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COVID-19 and the Challenge of Developing Productive Capacities in Zambia

Abstract

The COVID-19 pandemic has tested the resilience of the Zambian economy and is exacerbating the development challenges confronting it. Since the onset of the pandemic, a plethora of studies have been carried out to examine the impact of the crisis on macroeconomic variables such as employment, output and poverty. But there have been no systematic studies on how it is affecting the development of productive capacities in Zambia, which is essential for sustained and inclusive recovery. The paper focuses on this neglected aspect of the economic consequences of the pandemic in Zambia. It identifies channels through which the pandemic has had a negative impact on the use of existing productive capacities and on the creation of new ones. It also discusses policy measures that the Government should consider adopting to strengthen efforts to foster productive transformation and build resilience to shocks.

Key words: Productive Capacities; COVID-19; Zambia



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Introduction

The COVID-19 pandemic, along with the associated health and economic crises, is undoubtedly the main development challenge currently facing Zambia and the rest of the world. Globally, the total number of COVID-19 cases as of 6 April 2021 was about 132.48 million and the number of deaths was about 2.87 million, with the United States accounting for 24 percent of cases and 20 percent of the number of deaths. In the first half of 2020, Zambia had an insignificant number of cases and deaths. But this changed drastically in the second half of the year with the number of cases increasing from 1594 at the end of June 2020 to 20,727 by the end of the year. This upward trend in the number of cases continued in 2021 reaching 89, 009 cases by 6 April 2021. A similar upward trend has also been observed in the number of deaths, which rose from 24 at the end of June 2020 to 1,222 on 6 April 2021.¹

As a precautionary measure to prevent the spread of the virus and limit its impact on the health and wellbeing of its citizens, on 14 March 2020 the government imposed several restrictions, including a ban on non-essential foreign travel, suspension of tourist visas, mandatory quarantine for travelers from high-risk countries, closure of learning institutions, wearing of masks, suspension of some cross-border transportation services, and closure of non-essential businesses such as bars, gyms, hotels, restaurants and cinemas.² While these measures were necessary to contain the virus and prevent a health crisis, they have macroeconomic costs in the short and long-run.

The COVID-19 pandemic has tested the resilience of the Zambian economy and exacerbated the challenges of development facing the country. Before the onset of the pandemic, in the first quarter of 2020, the economy was grappling with, amongst others, problems of high debt and fiscal deficits, high poverty rate and inequality, food insecurity and slow growth.³ The economy experienced relatively good macroeconomic performance in the first decade of the millennium, with real output growing at an annual average rate of 6.2 percent in the period 2000-2005, reaching a peak of 10.3 percent in 2010. And inflation declined significantly from an average rate of 21.2 percent in the period 2000-2005 to 8.5 percent in 2010 (figure 1). As a result of this positive performance the country moved from low to lower middle-income category in 2010. Unlike the first decade, the second decade of the millennium was characterized by low economic growth in Zambia, with real output growth of only 3.3 percent in the period 2014-2019. The slowdown in growth was due largely to lower copper prices, challenges in power generation associated with insufficient rainfall, and a decrease in agricultural output arising from persistent drought and locust infestations.⁴

The pandemic has made this fragile macroeconomic situation worse and increased the country's vulnerability to shocks. As a result of the pandemic, real output declined by 4.5 percent in 2020 which, given an annual average growth rate of 3.3 percent in the period

¹ Data available at: <https://www.worldometers.info/coronavirus/country/zambia/>

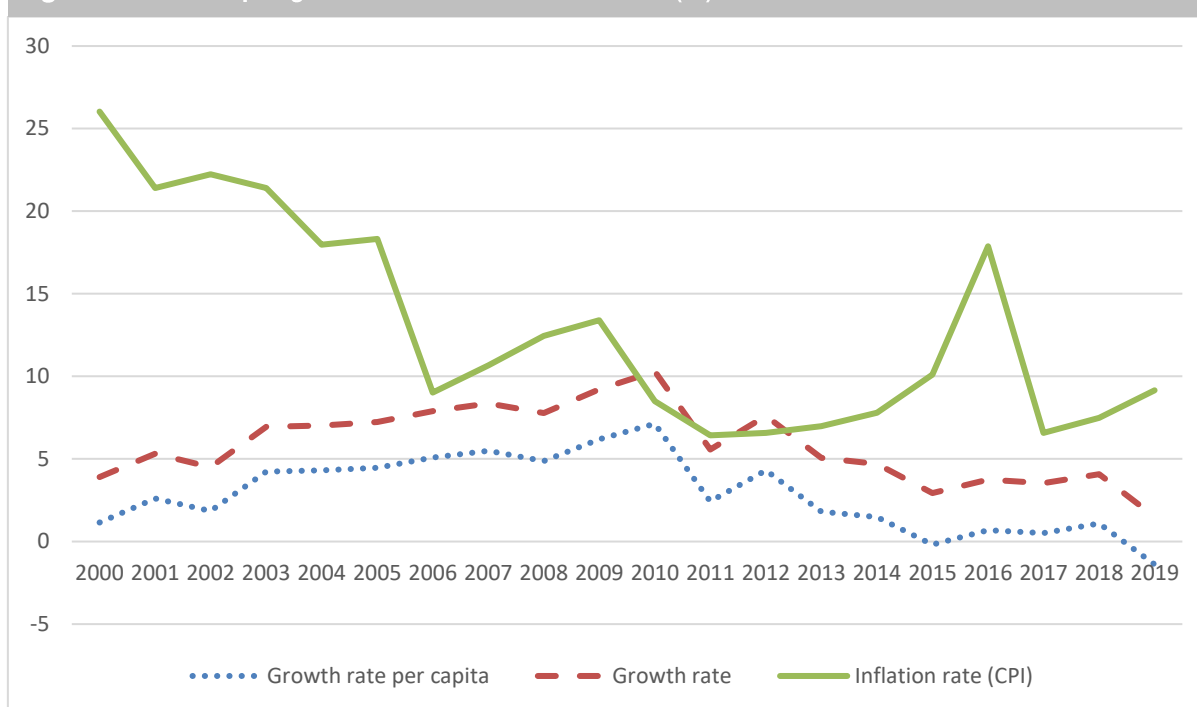
² A partial relaxation of some of these measures began on 24 April 2020.

³ The dismantling of overdue payments on financial obligations (arrears) is also a major challenge for the government.

⁴ At the triennial review of the list of least developed countries held by the Committee for Development Policy, from 22 - 26 February 2021, Cambodia, Comoros, Djibouti, Senegal and Zambia met the criteria for graduation from the LDC category for the first time (United Nations 2021).

2014-19, represents a deviation from trend growth of about 7.8 percentage points (table 1). This is a very significant and worrisome development because it is the first time the economy has experienced a negative growth rate since 1998.

Figure 1. Real output growth and inflation in Zambia (%)



Source: UNCTADstat

Table 1. Deviation of output growth in 2020 relative to trend growth (2014-19)

Output	Growth rate in 2020	-4.5
	Annual average growth rate (2014-19)	3.33
	Deviation from trend growth rate	-7.8
Output per capita	Growth rate per capita in 2020	-7.2
	Annual average growth rate per capita (2014-19)	0.3
	Deviation from trend growth rate per capita	-7.5

Source: compiled based on data from UNCTADstat and World Bank.

The negative impact of the crisis has been quite severe in the mining and tourism sectors. And significant decreases have been observed in foreign exchange earnings resulting in sharp depreciation of the local currency (Kwacha). These developments have had real consequences in the economy. For example, World Bank (2020) indicates that the poverty rate increased from 58.6 percent in 2019 to 60.5 percent in 2020, implying that about 706

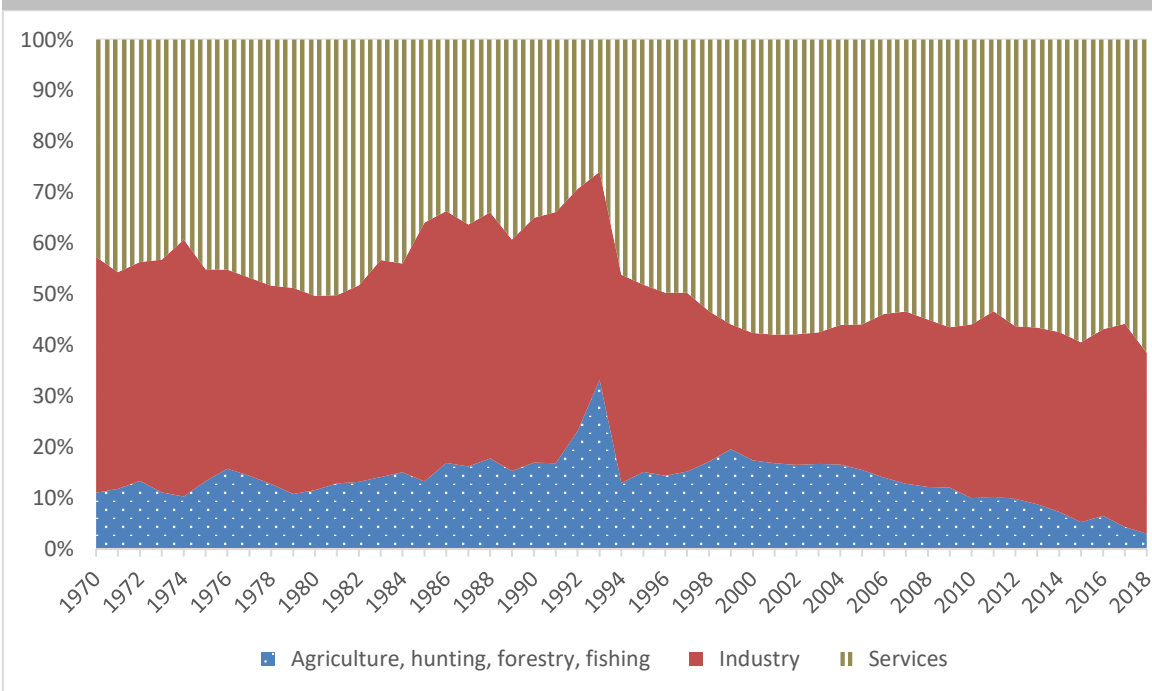
900 additional people fell into poverty in 2020. In addition to these short-term costs, the pandemic will also have medium- and long-term costs, particularly on the productive capacities of the economy. So far there is a lot of focus on how to address the short-term costs of the crisis and the long-term consequences have received relatively less attention. Against this background, the current paper focuses on how the crisis will affect the development of productive capacities of Zambia and offers recommendations on what should be done to mitigate these impacts and build the resilience of the economy to current and future shocks.

The rest of the paper is organized as follows. Section 1 presents an overview of the production and export structures of the Zambian economy while section 2 highlights and analyzes trends in the development of productive capacities in Zambia before the onset of the COVID-19 pandemic. The impact of the pandemic on the development of productive capacities is discussed in section 3 while section 4 identifies policies needed to mitigate the negative impacts of the pandemic on the development of productive capacities and build resilience of the economy to current and future shocks.

1. Overview of production and export structures

As in other African countries, the production structure of the Zambian economy has changed significantly over the past five decades (figure 2). In 1970, the primary sector (Agriculture, Hunting, Forestry and Fishing) accounted for 11 percent of output value added while the secondary (Industry) and tertiary (Services) sectors accounted for 46 and 42 percent respectively. The share of the primary sector reached a peak of 33 percent in 1993 and then declined significantly reaching a low of 3 percent in 2018. Regarding the secondary sector, its share reached a peak of 51 percent in 1985 and then declined to 35 percent in 2018. The share of the tertiary sector rose from 42 percent in 1970 to 50 percent in 1980 and 61 percent in 2018. Unlike the primary and secondary sectors, since 1998 the share of the tertiary sector has been above 50 percent and increasing, reflecting the fact that it is the dominant sector of the economy.

Figure 2. Output Value Added per Sector (% of GDP)



Source: compiled using data from UNCTADstat.

In terms of dynamics of the sectors, over the period 2011-2019, Financial Services had the highest annual average growth rate (6.5 percent) while Agriculture was the only output category that experienced negative growth (-0.9 percent). Interestingly, although both output categories had a wide difference in growth performance, they both exhibited high output volatility, with Financial Services recording a volatility of 10.7 percent and agriculture 10 percent (table 2). Manufacturing is quite different from the other output categories in the sense that it had relatively high growth (4.5 percent) and low volatility (1.7 percent), indicating that it plays an important role in terms of building resilience to shocks. The weak performance of the agriculture sector in terms of share of output, growth, and volatility is worrisome given the importance of the sector in employment and food security. In 1990 agriculture accounted for 70 percent of total employment in the

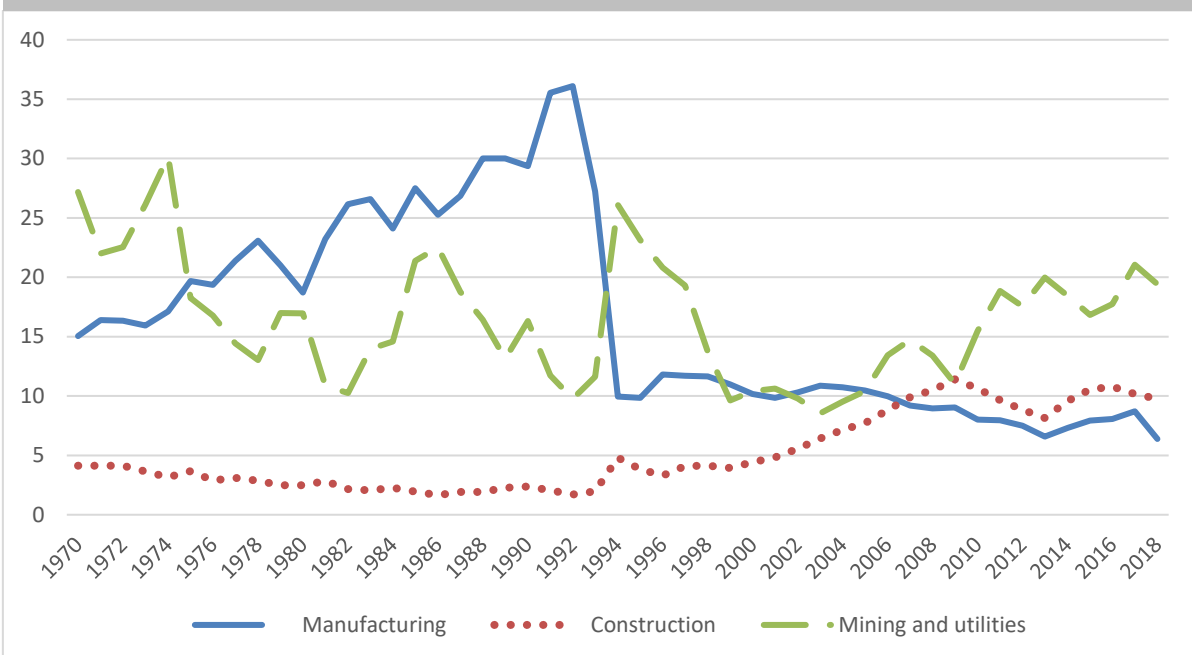
country. Although its contribution to employment has declined over the past decade, in 2019 about 50 percent of the labour force was in agriculture. It should be noted that the declining share of agriculture in employment is necessary to boost labour productivity and induce meaningful structural change, particularly into higher productivity activities in manufacturing and modern services.

Table 2. Average Growth and Volatility by Sector, 2011-2019

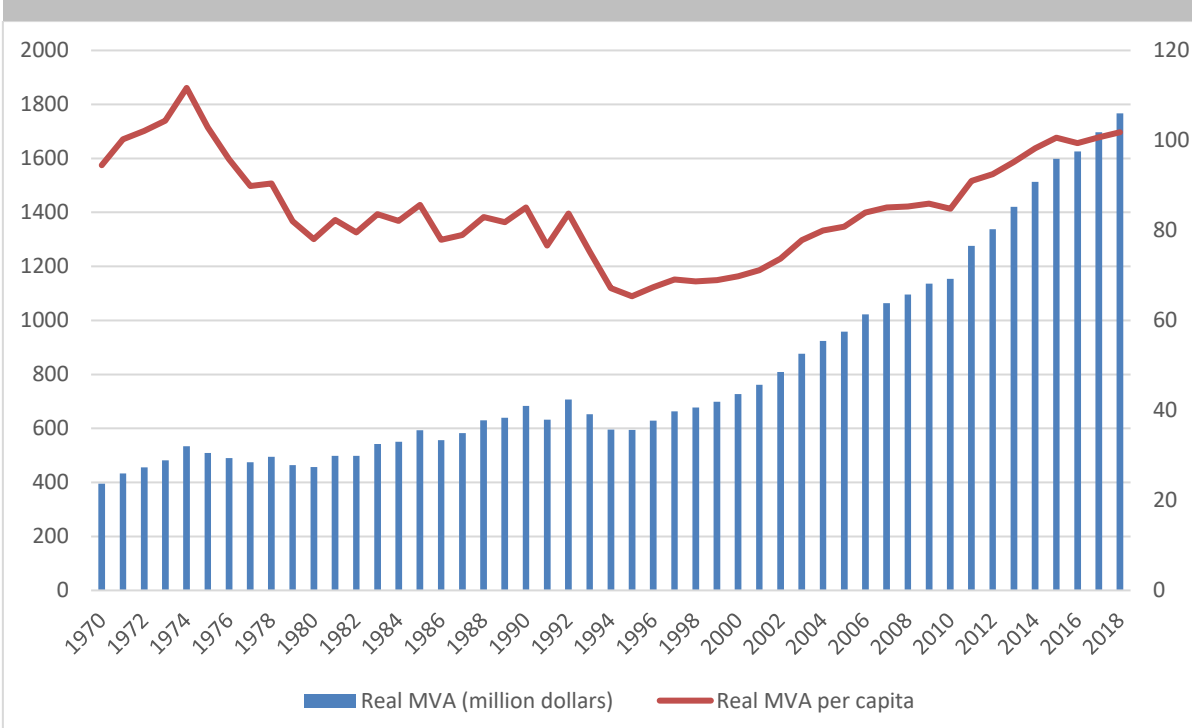
	Growth	Volatility
Agriculture	-0.9	10
Mining	1.7	4.2
Manufacturing	4.5	1.7
Other industrial activities	4.5	6.1
Wholesale and retail trade	4.7	6.7
Financial services	6.5	10.7
Other non-financial services	5.8	4.2
Gross value added	4.1	1.8
Taxes	4.3	2.1
GDP	4.1	1.8

Source: MOF and MNDP (2020).

Within the industrial sector, manufacturing was the most dominant activity accounting for the bulk of industrial output until 1993. Its dominance reached a peak in 1992 when it represented 36 percent of GDP in Zambia. Since then, there has been a significant decline in manufacturing value added triggered largely by the adoption of the structural adjustment programme (SAP) in late 1991. As a result of SAP, the government instituted several structural reforms including privatization of state-owned enterprises, decontrol of agricultural prices, deregulation of interest rates, floating of the currency, liberalization of the banking sector, removal of quantitative restrictions on trade, and liberalization of marketing boards. The privatization of state-owned enterprises coupled with the liberalization of trade in 1993 led to further weakening of the manufacturing sector, as reflected in the dramatic decline in manufacturing value added from 36 percent of GDP in 1992 to 27 percent in 1993 and 10 percent in 1994 (figure 3). Since 1994, the share of manufacturing value added has followed a declining trend. And the shares of other industrial categories (such as construction and mining and utilities) in output have increased with each of these categories accounting for a larger share of GDP than manufacturing. The declining share of manufacturing in value added does not capture the fact that some progress has also been made in manufacturing development over the past few decades. For example, real manufacturing value added increased from \$595 million in 1994 to \$1766 million in 2018. The 2018 represents a 4.5-fold increase in real manufacturing value added (MVA) compared to its value in 1970. Another way to appreciate the relative progress that has been made in manufacturing development is to examine trends in real MVA per capita shown on the right-hand side axis of figure 4. In 1970 real MVA per capita in Zambia was \$94. It fell to a low of \$65 in 1995 and since then has been on an upward trend, reaching \$102 in 2018. Notwithstanding these positive developments, it is clear that the country's manufacturing performance, relative to its potential, has been quite weak and that the government has to double efforts to better harness the potential of manufacturing for development.

Figure 3. Composition of Industrial Output (% of GDP)

Source: compiled using data from UNCTADstat.

Figure 4. Trends in Manufacturing Value Added (in constant 2015 dollars)

Source: compiled using data from UNCTADstat.

In recognition of the need to foster sustained economic growth through, among others, addressing the challenge of manufacturing development facing the country, the government adopted Vision 2030 in 2006 as the long-term plan for building a prosperous middle-income nation by 2030. The seven core principles underlying the vision are: “sustainable development; upholding democratic principles; respect for human rights; fostering family values; a positive attitude to work; peaceful coexistence; and upholding good traditional values” (ROZ 2006). Three options were identified as possible routes for achieving the vision: a baseline, a preferred, and an optimistic scenario. Under the preferred scenario, Zambia was envisaged to have, among others, an annual average real output growth of 6 percent in 2006-2010 rising to 9 percent in 2016-2020. It was also expected to have the share of MVA in GDP increase from 13 percent in 2006 to 18 percent in 2030 and the share of manufactures in total exports to increase to 80 percent.⁵ Vision 2030 is unique in the sense that it was the first time that the government’s development plan was prepared within a long-term framework and anchored on a national vision. The vision also explicitly identified the need to have a diversified and balanced industrial sector with strong linkages as an important feature of the aspirations of the Zambian people.

The structural weakness in the production side of the economy discussed above are also reflected in the export sector of the economy. Table 3 presents the export and import shares of various product categories in the Zambian economy and compares them to those of selected high and upper middle-income countries in Africa, with a view to identifying possible gaps in export structures and what needs to change for the country to transition from lower middle income to upper middle income and high-income categories. In 2000, non-ferrous metals accounted for 50 percent of Zambia’s total merchandise exports, food items for 17 percent and manufactured goods for about 17 percent. This heavy dependence on metals has increased over the years as reflected in the fact that in 2019, the share of non-ferrous metals in total exports was about 69 percent. While the share of non-ferrous metals in exports increased, the shares of both food items and manufactured goods decreased significantly in 2019. In particular, in 2019 food accounted for only 8 percent of exports and manufactured goods for about 14 percent. Unlike in Zambia, the export structures of Mauritius (high income) and South Africa (upper middle income) are dominated by manufactured goods. For example, in 2019, manufactured goods accounted for 46 percent of exports in Mauritius and 42 percent of exports in South Africa. Regarding imports, Zambia’s trade structure resembles those of most African countries in the sense that the bulk of its imports is manufactured goods. In 2019, manufactured goods represented 68 percent of imports, followed by fuels (15 percent), food items (7 percent), and other ores and metals (about 7 percent). The dominance of manufactured goods in imports reflects the fact that manufacturing firms in the country rely heavily on imported intermediate and capital goods.

In terms of the direction of trade, the main destinations for Zambia’s merchandise exports in the recent past are Switzerland, China, Democratic Republic of Congo (DRC) and Singapore. With the exception of the DRC exports to these partners are predominantly copper. Regarding imports, the main source countries are South Africa, China, United Arab Emirates, India, and the DRC. Imports from South Africa are predominantly fertilizers, those from the United Arab Emirates are mostly mineral fuels, oils and

⁵ For other targets established in Vision 2030 see ROZ (2006).

products of their distillation, and those from China are vehicles and vehicle accessories (BOZ 2020a).

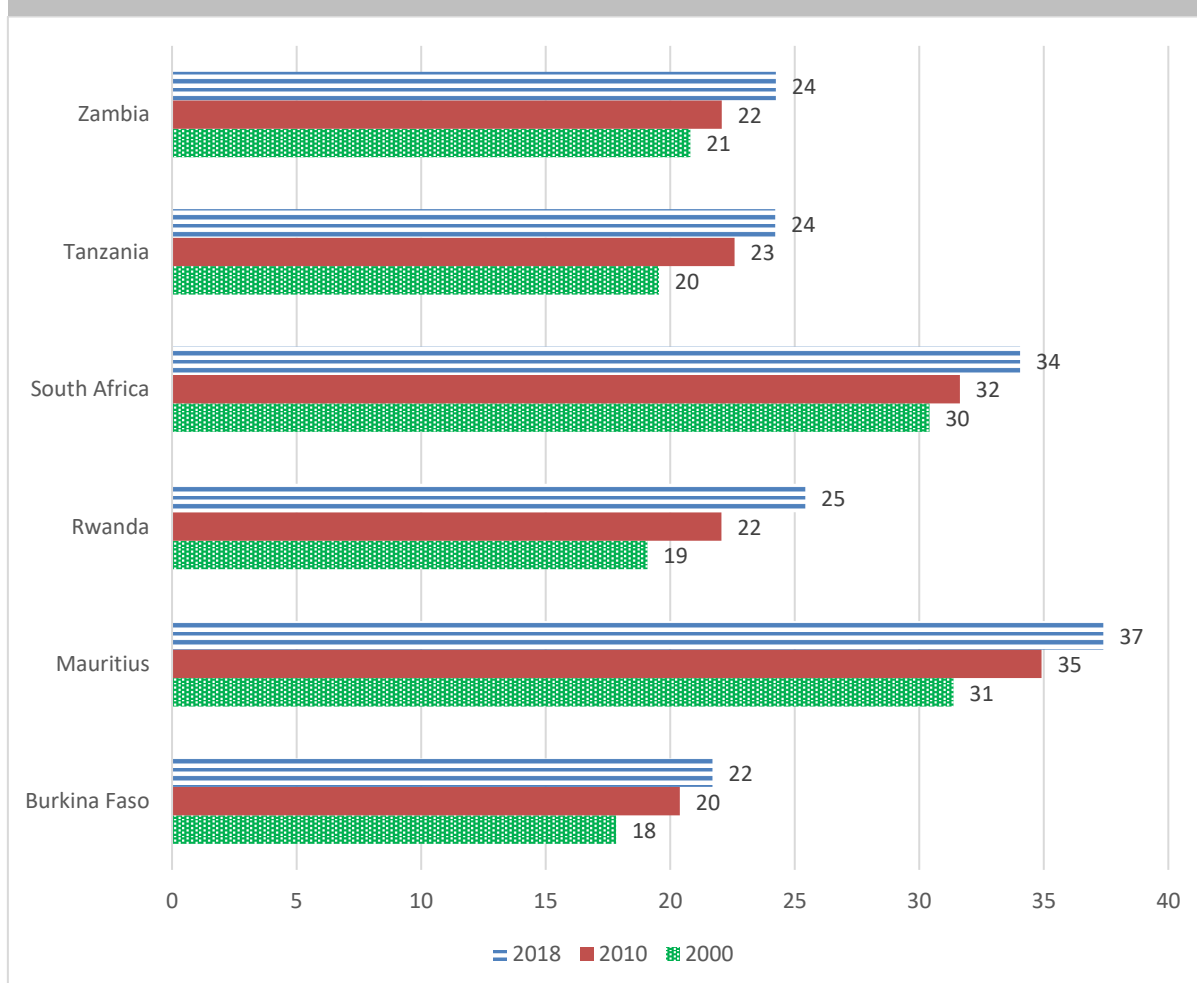
Table 3. Export and Import Composition (% Shares)				
Country and income status in 2019	Product	Exports		Imports
		Share in 2000	Share in 2019	Share in 2019
Mauritius (high income)	Total all products	100.00	100.00	100.00
	All food items (SITC 0 + 1 + 22 + 4)	18.46	30.54	20.76
	Non-ferrous metals (SITC 68)	0.02	0.61	0.81
	Other ores and metals (SITC 27 + 28)	0.22	0.25	0.26
	Fuels (SITC 3)	0.01	0.79	18.47
	Manufactured goods (SITC 5 to 8 less 667 and 68)	78.36	46.40	55.56
	Other products	2.93	21.41	4.14
South Africa (upper middle income)	Total all products	100.00	100.00	100.00
	All food items (SITC 0 + 1 + 22 + 4)	8.49	10.78	7.21
	Non-ferrous metals (SITC 68)	4.60	12.17	1.55
	Other ores and metals (SITC 27 + 28)	6.05	15.60	1.06
	Fuels (SITC 3)	10.13	9.81	16.86
	Manufactured goods (SITC 5 to 8 less 667 and 68)	46.57	42.49	62.88
	Other products	24.16	9.15	10.44
Zambia (lower middle income)	Total all products	100.00	100.00	100.00
	All food items (SITC 0 + 1 + 22 + 4)	17.38	8.42	7.05
	Non-ferrous metals (SITC 68)	50.47	68.75	0.39
	Other ores and metals (SITC 27 + 28)	4.01	1.96	6.79
	Fuels (SITC 3)	2.21	1.46	15.10
	Manufactured goods (SITC 5 to 8 less 667 and 68)	16.59	13.83	68.49
	Other products	9.34	5.58	2.18

Source: compiled using data from UNCTADstat.

2. The state of productive capacities development pre-COVID-19

To set the stage for a good understanding of the potential impact of COVID-19 on the development of productive capacities in Zambia, this section provides a comparative analysis of the development of productive capacities in Zambia using the recently published productive capacities index (PCI) prepared by UNCTAD. The PCI is an aggregation of eight key factors that contribute to productive capacities in a country, namely: human capital; natural capital; energy; transport; information and communication technology (ICT); institutions; private sector; and structural change. The index lies between 0 and 100 with higher values indicating a higher level of development of productive capacities. The index indicates that Zambia, like most least developed countries (LDCs), has very low productive capacities (figure 5). For example, in 2018 the index for Zambia was 24, for Tanzania 24, for Rwanda 25, and for Burkina Faso 22. These PCI values are low compared to what has been observed in upper middle-income and high-income countries. For example, the value for South Africa in 2018 was 34 and for Mauritius 37, reflecting the fact that both countries are at a higher level of development and so have better productive capacities.

Figure 5. Comparing productive capacities in selected African countries



Source: compiled using data from UNCTADstat.

The low aggregate PCI score for Zambia, relative to upper middle and high-income African countries, masks the fact that it has made some progress in the development of productive capacities over the past two decades. In particular, the movement of its PCI is in the right direction as evidenced by the fact that its PCI score rose from 21 in 2000 to 22 in 2010 and 24 in 2018. The components of the PCI provide a deeper understanding of the evolution of the index over the past few decades (table 4). Several points are evident from table 4. First, in absolute terms ICT has the lowest score. Second, the scores for Energy, Transport, and Structural Change components are also relatively low and no significant change has been observed in these components over time. Third, the components Institutions, Private Sector, and Natural Capital have high scores, but the score for the Private Sector component has declined significantly in the past decade. Finally, the score for the Human Capital component increased significantly over time, although it is lower than those of Institutions, Private Sector and Natural Capital. In sum, while the PCI indicates that there has been modest progress in the development of productive capacities in Zambia, it also underscores the need for strengthening efforts, particularly in areas such as ICT, Energy, Transport, and Structural Change. There is also the need to improve the business environment for the private sector to better unleash its potential for productive capacities development.

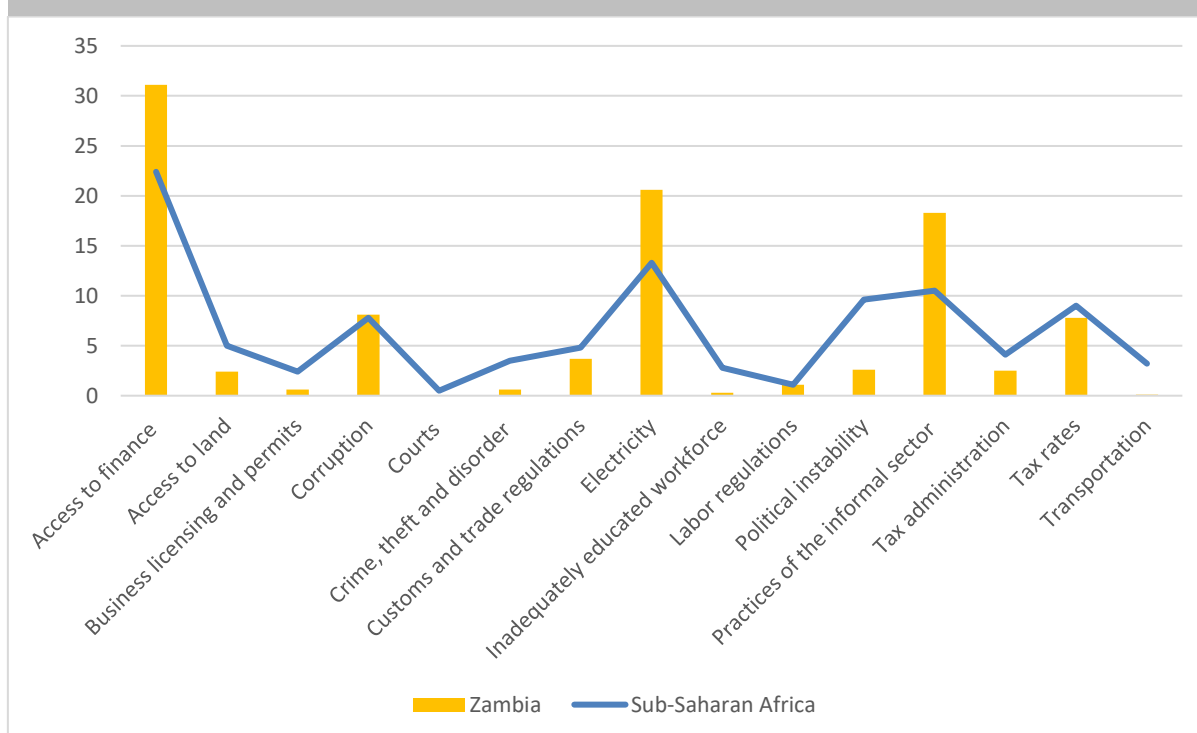
Table 4. Evolution of components of the productive capacities index for Zambia

	Human capital	Natural capital	Energy	Transport	Information and Communication Technology (ICT)	Institutions	Private sector	Structural Change
2000	28.8	50.9	19.0	11.4	2.9	44.6	64.6	13.4
2001	28.7	51.5	19.1	12.0	2.9	44.1	64.6	13.6
2002	29.4	51.4	19.0	11.7	2.9	43.6	64.5	13.9
2003	30.9	52.8	19.1	11.7	3.0	45.2	64.5	14.2
2004	30.9	54.9	19.2	11.7	3.1	44.4	64.6	14.7
2005	31.8	55.9	19.0	11.7	3.2	43.0	64.6	14.5
2006	31.5	58.1	18.9	11.7	3.4	45.5	64.6	14.0
2007	31.0	58.1	17.3	12.1	3.6	47.2	64.8	14.2
2008	32.0	57.3	15.7	12.7	3.8	48.3	63.0	14.8
2009	32.8	57.9	16.6	13.6	4.0	47.1	62.9	15.3
2010	33.5	60.0	16.7	9.7	4.4	46.8	56.5	14.8
2011	34.3	59.4	15.7	11.1	4.9	48.6	56.7	14.4
2012	35.6	57.6	19.0	11.1	5.4	50.8	56.4	14.9
2013	36.3	57.3	18.9	11.2	5.4	50.2	56.9	15.4
2014	37.0	57.0	18.0	11.2	5.6	49.1	54.7	15.0
2015	37.6	56.8	18.0	11.5	5.8	49.3	54.8	15.3
2016	38.0	56.8	18.0	14.1	6.1	47.5	54.6	15.1
2017	38.4	56.9	18.0	11.6	6.2	47.3	54.6	15.2
2018	38.7	56.9	18.0	11.6	6.6	47.4	54.6	15.2

Source: UNCTADstat

Recent findings from enterprise surveys provide very useful information on the constraints facing firms in Zambia. Figure 6 presents data from the World Bank's enterprise survey on the percentage of firms in Zambia choosing each constraint as their biggest obstacle in 2019. Access to finance was identified as the biggest obstacle, followed by electricity problems, practices of the informal sector, corruption and tax rates. Interestingly, these factors have been identified as important obstacles in sub-Saharan Africa. The challenge of electricity identified in the survey is in line with one of the findings from the PCI analysis that there are gaps in electricity provision that need to be addressed to foster productive capacity development in Zambia.

Figure 6. Percentage of firms choosing each constraint as their biggest obstacle in 2019



Source: World Bank Enterprise Survey Database.

3. Impact of COVID-19 on productive capacities of Zambia

An interesting characteristic of the COVID-19 pandemic is that it appears to be a permanent, as opposed to a temporary, shock that reduces the steady-state level of real variables (such as output). In this regard, it differs from previous shocks that have buffeted the global economy in the past few decades. Some of the reasons why the pandemic is likely to have persistent effects include: the destruction of productive capacities due to supply chain disruptions; the fact that there is hysteresis in unemployment due to deterioration of workers skills during unemployment; and the time lag it takes for new firms to replace those forced to exit the market as a result of the pandemic (Iizetzki 2021).

This important feature of the COVID-19 pandemic-induced economic crisis has dire consequences for the Zambian economy. Given the uncertainty surrounding the duration of the crisis, and lack of relevant data, it is challenging to derive precise and reliable quantitative estimate of the impact of the crisis on productive capacities. Therefore, the approach adopted in this paper is to infer the likely impact of the crisis on productive capacities of Zambia by: examining how it affects the utilization of existing firm capacities; and providing an analyses of how it affects the processes of capital accumulation, structural transformation and technological progress, which are key factors in creating new productive capacities.

Capacity utilization

A very visible impact of the COVID-19 pandemic on productive capacities in Zambia is the negative effect it has had on the rate of capacity utilization of manufacturing firms. Before the onset of the crisis, firms were already operating on less than full capacity, due in part to high input production costs and electricity load shedding. These challenges have been exacerbated by the pandemic with dire consequences for capacity utilization in Zambia, as evidenced by the much lower capacity utilization rates in firms compared to the pre-COVID-19 period. For example, while capacity utilization in manufacturing firms was 69 percent in 2013 and 70 percent in 2019, it fell drastically to 51 percent in 2020. Table 5 shows that capacity utilization in 2020 varied across categories of firms. In particular, it was much lower in small and large firms compared to medium-sized firms. In addition, exporting firms had much lower capacity utilization rates than non-exporters and firms whose top managers are females had lower rates than those whose top managers are male. Interestingly, there was no difference in capacity utilization rates between domestic firms and those under foreign ownership.

There are several channels through which the pandemic had a negative impact on capacity utilization in Zambia. The lockdowns, social distancing and quarantine measures imposed to curb the spread of the virus resulted in partial and, in some cases, full closure of factories. About 40 percent of firms surveyed indicated that they temporarily closed during the outbreak of the pandemic and about 3 percent of firms reported having permanently closed since the pandemic was declared (table 5). Another channel through which the pandemic affected capacity utilization is through supply chain disruptions, which effectively made it challenging to procure parts and other intermediate inputs needed for production. The pandemic also affected capacity utilization through reducing labour supply in firms as some workers had to stay at home to take care of children who

were compelled to engage in virtual learning. In addition to these supply-side factors, the pandemic also affected capacity utilization through the demand side. One of the consequences of the socio-economic crisis triggered by the pandemic is that it led to a contraction of global demand which resulted in lower sales and revenues for firms thereby weakening their liquidity position. As should be expected, some firms reacted to this challenge by laying off workers and cutting production. About 44 percent of firms in Zambia reported decreasing the total number of temporary workers since the pandemic began. Furthermore, about 91 percent of firms reported having experienced decreased liquidity or cash-flow availability since the onset of the pandemic.

Table 5. Impact on firm employment, liquidity and capacity utilization in Zambia

	% of firms confirmed permanently closed since COVID-19 pandemic declared	% of firms that have ever temporarily closed during the COVID-19 outbreak	Capacity utilization in 2020 (%)	% of firms that decreased total number of permanent workers since Dec 2019	% of firms that ever decreased total number of temporary workers since COVID-19 began	% of firms that ever experienced decreased liquidity or cash flow availability since COVID-19 began
All	3.36	39.80	51.05	25.65	43.82	90.78
Small (5-19)	4.59	38.08	48.69	20.13	39.50	92.59
Medium (20-99)	3.38	44.10	54.06	35.08	47.90	90.55
Large (100+)	0.34	34.39	48.64	17.79	44.65	86.97
Manufacturing	2.86	30.15	51.05	32.89	46.84	89.32
Services	3.47	42.21		23.91	43.06	91.15
Direct exports are 10% or more of sales	0.78	23.04	39.72	47.48	52.97	85.26
Non-exporter	3.54	41.08	52.27	24.44	43.50	91.07
Top manager is female	11.98	24.68	36.27	17.47	54.02	81.63
Top manager is male	2.09	41.62	51.87	26.66	42.67	91.92
10% or more foreign ownership	6.24	42.42	51.02	36.78	49.32	90.46
Domestic	2.39	38.96	51.06	21.45	41.97	90.86

Source: compiled based on data from World Bank Enterprise Survey database.

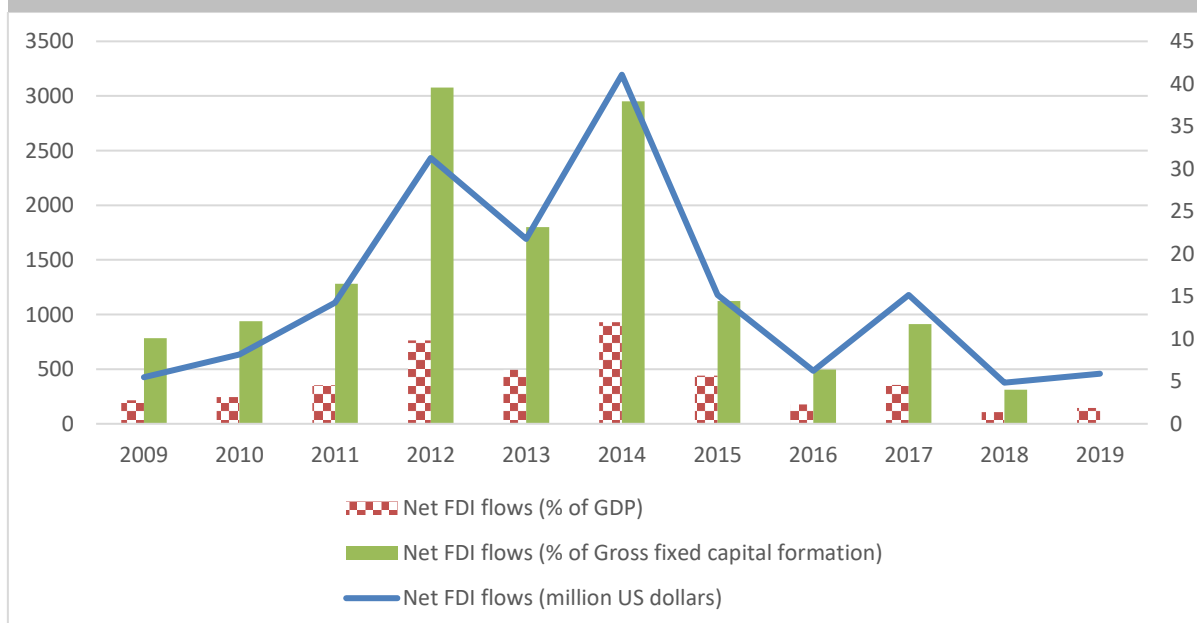
Capital accumulation

Economic history and recent research studies indicate that capital accumulation plays a crucial role in building productive capacities of a country (UNCTAD 2020). Given this stylized fact, the behaviour of investment in Zambia during and following the pandemic will provide an idea of the likely impact of the crisis on productive capacities. Before the onset of the pandemic, the value of net foreign direct investment (FDI) flows to Zambia was already on a declining trend following a peak in 2014. The declining trend in the value of FDI is also evident in the ratio of FDI to GDP and the ratio of FDI to gross capital

formation (figure 7). While we do not have actual values of FDI flows to Zambia for 2020, recent estimates that FDI flows at the global level fell by 42 percent, and in Africa by 18 percent, suggests that the pandemic has compounded the challenge of attracting FDI to Zambia and other African countries (UNCTAD, 2021).

Regarding domestic investment, recent firm surveys conducted in Zambia indicate that a major response of firms to the pandemic was to reduce capital expenditure (ICA 2020), which had a negative impact on domestic investment and the development of productive capacities. Following the decline in demand, falling copper prices, depreciation of the domestic currency, and the weakening of the macroeconomic environment, firms were reluctant to take new loans for investments. As a result there was a decline in growth of credit to the private sector from 8.3 percent in the second half of 2019 to 2 percent in the first half of 2020 (BOZ 2020b). There are also factors on the supply side of the credit market that constrained domestic investment in 2020. For example, the cost of credit in Zambia is very high and so banks and other financial institutions have very little appetite for risk.⁶ A study of selected financial institutions in Zambia conducted before the pandemic indicates that the cost of providing credit relative to their average loan portfolio in the period 2017-2018 was between 53 to 80 percent. Given that the average annual lending rate for the institutions in the study was between 47 and 65 percent, this implies that these institutions had a negative net profit margin on lending in the period under consideration (table 6). In this type of lending environment, financial institutions responded to the increased risk resulting from the pandemic by being even more cautious in lending than in the past.

Figure 7. Net Foreign Direct Investment Flows in Zambia



Source: UNCTADstat.

⁶ Note that there are three main components to the cost of providing credit: the cost of funds; the cost of operations; and the cost of risk.

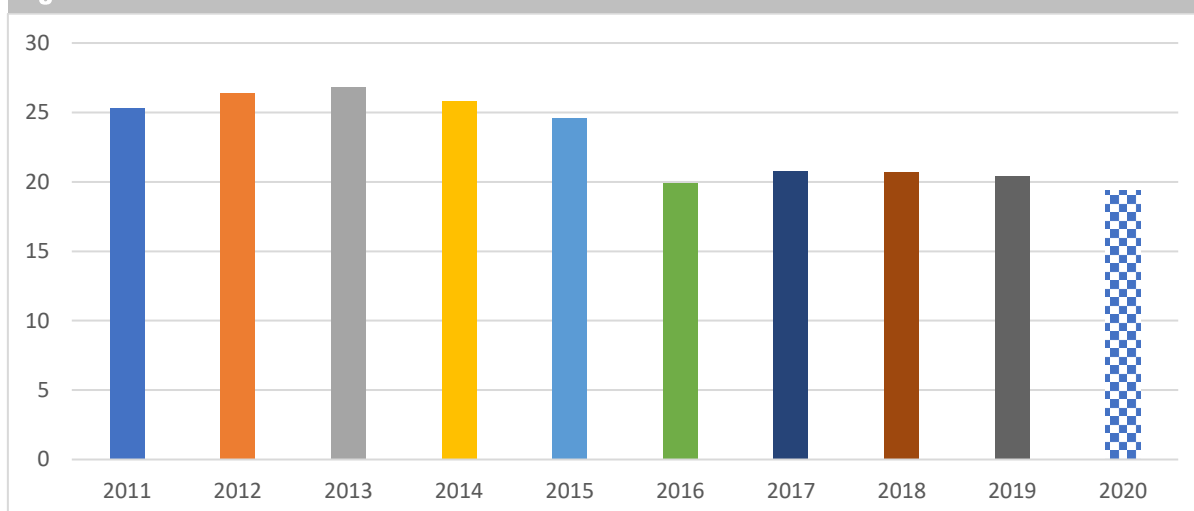
Table 6. Cost of credit indicators for Zambia (2017-2018)

Indicator	Definition	Value (%)
Cost of funds	Interest paid on average deposits and borrowings	17.6 to 26.7 percent
Cost of operations	Operating expenses relative to average gross loan portfolio	21 to 52 percent
Cost of risk	Loan loss provisions relative to average gross loan portfolio	1 to 10 percent
Cost of providing credit	Total cost of credit relative to average gross loan portfolio	53 to 80 percent
Actual annual lending rates	Average interest rate charged by financial institutions on all products	47 to 65 percent
Net profit margin on lending	Average portfolio yield minus total cost of credit	-17.4 to -5.5 percent

Source: Cazacu and Abdraimov (2020).

Technology and innovation

Achieving the diversification, job creation and poverty reduction goals set out in Zambia's 7th National Development Plan will require significant progress in technology because it is a key driver of productivity improvements and productive capacity development, particularly in dynamic and sophisticated sectors such as manufacturing (World Bank 2020). The COVID-19 pandemic will undoubtedly affect technological progress in Zambia and by so doing have implications for productive capacity development. In principle, the pandemic is having both positive and negative impacts on technological progress. For example, it is hastening the adoption of new technologies. Since the onset of the crisis, there has been an increase in interest in information and communication technologies as well as in education and health investments, which are likely to enhance the quality of human capital and boost productive capacities. Through grants from the Global Partnership in Education, the government has increased support for radio-based learning and teachers were also given training on use of basic e-learning technologies. Notwithstanding this increase in adoption of technology observed in some activities, the pandemic is also having a negative impact on technological progress and productive capacities development through underinvestment in capital and innovation. As indicated earlier in this section, the uncertainty created by the pandemic has led to a decline in FDI which is an important source of investment and technology transfer to poorer developing countries such as Zambia. Interestingly, the Global Innovation Indices computed by Cornell University, INSEAD and the World Intellectual Property Organization (WIPO) indicate that there was a significant decline in innovation index for Zambia in 2016, followed by modest improvements in 2017 and 2018, and a decrease in 2020 relative to 2019, reflecting the impact of the pandemic (figure 8).

Figure 8. Trends in Innovation Index for Zambia

Source: Based on data from the Global Innovation Index publications by Cornel, INSEAD and WIPO.

Structural change

A key channel through which the pandemic could induce structural change in Zambia is through its impact on relative productivities across countries, which has implications for the comparative advantage of nations in trade (Dieppe 2020). Zambia is heavily dependent on exports of non-ferrous metals (mostly copper) with manufacturing playing a very limited role in the economy both in terms of output and exports. Its current export structure reflects the fact that it is not very competitive in the market for manufactured goods and faces challenges penetrating global markets for such goods. The COVID-19 pandemic has exacerbated this challenge in two ways. First, the pandemic has had a negative impact on productivity in the Zambian economy. But the impact of this productivity decline on manufacturing will be more severe because of increasing returns to scale in that sector (Matsuyama 1992 and 2008). Second, it has accelerated the adoption of automation and other new technologies by firms globally and since Zambia and other LDCs have low technological capabilities, this puts them at a disadvantage and increases the productivity gap across countries. In addition, the major foreign firms are expected to slowly retreat from GVCs in response to the supply-chain disruptions associated with the pandemic which is likely to have a negative impact on productivity and productive capacity development in weak and vulnerable developing countries.

Another way to think about the impact of the pandemic on structural change is to recognize that major shocks tend to have asymmetric effects on economic sectors thereby triggering a movement of resources from one activity to the other. This asymmetry suggests that the COVID-19 pandemic has consequences for structural change in Zambia. Based on recent research on the impact of the pandemic on the Zambian economy, the most severely affected sectors (in terms of reductions in contributions to output) are wholesale and retail trade followed by mining, construction, manufacturing, and agriculture (CUTS and UNDP 2020; BOZ 2020b). Tourism and related economic activities (such as accommodation and food services) have also been severely affected

but they account for a very small share of output and so are less consequential compared to the other sectors.

Given the asymmetric impact of the COVID-19 shock, and the differences in productivity across sectors, the structural change associated with it is likely to have a positive impact on productive capacities development and growth if it triggers a net reallocation of resources from low productivity activities (for example agriculture and construction) into higher productivity activities (such as manufacturing and financial services). The ease with which the required reallocation of resources takes place will depend on the degree of frictions in the economy. The economic literature provides some guidance on the nature of these impediments as drivers of structural change.⁷ For example, the Lewis (1954) model stresses the importance of processes of wage determination in labour markets in the sense that workers in the less-productive rural sector are paid the average rather than the marginal product of labour, which creates a disincentive for them to move out of the sector. Banerjee and Newman (1998) identify credit constraints as impediments to movement of workers across sectors and Lucas (2004) underscores the role of human capital, pointing out that workers may be prevented from moving into productive sectors because they require acquisition of skills and human capital. Regarding Zambia, the main message from these models is that if the government wants to induce growth-enhancing structural change to foster productive capacities, it has to double efforts to remove frictions in factor markets that impede reallocation of resources. Although Zambia has low human capital, relative to middle- and high-income countries, the analysis in section 2 of the paper shows that it has made significant progress in human capital development over the past few decades which should foster structural change. But the analyses in the previous sections also indicate that there are binding constraints in the credit market that make it challenging for households and firms to access credit that have to be lifted to foster productivity-enhancing structural change in the economy.

⁷ See van Neuss 2019 and Matsuyama 2008.

4. Policies to mitigate impact of COVID-19 and build resilience

The Government of Zambia is aware of the destruction to productive capacities resulting from the impact of the pandemic on key drivers of sustained growth and has launched an Economic Recovery Programme (ERP) to guide policymaking in the period 2020-2023 and cushion the socio-economic impact of the pandemic. The ERP follows the Economic Stabilization and Growth Programme (ESGP), popularly known as Zambia Plus, that was implemented in the period 2017-2019 with mixed results. The ERP has five key goals: restoring macroeconomic stability; attaining fiscal and debt sustainability; restoring growth and diversifying the economy; dismantling domestic arrears and avoiding accumulation of new areas; and safeguarding social protection programmes (MOF and MNDP 2020). In this context, it is a stabilization, recovery and growth programme. Its focus is on three priority sectors: agriculture, mining and manufacturing. The expectation is that reviving growth in these priority sectors will catalyze growth in other sectors and create decent jobs in the economy.

In line with the broad goals set out in the ERP, the Government has also taken measures to stem the impact of the pandemic on the economy. For example, in May 2020 the Bank of Zambia cut the policy interest rate by 225 basis points and in August it complemented this action with a rate reduction of 125 basis points (BOZ 2020b). Furthermore, the central bank extended liquidity support to financial service providers. In addition to these monetary measures, the Government has forged partnerships with the private sector to promote business continuity and cushion the effect of the pandemic on output and employment. For example, it has introduced tax waivers for business, including a waiver on interest on outstanding tax liabilities associated with the pandemic. It has also reduced supply chain disruptions through providing cross-border trucks in transit with officials to escort them to avoid unnecessary stoppages. While these measures are welcome, they are largely geared towards formal activities and not the informal sector of the economy where many micro and small-sized enterprises operate. Also, the responses are mostly short rather than long-term measures that target the impact of the pandemic on the key processes guiding the development of productive capacities. In this regard, there is the need for a more holistic policy response to the pandemic to ensure an inclusive and sustained development outcome. To this end, the following policy recommendations should be considered by the Government.

First, there is the need to lift the binding credit constraints facing domestic enterprises, particularly small and medium-sized enterprises in the manufacturing sector. In Zambia, it is often more difficult for a manufacturing firm to obtain a loan from financial institutions than firms in other sectors of the economy. In December 2019, about 24 percent of total loans and advances were personal loans and 16 percent were loans to agriculture, forestry, fishing and hunting. Furthermore, about 12 percent of the loans went to wholesale and retail trade while manufacturing accounted for just 9 percent (BOZ 2020b). Interestingly, the pandemic has not changed this sectoral preference in allocation of credit. For example, data for the month of June 2020, show that personal loans continue to account for the bulk of total loans (23 percent), followed by agriculture, forestry, fishing and hunting (16 percent) and then manufacturing (10 percent). The challenge faced by manufacturing firms in obtaining loans reflects the fact that they require large capital and longer repayments periods. But it is also a reflection of the fact that banks have less appetite for risk. Undoubtedly, an effective solution to this financing challenge

requires action on both the supply and demand sides of the credit market. On the supply side, this requires reducing the cost of lending faced by financial institutions. On the demand side, it requires an understanding that there is heterogeneity across firms and that their financing needs are different (UNCTAD 2020). This firm heterogeneity suggests that governments have to employ different instruments to support the private sector.

Second, it would be desirable for the Government to find a durable solution to the challenges associated with energy generation, distribution and use. This requires diversifying energy sources to reduce dependence on hydropower, which accounts for over 80 percent of electricity generation. Solar power is one renewable energy source that has potential but has not been properly harnessed. In terms of energy use, most of the electricity generated in the country is consumed by the mining sector. There is the need to provide better and affordable access to electricity to other sectors such as manufacturing, agriculture and services. Incessant power outage is a key challenge for manufacturing firms in Zambia. In 2019 firms experienced about 15 power outages per month, each lasting an average of about 7.2 hours (UNIDO, 2020). Power outages impose additional costs on firms because they often cause damage to machines and also compel firms to purchase and use generators. These additional costs that Zambian firms face reduce their competitiveness and make manufacturing development even more challenging.

Third, there is the need for better targeting of investment to priority sectors that foster growth-enhancing structural change, namely manufacturing and modern services. FDI flows into Zambia is highly concentrated in mining with very limited linkages to other sectors. While the abundance of natural resources explains partly the high concentration of FDI in the extractive sector, it is also a reflection of the fact that government policies tend to reinforce the comparative advantage of this sector. Incentives provided by the government over the past few decades made investment in the sector more attractive to foreign investors and put domestic investors at a disadvantage. Obviously, this is not conducive to long term private sector development and makes achieving the government's goal of diversifying the economy even more challenging than it should be. In this context, there is the need to have a more strategic approach to FDI that is consistent with and supportive of the goal of productive transformation. The ongoing national investment promotion strategy, covering the period 2018-2022, acknowledges the importance of a coherent approach to investment promotion and also underscores the need to attract both domestic and foreign investment into identified priority sectors of the economy to maximize their development impact.

Fourth, human capital development should be geared towards addressing the needs of domestic enterprises. Zambian workers have a reasonably high level of education when compared with other African countries. Nevertheless, surveys of manufacturing enterprises indicate that shortage of skilled workers is an issue in some manufacturing operations and this needs to be addressed to foster sustained development of productive capacities and diversification of the economy. This shortage of local skilled labour is reflected in the high share of foreign workers in the labour force in Zambia (UNIDO 2020). Firms tend to address this constraint through training of the labour force. This is a welcome development, but there is the need for a long term approach to resolving the issue through revising the educational curriculum to better reflect and address the needs of enterprises.

Fifth, forging stronger linkages between agriculture and industry will be required to boost productive capacities and address the challenges of food security, employment, and poverty in Zambia in the medium to long term. The government recognizes the need to broaden the sources of growth through building productive capacities and strengthening inter-sectoral linkages. Its national development plans stress the importance of diversification away from mining because of the limited linkages it has with other sectors of the economy. Despite these efforts, diversification of the economy remains a big challenge as reflected in the fact that the contribution of manufacturing in the economy has declined over the past few decades and that of services has increased significantly. This pattern of structural change is unsustainable given the weak backward and forward linkages between the service sector and the rest of the economy. The government should better exploit the potential linkages between manufacturing and agriculture by promoting production of local intermediate manufacturing inputs. This will reduce imports of non-agricultural intermediate inputs and better link agro-processing activities in manufacturing to the agriculture sector.

Finally, the promotion of technology acquisition, adaptation and use needs to be prioritized if the country is to make significant progress in achieving its diversification and industrial development objectives. Presently, the level of innovation in the country is very low compared with numbers observed in middle- and high-income countries in Africa. For example, in Zambia the annual average number of patent applications by applicant's origin (a measure of the output of innovation activities) in the period 2015-2019 was only 13 compared with 107 in Mauritius and 1932 in South Africa. Interestingly, while most of the applications by nationals of Mauritius and South Africa were filed abroad, in Zambia they were mostly filed in the home office. To fill this innovation gap, Zambia will need significant investments in research and development as well as in education and training. It will also need to better harness the potential of FDI for technology transfer through nudging and incentivizing foreign investors to contribute to building local technological capabilities.

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