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Industrial Policy and Structural Transformation in Ethiopia

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Abstract

Motivation: Since the launch of the first Growth and Transformation Plan (GTP 2010-2015), followed by the second GTP (2015-2020), Ethiopia has moved towards a more active industrial policy aimed at both economic growth and structural transformation. Ethiopia's impressive economic growth has received a great deal of attention, but little attention has focused on whether strong economic growth has translated into structural transformation.

Purpose: The paper analyses structural transformation in Ethiopia at three levels: at the sectoral level, within the industrial sector, and within the manufacturing sector. The paper also identifies the main constraints to structural transformation in Ethiopia and possible lessons for other comparable countries with industrial policies to enhance structural transformation.

Approach and Methods: Our approach adopts a broad conceptualization of structural transformation focusing on four dimensions of structural transformation - value added, labour productivity, employment, and exports - across sectors, within sectors, and within subsectors, using secondary data from national and international sources.

Findings: Several key points emerge from our findings: first, despite strong economic growth over the last decade and a half, Ethiopia still faces high unemployment, poverty, and macroeconomic imbalances, suggesting that growth has not been accompanied by structural transformation. Second, not only has the pace of structural transformation been limited, but the limited structural transformation that the country has experienced has been towards services rather than manufacturing. Third, manufacturing exports remained weak in terms of both export intensity and diversification. Fourth, there are large productivity differentials within and across sectors, suggesting a large potential for structural transformation if the constraints to structural transformation are adequately addressed.

Policy implications: Unless economic growth is accompanied by robust structural transformation, poverty persists as a significant percentage of the population may remain employed in low-productivity sectors. Therefore, it is crucial to identify and remedy the key constraints to structural transformation.

Keywords: structural transformation, industrial policy, manufacturing, Ethiopia, low-income

1. Introduction

Ethiopia has the second largest domestic market in Africa, with a population of 110 million (60% of whom are under the age of 25) and a nominal GDP of US\$107 billion in 2020. It is landlocked but strategically located close to Europe and the Middle East. Ethiopia's recent growth story between 2003 and 2018 is one of the most cited examples of economic growth in Africa. Ethiopia has experienced rapid economic growth over the past decade and a half. However, the country's state-led economic growth has also created macroeconomic imbalances and vulnerabilities, suggesting that the public investment-led economic growth model has its own limitations. In addition to macroeconomic imbalances, the country has experienced some significant shocks, most notably the AIDS pandemic and, more recently, a deadly war that has drastically changed the country's image and slowed economic growth.

Modern industries began to emerge in Ethiopia in the 1920s. Most of them were owned by foreigners. For example, in 1927, there were about 25 companies established by foreigners (Gebreeyesus, 2013). These modest efforts and achievements in industrialization were brought to a halt by the coming of the Derg regime in 1974. The Derg Regime (1974-1991) declared itself a socialist government and imposed various market restrictions and nationalization strategies, resulting in one of the most regulated and closed economies in the world. The result, especially when combined with the protracted civil war, was severe macroeconomic instability, poor economic performance and social crisis, with the industrial sector shrinking and virtually disappearing.

With the fall of the socialist Derg regime in 1991, the industrial sector began to revive. The period between 1991 and 2002 can be rather well characterized as the formative years for Ethiopia, when the stifled private sector was revived through economic liberalization and deregulation reforms (Gebrehiwot, 2019). And in terms of policy, Agriculture Development Led Industrialization (ADLI) defined the key role of agriculture in early industrialization and provided the overall policy vision and direction for Ethiopia from the 1990s to 2002. The period between 2003 and 2018 can be characterized as a high-growth period, with much of Ethiopia's recent growth taking place under the government of the Ethiopian People's Revolutionary Democratic Front (EPRDF). In 2003, the

Ethiopian government formulated its first comprehensive Industrial Development Strategy (IDS). The central theme of the IDS was to initiate industrial development through the implementation of selected industrial instruments. The objectives and pillars of the IDS have been further articulated, concretized and implemented through successive five-year development plans, including the GTP-I (2011-2015) and GTP-II (2016-2020).

Some of the widely used and relevant industrial policy instruments that Ethiopia has used to promote its industrialization goals include foreign direct investment (FDI) attraction, export promotion, industrial parks program, and skills and technology development in its priority sectors. Ethiopia has established industry-specific institutions such as the Metal Industry Development Institute (MIDI), the Leather Industry Development Institute (LIDI) and the Textile Industry Development Institute (TIDI) to provide comprehensive technology and training support to priority industries (NPC, 2015).

Ethiopia's goal is to use these industrial policy instruments to achieve both economic growth and structural transformation of its economy. But what is the evidence? Ethiopia has experienced remarkable growth (10.3% on average) over the last 15 years between 2003/04 and 2017/2018. The high growth performance over the last decade and a half was largely due to capital accumulation driven by large public infrastructure investments (Moller & Wacker, 2017; Hailu, Gebreyesus, & Tekleselassie, 2020). Ethiopia's manufacturing sector, which has been and continues to be the target of most government incentives and support, is still far from being an engine of economic transformation. In 2018/2019, manufacturing contributed only about 6.8% to GDP and 24.3% to industrial output, and its share in employment remains low (only 2.9%) (CSA, 2021; NBE, 2021). Similarly, the industrial sector (defined as manufacturing, mining and construction according to the Ethiopian income accounting system) accounted for 5.2% of total national employment in February 2021. On the other hand, massive public investment by the state appears to have fueled growth in the construction sector, whose contribution to GDP has reached over 20% and that to industrial output over 72.5%. However, the impact of the construction sector on job creation appears to be smaller than its overall size would suggest (i.e. contributing only 1.8%), as the construction boom was more capital-intensive than labour-intensive.

While Ethiopia's impressive economic growth story between 2003 and 2018 has been documented, there is little evidence on the state of structural transformation in the country. Therefore, this paper aims to provide some evidence and understanding of the state of and constraints to structural transformation in Ethiopia across sectors, at the sectoral and subsectoral levels. Based on the findings of our paper, we make the following observations: first, despite strong growth performance averaging double digits over the past decade and a half, Ethiopia is still grappling with development challenges such as high unemployment, poverty and macroeconomic imbalances. Second, despite an industrial policy that supports the manufacturing sector, the structural transformation of the economy remains weak compared to the targets of its development plans and to its peers. Not only has the pace of structural transformation been limited (as shown by several structural transformation indicators), but the limited structural transformation that the country has experienced has been towards services rather than manufacturing (i.e. there has been a greater shift towards services than manufacturing). Third, the external sector in general, and manufacturing exports in particular, remained weak in terms of both export intensity and diversification. Fourth, there are large productivity differentials within and across sectors, suggesting a large potential for structural transformation if pro-market reforms are effectively implemented. Finally, the paper finds that several interrelated factors are constraining structural transformation and notes that several concerted actions are needed for structural transformation to succeed.

The remainder of the paper is organized as follows. Section two discusses the relevance of structural transformation in general and the manufacturing sector in particular for low-income countries. Section three presents the overall status and recent trends of structural transformation. Sections four and five analyze transformation within industries and the manufacturing sector, respectively. Section six briefly discusses the main constraints and opportunities for structural transformation. Finally, section seven concludes the paper with some recommendations.

2. Why structural transformation matters for developing countries

Structural transformation is generally defined as a change in the industrial structure of the economy that alters the relative importance of three broadly defined sectors: agriculture, manufacturing and services (Fisher, 1939; Clark, 1940; Kuznets, 1957; Chenery, 1960; Syrquin, 1988). The process

of structural transformation involves the shifting of factors of production from low-productivity to high-productivity sectors of the economy, thereby increasing productivity and income (Duarte & Restuccia, 2010). In recent literature, the notion of structural change has been broadened to include economic processes that involve not only changes in the structure of production and employment within and across sectors, but also diversification into a wider range of new activities (Imbs & Wacziarg, 2003).

Structural transformation, especially towards manufacturing, has been considered the main driver of economic growth and development. Historically, since the Industrial Revolution, rapid economic growth has been associated with the growth of manufacturing in particular and the expansion of industrial activity in general (Cornwall, 1977; Szirmai, 2010; McMillan & Rodrik, 2011; Szirmai, 2012). Since Kaldor's (1960) seminal work on the role of manufacturing, a number of empirical regularities have emerged that the literature would classify as stylised facts about the key role of manufacturing in structural transformation in developing countries.

- The manufacturing sector is the engine of GDP growth - i.e. there is ample empirical evidence of a positive correlation between GDP growth and the share of manufacturing in output. This means that, historically, the fastest-growing countries have been those with large manufacturing sectors.
- Productivity growth in the manufacturing sector is positively related to growth in manufacturing output - i.e., as articulated in Verdoorn's Law (1949), increasing returns to manufacturing in the form of lower average unit costs and positive spillovers from technical progress are the drivers of productivity growth.
- Productivity in manufacturing is higher than in other sectors. Therefore, the transfer of resources from other sectors (lower productivity) to manufacturing (higher productivity) provides a "structural change bonus" (Timmer & Szirmai, 2000).

These empirical regularities have important implications for developing countries. First, the direction and speed of structural transformation distinguish successful from unsuccessful countries in their industrialisation process. Second, the manufacturing sector has special features of positive externalities and spillovers (e.g. technological learning, skill development, etc.) that cannot be fully compensated by entrepreneurs investing in manufacturing. In other words, the social value

of manufacturing investment tends to be much higher than its private value. This suggests that structural transformation is less likely to be automatic, which rationalises the use of industrial policy in developing countries. Third, the fact that developing countries have large sectoral productivity gaps shows that there is a large potential for structural transformation that can be exploited and that their industrial policies need to focus on removing the constraints to structural transformation.

3. Structural Transformation in Ethiopia: Sectoral Aggregate Trends and Analysis

In this section, we analyse the current status and trends of structural transformation in Ethiopia using various indicators such as the share of value added, productivity, employment, exports and investment in the three main sectors of the economy: agriculture, industry and services. Since the launch of the first comprehensive industrial strategy in 2003, and more concretely since the launch of the Growth and Transformation Plans in 2010, the country has been moving towards a more active industrial policy aimed at bringing about structural transformation of the economy. In order to understand the progress of the country's structural transformation, it is therefore essential to examine the current state and past trends of the main sectors of the economy in terms of value added, employment, exports, productivity and investment.

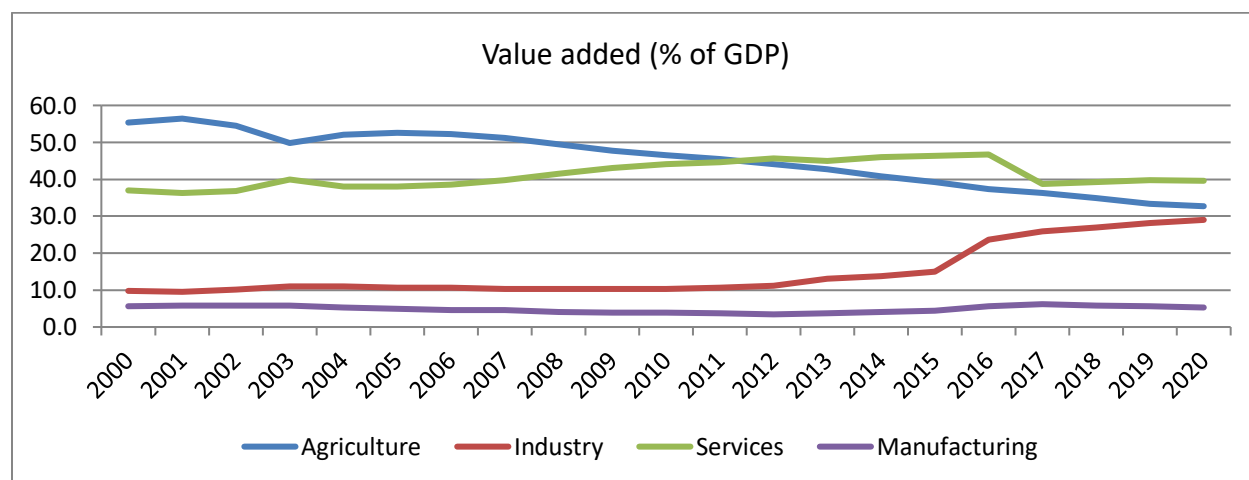
Sectoral shares in value-added and value added per worker

In recent years, the services sector has overtaken the agricultural sector (since 2012) to account for the largest share of value added, close to 40%, followed by the agricultural sector with 32.7% in 2020 (Figure 1). The industrial sector's share of value added is around 29% of GDP over the same period. With more than 70% of the industrial sector's value added coming from construction, the manufacturing sector's share of value added in GDP in 2020 remains quite low at just 6%. While the manufacturing sector's share of value added in GDP tended to stagnate at around 6%, the industrial sector's share of value added increased due to a boom in the construction sector. The agricultural sector, on the other hand, showed a continuous decline, which is quite normal as the economy is undergoing structural change, albeit limited. The value added share of the services sector increased until 2016 and showed a slight decline in recent years, possibly due to the recent events of the COVID-19 pandemic and political instability. The main contributors to the services sector in 2020 are wholesale and retail trade (36.3%), transport and communication (13.4%), real

estate and renting (11%), hotels and restaurants (6%) and public administration and defence (11%). The rest of the services sector is made up of education, health and others. Similarly, crop production accounted for 65% of agricultural output, followed by livestock (26%) and forestry (8%). In industrial production, construction accounts for 72.6% of industrial output and manufacturing for 23.9%.

Overall, as shown in Figure 1, the value-added share of the industrial sector as a whole has increased significantly during the GTP-II period (2015-2020), but the increase has been driven by the expansion of construction rather than manufacturing. The structural transformation achievements in terms of a change in the structure of the economy as measured by sectoral value-added shares have therefore been limited, with the value-added share of the manufacturing subsector stagnating at around 6%.

Figure 1. Sectoral shares of valued added (%)

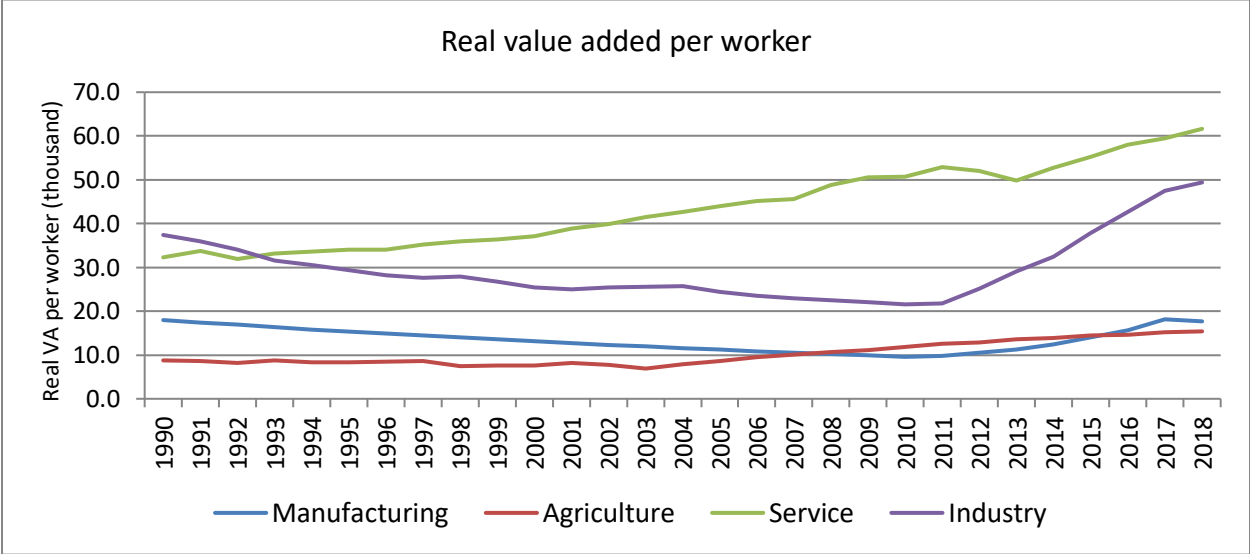


Source: NBE, WDI

In terms of productivity, the services sector has the highest labour productivity, measured in terms of real value added per person employed (Figure 2). This is because the services sector tends to be more capital intensive. Although the industrial sector has the smallest share of value added in GDP in the country, its value added per worker is approaching the level of the service sector and exceeds that of agriculture. In 2020, value added per worker in the services and industrial sectors was 4 and 3 times higher than in agriculture, respectively (Figure 2). The large differences in productivity

across sectors, as shown in Figure 2, mean that Ethiopia has great potential for structural transformation in terms of productivity gains and hence economic growth. A particularly important trend to note is the large productivity gap between the industrial and manufacturing sectors, especially during the GTP-II period (2015-2020). This large difference in labour productivity can largely be explained by the significant expansion of the construction sector during this period, driven by massive public investment in infrastructure projects. Labour productivity in manufacturing remains low, but is slightly higher than in agriculture, which means that there is more scope for structural transformation through intersectoral reallocation of labour and other factors of production. Increasing agricultural productivity is also important for the country's overall structural transformation in terms of providing sufficient food and freeing up labour for the industrial sector.

Figure 2. Sectoral real value added per worker



Source: NBE, WDI

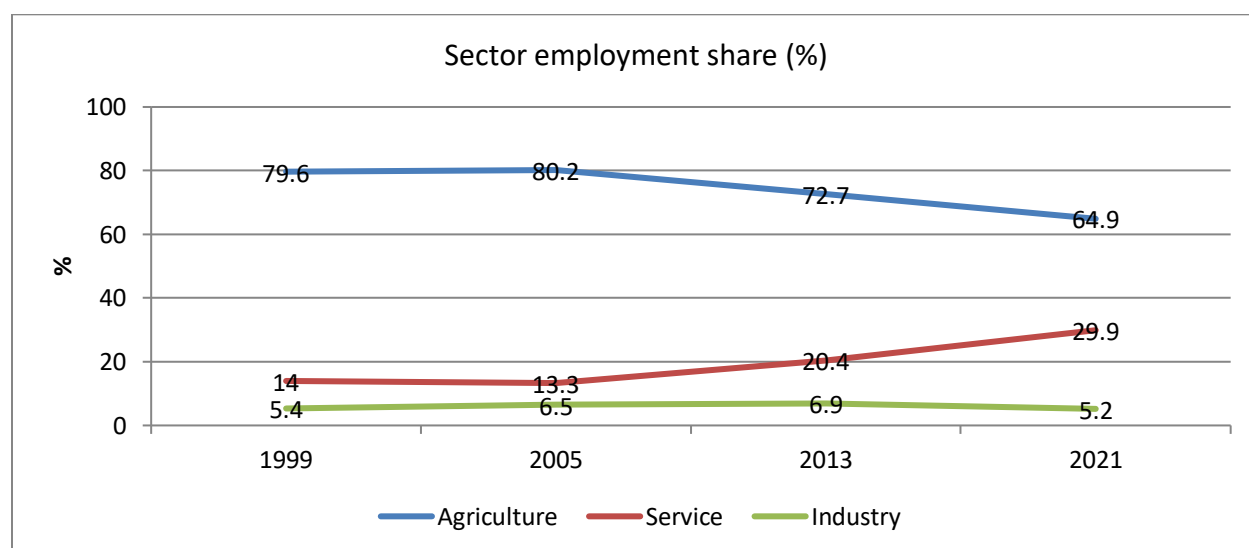
Sectoral shares in employment

The way in which labour is allocated is also an indication of the extent of structural transformation. There has been limited change in the structure of employment in Ethiopia. Agriculture remains the main employment sector in Ethiopia, accounting for almost 65% of the labour force in 2021. The service sector employs 29.9% of the labour force, while the industrial sector (which includes manufacturing, mining and construction) employs 5.2%. The share of employment in agriculture

has recently declined slightly (from 72.7% in 2013 to 65% in 2021) (Figure 3). Most of the observed decline in the employment share of agriculture appears to have been absorbed by the services sector, as its employment share increases from 20.4% in 2013 to 29.9% in 2021. Nevertheless, agriculture, trade and manufacturing remain the largest employers in the country (in absolute terms). The share of employment in the manufacturing sector remains low (only 2.9%). Surprisingly, although massive public investment has fuelled growth in the construction sector, which contributes over 20% of Ethiopia's GDP and 72.5% of industrial output, its impact on job creation appears to be much less than its size would suggest (i.e. it contributes only 1.8%). This suggests that the construction boom was more capital intensive than labour intensive. This may be largely due to the fact that Ethiopia's construction sector (especially for medium to large projects) is dominated by Chinese contractors, who tend to use more machinery than labour.

Sectoral employment shares (Figure 3) and sectoral value-added shares (Figure 1) thus tell a similar story and trend: i.e. the pace of structural change has been limited and the direction of structural change has been towards services rather than manufacturing.

Figure 3: Employment share by sector (% of total employment)

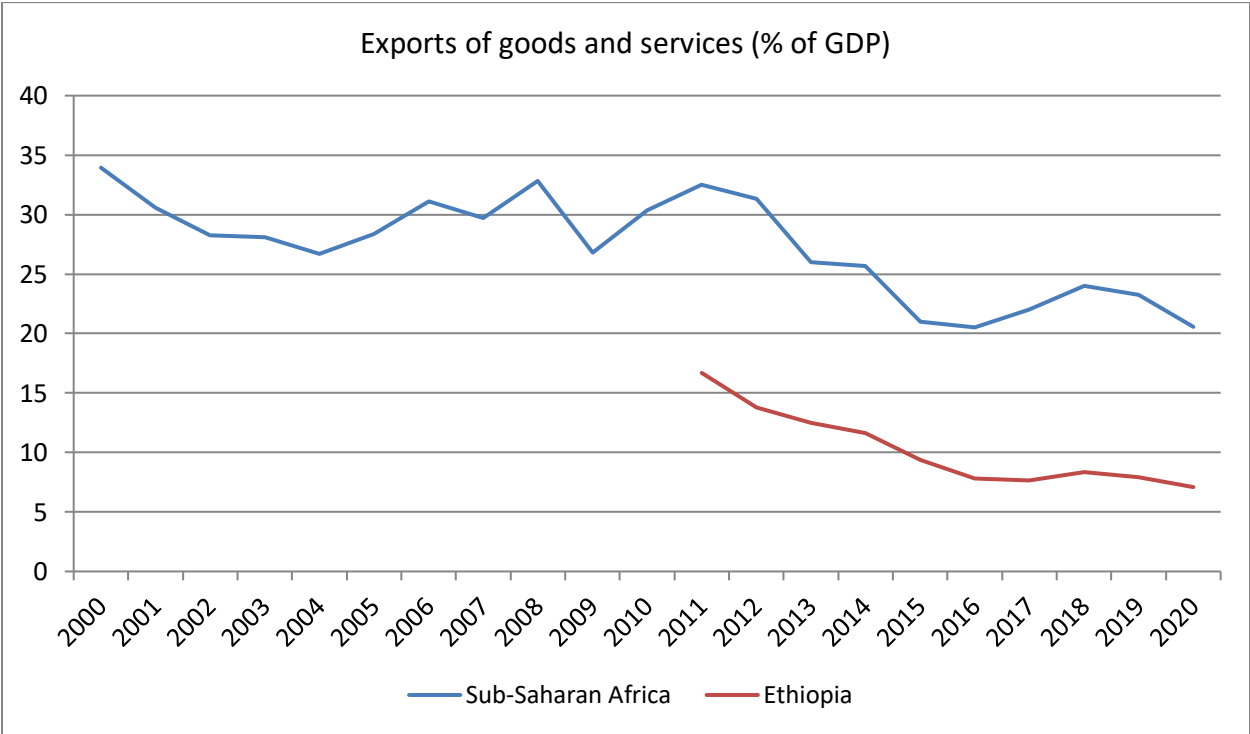


Source: Author's calculation from the National Labour Force Surveys 1999, 2005, 2013 and 2021

Sectoral shares in export

The country's total exports hover around US\$3 billion, quite low for its income level and size. Assefa & Gedefe (2016) estimate that Ethiopia's trade is 10 to 13 percent lower than expected given its income level, location and population size. Ethiopia's export of goods and services as a share of GDP has been declining and is currently around 7 percent in 2020, compared to the sub-Saharan average of 21 percent over the same period (Figure 4). The decline in the export share over time suggests that the non-export sector has grown faster than the export sector. That is, the Ethiopian economy has expanded over the past decade and a half, but the expansion has been driven by expansion in the non-exportable sectors, such as services and construction. This is fairly consistent with our earlier findings on value-added and employment shares (Figures 1 to 3).

Figure 4: Exports of goods and services (% GDP): Ethiopia versus sub-Saharan Africa



Source: WDI

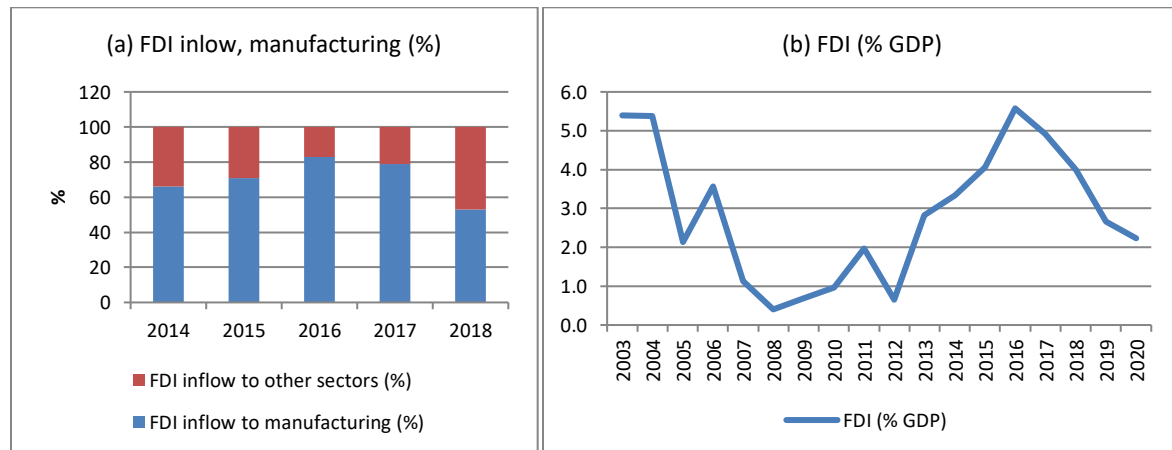
Looking at the country's export structure, the agricultural sector remains the country's main source of exports, which also makes the country vulnerable to demand shocks. For example, coffee (28.6%), oilseeds (11.5%), chat (10.9%) and pulses (7.9%) will remain among Ethiopia's top export earners in 2020. Flowers (14%) and gold (6.6%) follow. Manufacturing exports, typically

leather and textiles, lag far behind agricultural products in terms of export shares, with only 5.7% (textiles and textile products) and 2.4% (leather and leather products). Thus, structural change in terms of exports presents a similar picture to that seen above for value-added, employment and productivity.

Foreign Direct Investment (FDI)

The Ethiopian government has made significant efforts to attract FDI over the past decade, particularly in the manufacturing sector (Figure 5). As a result, Ethiopia has become one of the preferred destinations for FDI in sub-Saharan Africa. Ethiopia has attracted significant FDI since the beginning of the GTP-I (2010) and continued to grow until the second half of the GTP-II (2017). FDI inflows into the country reached almost USD 4.2 billion in 2016/17 (up from USD 1.2 million in 2003/04) (Figure 5b). The other important observation is that most of the FDI inflows went to the manufacturing sector. Between 2014 and 2018, manufacturing accounted for more than 70% of total FDI inflows (Figure 5a). The share of manufacturing in FDI also increased until 2017, after which it started to decline.

Figure 5. FDI in Ethiopia



Source: EIC and WDI

The rising FDI trend began to weaken after 2017, as the country faced heightened uncertainty due to widespread waves of violent protests. As a result, violent attacks on factories, horticulture farms, warehouses and vehicles undermined investor confidence in the country's political stability and threatened to derail the country's industrialisation strategy. This political instability has continued

to grow, and most recently the country has been in a state of civil war. And the ongoing conflict, which has already affected existing investors in the country, has led to an even worse situation that would deny them a market in the US, as Ethiopia is excluded from the African Growth and Opportunity Act (AGOA) for its gross human rights violations in the Tigray region. FDI in particular, and all forms of investment in general, are likely to continue to decline until the conflict is peacefully resolved and investor confidence restored, which may take a long time.

The main observations in this section can be summarised as follows: First, the pace of structural transformation has been limited, as reflected in the low value added and employment shares of manufacturing in GDP. Second, the direction of the limited structural transformation observed has been a shift towards services and construction rather than manufacturing. For example, most of the labour released from agriculture has been absorbed by the service sector. Third, there are large productivity differences across sectors, suggesting that there are large opportunities for structural transformation. Fourth, although the Ethiopian economy has grown over the past decade and a half, the expansion has been driven by expansion in non-export sectors such as services and construction. As a result, Ethiopia's export sector remains weak and stagnant.

4. The state of the industrial sector in Ethiopia: the structural transformation within the industrial sector

This section examines the state and dynamics of structural transformation in the industrial sector using the indicators defined above: value added, value added per person employed, employment and exports.

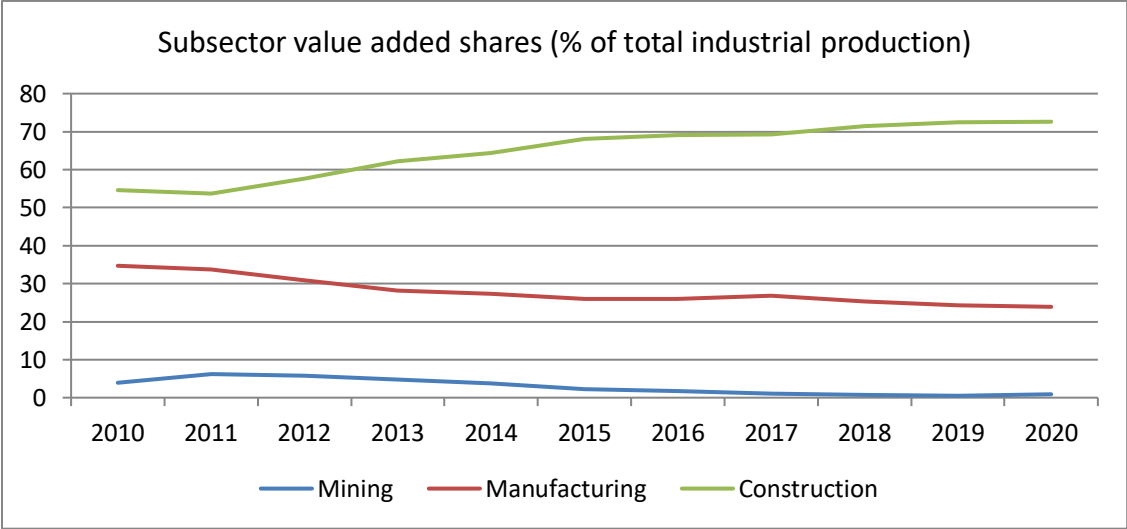
Value added share

Ethiopia's income accounting system defines the industrial sector with four subsectors: manufacturing, construction, mining, and electricity and water. The electricity and water subsector could be ignored in much of the analysis below, as its contribution is quite small. We focus primarily on the manufacturing, construction and mining subsectors.

While the value-added shares of manufacturing and mining have decreased over time, the value-added share of the construction subsector has increased. The manufacturing sector's share of value

added in total industrial production has declined in recent years, from 42 % in 2005/06 to 26 % in 2015 and further to 23.9 % in 2020 (Figure 6). The contribution of the mining sector has also decreased over time and its contribution to industrial production is less than 1% in 2020. On the other hand, the share of the construction subsector increases steadily, reaching 72.6% in 2020. The decline in the value added share of the manufacturing and mining subsectors is due to the fact that the two sectors have stagnated in recent years relative to the overall industrial expansion. That is, total industrial output has grown much faster than the manufacturing and mining subsectors due to the rapid expansion of the construction subsector.

Figure 6. Subsector value-added share (% industrial output)



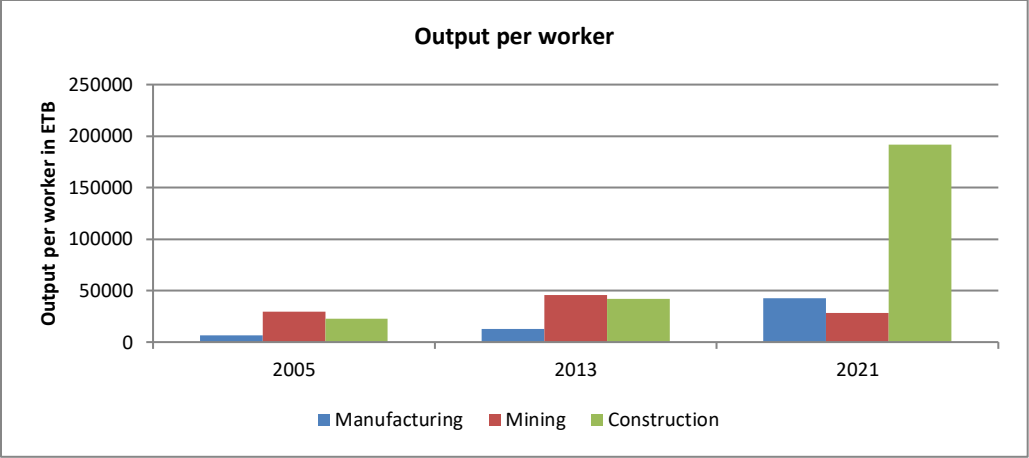
Source: NPC, NBE

Labor productivity

Consistent with previous results, labour productivity (measured as value added per person employed) in the construction subsector increased significantly over the three data points (2005, 2013 and 2021) (Figure 7). In contrast, the manufacturing sector showed only a modest increase in labour productivity. This is again a sign of limited structural change within the industry.

Figure 7: Value added per worker¹, by industrial group (in ETB)

¹ Output per worker of each sectors was calculated by dividing total output of sector by total employed person in the sector.

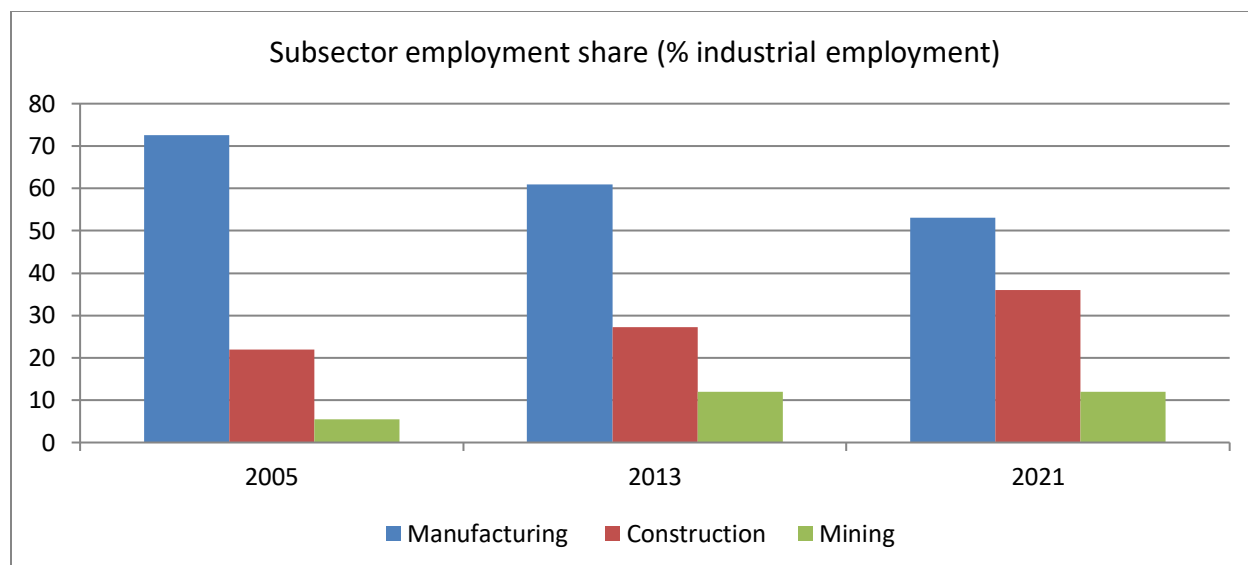


Source: Authors’ computation using CSA datasets

Employment share

The manufacturing subsector remains the largest employer compared to other industrial subsectors such as construction and mining, although its share has decreased over the three periods (from 72.5 % in 2005 to 60.9 % in 2013 and 53 % in 2021) (Figure 8). On the other hand, the employment share of construction increases over time (from 22% in 2005 to 36% in 2021) (Figure 8). The rising trend in the construction employment share may indicate a possible reallocation of labour towards the construction subsector. It should be noted, however, that although the share of manufacturing employment in total industrial employment is on a downward trend, it remains the largest of the three industrial sub-sectors in terms of total employment.

Figure 8: Employment share of industrial subsector (% of industrial sector total employment)



Source: Author’s computation from Labour force surveys

Export Share

Besides agriculture, manufacturing and mining are the most important export sectors for Ethiopia. As shown in Table 1, textiles and leather are the main manufacturing exports, accounting for about 8% of total exports in 2020. Meat products also contribute 2.3%. Gold remains the main export product of the mining sector. It accounts for around 7% of total exports in 2020. While manufacturing exports have slowed somewhat, gold exports have increased. This may be due to recent government measures to encourage artisanal miners to sell their gold through official channels rather than through illegal export and smuggling.

Table 1: Export share of industrial subsectors

	Subsectors	2018		2019		2020	
		A	%share	B	%share	C	%share
Manufacturing	Leather and Leather Products	132.4	4.7	117.4	4.4	72.0	2.4
	Meat & Meat Products	101.7	3.6	88.6	3.3	67.4	2.3
	Textile & Textile Products	103.8	3.7	152.9	5.7	168.9	5.7
Mining	Gold	100.2	3.5	27.9	1.0	196.5	6.6
Electricity	Electricity	80.5	2.8	55.7	2.1	66.4	2.2

Source: Author’s computation using NBE datasets

Our analysis of the structural transformation within the industrial sector has revealed a number of important patterns: First, manufacturing contributes 24% to industrial output and 53% to industrial employment. In contrast, construction contributes 72.6% to industrial output and 36% to industrial employment. This shows that manufacturing in Ethiopia is indeed labour intensive. Second, the fact that the employment share of manufacturing is on a declining trend, while that of construction is on an increasing trend, suggests that labour may be shifting from manufacturing to construction. Both sub-sectors show increasing labour productivity, although it is much higher in construction. In terms of export structure, manufacturing appears to remain an important source of exports for the country, followed by mining.

5. The state of the manufacturing sector in Ethiopia: structural transformation within the manufacturing sector

A structural transformation is also taking place within the manufacturing sector, i.e. from less productive to more productive manufacturing activities. Many have argued that the development of the manufacturing sector not only creates jobs that require relatively higher skill levels than agriculture, but is also a fundamental source of positive non-market externalities and spillovers. Recognising this, the Ethiopian government has identified labour-intensive and export-oriented manufacturing as a key pillar of the country's industrial transformation. Indeed, the industrial sector in general, and manufacturing in particular, has been a major focus of the various five-year development plans. In particular, the Growth and Transformation Plans (GTP-I (2010-2015) and GTP-II (2015-2020)) have articulated more concretely the essential role of industrial development in sustaining the recent growth momentum and driving the structural transformation of the economy. More recently, the Homegrown Economic Reform and Ten-Year Plan (2020-2030) laid out a plan to gradually shift the economy from light labour-intensive manufacturing to higher value-added in the process of transforming the economy into a middle-income country by 2030.

The non-market positive externalities of manufacturing make it difficult to develop the sector without industrial policy, as the social value of many manufacturing activities is greater than the private value. Moreover, manufacturing suffers from coordination failures more than any other sector of the economy (Rodrik, 2004). The development of the manufacturing sector requires several interrelated, simultaneous investments, which are usually associated with high fixed costs.

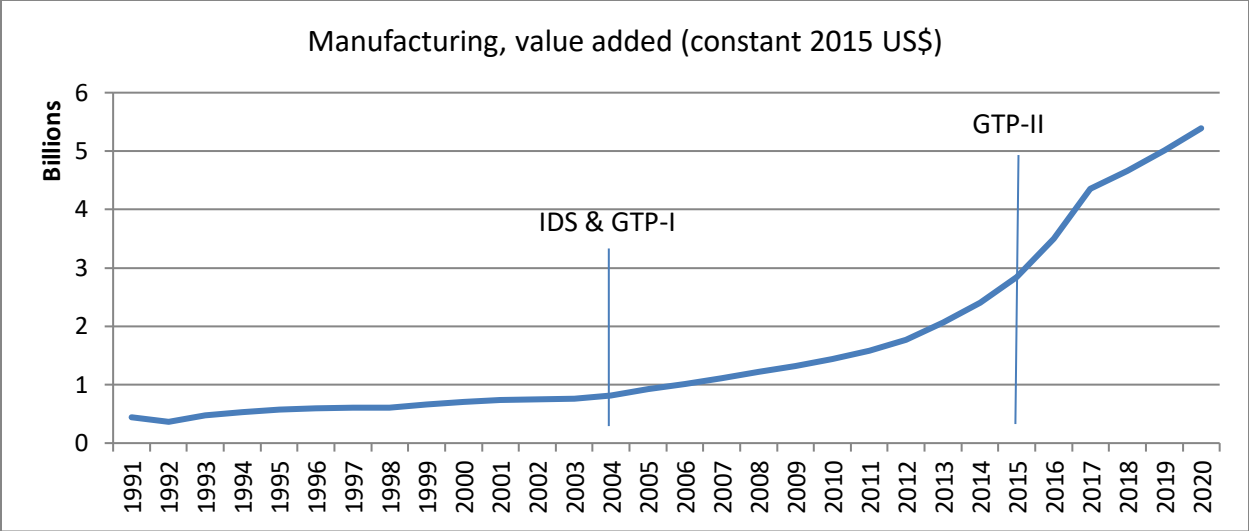
These two main reasons justify the use of industrial policies in developing countries to develop their manufacturing sector.

With this in mind, this section presents some key indicators to show the evolution and status of the manufacturing sector over time. As most of the analysis here would relate to medium and large manufacturing enterprises, we use the 2017 CSA Medium and Large Survey, which is the most recent available. Supplementary data from other sources, such as the World Bank's World Development Indicators (WDI), are used to illustrate structural change (or lack thereof) in the manufacturing sector.

Value added

The manufacturing sector has shown some signs of change in recent years. Looking at the real value added performance of the manufacturing sector (Figure 9), three distinct performances can be identified: the period before 2004, when the real value added of the manufacturing sector stagnated; the period between 2004/2005 and 2010/2011, when the manufacturing sector started to pick up; and the period after 2011, when the growth rate of the manufacturing sector was high. The manufacturing sector appears to have entered a growth phase with the implementation of the country's first comprehensive Industrial Development Strategy (IDS) in 2003/2004, followed by the first five-year plan under the Growth and Transformation Plans (GTPs) in 2005. The country's industrial policy supports the manufacturing sector through various policy instruments, including tax exemptions, subsidised loans and subsidised (or free) land. The point here is not to prove whether the country's industrial policy has worked or not, but we could see that the manufacturing sector (albeit from a low base) started on a high growth trajectory from the beginning of these policies and continued throughout the GTP-I and GTP-II periods (2005 to 2020). Only in the last two or three years of the GTP-II period did the sector show a slight slowdown in its growth rate, which could be explained by the outbreak of the COVID pandemic and the conflict.

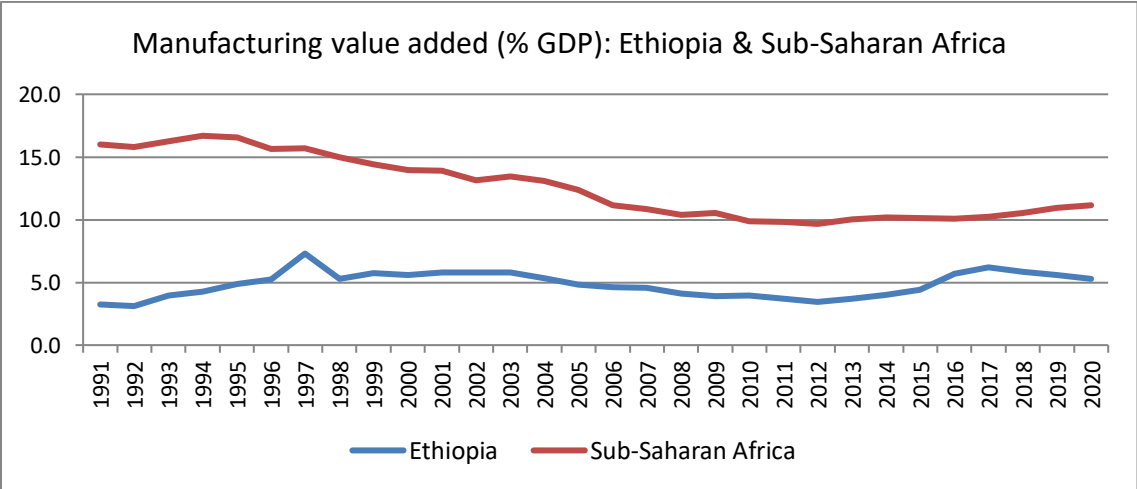
Figure 9. Real manufacturing value added



Source: WDI

Despite the high growth rate of manufacturing, the sector remains small in terms of size or contribution to GDP. For example, real value added was around USD 813 million in 2003/2004, around USD 2.8 billion in 2015/2016 and around USD 5.5 billion in the latest year 2020. Similarly, the share of manufacturing in GDP was around 6% (Figure 10). The small size of Ethiopia's manufacturing sector compared to the sub-Saharan African average is also striking. The value-added share of the manufacturing sector in Ethiopia's GDP is only half of the Sub-Saharan African average, which is around 11% in 2020.

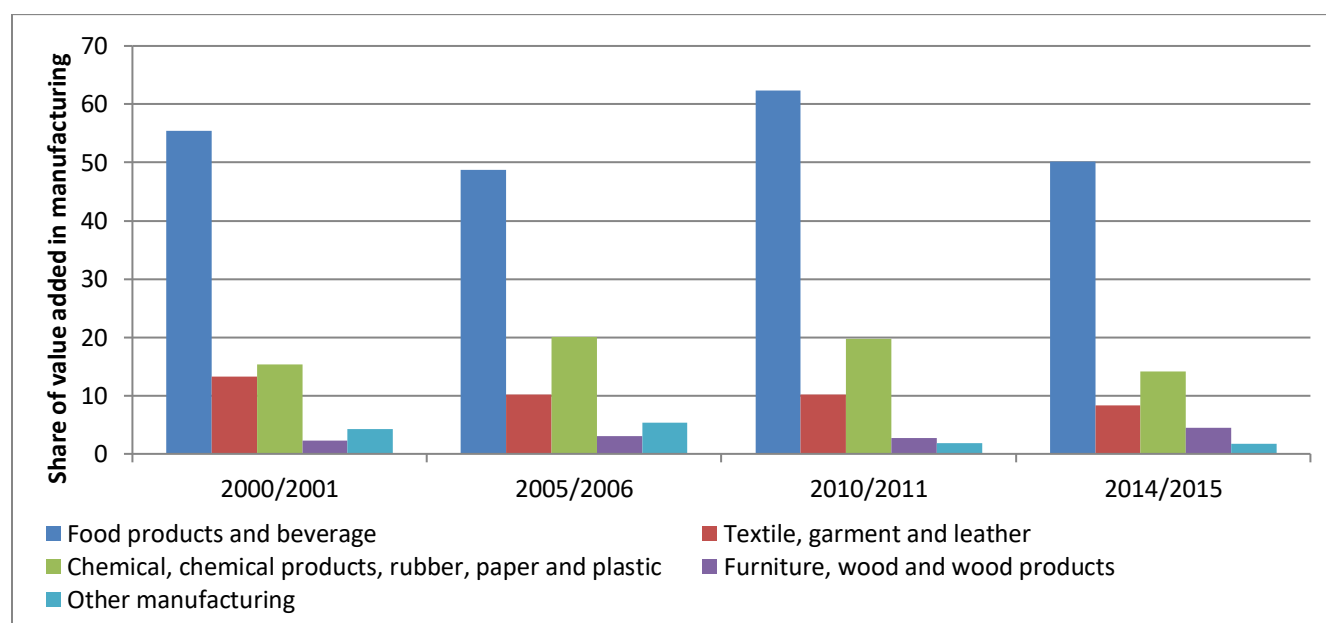
Figure 10. Manufacturing value added (% of GDP)



Source: World Development Indicators (WDI)

In manufacturing, most of the value added is contributed by large and medium-sized manufacturing industries (4.8% of GDP), while the rest (1.6%) is contributed by small and cottage industries. Looking further at the subsectors within manufacturing in terms of value added, the food and beverages subsector contributes the largest share, followed by chemicals and textiles and leather between 2000 and 2015 (Figure 11). In fact, in 2014/15, half of total manufacturing value added is generated by the food and beverages subsector. The value added share of the chemicals and chemical products subsector ranges from 20 % (2005) to 14 % (2015) over the period, and is the second highest within the sector. In third place is the textile, clothing and leather subsector, with a share of value added ranging from 8 to 13% over the same period.

Figure 11: Share of value added by subsector



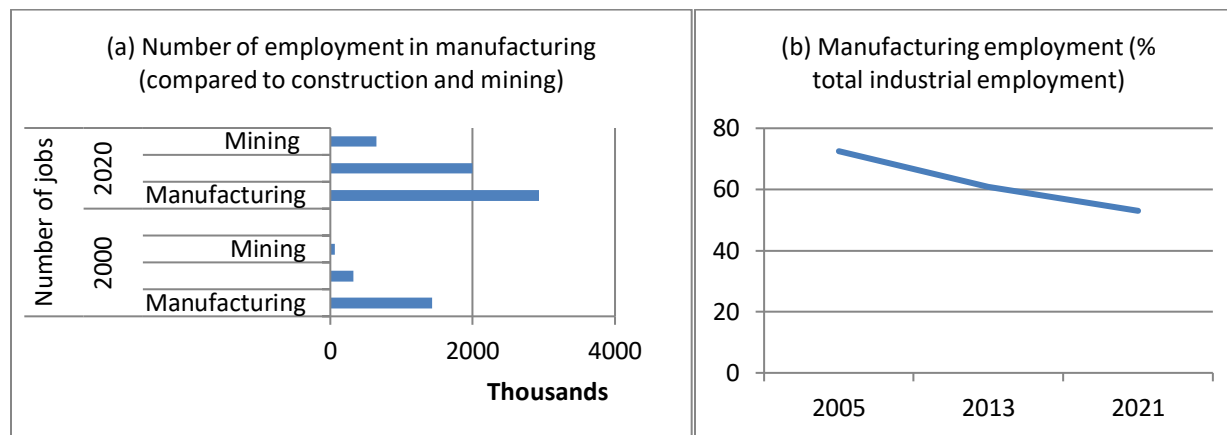
Source: Computed based on various years of CSA data survey

Employment

One of the main reasons for developing countries to focus on manufacturing is the sector's arguably greater capacity to create jobs. The expansion of the manufacturing sector is seen as providing much-needed employment opportunities for the country's growing young population. Indeed, as shown in Figure 12, employment in manufacturing (in absolute terms) almost doubles between 2000 and 2020 (i.e. from 1.4 million jobs in 2000 to 2.9 million in 2020). However, although its share of industrial employment decreases over time from 72.5% in 2005 and 60.9% in 2013 to

53% in 2020, manufacturing remains the largest employer (53% in 2020) compared to other industrial subsectors (such as construction and mining) (see Figure 12). Looking further into the manufacturing sector, the latest Large and Medium Manufacturing Survey (2016/2017) shows that the medium and large manufacturing subsector employed nearly 300,000 people in 2016/17. And of the total large and medium employment, food and beverage manufacturing employed over 21%, rubber and plastics over 14%, and textiles over 12%.

Figure 12. Number of jobs created in the manufacturing sector over time



Source: Computed based on ILO modeled employment estimates and CSA

In terms of manufacturing employment, it is worth noting Ethiopia's industrial park programme. One of the key objectives of the industrial park programme is to create significant employment opportunities for the country's youth. Estimates by the Industrial Park Development Corporation (IPDC) of Ethiopia suggest that employment generation in the country's industrial parks (both public and private) may have reached around 80,000. We were able to obtain employment data for twelve public industrial parks, which have created employment opportunities for more than 66,000 workers as of September 2021 (Table 2). In most of the industrial parks, textiles and clothing are the dominant sectors. As a result, female workers account for the highest share of employment (87% of the jobs created).

Table 2. Employment generation by Industrial Parks in Ethiopia (2019-2021)

Industrial park name	2019/2020		2020/2021	
	Total	Female (%)	Total	Female (%)
Hawassa	26982	87	29707	87
Bole Lemi	16269	90	17469	90

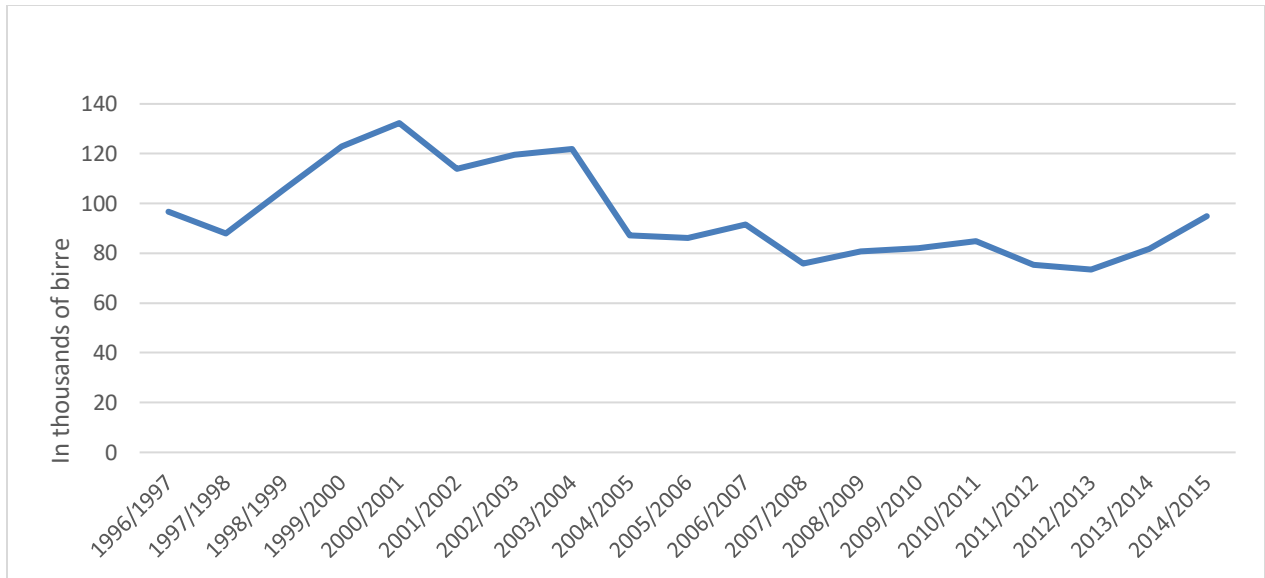
Mekelle	3256	92	3642	90
Kombolcah	2128	88	1016	88
Adama	2998	96	6083	93
Dire Dawa	242	91	1039	48
Jimma	1097	82	1467	87
Debre Birhan	1079	52	938	82
Bahir-Dar	-	-	1288	75
ICT AA	2482	65	1272	46
Addis Industry	2483	75	1933	90
Kilinto	-	-	157	79
Total	59016		66011	87

Source: IPDC (2021)

Labor productivity

Labour productivity, defined as output per worker, is an important indicator of the performance of structural transformation. According to the CSA Large and Medium Surveys (1996 to 2016), labour productivity in the manufacturing sector did not improve significantly between 1996 and 2016. Labor productivity fluctuated around 80,000 birr per worker per year during the period, with a slight increase in the latter years of the period (Figure 13). Some literature attributes the generally low labor productivity in the manufacturing sector to the harsh business environment in which manufacturing firms operate, including power outages, foreign exchange shortages, lack of locally sourced raw materials, and lack of access to finance constraints (UNDP, 2017; Hailu, Gebreeyesus, & Tekleselassie, 2020).

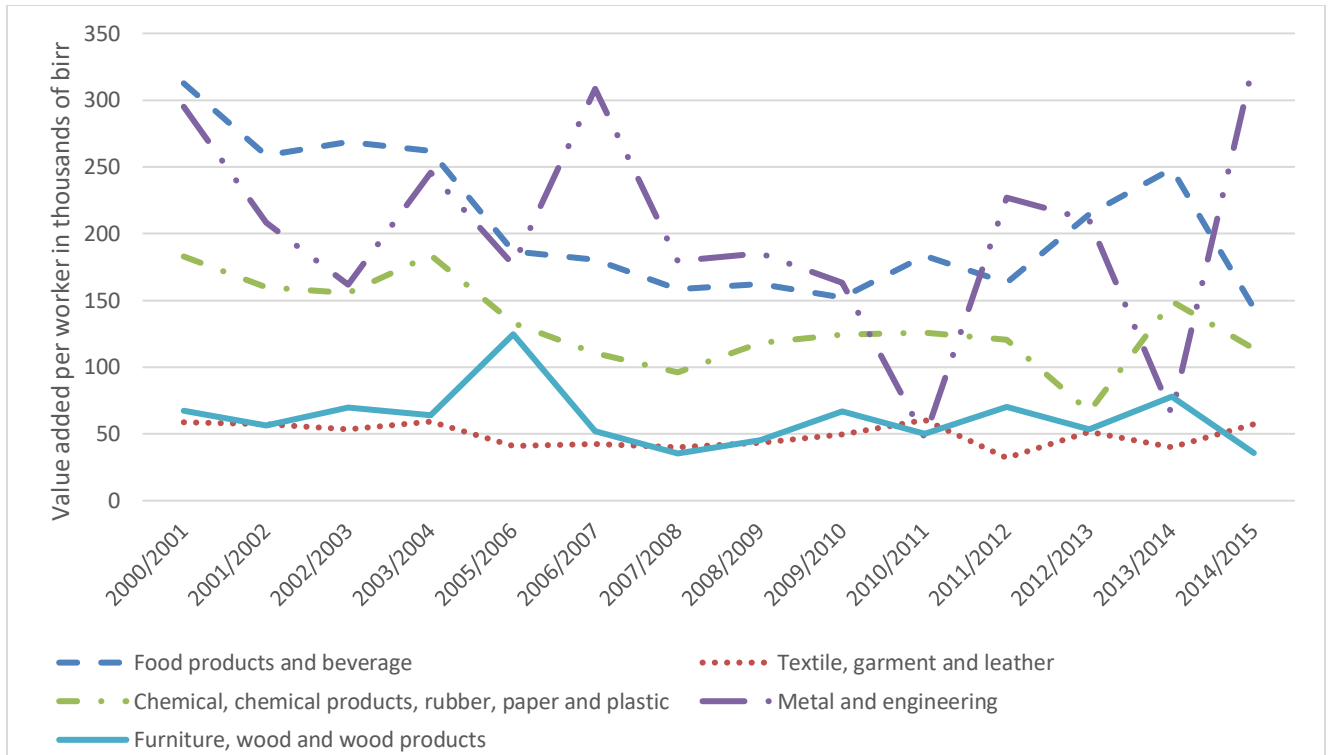
Figure 13. Value added per worker in thousands of birr over time



Source: CSA Various Annual Surveys

We also consider the distribution of labour productivity across subsectors within the manufacturing sector (Figure 14). Although productivity levels have shown considerable volatility, in the most recent year (2016), high levels of labor productivity have been observed in the metal and engineering, and food and beverage subsectors. In particular, the food and beverages subsector has maintained a high level of labour productivity. In contrast, low levels of labor productivity have been observed in the garment, textiles and leather, and furniture and wood subsectors. While the relatively low level of labour productivity in the metal and engineering subsector could be explained by the capital-intensive nature of the sector, the productivity gap between the food and beverages subsector and the garment and leather subsector is somewhat surprising, given that both are labour-intensive. The very low labour productivity in the garment, textile and leather subsector may be related to the sector's use of old and obsolete machinery and the fact that most activities are at the low value-added assembly stage.

Figure 14. Real value added per worker in thousands of birr by subsector over time

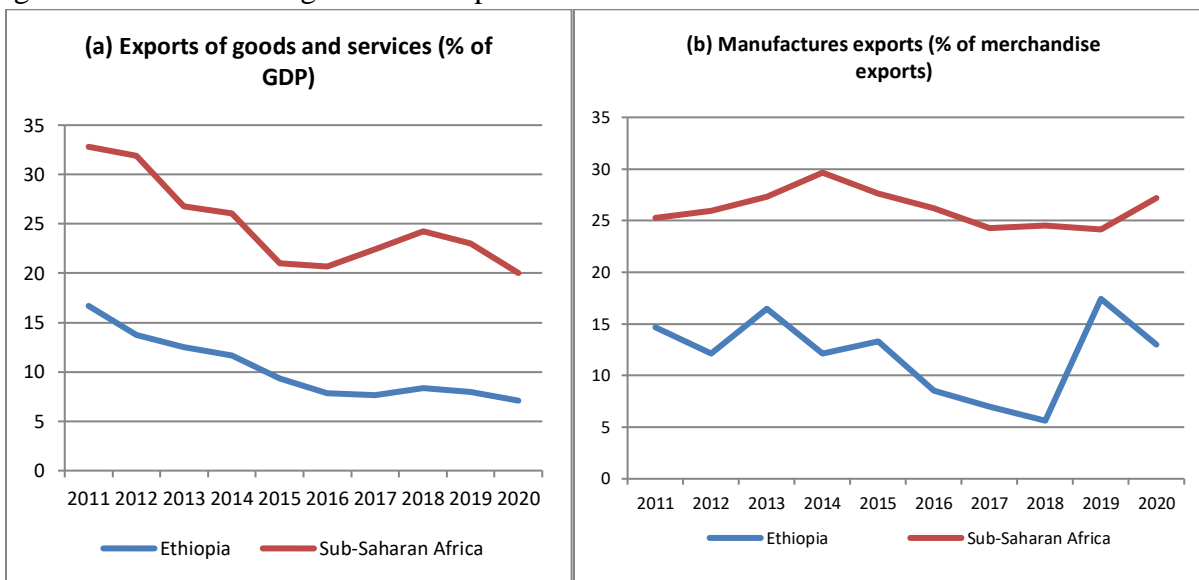


Source: Computed from various CSA annual surveys

Manufacturing Export

Ethiopia's industrial development strategy recognises the manufacturing sector as the main export vehicle for the economy and defines an industrial policy package to support enterprises through incentives and other preferential treatment. This policy has been further specified in the five-year development plans, which clearly define the export targets to be achieved. As shown in Figure 15b, despite the industrial policy, manufacturing exports have not kept pace. The share of manufacturing exports in merchandise exports has averaged around 12% over the last ten years (2011 and 2020), which is less than half of the 26% for Sub-Saharan Africa. Manufacturing exports are not only characterised by their small size, but also by high volatility, recording a low of 5.6% (in 2018) and a high of 17% (in 2019). Similarly, the country's total exports (goods and services) show a declining trend from around 17% in 2011 to 7% in 2020 (see Figure 15a). This may indicate that the rate of expansion of the non-export sector is much higher than the rate of expansion of the export sector. This feature may not be unique to Ethiopia, but for some countries like Ethiopia, where the external sector is small and stagnant, the decline is sharp and persistent.

Figure 15. Manufacturing and total exports as a share of GDP



Source: World Development Indicators

As a result, the country's actual export performance is well below the targets set in its five-year development plans. In both the GTP I and II periods, the actual performance of merchandise exports is far below the (planned) targets. For example, the GTP 2 export target was 20.6%, while the actual performance was 7.7%. There are several reasons for the export underperformance. For example, Gebreyesus & Demile (2017) and (WB, 2014) find that policy-related problems (such as anti-export bias and inappropriate and ineffective incentives) and exchange rate overvaluation are among the main export constraints. Further discussion of these and other aspects of industrial policy follows in the next section.

6. Key constraints and opportunities for enhanced structural transformation in Ethiopia

In Sections 3, 4 and 5, we presented and examined several indicators of structural transformation to understand its performance and evolution. And for most of the indicators we examined, we found that the country's structural transformation was underperforming, both compared to its own target plans and to peer countries. This section attempts to provide some of the explanations for this underperformance by identifying the main constraints.

6.1. Constraints to structural transformation

Why low labor productivity and thus limited structural transformation is a key question. In what follows, we try to discuss the main constraints on labour productivity and hence on structural transformation.

Skills and discipline constraints of the workforce

The presence of an abundant, trainable and low-wage labour force is one of the competitive advantages of the Ethiopian manufacturing sector. A look at global wage data shows that manufacturing wages in Ethiopia are lower than in African and Asian countries with comparable manufacturing structures (Tigabu, Gebrehiwot, Balineau, & Fikru, 2018). This suggests that Ethiopia's abundant and low-cost labour can be used as a lever for competitiveness in labour-intensive light manufacturing. On the other hand, firm-level studies by Tigabu & Abebe (2019) and Hailu et al. (2020) found that the relatively low labor productivity in Ethiopia's manufacturing sector can be explained by a shortage of skilled labor and poor labor discipline among low-skilled workers, limiting the sector's competitiveness. The nature of manufacturing production requires a strong work ethic and discipline compared to other sectors. As most workers in Ethiopia come from rural areas with little experience of industrial culture, many quit within a short period of time. For example, Abebe et al. (2019) found that about 40% of employees in industrial parks leave their jobs within 12 weeks. In addition, manufacturing jobs tend to be more hazardous to health compared to self-employment and the service sector. In addition, wages in manufacturing tend to be lower than in self-employment and the service sector, which has led to high job hopping (Blattman & Dercon, 2018).

The underdevelopment of the raw material sector

One of the main objectives of the country's industrial policy is to promote inter-firm or inter-industry linkages in order to maximise the effects of agglomeration (e.g. increasing productivity or competitiveness) through learning and technology transfer. Inter-firm or inter-industry linkages are also one of the dynamic benefits of attracting foreign direct investment. However, the lack of raw materials in the right quantity and quality in Ethiopia is a critical constraint (Tigabu et al., 2018; Assefa & Gebreeyesus, 2018). This is somewhat puzzling, as Ethiopia's industrial policy documents indicate that one of the main reasons for prioritising leather, textile and agro-processing is the existence of a potential raw material base in the country. For example, it is argued that

Ethiopia has a huge livestock population that can serve as a potential raw material base for the development of its leather sector. Despite this, the raw material sector remains severely underdeveloped due to various constraints and market failures (Assefa & Gebreeyesus, 2018; Assefa & Gebreeyesus, 2020). Furthermore, most of the industrial support in the country is biased towards the downstream sector. As a result of the underdevelopment of the commodity sector, firms resort to importing inputs from international markets. However, importation itself is constrained by a lack of foreign exchange and inefficient logistics. Thus, Ethiopia's manufacturing sector suffers from a double-edged sword: lack of local sourcing and costly import sourcing. While the lack of local sourcing is caused by the underdevelopment of ancillary industries that can create backward linkages within the economy, costly import sourcing is caused by a lack of foreign exchange and inefficient logistics. A lack of one or both undermines the competitiveness of the manufacturing sector. The weak backward linkages are clearly reflected in the high import intensity of Ethiopia's priority sectors. For example, the CSA 2017 Large and Medium Manufacturing Enterprises Survey shows import dependence ratios of 0.5 for textiles, 0.6 for apparel, 0.4 for leather, 0.3 for wood products, and 0.8 for chemicals, basic iron and steel, and machinery and equipment.

Lack of reliable electricity supply

The other critical supply-side constraint for manufacturing competitiveness is power shortages and frequent power outages. The lack of a reliable power supply prevents firms from utilizing their production capacity unless they resort to generators, which significantly increases their production costs. Not only power interruptions but also access is limited as investors wait 6 months to 1 year for grid connection, especially when investing outside the industrial parks (Assefa; Gebreeyesus; Weldeyes, 2018).

Lack of access to credit and foreign exchange

Many studies have identified access to finance and foreign exchange as critical constraints to manufacturing growth. In the World Bank's 2019 Doing Business survey, Ethiopia ranks 175th out of 198 countries in terms of access to credit. Access to finance for medium and large firms is no more than 16% (World Bank; International Finance Corporation, 2019), and 70% of small manufacturing firms don't have access to credit from formal banks (Gebreeyesus, et al., 2018). The

literature on access to credit suggests that firms with limited access to credit are forced to forego profitable opportunities, which in turn reduces their potential to compete in global markets. The lack of foreign exchange could be reflected in the length of time it takes to open a letter of credit (LC) and the amount that firms are allowed to use when importing production inputs. The problems of access to finance and foreign exchange are rooted in Ethiopia's highly closed and regulated financial sector and non-market exchange rate policy.

Policy and institutional capacity issues affecting productivity and exports

(a) Anti-export bias and inefficient industrial incentives

One of the main issues discussed in the previous sections is the poor performance of Ethiopia's export sector. In particular, a paper by Gebreyesus & Demile (2017) examines why export performance has been poor despite the government's continuous promotion and provision of various incentives. Gebreyesus & Kebede (2017) find that the protection of the local market through tariffs and an overvalued exchange rate has led to a strong anti-export bias, which is particularly large in the priority textile and leather sectors (i.e., an anti-export bias of more than 100% in the leather sector and 50% in the textile and apparel sector). There are also significant anti-export distortions due to non-tariff barriers and infrastructural and logistical inefficiencies. Overall, the large tariff and non-tariff anti-export distortions make the domestic market more profitable than the export market.

Since the country also provides incentives, the next important question may be to what extent the country's export incentives, which include fiscal and non-fiscal schemes, have reduced the observed anti-export bias. Gebreyesus & Kebede (2017) show that export incentives often do not fully eliminate the anti-export bias, either because they are not sufficient or because they are plagued by administrative inefficiencies. In most cases, export incentives are marginal compared to investment incentives. For example, all investors are entitled to a tax holiday of up to 6 years. And the additional tax holiday for exporters is only 2 years, provided they export 80% of their products. That's too short to motivate a company to export. In terms of access to credit, exporters get a 3.5% interest rebate if their export share is over 80%. However, it naturally takes years before the interest rebate can be claimed, especially for new firms with an export ratio of up to 80%. Moreover, export incentives are generally underutilised due to implementation problems caused

by a weak export bureaucracy. For example, in 2016, there were only 4 duty drawback users and 230 voucher users. This is partly due to unclear procedural requirements, and partly due to capacity and motivation problems in the public service in general and in industrial policy agencies in particular. Export agencies lack sufficient and qualified staff to manage export incentives effectively. As shown by Girum, Biniam, & Ashagrie (2018), there is a lack of motivation and high turnover among civil servants in key public agencies that are instrumental in implementing the country's industrial policy. The findings include, for example, that about 85% would quit in 4 years, about 44% consider public employment as the worst possible employment, and 52% cite low salaries as the main reason for the high turnover. Lack of motivation and high turnover in the public sector affect the capacity utilisation and productivity of public sector employees. Overall, high tariff and non-tariff barriers and institutional inefficiencies in the export sector reinforce the anti-export bias, resulting in low productivity and a weak external sector.

(b) The instruments of industrial policy do not take into account the large heterogeneities among industrial enterprises.

A common finding of firm studies in Africa is that the manufacturing sector is characterized as a small enterprise economy inhabited by highly heterogeneous firms. This work has also highlighted the existence of large productivity differentials between and within sectors. The firm development literature identifies three groups of firms (Grimm, Knorringer, & Lay, 2012; Baptista, Karaöz, & Mendonça, 2014). The first is a survivalist (necessity) group. This group of firms operates in sectors with low barriers to entry, usually replicating an established business model and focusing on risk mitigation rather than business expansion. The second group are growth-oriented companies. These enterprises are more willing to take risks and to save and reinvest their profits in business with ambitions to expand, and are characterised by better business practices and management skills. The third group are the constrained enterprises. These enterprises share the same characteristics and profile as growth-oriented enterprises, but underperform because of the constraints they face. Using this classification approach, Abebe, Assefa, Gebre-eyesus, and Degu (2018) identified entrepreneurial and firm-level characteristics that distinguish growth-oriented, high-potential constrained, and survivalist enterprises in the Ethiopian manufacturing sector. Ethiopia's current industrial policy is generic, all-encompassing, and sectoral in nature. As shown in previous sections, manufacturing is a difficult business with many coordination problems and

market failures, suggesting that government support is really important. But the question of 'who gets industrial support and what kind of support' is equally important. The results of the paper by Abebe, Assefa, Gebre-eyesus and Degu (2018) show that accounting for firm heterogeneity can improve the targeting and effectiveness of industrial policy. For example, supporting high-potential but constrained firms (known in the literature as constrained gazelles) may unleash the great potential of industrial development.

6.2. Exploiting opportunities for enhanced structural transformation

On the other hand, while the constraints discussed above are slowing or halting the country's structural transformation, there are opportunities to be maximised for improving productivity and structural transformation. These opportunities revolve around improving the business environment and enhancing the competitiveness of the industrial sector. First, prior to the current conflict, Ethiopia invested heavily in the development of industrial parks to attract foreign direct investment (FDI) and boost exports and industrial upgrading. The full benefits of industrial parks and FDI as vehicles for increased exports, efficiency gains and structural transformation have yet to be realised. The country had hoped that much of the employment and export generation would come from industrial parks. Feasibility studies of most of the operating industrial parks indicate that each will employ about 60,000 people at full capacity and generate export earnings of almost US\$1 billion per year. However, the current performance of the industrial parks is far from this. For example, the Hawassa Industrial Park currently employs only about 20,000 workers, or about 30% of its projected full employment capacity. The story is the same or even worse for the other industrial parks. One explanation for this is that the industrial parks tend to lack sufficient connectivity and infrastructure to function fully and realise their potential. The focus needs to be on making the existing parks fully functional by addressing their infrastructural and other constraints, rather than creating more industrial parks. There is a gap of almost 70 per cent before full performance, which needs to be exploited.

The second opportunity that should be highlighted is the exploitation of the liberalisation of the country's telecommunications sector. In previous sections, we have pointed out that the direction of the country's structural transformation has been towards services rather than manufacturing. In view of this fact, special attention should be paid to liberalisation and privatisation in the

telecommunications and financial sectors in order to use them to increase productivity and bring about structural transformation. The country needs to create space for the private sector to take the lead in creating higher quality and inclusive growth. The recently unveiled Domestic Economic Reform Plan seems to recognise this, aiming to privatise key state-owned enterprises and open up previously closed sectors of the economy to private sector participation. However, in the more than two years since its announcement, implementation has been slow and there are signs that the government is backtracking on some of the reforms (e.g. the privatisation of the state-owned Ethio-telecom has been postponed). Only the liberalisation of the telecommunications sector has been implemented with some delay. Other previously closed sectors such as logistics, finance, electricity, sugar, etc. remain under state control. Building on the experience and lessons learnt from the liberalisation of the telecommunications market (which is not yet complete as only one operator has been licensed so far and the privatisation of the state-owned Ethio-telecom has been postponed), the opening of the other sectors under state control could be leveraged.

Third, emerging regional and continental free trade agreements also present an opportunity. Ethiopia's willingness and ability to access and consolidate regional and global markets could offer great potential in its quest to become Africa's leading manufacturing hub. This will be useful not only in securing market access for its products in regional and international markets, but also in improving the efficiency of its domestic industries. Exporting is seen as one of the most important ways to improve quality and efficiency through international learning. To this end, Ethiopia's entry into trade blocs such as COMESA and AfCFTA, and even the WTO, would be in line with its industrial ambitions and could contribute to industrial transformation. Moreover, Ethiopia can use trade integration to attract more investment, as membership in regional and multilateral agreements sends a strong signal to investors.

7. Conclusions and policy implications

Some of the key conclusions and issues that can be drawn from the research findings are as follows: First, although the country has experienced strong growth over the past decade and a half, it has been driven primarily by capital accumulation as a result of heavy public investment in physical and social infrastructure, rather than by structural transformation. Subsequently, the state-led growth model created a huge imbalance between the roles of the state and the private sector, with

the former tending to crowd out the latter by providing limited space. The export sector also remained weak. As a result, the sustainability of the country's growth was challenged by chronic foreign exchange imbalances, high inflation, high external debt and limited access to finance for the private sector. In September 2019, Ethiopia unveiled the Homegrown Economic Reform (HGER) plan to address the aforementioned challenges. The HGER Plan consisted of large-scale economic reforms, including the liberalisation of state-controlled sectors, the elimination of financial repression, and the transition to a market-clearing exchange rate regime. The proposed reforms attracted widespread support as reforms were long overdue. While many of the quick-win reforms have been implemented, the most drastic reforms centred on liberalisation and privatisation of state-owned enterprises have only been implemented in the telecommunications sector. Similar liberalisation and privatisation reforms in other state-controlled sectors such as logistics, electricity, sugar, aviation, etc. have not progressed well. The impact of the COVID pandemic, the Tigray war and the legacy of the government's continued monopoly in key sectors may have delayed or postponed some of the more drastic HGER reforms. The absence or slow implementation of the HGER reforms would contribute to the continuation of the country's already sluggish structural transformation.

Second, several structural transformation indicators show that not only has the pace of structural transformation in the country been limited, but also that the structural transformation observed has been towards services rather than manufacturing. The contribution of the manufacturing sector to the country's GDP and export earnings remains limited. The fact that the transition to service sectors, with lower productivity growth, is taking place at an early stage of development could be a cause for concern, as productivity growth, and thus economic growth, could stall. On the other hand, the large differences in productivity within and between sectors in the country suggest that there is a large potential for structural transformation if private sector-oriented reforms are effectively implemented.

Third, Ethiopia's manufacturing sector started from a low base, as Ethiopia is a country that transitioned from socialism to a mixed market economy in the early 1990s. The manufacturing sector has grown, but the overall change in terms of its contribution to GDP has not changed much. This is the big picture, but if we look more closely at the manufacturing sector, there are some

important features to note. The first point to note is its growth trajectory. Manufacturing was stagnant in the period before 2003. It started to grow moderately in the period between 2004/2005 and 2010/2011, and has been growing at a relatively faster pace since 2011. This is in line with the implementation of the country's first comprehensive Industrial Development Strategy (IDS) in 2003/2004, followed by the first five-year plan under the Growth and Transformation Plans (GTPs), which started in 2005. The country's industrial policy supports the manufacturing sector through various policy instruments, including tax exemptions, subsidised loans and subsidised (or free) land. The point here is not to prove whether the country's industrial policies have worked or not, but we could see that the manufacturing sector (albeit from a low base) has been on a growth path since the start of these policies and continued throughout the GTP-I and GTP-II periods (2005 to 2020). Only in the last two or three years of the GTP-II period did the sector experience a slight slowdown in its growth rate, which could be explained by the outbreak of the COVID pandemic and the conflict. The second point to note is its contribution to employment. The manufacturing sector contributes 24% to industrial output, but its contribution to industrial employment is 53%. This is high when compared to the construction sector, for example, which contributes 72.6% to industrial output but only 36% to industrial employment. This shows that manufacturing in Ethiopia is indeed labour intensive.

Finally, the paper notes that several interrelated factors constrain the country's structural transformation process. Structural bottlenecks such as lack of raw materials (which in turn is a function of the underdeveloped auxiliary sector and lack of foreign exchange), unreliable electricity supply, lack of access to credit and lack of foreign exchange were identified as major constraints to the development of the manufacturing sector. Macroeconomic and business environment factors, such as an overvalued exchange rate and inefficient logistics, were also the main constraints to manufacturing growth. In addition, the infrastructural connectivity of industrial parks to export routes such as ports, airports and roads is still underdeveloped, limiting the exploitation of the full potential of industrial parks. Anti-export biases created by policies and institutions also have an impact on productivity and exports. One of the main issues we have discussed in this paper is the poor performance of the country's export sector. The protection of the domestic market through tariff and non-tariff barriers and an overvalued exchange rate have created a strong anti-export bias, which was particularly strong in the priority sectors of textiles

and leather. The high tariff and non-tariff anti-export bias makes the domestic market more profitable than the export market and undermines the latter. As Ethiopia offers export incentives, we also examined the extent to which the country's export incentives, which include fiscal and non-fiscal schemes, could reduce the observed export bias. We find that export incentives often do not fully eliminate the anti-export bias, either because they are insufficient or because they are plagued by administrative inefficiencies.

Last but not least, our paper also identifies some of the priority areas for intervention to alleviate the main constraints to the development of the country's manufacturing sector and to accelerate the process of structural transformation. These priority intervention areas fall into the following four broad categories. The first area of policy intervention concerns the promotion of local supplier development to alleviate the critical shortage of raw materials and intermediate inputs in the country's manufacturing sector. There appears to be an excessive policy focus on downstream rather than upstream manufacturing sectors. For example, there is more focus on finished leather products than on raw hides and skins or tanning. Similarly, there is more investment in garment factories than in fabric or yarn factories. This is an unintended consequence of the generic sector level industrial incentives that the country offers to priority sectors. It's easier for companies to invest in a garment than in a textile, as the latter tends to be more skill and technology intensive. The investment incentives do not differentiate between sub-sectors and do not take into account skill or technology intensity. Given that the incentives are the same and blind, investors would obviously favour sectors that are assembly-like or lower value-added, such as a garment. The imbalance between downstream and upstream manufacturing could be corrected by (i) encouraging new investment (both domestic and foreign) in upstream manufacturing to develop the raw materials, intermediate and parts and components sectors; (ii) encouraging existing exporting firms to integrate their production backwards; and (iii) introducing coherent sub-sectoral incentives that take into account technology and skill intensity, rather than blind sectoral incentive structures. By coherence, we mean that incentives to attract FDI must be compatible with the development of local suppliers.

The second area of intervention is to harness the economic potential around industrial parks. Ethiopia's industrial parks have the potential to drive export growth, employment and industrial

upgrading. There are about 13 active industrial parks in the country. However, most of them are operating well below capacity due to shortages of raw materials and inputs, labour skills and discipline, and limited infrastructure connectivity. According to the IPDC, the industrial parks are designed and planned in such a way that most of them would create around 20,000 jobs and nearly US\$1 billion in export earnings if they were operating at full capacity. For example, the export and employment performance of the Hawassa Industrial Park for 2017-18 is \$20 million and 20,000 workers. These are only 2% and 33%, respectively, compared to exports and employment at full capacity. The situation is similar for the other industrial parks. This shows that there is significant potential in terms of exports, employment and industrial upgrading. To achieve this, the critical constraints around the industrial parks, including infrastructure connectivity, labour and input supply, need to be addressed. Instead of creating more industrial parks, public investment needs to focus on making existing industrial parks more competitive by addressing the identified critical constraints. In fact, the government needs to move in the opposite direction, i.e. it should encourage the privatisation of public industrial parks, as proposed in the HGER plan as a possible solution.

The third area that needs immediate attention is the elimination of anti-export bias. Anti-export bias stems from both tariff and non-tariff sources. The non-tariff sources mainly include an overvalued exchange rate, inefficient logistics and weak export institutions. These sources of anti-export bias need to be addressed directly by reducing domestic market protection (e.g. by changing the tariff structure), providing additional incentive packages to exporters to compensate for the anti-export bias, increasing the efficiency of export institutions and promoting competition in the logistics sector. Since the anti-export bias stemming from non-tariff barriers is large, reducing trade costs by improving customs services and providing efficient logistics can significantly reduce anti-export bias and improve exports. An important step in this direction is to open up the country's logistics sector, which is still under a state monopoly. Similarly, the creation of a functioning and efficient export bureaucracy (skilled, disciplined, well-paid staff) is crucial for the above proposed changes in incentives and logistics reforms to take root and have a real impact. Although not yet implemented, some of these are among the reforms prioritised by the HGER to improve the country's business environment (Doing Business Ranking) by introducing efficiency-enhancing

reforms in the public sector and competition in the enabling sectors of energy, logistics, telecommunications and finance.

The fourth category of interest with major implications for promoting structural transformation is regional integration. One of the key objectives of the African Continental Free Trade Area (AfCFTA) is to enhance competitiveness at the industry and firm level by exploiting opportunities for economies of scale, continental market access and better reallocation of resources. If Ethiopia's HGER reforms, especially those focused on liberalization and privatization, are effectively implemented, the Ethiopian private sector could expand rapidly. In this case, regional and continental free trade agreements such as the Common Market for Eastern and Southern Africa (COMESA) and the African Continental Free Trade Area (AfCFTA) would prove useful both for market access and for sustainable development of the manufacturing sector through competition, improved supply chain and industrial upgrading.

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