supply chains) is a good way for developing countries to catch up. Many East Asian countries are examples.
13. World Bank 2009.
14. World Bank 2017.
15. Kanyenze, Chitambara, and Tyson 2017.
16. Government of Zimbabwe 2013.
17. Tyson 2017.
18. Calculated based on 2009–16 export data (2016 estimates: $2.2 billion in mineral exports and $3.6 billion in total exports).
19. KPMG 2017.
20. World Bank 2017.
21. Maune 2016.
22. IIEP Pôle de Dakar 2016.
23. Lange, Wodon, and Carey (2018) substantially improve on estimates of natural capital and, for the first time, measure human capital by using household surveys to estimate lifetime earnings.
24. Palmade and Anayiotos 2005.
25. Zimbabwe Inter-Censal Demographic Survey 2017.
26. See the Zimbabwe Labour Force Surveys of 2004, 2011, and 2014.
27. World Bank 2017.
28. The starting point for SDGSIM was MAMS, a model designed for analyzing strategies related to the Millennium Development Goal agenda (Lofgren, Cicowiez, and Diaz-Bonilla 2013).
29. Findings based on comparisons across results for different scenarios (on which the analysis are based) are rarely sensitive to year-to-year changes in economic structure.
30. The first simulation year is 2016, for which the solution replicates the 2016 social accounting model.
31. For the nonbase scenarios, GDP growth is endogenous starting in 2019. For the base scenario, the variable GDP at factor cost is fixed at the projected levels while an endogenous variable is added that scales total factor productivity in all or selected production activities so that the exogenous GDP level is generated. Given that one variable is added and one is removed, the model continues to have an equal number of equations and variables. For the nonbase

scenarios, this is reversed: the GDP variable is flexible whereas the total factor productivity adjustment variable is fixed at the level generated under the base scenario. This means that the results for the nonbase scenarios are no different if the only change is a switch from exogenous to endogenous GDP. However, given that other shocks are introduced, the GDP level (and other results) will deviate from the base.

32. The real exchange rate can be defined as the ratio between the prices of goods and services that are traded internationally and the prices of goods and services that are produced and used domestically. In a computable general equilibrium model, the rate can adjust via changes in the nominal exchange rate or the domestic price level.
33. See tables D1–D7 in appendix D for additional and more detailed results, including for the nonbase scenarios.
34. World Bank 2018a.
35. The results for household income (as opposed to consumption) are similar because the changes in the share of total income that is allocated to consumption (rather than to direct taxes, transfers, or savings) is small.
36. The poverty calculation draws on simulated national data on private consumption per capita and assumes unchanged inequality. More specifically, the poverty analysis assumes a log-normal distribution, a 2016 national poverty rate of 73.2 percent, and a national Gini coefficient of 43.2. Both are the most recent available estimates, based on 2011 data. The 2018 poverty rate, slightly lower, is based on the model simulation. The rural and urban inequality data needed to compute separate urban and rural poverty rates are not available.
37. Table D7 in appendix D shows back-of-the-envelope calculations of the economywide marginal product of the infrastructure investment program for the central case scenario (all-30-tx+3) and the focusing on tradables with low marginal product of new investment scenario (trd-30-tx+3). The change in GDP is split into two parts: change due to the productivity effect (by comparing 2030 GDP to the 2030 GDP for the relevant scenario with zero marginal product) and change due to financing (by comparing the 2030 GDP of the zero marginal product scenario to the 2030 GDP of the base scenario). The change in capital stock is the difference between the 2030 infrastructure capital stock for the scenario and for the base scenario. Marginal products are computed by dividing GDP change by the capital stock change. As indicated, the productivity marginal product is close to 0.30 for the central case scenario but larger for the focusing on tradables with low marginal product of new investment scenario, the latter of which indicates positive repercussions from the focus on tradable goods, among other things, by lowering the prices of tradable goods, which boosts purchasing power and reduces the cost of capital goods.
38. Gupta et al. (2014) estimate the marginal product of public capital from cross-country regressions at 0.52 (0.30 for middle-income countries and 0.65 for low-income countries), Dessus and Herrera (2000) estimate it at and 0.142, and Easterly, Devarajan, and Pack (2003), using a variety of approaches, find no evidence that public or private investment is productive in Sub-Saharan Africa. The three marginal products considered in this paper (0.60, 0.30, and 0.00) exemplify high, medium, and low cases.
39. Unless otherwise noted, growth rates are geometric average annual real growth rates for 2019–30—that is, using 2018 simulation results as the starting point.
40. Calculated using data in figure 3.16 and table D6 in appendix D. At the sectoral level, the main change in employment shares for all scenarios is an increase in agriculture at the expense of private services (see table D6 in appendix D).
41. Schultze 1983, p. 7.
42. Lin and Monga 2011.
43. This definition was developed by Balassa (1965).
44. TIMB 2017.
45. International Cotton Advisory Committee 2015.
46. On automobile assembly in Zimbabwe, see https://www.youtube.com/watch?v=_rz9giTzPa8.
47. Bhebhe 2015.
48. LafargeHolcim 2017.
49. Zimbabwe Tourism Authority 2018.
50. ITC 2014.
51. Hausmann 2013.

52. WEF 2017.
53. WFP 2018.
54. World Bank 2016.
55. KPMG 2017.
56. Government of Zimbabwe 2018.
57. Lin and Monga 2011.
58. UNECA 2010.
59. Moller 2016.
60. World Bank 2014.
61. Moller 2016.
62. Dinh et al. 2013.
63. Moller 2016.
64. Xinhua News Agency 2017.
65. Based on data from the World Travel and Tourism Council.
66. UNCTAD 2013.
67. Wunder 2000.
68. Abel and Roux 2017.
69. Christie et al. 2014.
70. The concept of SEZs has many variation and forms. Farole (2011) provides a comprehensive and concise definition: SEZs are designated areas within a country's national boundaries where the rules of business are different from those that prevail in the national territory. These differential rules deal principally with investment conditions, international trade and customs, taxation, and the regulatory environment; whereby the zone is given a business environment that is intended to be more liberal from a policy perspective and more effective from an administrative perspective than that of the national territory.
71. Ndulu et al. 2008. Patronage-driven rent cycling includes rent from natural resources, foreign aid (a geopolitical form of rent), or manipulation by governments of relative prices (regulatory rent).
72. Tao, Yuan, and Li 2016.
73. For a detailed review of SEZs across the globe, see Farole (2011), IPRCC and UNDP (2015), and Zeng (2010).
74. Farole 2011.
75. IPRCC and UNDP 2015.
76. Brautigam and Tang 2013.
77. Based on data from the Zimbabwe Investment Authority.
78. Reuters 2018. See also Tiezzi (2018).
79. On China's investment in Zimbabwe's agricultural sector, see https://www.youtube.com/watch?v=L3Ucd-faOD50. In June 2018, China released funding for the expansion of the largest power plant in Zimbabwe, the Hwange Power Station, which will add 600 megawatts to the country's grid (Xinhua News Agency 2018a). And on 11 June 2018, China and Zimbabwe signed a $1 billion memorandum of understanding to establish a steel plant in Zimbabwe with capacity to produce 2 million tons of steel a year.
80. Zimbabwe previously set up economic processing zones in 1996–2006. They resulted in 205 companies being established, generating an estimated $172 million in investment and creating 32,512 jobs and $1.15 billion in export earnings. Some of the companies are still in operation despite the collapse of the program when the government merged the Export Processing Zone Authority and the Zimbabwe Investment Centre to form the Zimbabwe Investment Authority and despite the overall failure of policy economic management at the national level.
81. Farole 2011.
82. Based on a review of cases studies on SEZ performance across many countries: Farole (2011), which focused on Ghana, Kenya, Lesotho, Nigeria, Senegal, and Tanzania as well as established zone programs in Bangladesh, the Dominican Republic, Honduras, and Vietnam; FIAS 2008; and Zeng 2015.
83. IPRCC and UNDP 2015.
84. Farole 2011.
85. Zeng 2015.
86. Farole 2011.
87. IPRCC and UNDP 2015.
88. According to the Organisation for Economic Co-operation and Development definition, official development assistance includes grants or loans that are undertaken by the official sector with promotion of economic development and welfare as the main objective and that are concessional in character and convey a grant element of at least 25 percent (calculated at a discount rate of 10 percent). See www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm. Lin and Wang (2014a, 2017a) have suggested expanding the definition.

89. Lin and Wang 2017a.
90. For example, Germany's January 2017 Marshall Plan, the African Development Bank's High 5s, and China's Belt and Road Initiative. See also Felino and Pinto (2017), the Addis Ababa Action Agenda, and the follow-up to the United Nations Conference on Trade and Development meeting on financing for development, 8–10 November 2017.
91. Lin and Wang 2017b.
92. Hofstede 1991; Hofstede, Gert, and Michael 2000.
93. Lin and Wang 2017b.
94. UNCTAD 2017.
95. This figure matches the findings of Lin and Wang (2017b). It assumes that the majority of foreign portfolio investment is impatient (less than 10 years). Remittances can be used to finance consumption or investment, but the exact breakdown is not available. Admittedly, these assumptions are strong and these estimates are rough. Future research is needed to develop the exact measure of patient capital flows based on micro data.
96. As in Commission on Growth and Development (2008).
97. Halland et al. 2016.
98. Kynge and Ralph 2018.
99. Kaplan (2018, p. 1). The study used the China Global Financial Index, an originally constructed dataset, and an econometric test across 15 Latin American countries from 1990–2015.
100. IMF 2013, p. 5.
101. McKinsey and Company 2017.
102. See Lin and Wang (2014a).
103. McKinsey and Company 2017.
104. Dreher et al. 2017. Because official data on China's aid and investment by country and by project are not available, the study used a media-based dataset that captured official development assistance (more concessional) and other official flows (less or not concessional) from China. The dataset covers 138 countries in five regions (Africa, the Middle East, Asia and the Pacific, Latin America and the Caribbean, and Central and Eastern Europe) in 2000–14. The four primary open sources were English, Chinese, and local-language news reports; official statements from Chinese ministries and embassies and economic and commercial counselor offices; the aid and debt information management systems of finance and planning ministries in counterpart countries; and case study and field research by scholars and nongovernmental organizations. The project-level data from 4,304 officially committed projects and 630 pledges of support were standardized using the tracking underreported financial flows method into three types: official development assistance, other official flows, and vague official finance (which represent official financial flows with insufficient open-source information to clearly determine whether the flows are more akin to official development assistance or other official flows). (Some scholars have challenged the data limitations and classifications.) The study used an instrumental variable approach, with the annual production of Chinese steel interacted with the recipient province's probability of receiving aid used as an instrument variable to address the endogeneity problem associated with Chinese aid.
105. See Poon (2018).
106. Official development assistance is around 0.3 percent of gross national income for Japan and the United States. The Organisation for Economic Co-operation and Development–Development Assistance Committee mandates 0.7 percent. However, China is still a developing country, with GDP per capita of around $9,000 in 2017.
107. Reuters 2018.
108. http://aiddata.org/china. China does not publish country- or project-level official development assistance and cooperative data, so estimates are unofficial media-based data with triangular checks and adjustments.
109. Reuters 2018.
110. Xinhua News Agency 2018b.
111. Many of the official development assistance–like programs included technical assistance and medical teams that are not measurable in monetary terms.
112. This report focuses on the short to medium term. For assessment of long-term investment in infrastructure, such as in airports, railways, and roads, see the parallel updating of the 2011 Zimbabwe Infrastructure Study.

113. See Lofgren and Cicowiez (2018) for a fuller documentation.
114. An individual production activity does not respond to changes in relative prices for exports and domestic sales if its output has only one destination, either exported in full or sold domestically in full. By the same token, domestic demanders do not have a choice between imports and domestic output for commodities if only one source is available.
115. For a survey, see Annabi, Cockburn, and Decaluwé (2006).
116. Dimaranan, McDougall, and Hertel 1997.
117. World Bank 2018b.

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