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## **Skills for Trade and Economic Diversification in Ethiopia**

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**A background paper for drafting of a Sector Skills Strategy for the  
Garment sector in Ethiopia**



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The paper is drafted within the framework of the STED-based intervention under the “SKILL-UP” project Skills and under the guidance of Employability Branch, Employment Policy Department, ILO Geneva

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## **Executive summary**

**The textile and garment industry is not new to Ethiopia.** While the tradition of spinning, weaving and handloom is several centuries old, the first recorded formal textile company started operation in Ethiopia in the 1930s. The high levels of labor intensity and its potential link to the agricultural sector has made the sector a key policy focus area for job creation and exports throughout the 20<sup>th</sup> and the 21<sup>st</sup> centuries. The textile and garment industry remained a key industry designated for promotion in the formulation and implementation of industrial policies and development plans with different styles and vigor by various governments. This report examines the state of the industry in more recent years in depth with the objective of providing useful insights into the skills situation in the industry.

**The textile and garment industry has absorbed a substantial share of the labor force.** The sector has particularly created gainful employment opportunities for young, unskilled, less educated and female job seekers in the past two decades. In the 1990s, the sector employed nearly a third of all workers in the manufacturing industry. While this share has steadily declined in recent years, the industry still employs close to 17% of the entire workforce engaged in the formal manufacturing sector. Indeed, the industry is highly labor intensive; employing 555 workers on average, of which 76 % are female workers. The share of female workers is higher in the garment subsector than textile. The only sector that come close to the textile and garment industry in aggregate and female labor intensity is floriculture, where a typical firm employs about 500 workers on average with an 80% female employment rate. Yet, the pace of job creation in the industry still remains far lower than targets set by the government. For examine, it achieved only 50% of the job creation targets set in the Growth and Transformation Plan (GTP I) document. The industry is further stricken by exceedingly high rates of labor turnover. Various studies indicate that nearly two thirds of new production workers who join the garment factories quit after six months.

**The textile and garment industry is export oriented and hence is a key source of foreign currency.** Export earnings from the industry were largely negligible in the 1990s and early 2000s; for instance, in 2000 export earnings from the industry was only 3 million USD (about 1 million USD from garment and 2 million USD from textile). In more recent years, the industry has attracted key global brands and buyers and, as a result, export has substantially increased. The opening of the US and EU markets through African Growth Opportunity Act (AGOA) and Everything But Arms (EBA) and escalation in production cost in Asia and Latin America have encouraged the entry of new and large firms into Ethiopia. In recent year, the US and Germany have become key market destination for Ethiopian-based garment producers, which jointly accounts for 76% of total export. Correspondingly, export revenue from the industry has increased from 62 million USD in 2010/11 to 109 million USD in 2017/18, where garment contributed the lion's share of 82.5%. However, compared to the government's export targets set in the five-year development plans, export from the industry has been rather unsatisfactory despite the sector being

among the priority industries with some industrial parks such as Hawassa dedicated fully to the industry. In GTP I, for example, less than 10% of the targeted export value was achieved. The current GTP II targets are also likely to be missed by wide margins.

**Ethiopia has a potential comparative advantage in the textile and garment industry.** Low wage costs, abundant trainable labor force, low energy cost (2-5 US cents per KWH), proximity to lucrative markets, ample water supply and abundant potential areas for cotton cultivation are some of the key advantages Ethiopia enjoys to bring down cost of textile and garment processing. Attracted by these factors, investment in the industry, particularly towards the industrial parks has substantially increased. This competitive advantage is often hindered by factors such as low productivity of labor and limited capability of own design and development, limited utilization of capacity, low quality of raw materials, high logistic costs, inefficient system, lack of scale economies, foreign currency constraint, poor firm strategy, labor sourcing and turnover problems.

**Despite its immense potential and ambitious government targets, the textile and garment industry remains nascent even compared to peer countries in Africa.** Garment export from Ethiopia, for example, only accounted for 2.4% of total African garment exports in 2014. Even compared to neighboring Kenya, the industry seems to be less well developed. While in the early 2000s, Ethiopia and Kenya had roughly similar levels of export earnings from the garment industry, export from Ethiopia in 2018 is lower than Kenya by 261 million USD. While there are several reasons for the industry's substandard performance in Ethiopia, low capacity of utilization rate, electricity shortage, raw materials shortage, low levels of labor productivity and poor trade logistics, electricity shortage, raw materials shortage, low levels of labor productivity and poor trade logistics are commonly cited problems with security issues becoming sources of concern in recent years. For example, labor productivity in Ethiopia in the manufacturing sector is only 47% of Kenyan productivity.

**Low value addition remains one of the key concerns in the sector.** High import intensity and lack of domestic sourcing capacity precludes improvements in value additions. For example, nearly 60% of raw materials used in the garment production processes are usually imported, and only 10% of fabrics used by the garment industry are locally sourced. This is due to limited linkage in the value chain and particularly poor performance of the cotton sector. As the result, even compared to other industries in the manufacturing sector, the textile and garment industry adds limited local value in the production process. For example, in 2014/15 the industry contributed only 3.6% of total value added created in the manufacturing industry in the country. In particular, the additional value created by garment industry in the manufacturing sector was very low at about 0.6% during the same period.

**Recent improvements in access to skilled workers notwithstanding, firms in the textile and garment industry still identify skills shortages as one of the key constraints that they face.** Recruiting workers with appropriate skills (both soft and hard skills) affects firms to a varying degree. The limited availability of skilled professionals, such as production, managerial, technical,

administrative and marketing workers, hinders the productivity, quality and value addition of the sector as the quality of labor skills is directly related to the quality of the final garment products. The existence of inexperienced managers, technicians, supervisors, weak human resource management capacities and resistance to change has reduced the overall productivity of the sector. Furthermore, the skills gap in the sector will have detrimental effects on government policies formed to attract foreign firms and global buyers into the industry.

**To overcome the shortages in skilled man-power, the government has been investing in education and training programs.** Such investments consist of TVET expansion, building new universities which focus on science and technology and sector specific training facilities, (particularly at TIDI). Higher education institutions and TVET are assumed to play a pivotal role in enhancing the competence and qualifications of the labor force required in the industry. In practice, however, the weak TVET system has forced firms to provide in-house training by hiring unskilled labor. Moreover, a high labor turnover means the firms need to provide training throughout the year to replace workers who leave. The high labor turnover has a disruptive impact on the production floor negatively affecting quality and timely delivery of products. There is variation on the degree of skill shortage in the various stages of the textile and garment value-chain.

**The extent of skills shortages observed in the industry greatly varies by the process or production stages of garment processing.** About 54% of garment workers in industrial parks require additional skills support to bring their skill levels to the industry's operational standard. While in-house training can equip production workers with basic sewing, stitching and cutting skills, skills shortages remain severe in some occupational categories. Assessment from the industry indicates that production management, planning and engineering, packaging and shipping, machine maintenance and repair as well as design are key processes with the largest skills gaps in the garment workforce. The lack of local know-how has justified the increasing using of expats in managerial, design and engineering departments in the industry. Overall, a weak TVET system that is theory-based with little practical orientation; poor industry culture as most workers have agricultural background; inadequate TVET-industry linkage, the inexistence of a functioning labor market information system, and reliance on expats for professional and managerial skills with little knowledge transfers to locals are the root causes of the skill shortage in the textile and garment industry.

## 1. Introduction

Since the publication of the Industrial Strategy Paper (2002), the textile and garment industry has been considered as one of the priority industries that undergirds the labor-intensive and export-oriented development strategy of the country, as explicitly documented in PASDEP, GTP-I and GTP-II. The presence of young and trainable labor force, large tract of land available for cotton production, its raw material intensive nature, the use of simple technologies, supportive government policies and strong link to the agriculture sector presents the industry with a large scope for growth and upgrading.

Currently, the industry is one of the leading employers within the manufacturing sector and is hoped to expand employment opportunities for young, unskilled, less educated and female job seekers in the coming decades (see, for example, FDRE, 2016). Close proximity to key market destinations such as Europe and the Middle East, and low labor and energy costs have made the country an attractive destination for labor-intensive manufacturing in general and textile and garment production in particular. As a result, in more recent years, Ethiopia is becoming a key production and sourcing destination for large global buyers active in the textile and garment industry. The increasing presence of these multinational companies and the growing participation of local producers in the global value chain is generating a new dynamism in the sector which previously did not exist. Further, the new drive to house textile and garment factories in industrial parks could potentially lead to industrial upgrading and greater export market participation in the sector.

Despite the immense employment and export potential of the textile and garment industry, actual benefits accrued in terms of growth of firms; employment generation; and export revenue have been well below what is anticipated from the sector. For instance, the annual export target set in the GTP II in 206/17 was 270 million USD. Actual earnings from export were, however, a paltry 89.3 million USD, which is only 33% of target (NPC, 2018). Similarly, the sector aimed to create approximately 34,000 new jobs opportunities in 2016/17, but only about half of the target was attained (NPC, 2018). Further, despite the government's plan to generate 1 billion USD from the industry from only one of the industry parks (Hawassa Industry Park), it has managed to generate only 103 million USD from all the industry parks in the nine months between July 2018 and March 2019 (EIC, undated; ENA, 2019).

Against this background, this paper studies the textile and garment sector in Ethiopia, its role in the country's economic development (its contribution in value addition, employment creation and export generation) and its implication for the industrial development strategy. This report explores the following key features of the industry:

- What does the profile and dynamics of textile and garment sector look like in Ethiopia?



- What policies and strategies exist in the textile and garment industry and how can they be improved to ensure growth and a broader contribution to sustainable development of the sector in Ethiopia?
- What are the key challenges that constrain the growth and expansion of the sector?
- What are key alternative intervention areas that warrant the government's attention?
- What does the state of skills look like in the industry and which production areas are skills shortages rampant?

In answering these research questions, this paper aims to contribute to the better understanding of the textile and garment industry in Ethiopia while at the same time promoting evidence based policy making. We believe the report can greatly inform the skills strategy document that will follow it.

The remaining part of this paper is structured as follows. Section 2 focuses on the profile and dynamics of the textile and garment industry in Ethiopia. The value addition, employment opportunity, and export dynamics as well as energy and raw material intensity of the sectors are presented in this section. Section 3 reviews existing government policies and strategies, while section 4 assesses the industry performance in garment sector vis-vis comparator countries. Section 5 and 6 focus on the assessment of comparative advantage and value chain of the sector. Skill development and SWOT analysis of the sector are discussed in sections 7 and 8 respectively. Finally, the key challenges and prospects as well as alternative policy areas that warrant government interventions are presented.

## **2. Profile of Textile and Garment Industry in Ethiopia**

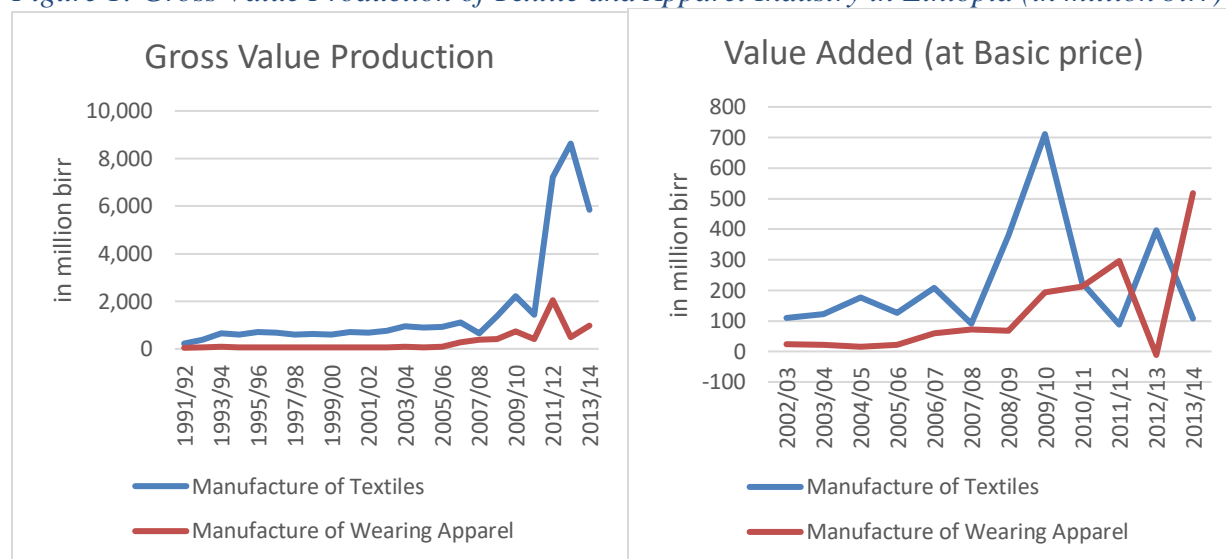
This section presents an overview of the textile and garment industry in Ethiopia and its relative importance in the Ethiopian economy. We mainly rely on data obtained from the Ethiopian Central Statistical Agency, the Ethiopian Development Research Institute (now called the Policy Studies Institute) and the Ethiopian Textile Industry Development Institute. These data contain information on the gross value production, value addition, employment contribution, worker profile and export performance of the sector.

### **2.1. Gross Value Production and Value addition of the sector**

Notwithstanding its historical pedigree, the textile and garment industry still remains at nascent stage and is among the least developed industries, especially in terms of value creation. Figure 1 illustrates the gross value production and value-added trend of textile and garment industry in Ethiopia in recent years. Despite remaining stable over a long period, as of late 2000s the sector has recorded a rapid improvement in terms of production. For instance, the gross value production of textile and garment industries, which was only 700 and 55.7 million birr respectively in 2001, jumped to 5.8 and 0.97 billion birr respectively in 2014 (see Figure 1), which is equivalent to a compounded annual average growth rate of 17.7% and 23.8 % respectively.

The government of Ethiopia has recently developed various strategies, including incentive schemes to promote private investment, to increase the role of the sector in job creation and foreign exchange earnings as well as in the industrialization process. As a result, the number of firms (both domestic and multinational) engaged in the industry increased and thereby resulted in growth and expansion of the industry.

*Figure 1: Gross Value Production of Textile and Apparel Industry in Ethiopia (in million birr)*



Source: Authors Computation based EEA Database (2016)

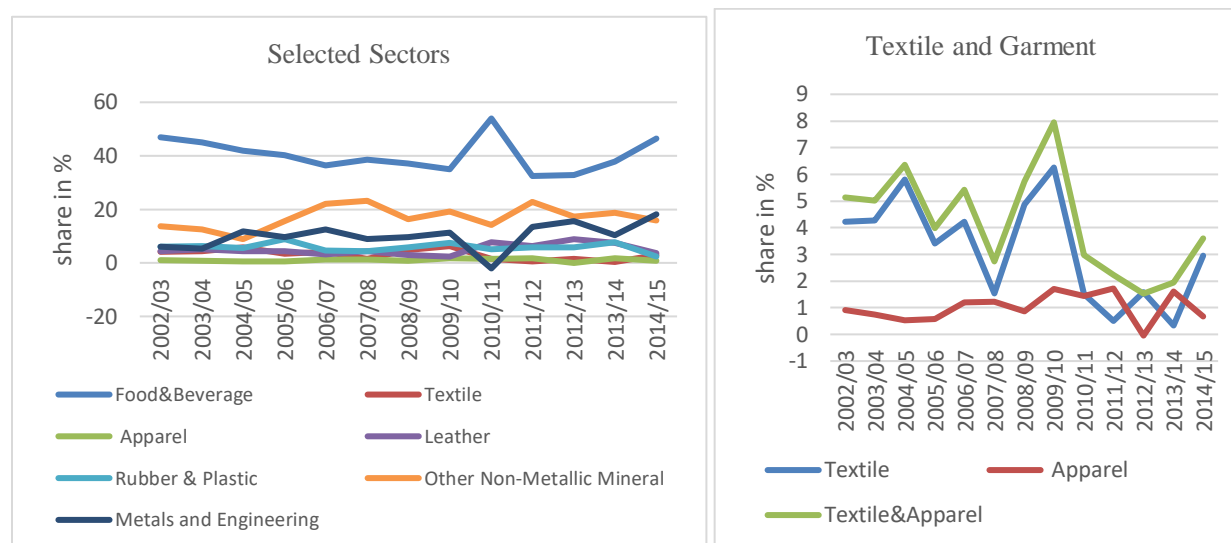
Note. Gross value of production is computed at a constant 2011 base year price.

However, despite substantial improvement in total value of production, comparing the value addition from the textile and garment industry with other manufacturing industries reveals that the sector has one of the lowest value additions. For instance, in 2014/15 food and beverage had the highest value addition (shared about 46.5% of manufacturing value added) followed by metals and engineering (18.1%) and non-metallic mineral industry (15.8%) (see Figure 2). By contrast, the textile and garment industry had created only 625 million-birr in value addition in the same period (3.6% of total value added of manufacturing industry). Especially, the additional value created by garment industry in the manufacturing sector is very low (shared only 0.6%) even when compared to textile sector

Figures 2 and 3 make the relative standing of the textile and garment industry in terms of value additions more visible. As shown in the figures, despite witnessing rapid growth in absolute value in recent years (see Figure 1), the share of the textile and clothing industry in the Ethiopian manufacturing sector showed a declining trend. As shown in figure 3 the industry's value-added share declined from about 25% in 1993 to 10% in 2014 mainly due to the rapid increase in the

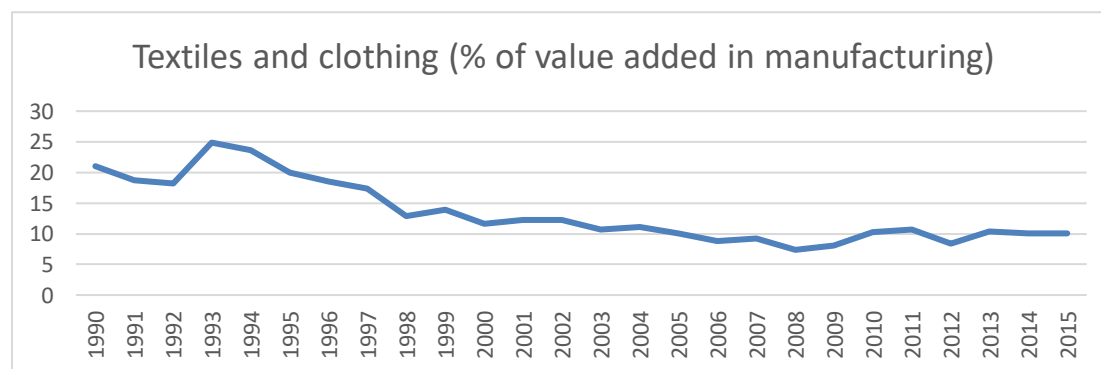
value-added share of other industries such as non-metallic mineral products, metal and engineering products, and rubber and plastic products.<sup>12</sup>

Figure 2: Value Added Share of Selected Manufacturing Sectors in Ethiopia (% of Total, Manufacturing)



Source: Authors' computation using CSA Large and Medium Manufacturing Survey

Figure 3: Share of Textile and clothing sector in Ethiopia (% of Manufacturing Value Added)



<sup>1</sup> Note that the difference between Figure 2 and Figure 3 lie in the definition of the manufacturing sector. Figure 2 using CSA's data use only manufacturing enterprises that employ at least 10 workers and use electricity driven machinery. Figure 3 based on WDI data set consists of the entire universe of manufacturing enterprises including small and micro enterprises.

<sup>2</sup> The industry might have exhibited substantial change in the recent years but clean and reliable data to conduct analysis is available up to 2015 at the time of writing this report.

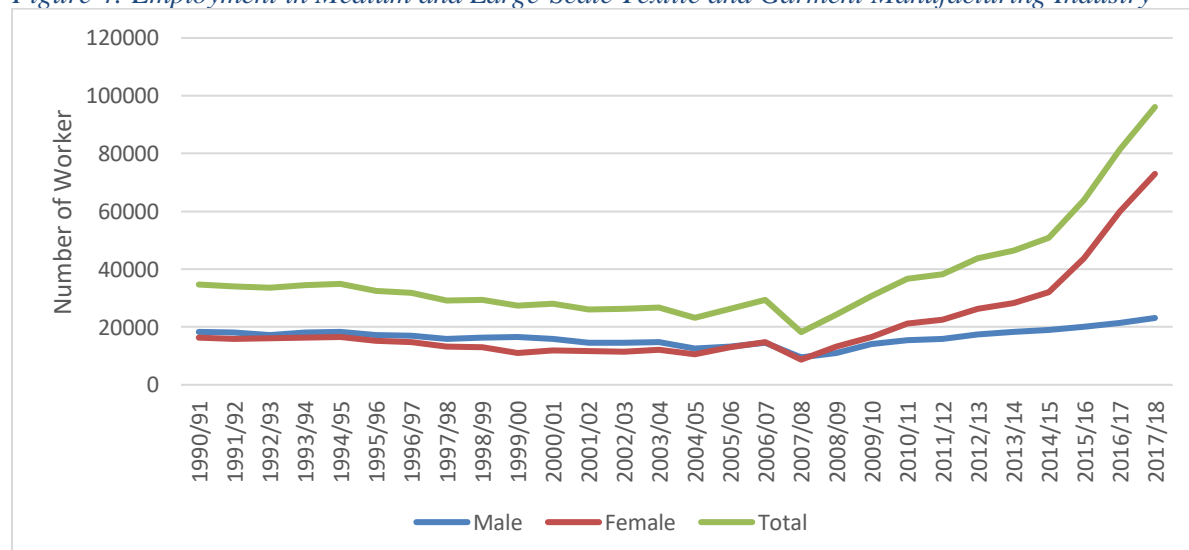
Source: Authors Compilation based on WDI Database (2018)

## 2.2. Employment Creation of the sector

An appealing feature of the textile and garment industry from a policy maker's perspective is its potential to generate job opportunities for unskilled and semi-skilled workers who constitute a large share of the labor force in the country. The textile and garment industry has created 485,061 jobs in 2013 at the country level (CSA, 2014). Most of the jobs are created in textile sector (about 86%), mainly in spinning, weaving and finishing of textiles. Moreover, the majority of jobs created are concerned in rural area (about 58%). However, when we disaggregate the sector into textile and garment, most of the jobs created in textile industry are concentrated in rural areas (about 64%) while about 82% of the jobs created by wearing apparel are concentrated in the urban area.

Figure 4 depicts the trend of jobs created by medium and large-scale textile and garment manufacturing industry disaggregated by sex. The textile and garment industry is one of the leading sectors in the country that employed a considerable number of workers, especially for less educated and less skilled young and female job seekers. In the early 1990s, the industry employed more than 30,000 workers with equally split between garment and textile manufacturing. Surprisingly, the absolute number of workers has steadily declined reaching 18,000 by 2008. This represents a 40% reduction in employment creation in the sector between 1990 and 2008. After 2008, the number of workers absorbed by this industry witnessed rapid growth, increased from about 18,000 in 2008 (of which 48% were female) to more than 96,000 in 2018 (about a five-fold increase in a decade). Furthermore, the industry's labor remained predominately female with women accounting for 76% of the workforce (see Figure 4). High growth of firms consists of both new firms' establishment, particularly foreign owned businesses, and the expansion of existing firms has noticeably contributed to the growth of sector employment creation (Iqubay, 2018).

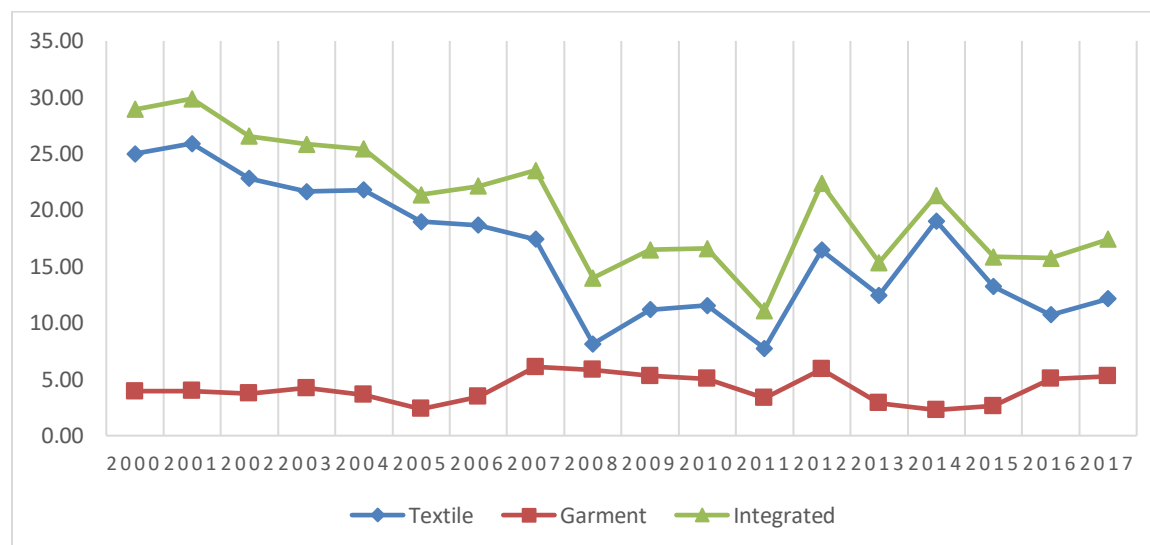
*Figure 4: Employment in Medium and Large-Scale Textile and Garment Manufacturing Industry*



Source: Authors computation based on data from TIDI

Figure 5 indicates that the textile and garment industry employed nearly a third of all manufacturing employment by medium and large firms in 2000. Textile employed nearly a quarter of all medium and large manufacturing enterprises in the country in that period. However, the share of employment in the textile and garment industries continuously dropped reaching 11% in 2011, after which it started to recover. In 2017, the textile and garment industry contributed to 17.4% of all manufacturing employment (Figure 5).

*Figure 5: Share of textile and garment employment in total manufacturing employment*

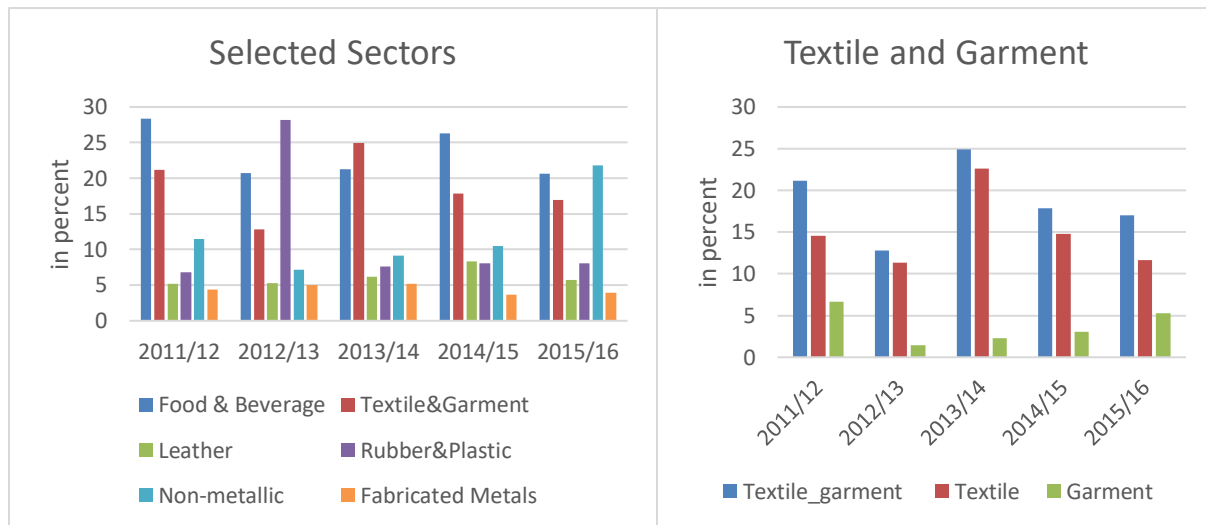


Source: CSA Large and Medium Manufacturing Survey

Notwithstanding the recent increase in employment in the industry, the employment share of textile and garment industry in medium and large manufacturing has declined over the last two decades. For instance, the employment share of sector, which was about 29% in 2000 (Tekleselassie et al, 2018), shrunk to about 21% in 2012 and further declined to 17% in 2016 (see figure 5) mainly due to an upsurge in the employment share of other manufacturing industries; in particular, the employment share of the non-metallic sector doubled over the last five years from about 11 % in 2011 to 22% in 2016, consistent with the expanding construction sector. As compared to textile, the employment share of the garment industry is relatively small, about 5% in 2016. However, its share is expected to grow more in the coming years due to large number of new entrants in the industry in the past few years. For instance, between 2010 and 2016 textile and garment sector experienced rapid growth of firms participating in this industry. In 2010 of the total firms engaged in the manufacturing sector, only less than 5% participated in the textile and garment

industry, however this figure increased to more than 10% in 2016 (Iqubay, 2018) which could reflect the extent to which the sector has gotten government attention.

*Figure 6: Employment share of Selected Large and Medium Scale Manufacturing Sectors (%)*

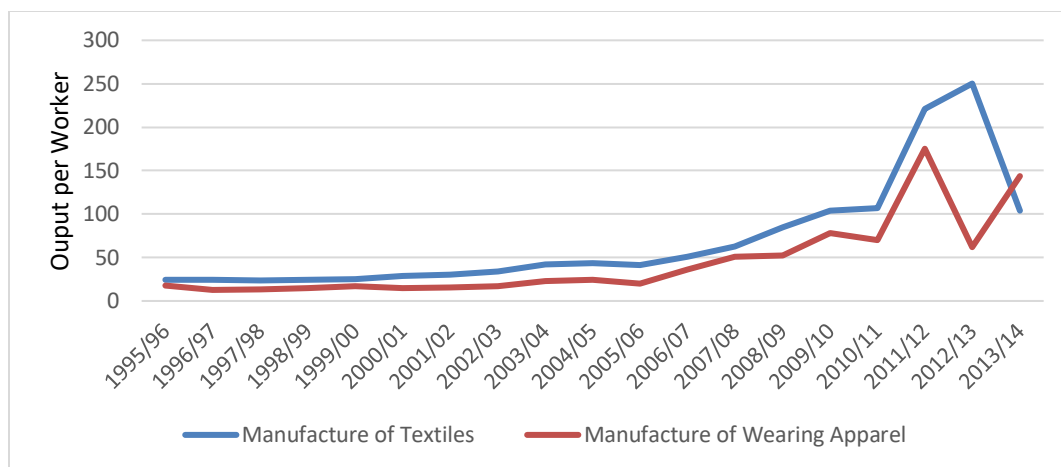


Source: Authors' computation using CSA Large and Medium Manufacturing Survey

The Addis Ababa Chamber of Commerce and Social Association (AACCSA) analyzed the status of manufacturing industries in Ethiopia as well as the occupational distribution of the workers in the industries. The survey result of 23 firms engaged in medium and large textile and garment industry showed that in 2012/13 the sector employed a total of 19,233 workers; of which about 83% were in the private sector whereas the remaining portion employed in the state-owned enterprises. During the same period, of total workers, about 1,819 employees are operators (direct employees) and 161 are staff personnel. Furthermore, most of workers were engaged in production activity. Specifically, on average about 4.4%, 8.7%, 45.9%, 20.3% and 16.3% of firm workers are managers, technicians, skilled production workers, unskilled production workers and non-production workers respectively (AACCSA, 2014).

**Labor Productivity:** Given the skills constraints, how did the productivity of the sector evolve over time? Figure 7 depicts the productivity of textile and apparel industry in Ethiopia. Despite the sluggish growth in earlier periods, labor productivity of the textile and apparel industry has shown a noticeable improvement in recent years, particularly since 2005. For instance, gross value production per worker of apparel was only 24 thousand birr in 2005, but in 2013/14 this figure reached about 144 thousand birr.

*Figure 7: Trend of Textile and Garment Industry Labor Productivity in Ethiopia (in '000' birr)*



Source: Authors Computation based EEA Database (2016)

### 2.3. Investment and Market Performance of Textile and Garment Industry

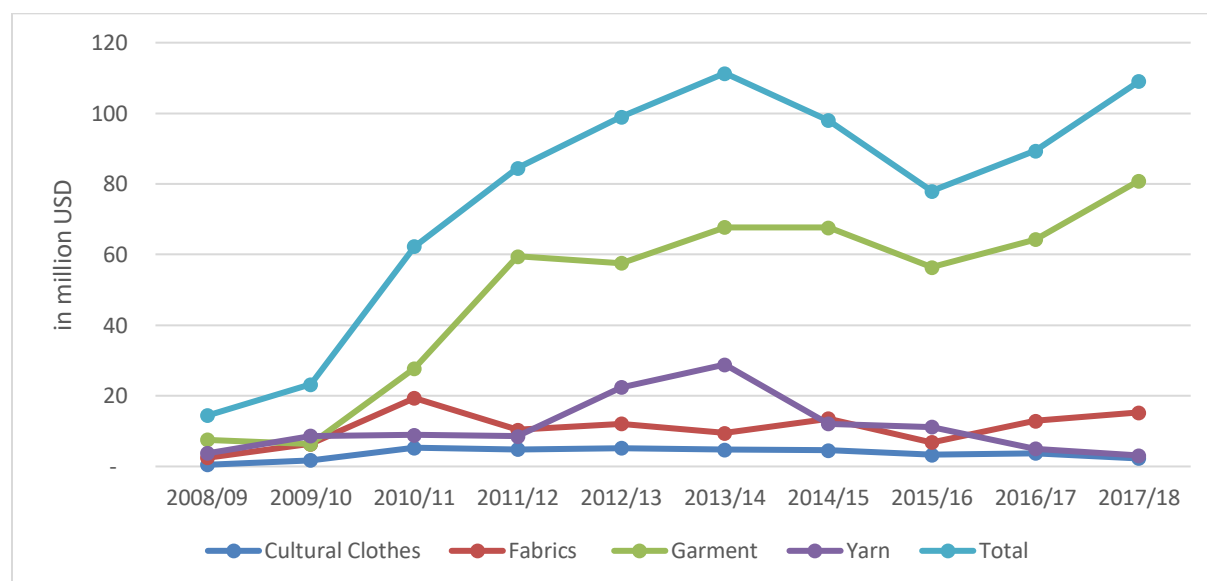
**Export:** Ethiopia is an exporting latecomer in the garment sub-sector compared to other exporters in Sub Saharan Africa. Ethiopia's modest exports from the apparel industry began in the 2000s (Staritz and Whitfield, 2017), a period which coincided with the termination of the WTO agreement that ended quota restrictions on the sector in 2004 (WB, 2014). Figure 8 depicts the trend of garment and textile exports from Ethiopia over the last ten years. Export earnings from the industry were largely negligible in the 1990s and early 2000s; for instance, in 2000 export earnings from the industry was only 3 million USD (about 1 million USD from garment and 2 million USD from textile) (Staritz et al, 2016). As indicated in the figure, export from the industry steadily increased during the late 2000s; it climbed from 62 million USD in 2010/11 to about 109 million USD in 2017/18 (see Figure 8).

The figure clearly shows that the increase in export revenue from the industry is mostly driven by the rise in export share of garment manufacturing (increased from about 28 million USD in 2010/11 to about 90 million USD in 2017/18). The figure also depicts export revenue generation from yarn, fabrics and cultural clothes. The foreign exchange earnings from Yarn significantly declined, it failed from 29 million USD in 2013/14 to 3 million USD in 2017/18. Export performance of cultural clothes and fabrics remained stable under the period consideration.

**Investment:** An increase in the number of foreign investors engaged in the sector due to relatively low labor costs, cheap and abundant raw materials, low energy and water costs. Furthermore, duty free export to the EU and USA under the strategies known as Everything But Arms (EBA) and the African Growth and Opportunities Act (AGOA) respectively also substantially supported recent

surge in garment export earnings (Staritz and Whitfield, 2017 ). Recently, the country managed to attract a noteworthy number of producers in the global apparel value chain linked to big brands such as H&M, PVH. By 2016, there were around 43 foreign owned firms involved in textile and garment sector, which accounted for 34% of firms and 49% of employment in the country (Staritz et al, 2016). Ethiopia’s trade preferences arrangement under the Generalized System of Preferences (GSP) in Australia, Canada, Japan, New Zealand, Norway, and Switzerland as well as preferential access in China, India, Russia, South Korea, and Turkey has certainly helped attract new investment towards the industry (WB, 2014).

*Figure 8: Export Performance of Textile and Garment sector in Ethiopia over the last ten years*

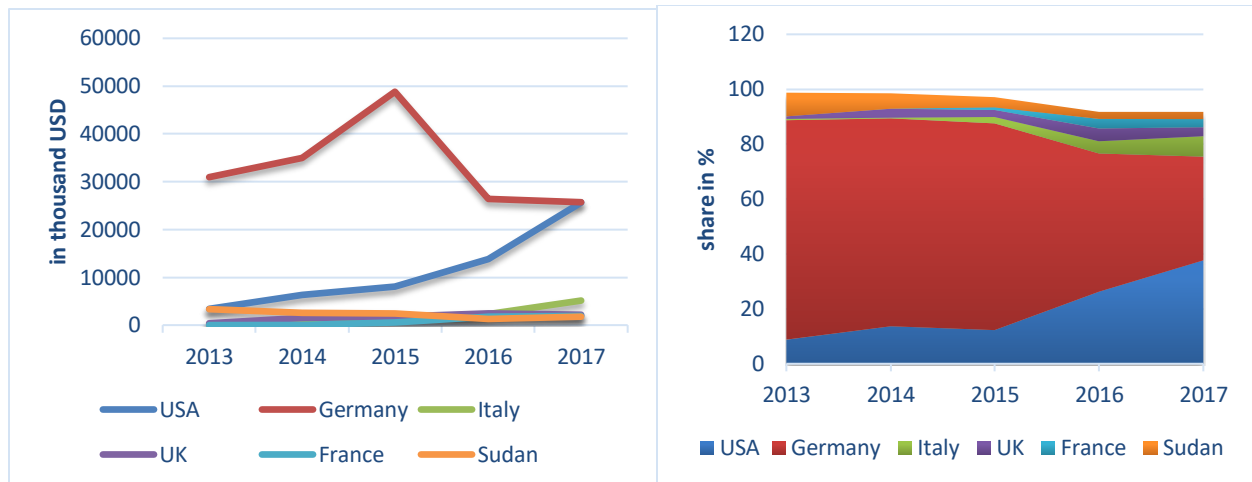


Source: Authors computation based on data from TIDI

**Market:** The main destination of Ethiopian garment products are US and EU markets mainly due to the existence of preferential treatment for Ethiopian exported commodities in these two markets. In particular, Germany (mainly due to a large integrated Turkish firm supplying a buyer serving the German market (Staritz et al, 2016) and US are the main destination markets, which together constitute about 76% of total garment export destination (see Figure 9). The figure also shows that there has been rapidly growing of market access in the US in recent years; market share increased from about 9% in 2013 to 38% in 2017. The rise in sales to the US market also corresponds to the rapid increase in garment exports since 2015/16 as shown in Figure 8 above. While the export value has fall short of the garment target set in the GTP (as will be discussed in detail in section 3), it seems to have attained a positive trajectory.

*Figure 9: Ethiopian Export of Garment, by destination countries*

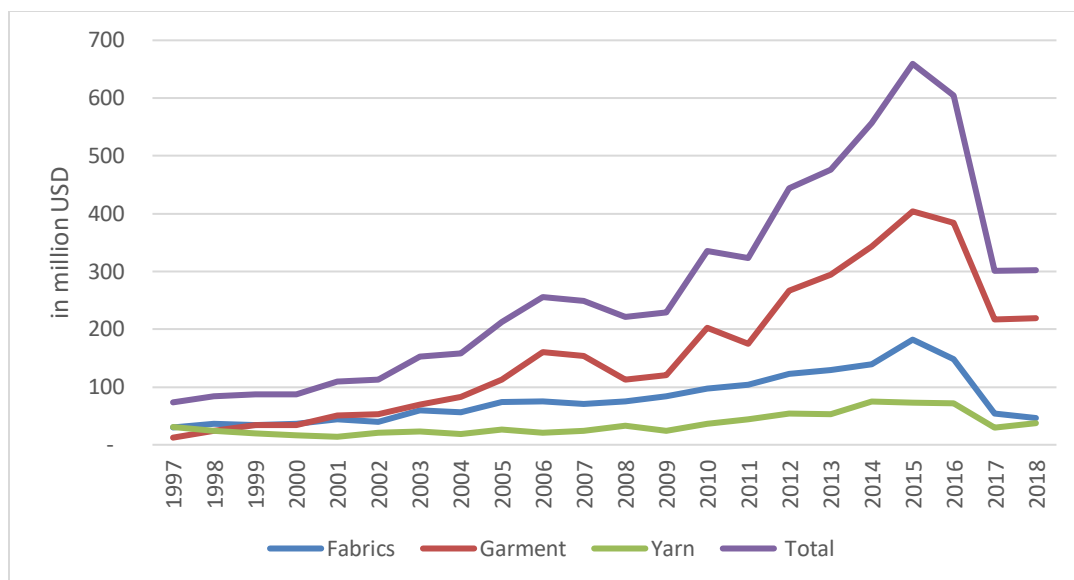




**Source:** Authors computation based on UN COMTRADE

**Local Market:** The domestic market remains important for both domestic firms and foreign firms (but the government requires foreign firms to export). The growing importance of the local market can be seen by the rapid rise in the volume and value of imported textile and apparel products, mainly from China. The import trend of textile and apparel product is presented in figure 10. The figure indicates the continual rise of apparel products imported into the country until 2015. For instance, in 2015 the imported value stood at 404 million USD, a significant increment compared to 2003 (which was only 69 million USD). This sharp rise may be explained by recent rapid economic growth and a large number of population in the country which in turn increased demand for imported goods. The domestic supply of quality-oriented garment products has also been limited indicating substantial market potential. On the other hand, since 2015, we observe a sharp fall in the value of imported textile and garment products, which could be linked with shortage of foreign currency and rising of local sourcing. For instance, manufacturing sector survey done by AACC showed that considerable number of firms (about 33%) supplied products to the domestic market (AACC, 2014).

*Figure 10: Import Trend of Textile and Apparel products in Ethiopia*



Source: Authors computation based on data from TIDI

**Industrial Parks:** are important policy levers that can trigger the industrialization process of nascent sectors including the garment industry. By concentrating government attention in specified localities, Industrial Parks can potentially help overcome the inefficiencies in the overall economic sector. They particularly generate economies of scale that makes the provision of infrastructure services, such as power, telecom and road cheaper and easier. By attracting workers and employers, creating linkages between suppliers and producers, Industrial parks potentially produce localization benefits that reduce the cost of production. They further lower regulation costs and eases the provision of other public services, such as taxation and security.

Indeed, it is in recognition of these potentials that the Ethiopian government has embarked on the building of industrial parks throughout the country in the past few years. Some of the early batch of parks, such as Bole Lemi I, were built in the outskirts of Addis Abeba and have managed to attract a large number of garment producers. The flagship park project is, however, Hawassa that attracted key global players in the garment industry. In recent years, export from the parks have increased. Due to high import intensity, however, the foreign currency contribution of the parks is not said to be high.

In an in-depth analysis of industrial parks, Weldesilassie et al., (2017) argue that getting the construction, management, governance, labor sourcing and production efficiency of the first batch

of parks have far reaching consequences. Building more parks without ensuring the success of these early batch of parks risk the park project turning into “white elephants”. Lessons from different countries indicate that the government should follow a phased-in approach allowing lessons to be learned from each phase of park construction.

Our visits to the two parks have yielded different results. There are 18 companies that are engaged in textile and garment products in Hawassa and employment has reached nearly 25000 workers at the time of writing this draft. When all the factory shades become operational in 2020, the park in Hawassa is expected to employ nearly 60,000 workers. That adds nearly 20% more people to the city’s population, which is estimated to be 320,000. Such rapid expansion in the population puts additional burden on the city and there are already concerns on what this would mean for the supply of transport, housing, and municipality services. While employment in the park could greatly stimulate the local economy, it could also potentially strain the quality of public services.

Hawassa not only has attracted key global buyers, it also mobilized sufficient donor funding to set up a labor sourcing and grading system that seems to be lacking in Mekelle. We noticed a multitude of programs on labor, working conditions, people management, housing and so forth being funded by international organizations such as the ILO and different research program run by bilateral and multilateral organizations in Hawassa.

In the newer industrial parks such as Mekelle, even sourcing unskilled workers is a problem as firms are forced to dispatch own recruiters to nearby villages and roam door to door to find workers. When fully operational, the Mekelle Industrial Park is expected to create approximately 20,000 direct jobs and another 40,00 indirect in its 15 shades. Currently, 10 shades are occupied, but only three are operational employing about 2,106 workers 65% of which are female. When fully operational, the Mekelle industrial park will face labor shortage unless labor sourcing and grading system like that of Hawassa is set-up. Currently, there are attempts to emulate the labor sourcing experience of the Hawassa Industrial park in Mekelle.

The labor grading system in the Hawassa Industrial park so far has been a key platform that managed to connect young job seekers to factories in the park. Workers are sourced from different catchment areas by the Bureau of Industry in the region and then undergo a screening procedure to check their suitability for factory work. Several industry standard tests are employed to grade

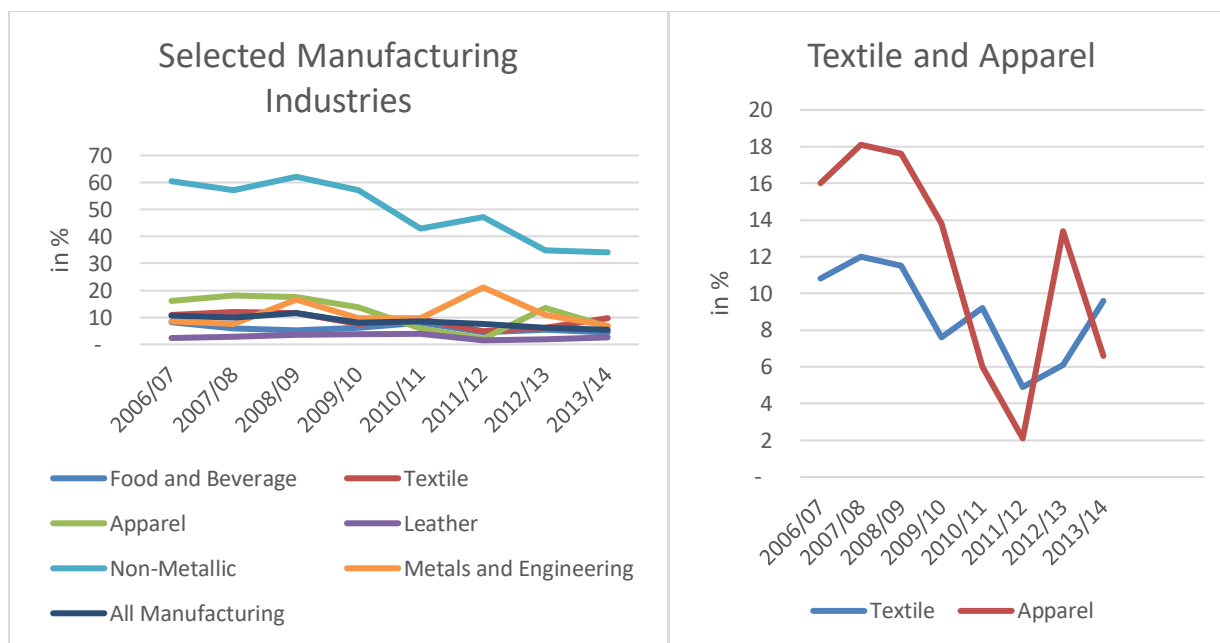
candidates on this basis fit for sewing, quality control or other tasks, such as pressing, packing and so forth. The list of the candidates who managed to pass the grading tests will then be transferred to the companies for formal recruitments on first-come-first-serve basis.

## **2.4. Energy and Import Intensity of the sector**

**Energy Intensity:** Compared to other sectors, such as cement and metal working, the textile and garment industry is not generally considered an energy intensive industry. However, the large number of firms in the sector has gradually increased the collective energy requirements and consumption of the industry mainly in spinning, weaving, dyeing and printing, and finishing processes. Figure 11 present the ratio of cost of energy consumed to total industrial cost by major industrial groups for the period 2006-2014. Figure 11 clearly indicates that non-metallic mineral products manufacturing consumed the highest proportion of energy throughout the period under consideration, exhibiting about 34% of total industrial costs in 2014, huge reduction compared to previous years (for instance in 2009, it was about 62%), mainly due to high energy requirement by cement and glass and glass products factories.

Next to non-metallic mineral products, the highest energy consumption compared to their total industrial cost was observed in the apparel industry. Despite a significant reduction in energy consumption as a share of total industrial costs between 2007 and 2011 (reaches about 2% in 2012), the textile and garment industry consumed a non-trivial share amounting to 10% and 7 % respectively in 2013/14.

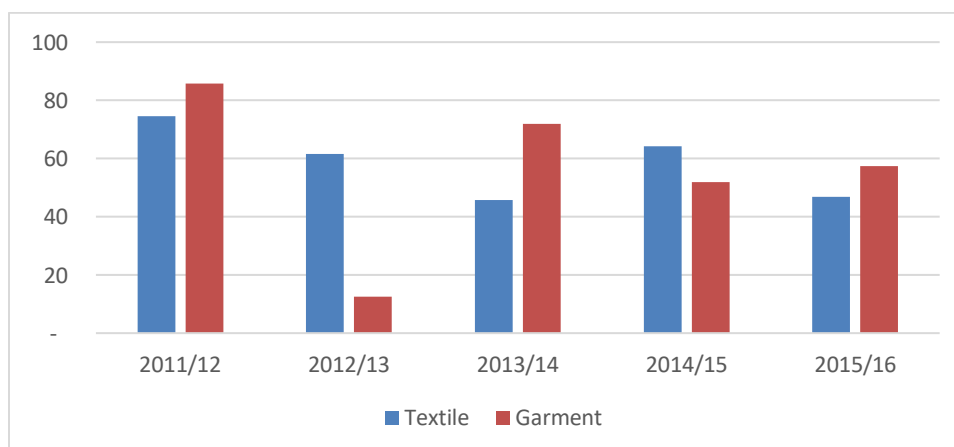
*Figure 11: Share of Energy Consumed by selected manufacturing industries (% of Total Industrial Cost)*



Source: Authors' computation using CSA Large and Medium Industries Survey

**Import Intensity:** the source of inputs used in the production of the sector can have great implications on the competitiveness of the garment industry in the international market. Whether the required raw material sourced is mainly from domestic or foreign markets can be checked by examining the import intensity of the industry. Import intensity is defined as the ratio of imported raw material as a proportion of total raw materials used in the production process. Figure 12 presented the share of imported raw material in the Ethiopian textile and garment industry over the last five years. The figure shows that the garment industry in Ethiopia is relatively import-intensive in raw material usage.

*Figure 12: Share of Imported Raw Material Cost to Total Raw Material Cost (%)*



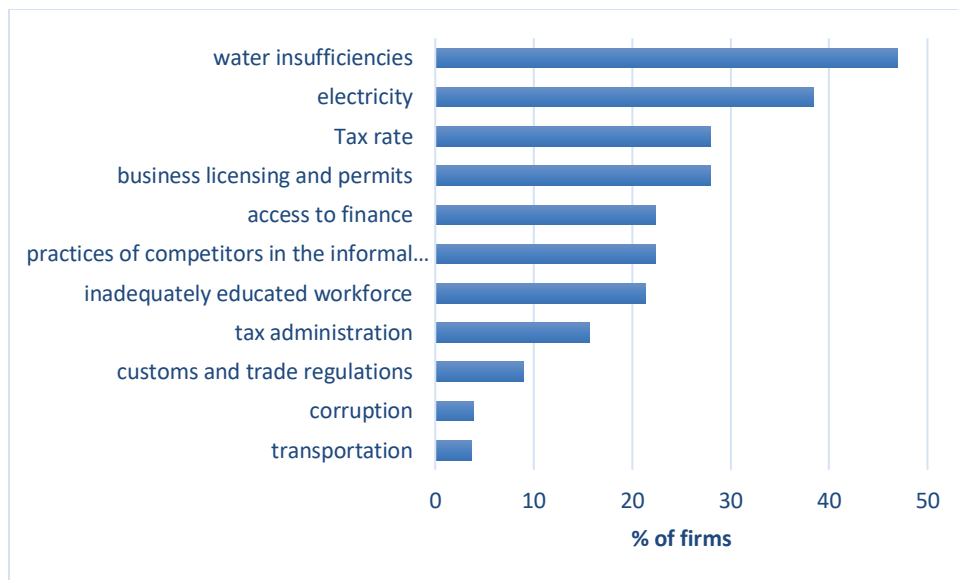
Source: Authors' computation using CSA Large and Medium Industries Survey

Most fabrics, accessories, threads and buttons used in apparel production are imported from abroad. For instance, only 10% of the fabric used by the garment factories was supplied by domestic producers because domestic suppliers do not have sufficient capacity to supply adequate quantity and quality of textiles (ITC, 2016). Furthermore, production in the textile sub-sector also highly depends on imported textile raw materials such as synthetic fiber/yarn, wool, dyestuffs, chemicals and related accessories (MOI, 2013).

Since the import price of these inputs is high due to a high markup, transportation costs, poor logistics and overvalued exchange rate, Ethiopia is at a price disadvantage in the garment industry compared to other sourcing countries, particularly Asian countries that can either buy input at domestic market and/or import easily and cheaply (see ITC, 2016). Heavy reliance on imported raw materials could also reduce the flexibility and the speed with which Ethiopian producers can respond to buyer demands.

The discussion thus far showed the importance of textile and garment industry in Ethiopian economy and its improvements in recent time in employment creation and foreign exchange generation. There is, however, a relative consensus that the industry's growth and expansion has lagged far behind its potential and government growth targets. There are multiple factors that have hindered the growth of sector. Most of the challenges are discussed in this report and in many other publications. But one that rarely gets attention is water shortage. For example, the widely cited study of the industry by the WB in 2015 showed that water insufficiency is the main factor that deters the growth of sector in Ethiopia. Of total surveyed firms, about 47% of them rate water shortage as a major constraint. This will not come as a surprise as production of textile and apparel products consume large amounts of water. For instance, it takes approximately 2,500 to 3,000 liters of water to manufacture a single cotton shirt (Textile World Special Report, March/April 2008). Next to water, problems related with electricity, tax rate and business licensing and permits are also the major constraints on firms engaged in the sector. About 38%, 28% and 28% of firms rate electricity, tax rate and business licensing and permits related problems respectively as constraint for their businesses. Moreover, lack of access to finance, contraband trade, tax evasion and shortage of skilled labor force is also affecting the sector significantly.

*Figure 13: Major Factors affecting the firms engaged in Textile and Garment Industries in Ethiopia*



Source: Authors Compilation based on WB Enterprises Survey

Therefore, ensuring reliability of water supply, and electricity as well as improving tax related issues need a great attention of government. In addition, reducing skills gaps, informal trades and improving access to credit remain to play imperative role for enhancing growth and competitiveness.

### 3. Government Policies and Strategies in the Textile and Garment Industry

The objective of stimulating industrial growth began in mid-1950s in Ethiopia with the formulation of the First Five Year Plan in the imperial period (during the period 1958-1962) (Gebreeyesus, 2013). Since then formulation and implementation of industrial policies has taken place in the country at different period with different style and vigor. Table 2 summarizes the industrial policy and development phases over last five decades.

During Imperial and Derg regimes, policies focused mainly on import-substituting and labor-intensive industries (such as textile, food, cement) while in the EPRDF regime the policy has targeted export-oriented and labor-intensive industries (such as textile, leather, agro-processing, cement).

With the objective of laying down the foundation for economic growth, the imperial regime formulated a series of five-year development plans since 1957. The development plan was mainly focused on import substitution targets as the policies and strategies emphasized the protection of domestic market mainly through imposition of high tariffs and banning of certain imports and the provision of fiscal incentives (such as tax holiday and remission of indirect tax on capital goods). By design the incentive schemes were biased towards import substituting, capital-intensive and foreign-dominated industrial activities (Gebreeyesus, 2013). According to study presented by UNDP on the second edition of the International Conference on the Emergence of Africa (ICEA

II) from 28th to 30th March 2017, during the first five-year development plan (1957-1961) the manufacturing industry did not progress as expected since most investment was made in the construction and housing sector. For example, about 60% of the loans advanced to the private sector financed investment projects in the construction and housing sector. The same study concluded that in the second five-year development plan (1963-1967) active government investment in the key industrial sectors such as cement, refiner, brewery and textile as well as the emergence of foreign firms in the manufacturing industries resulted in growth of manufacturing sector in value added (grew on average by 16%) and raised the share of the sector in the gross domestic product (increased to 13% at the end of plan). In the third five-year development plan (1968-1973), however, the manufacturing sector got less emphasis as government focused mainly on the commercialization of the agricultural sector. The state of the textile and garment industry during this period largely reflected the manufacturing sector's dynamics.

The Derg came to power in 1974 and immediately subscribed to a command economy system that alienated the private sector in the development process. In addition to high tariff imposition, the Derg regime applied quantitative restrictions on financing of investment by the private sector. Instead it pursued the path of subsidizing and ensuring monopoly power for the SOEs. Restriction of private sector engagement into the economic activities reduced the manufacturing sector development during the Derg regime. The existing State-Owned Enterprises (SOEs) were large in size but had a clear objective of maximizing employment rather than business profit. The import substitution strategy of the government also meant that the SOEs were highly protected and were not exposed to international competition. As a result, aside from a handful of textile and garment factories that produced bed sheets, threads and garment products, the industry largely remained dormant until the Derg was deposed in 1991.

With the assumption of power by the current regime in 1991, the command economic system was all but abandoned and more market friendly policies were introduced. With the objective of encouraging private firms' involvement in the manufacturing sector, the EPRDF government has developed strategies to provide direct support for selected export sectors, such as textile and garment, through capacity building and provision of fiscal incentives (such as tax holidays, remission of indirect tax on capital goods and preferential credit scheme).

*Table 1:: Ethiopian Industrial Policy and Development Phases*

Indicator	Regime		
	Imperial regime	Dergue regime	EPRDF regime
Guiding policy	Market-oriented	Command economy	Market-oriented
Public/private role	Private-led	State-led	Private-led but with strong state role
Ownership Structure	Dominance of foreign-owned enterprises	Dominance of public-owned enterprise	Dominance of domestic private owned enterprises on paper



			(IDS and GTP I). But a growing role for FDI in practice and in the GTP II).
Target industries	Import-substituting and labor-intensive industries (e.g. textile, food, cement)	Import-substituting and labor-intensive industries but also basic industries	Export-oriented & labor-intensive industries (e.g. Textile, leather, agro-processing, cement)
Envisaged key Player	Foreign investment	Public sector investment	Domestic private sector Foreign investment
Government role	Protection of domestic market through high tariff and banning of certain imports Provision of economic incentives (tax holidays, remission of indirect tax on capital goods etc.) and preferential credit scheme	Protection of domestic market through high tariff and quantitative restrictions on the private sector (including financing), subsidizing and ensuring monopoly power for the state-owned enterprises	Direct support for selected export sectors through capacity building and other means Provision of fiscal incentives (tax holidays, remission of indirect tax on capital goods etc.) and preferential credit scheme

Source: Adopted from Gebreyesus with slight modification (2013)

In recent years, the industrial sector has received a great deal of national attention in Ethiopia with the objective of building the platform for industry to take a key leading role in the economy. With the formulation of the first ever comprehensive national industrial policy (IDS) since 2002, the focus on labor intensive industries was more concretized. The implementation of this policy has been undertaken under various sub-sector strategies and consecutive development plans involving the Sustainable Development and Poverty Reduction Program (SDPRP) 2002/03-2004/05, the Plan of Action for Sustainable Development and Eradication of Poverty (PASDEP) 2005/06-2009/10, the Growth and Transformation Plan I (GTP I) 2010/11-2014/15, and the Growth and Transformation Plan II (GTP II) 2015/16-2019/20.

More recently, the Industrial Development Strategic Plan (also called the Roadmap) for 2013-2030 was developed with the mission of building manufacturing industries that are highly diversified, globally competitive, environmentally friendly and capable of improving the livelihood of the Ethiopian people and hence making Ethiopia a hub for light manufacturing industry in Africa (Ministry of Industry, 2013). The strategic plan identified five strategic objectives consisting of expanding and developing existing prioritized industries, diversifying manufacturing sectors,

increasing investment, developing and operating industrial zones and cities and enhancing entrepreneurship.

Strikingly, across all the development plans and strategic documents that have been launched in the last two decades, the textile and garment industry has been one of the few strategic industries prioritized by the government. The overarching focus on the industry is justified by its labor-intensive nature, large market potential, broad linkages with other sectors in the economy, use of agricultural inputs, export orientation and importing substituting potential and anticipated contribution towards technology transfer.

After launching of the growth and transformation plan in 2010 the Ethiopian government has made an effort to accelerate the implementation of a range of industrial policies. In particular, the government aimed to improve and expand the clothing and textile industries, both in serving the domestic market as well as to enhance exports and competitiveness of the industry at the global level. The strategies identified in Ethiopian industrial policy regarding textile and apparel industries are summarized in the Table 3.

*Table 2: Industrial policy of textile and garment sector in Ethiopia*

Policy	Key Strategies	Objectives
FDI attraction	<ul style="list-style-type: none"> <li>Developing incentive schemes (financial and non-financial scheme) to attract key supplier and buyers of apparel sector</li> <li>With establishing requirements that firms should export at least 80% of their production.</li> </ul>	<ul style="list-style-type: none"> <li>Access global market</li> <li>Solve financial constraints</li> <li>Promote Technology and skills upgrading.</li> </ul>
Gross value addition	<ul style="list-style-type: none"> <li>Pushing firms to sell yarn and fabric to domestic market, in addition to investing in textiles linked to promoting the apparel activities</li> </ul>	<ul style="list-style-type: none"> <li>Local value addition</li> <li>Linkages between textile and garment producers</li> </ul>
Export-orientation	<ul style="list-style-type: none"> <li>Formulating selective policies to influence resource allocation to the sector, such as regulating the banking sector and foreign exchange flows.</li> <li>Foreign exchange retention schemes as well as voucher and duty drawback schemes and bonded warehouses to</li> </ul>	<ul style="list-style-type: none"> <li>To increase export earnings from the sector</li> <li>Intensify the exposure of firms to global competition to improve efficiency</li> </ul>

	<p>facilitate duty free importing of inputs for the production of export products.</p> <ul style="list-style-type: none"> <li>• Forcing foreign firms to export at least 80 % of their production and pushing domestic firms to export.</li> </ul>	
Industrial parks development	<ul style="list-style-type: none"> <li>• Providing firms in priority sectors access to land at favorable lease rates, mainly for foreign firms.</li> <li>• Fit industrial parks with both basic infrastructure and superior bureaucratic system to support exports. One-stop-Shop services are to be the key pillars for such facilitation roles.</li> </ul>	<ul style="list-style-type: none"> <li>• To tackle infrastructure problems, such as electricity, water, and communication/telecom services</li> <li>• Increased efficiency of both regulation and service delivery</li> </ul>
Enhancing capacity utilization	<ul style="list-style-type: none"> <li>• Establishment of sector specific capacity building and technology support institutes, such as TIDI</li> <li>• Expansion of training centers (like universities, TVET)</li> <li>• Strengthening backward and forward linkages of the sector with the rest of the economy</li> <li>• Enhancing the quantity and quality of raw materials</li> </ul>	<ul style="list-style-type: none"> <li>• Upgrading skills and productivity, particularly labor skills and productivity</li> <li>• Expansion and growth of the sector</li> <li>• Promote knowledge transfer from FDI to domestic firms</li> </ul>
Value chain development	<ul style="list-style-type: none"> <li>• Intensify the participation of local producers in global value chains</li> <li>• Strengthen cotton-to-garment value chain development</li> <li>• Encourage local content additions by promoting the production of fabrics and accessories in the industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the value addition of the industry to increase its profit margin.</li> <li>• Move up higher in the value chain ladder to produce and sell more valued products.</li> </ul>

Source: Authors compilation based various sources, mainly based on Staritz et al, 2016

Foreign direct investment attraction and global value chain participation are seen as key strategic approaches to drive export-oriented industrialization of the sector. Foreign investors are considered as the main channel for accessing global markets, capital, technology and skills upgrading (Staritz et al, 2016). For this purpose, the government has established an attractive incentive scheme to bring key buyers and suppliers to Ethiopia along with motivating domestic firms. This incentive package consists of financial and non-financial schemes. For instance, there is 100 percent custom duties exemption for importation of capital goods, reconciliation of VAT

for materials purchased locally (if it declared within 6 months of project period), finance support (9-10 percent interest rate depending on export performance of the firm), and income tax holiday for 2 to 10 years (depending on the location and export performance of firm).

The non-financial incentives provided by the government include a 100% custom duties exemption on imported raw material for export purpose, supply credit for import of machinery and equipment, and up to 5 years Income Tax exemption for expatriates (TIDI, 2018). However, to get government support (political and economic incentives), foreign firms should export at least 80% of their production (Staritz et al, 2016). Moreover, the policies focus on vertical integration and linkages with the objective of pushing textile firms to sell yarn and fabric to local garment manufacturers in the domestic markets.

With the objective of diverting resources allocation to prioritized and exporting sectors, the government has used various selective policies such as regulating the banking sector and foreign exchange reserves, for instance, establishment of foreign exchange retention scheme, voucher and duty drawback schemes and bonded warehouses to facilitate duty free importing of inputs for the production of export products. Furthermore, firms engaged in exporting of garment products have access to a credit guarantee scheme to avoid problems of working capital, corporate tax holidays, serviced industrial parks, and support through sector specific institutes (Staritz et al, 2016).

Enhancing the capacity utilization of the sector is another focus area of the government. In the same spirit, improving technology transfer, creating more value and employment, and strengthening backward and forward linkages of the sector with the rest of the economy has been identified as key intervention areas to promote the growth of the sector. Furthermore, enhancing the quality and quantity of human resource is considered as the key strategic direction to accelerate the expansion and growth of sector. In particular, the government targets increasing professional certification, improving capacity of TVET and other related institutions to develop the human capital required by the sector by investing in education and training center.

Access to sufficient quantity and quality of raw materials has also been a key constraint that the industry has faced in the past several years. Despite a large tract of land and suitable climate for cotton growing, the vast majority of textile firms rely on imported cotton. Similarly, garment factories heavily depend on imported fabric. Improving local sourcing of quality raw materials and value addition has been key strategic directions set out in both GTP I and GTP II. Enhancing strong and viable value chain is key for sector development. In addition to allowing exporters to import inputs needed for exporting with duty free, improving trade logistics and rail transport, local value addition through backward and forward linkages are crucial to develop well-integrated industry and avoid import dependency.

The discussion thus far testifies to the fact that the industry has received strong attention from policy makers and comprehensive policies and strategies have been developed under various development plans. It is true that the efforts have borne some fruits. These achievements, however,

are far below the government's own targets and the sector's potential. Table 4 summarizes the achievement of targets set for textile and garment sector under various development plans. For instance, under PASDEP the strategic plan (mainly through privatization program, transferring state owned garment and textile to the private sector) was set to achieve 500 million USD export earnings from textile and garment sector, but the performance rate was quite low (only 4.2%).

Under the GTP I the sector shows significant improvement. For instance, the export earnings climbed from about 21.8 million USD in 2010 to 98.9 million USD in 2015 and the employment created raised to about 20 thousand. However, performance was far lower than the planned target, only 50% of employment creation and 9.8% of export generation targets were achieved. The below par performance was strongly linked to low capacity utilization of firms due to inadequate and poor quality of raw materials, insufficient infrastructure facilities and lack of finance which in turn result in low local investment, low productivity, weak international competitiveness, weak technology, high investment and production cost and slow progress in the country's industrialization (NPC, 2016). Furthermore, the use of obsolete machinery in the factories, lack of relatively skilled and trained labor and proper production management skills, poor quality of fabrics, low investment in equipment maintenance among state owned enterprises, irregular fabrics and poor access to fabric also contributed to the limited processing capacity observed in the textile and garment industry (Weldesilassie, 2017).

*Table 3: Evaluation of Textile and Garment Sectors Performance under different Development Plan*

	PASDEP			GTP I				GTP II <sup>3</sup>	
	Target	Actual	Performance (in %)	Target	Actual	Performance (in %)	Target	Actual	Performance (in %)
Export Earnings (in mil USD)	500	21.8	4.2	1000	98.9	9.8	270.5	89.3	33
Employment creation (in '000')	-	-	-	40	20	50	34	17.5	51.4

Source: Authors Compilation Based on NPC Document (GTP I and GTP II)

In GTP II, the government further stressed the importance of textile and garment industries in the process of industrialization in Ethiopia. The target was to manufacture production of 2.18 billion USD, earn 779 million USD in export revenue and create 174 thousand job opportunities at the end of the plan through improving production capacity (target to raise to 80%), productivity, quality, competitiveness, and attracting more quality investments (NPC, 2016). However, the mid-term report of GTP II showed that the target was unlikely to be achieved. For instance, the

<sup>3</sup> The data was for 2016/17 fiscal year obtained from Mid-Term report of GTP II

projected export earnings from industry was about 270.5 million USD in 2016/17, but the achievement lagged far behind the target, only 33% of the target was realized (NPC, 2018). Furthermore, the industry was expected to create job opportunities for about 34 thousand employees in 2016/17, but only half of the targeted job opportunity was created. The underwhelming performance of the sector is partly explained by input supply constraint, especially raw material supply. For instance, the government planned to supply 300 thousand tons of lint cotton to the textile factories, but the actual supply was only 138 thousand tons of lint cotton (NPC, 2018).

Recent development and expansion of industrial park is expected to play a considerable role in the growth and expansion of the garment industry through expansively and effectively solving the constraints that impede firms' productivity and competitiveness (NPC, 2016). The establishment of industrial parks can have the advantage of increasing access to specialized infrastructure or services (such as banking, energy, water, roads, trade logistics, customs facilitation etc.). The common benefit of agglomeration economies related with labor pooling (large and concentrated industry may attract a pool of workers, reducing employee search and hiring costs for firms) and knowledge spillover effects (workers from different firms may more easily share ideas that benefit each firm) are also expected to arise in industrial park settings. Such mechanisms will have a combined effect of improving overall productivity of firms. Furthermore, the development of industrial parks in the supply of land would encourage investments in the industrialization and export development of the sector, discourage use of land for unproductive rent seeking activities, and address corruption associated with land.

Our reading of the sectors' performance thus far indicate that the government's industrialization strategy based on Industrial Parks seem to be on the right track so far. Yet when evaluated from government's own quantitative export and employment targets and the satisfaction of investors and workers on which future growth must be based, improving implementation on a range of dimensions including labor sourcing, skills and infrastructure provisions are vital.<sup>4</sup>

Under GTP I and II, the establishment of industrial parks in different parts of the country got a national attention. Though it was initially planned to construct 9 industrial parks<sup>5</sup>, only two of

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<sup>4</sup> The much anticipated and the largest flagship industrial park project in the country was constructed in Hawassa in 2017. While it has successfully attracted global brands to occupy factory shades in the park, the government's plan of generating 1 billion USD from the park by 2020 does not seem to be on track. From several visits to the park and from discussions with both industry park and investment commission officials, the authors believe that the park will meet about 70% of the employment target of creating 60,000 jobs (at the writing of this report it has generated nearly 25,000 jobs).

<sup>5</sup> Industrial Park means an area with distinct boundary designated by the appropriate organ to develop comprehensive, integrated, multiple or selected functions of industries, based on a planned fulfillment of infrastructure and various services such as road, electric power and water, one stop shop and have special incentive schemes, with a broad view to achieving planned and systematic, development of industries, mitigation of impacts of pollution on environment and human being and development of urban centers, and includes special economic zones, technology parks, export processing zones, agro-processing zone, free trade zones and the like designated by the Investment Board (Industrial Parks Proclamation No.886/2015).

them were constructed in GTP I. The poor performance was strongly associated with poor project management (planning, implementation, follow up and contract management, monitoring and evaluation), capacity limitation, lack of integration and finance, low level of technology, power supply and service constraints, rent seeking practices, and lack of good governance (NPC, 2016). During GTP II the government planned to construct around 7 industrial parks in different cities of the country consisting of Hawassa, Dire Dawa, Kombolcha, Mekele, Adama, Bahir Dar and Jimma. The construction of some of these parks would soon be complete. But questions remain as to how quickly they will fit in with the necessary physical infrastructure such as power grids and substations, internet connection, water supply lines, effluent treatment plants and road connectivity to the main highways and to the port. Given the current security condition of the country and the unpredictability of the political situation, it is not clear whether the parks would generate same level of investor interest as the earlier batch of parks.<sup>6</sup>

#### **4. Ethiopian Textile and Apparel Industry Performance vis-vis Comparator Countries**

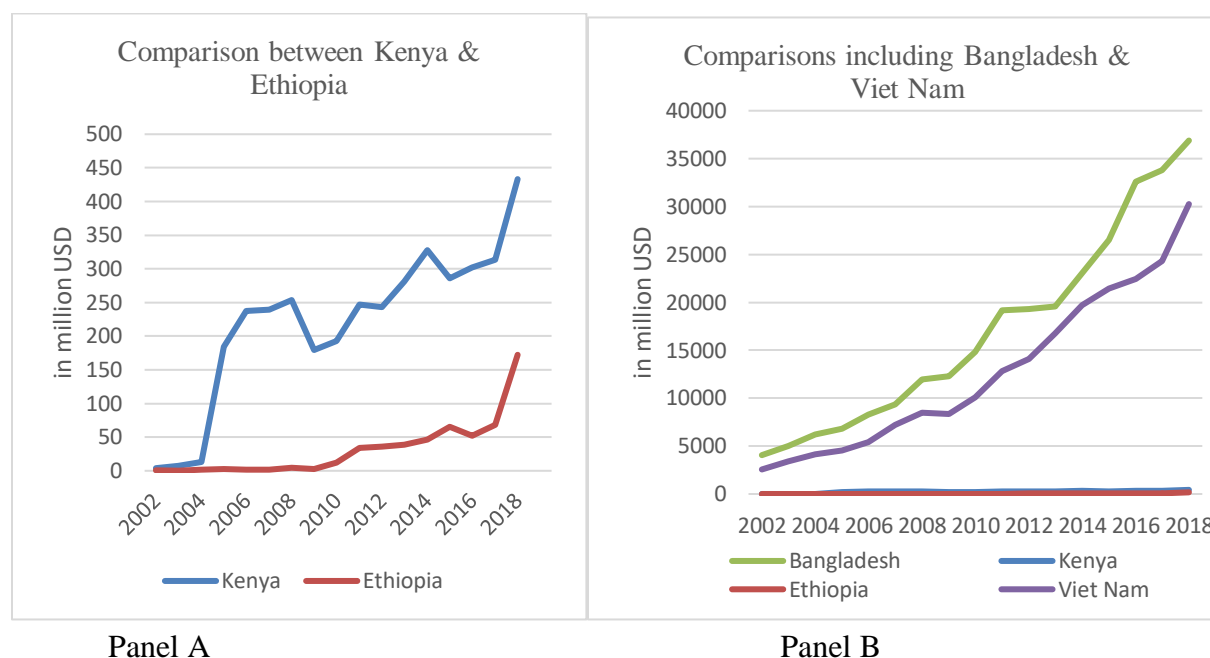
Despite considerable progress in recent years (mainly since 2010) in exporting from the textile and garment industry, Ethiopia remained among the smallest suppliers of garment products in the global market. Even compared to sub-Saharan Africa, the garment export from the country only accounted for 2.4% of total region exports in 2014 (Staritz et al, 2016).

We rely on data obtained from the United Nations International Trade Statistics Database (UN Comtrade) to look at how Ethiopia performs in the textile and garment industry in the global context. Figure 14 depicts Ethiopian export performance in apparel industry vis-vis the comparator selected countries. The first panel presents apparel export for Ethiopia and Kenya only whereas the second panel encompasses Bangladesh and Viet Nam. The figure clearly depicts Ethiopian apparel sector export performance has lagged far behind its competitors' countries throughout the period under consideration. The first panel of the figure showed that Ethiopia export earnings from garment were quite low compared to that of Kenya. In the early 2000s, the export earning gap between Ethiopia and Kenya was not large. In recent years, however, we observe a growing gap between the two countries. For instance, in 2004, the export earning gap between Ethiopia and Kenya was about 11 million USD, but in 2018 this figure reached 261 million USD. The second panel shows how far Ethiopia and Kenya lagged behind the world leading sourcing countries in the apparel sector. In the graph showing Ethiopia and Kenya, it is virtually impossible to differentiate from each other and the horizontal line.

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<sup>6</sup> In our recent visits to the Hawassa Industrial Park, we were told that the meeting of the CEOs which regularly happens either in Hawassa or Addis Abeba was cancelled and moved to Dubai as a testament to the growing concern on the safety and security conditions of the country.

Figure 14: Export Performance of Selected countries in Apparel industry<sup>7</sup>



Source: Authors computation based on UN COMTRADE

Figure 15 recapitulates the export performance gap between Ethiopian vis-à-vis selected competitors' countries over the period of time. To look at how Ethiopian producers are performing in tightening the prevailing gap overtime, the garment export index was constructed by taking Viet Nam and Bangladesh as benchmark. Export index was computed by taking the 2014 export level of Bangladesh, and Viet Nam as benchmark<sup>8</sup>. The year 2014 was selected as a base year due to relatively stable exchange rate at time. The figure depicts that the growing of gap between Ethiopia and benchmarked countries (Kenya, Bangladesh and Viet Nam). For instance, the export gap between Ethiopia and these competitor countries were relatively small, especially with Kenya in the 1990s and early 2000s. However, since mid-2000s the sector export earning gap has grown larger.

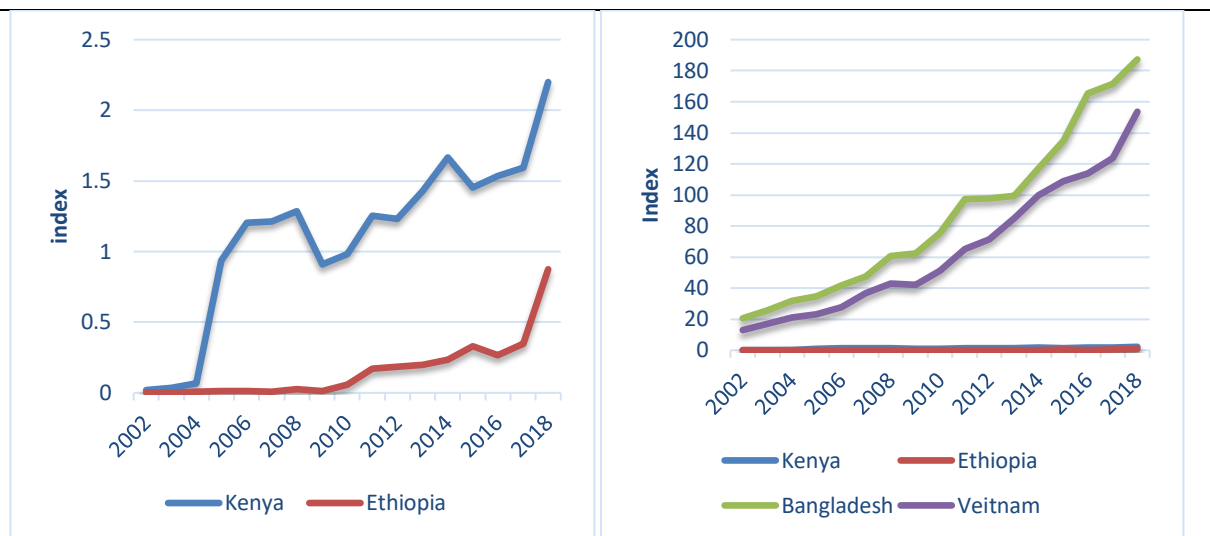
Figure 15: Export Index of Ethiopian Apparel sector, Bangladesh and Viet Nam benchmarked

### Viet Nam Benchmarked

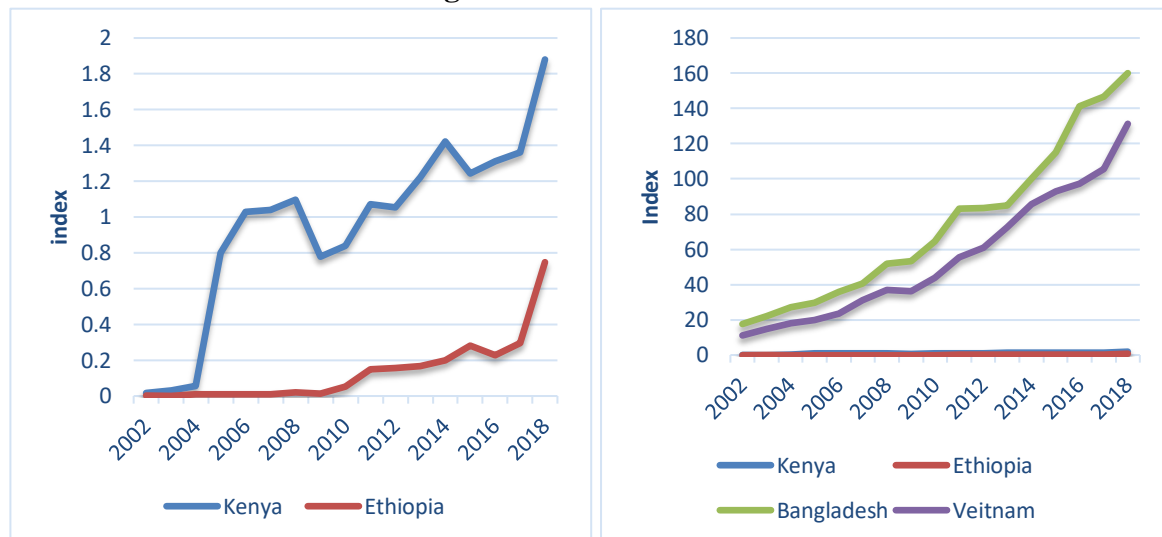
<sup>7</sup> Export of apparel industry is the sum of articles of apparel and clothing accessories, knitted or crocheted as well as articles of apparel and clothing accessories, not knitted or crocheted.

<sup>8</sup> The formula used to calculate index for Ethiopia and Kenya is as follows: *The formula used to calculate index for Ethiopia and Kenya is as follows:*  $(X_j = \frac{X_{tj}}{X_{j2014}}) * 100$ , where  $(X_j)$  is export index for country  $j$ ,  $X_{tj}$  is value of export at time  $t$  for sector of country  $j$  and  $X_{j2014}$  is benchmarked countries export level in 2014).





### Bangladesh Benchmarked



Source: Authors computation based on UN COMTRADE

There are several reasons for the poor performance of exports from Ethiopia. The usual export constraints related with lack of foreign currency, electricity shortages, raw materials shortages, low levels of labor productivity and poor trade logistics among other sectors also apply to the textile and garment industry. In addition, the structure of the Ethiopian textile and garment industry is not also conducive for the entry to and survival in the global market. Export from the industry is, for example, characterized by high concentration of a few large firms, high turnover of exporters (, low survival rate in EU market (WB, 2014)).<sup>9,10</sup> Productivity differences could also partly explain the widening of gap. For instance, during the period under review the comparator countries has

<sup>9</sup> For instance, between 2008 and 2010 the number of entrants was larger than number of incumbent exporters.

<sup>10</sup> Exit rate of exporters exceeded entry rate, for example in 2012 exit rate was 43% compared to an entry rate of 33%).

enjoyed more labor productivity improvement than Ethiopia in the manufacturing sector. For example, labor productivity in the manufacturing sector in Ethiopia was only 47% of productivity in neighboring Kenya (WDI, 2019). Furthermore, a few firms fail to adhere to international standards due to low quality and/or lack of awareness about international standards for exporting. The bad news is that the trend in exporting gap between Ethiopia and benchmarked countries is unlikely to narrow unless the Ethiopian government seriously addresses the challenges that undermine the competitiveness of the sector in the next few years.

Table 5 summarizes the Ethiopian status in key textile and garment industry indicators vis-vis selected competitors in textile and garment sector. However, the comparison result should be taken with caution due to variation in the period of consideration as well as firms in Bangladesh and Viet Nam only consisting of those engaged in garment sector. Firms in Ethiopia are relatively young compared to Kenya and Bangladesh. In terms of firm proportion engaged in exporting, Ethiopian firms' performance is far from satisfactory. For instance, only about 14% of firms in Ethiopia are exporting directly or indirectly at least 10% of sales which is far lower than Kenya (39.4%), Bangladesh (65.6%) and Viet Nam (57.5%). Regarding the source of material inputs, more than half of inputs are sourced from abroad for all selected countries, though a little bit more so, for Ethiopian firms (68.7%).

*Table 4: Ethiopian Performance vis-vis selected competitors in textile and garment sector (selected indicators)*

Indicator	Ethiopia (2015)	Kenya (2018)	Viet Nam* (2015)	Bangladesh* (2013)
Age of establishment (Average)	13.1	26.8	12.4	16.1
% of firms exporting directly or indirectly (at least 10% of sales)	14.1	39.4	57.5	65.6
% of firms using material inputs and/or supplies of foreign origin	68.7	64.0	55.5	63.0
Capacity utilization (%)	62.3	73.1	84.3	89.7
Real annual sales growth (%)	11.0	-10.5	-0.2	2.6
Annual employment growth (%)	10.0	-4.0	1.1	8.5
Annual labor productivity growth (%)	1.4	-4.0	-0.9	-6.2

Source: Authors Compilation based on WB Enterprises Survey

Note: \* represent only the garment sector.

Regarding the capacity utilization, the Ethiopian firms' utilization rate is significantly lower than the competitors, about 9, 12 and 17 percentage point lower than Kenya, Viet Nam and Bangladesh respectively. The main factor underlying underutilization of capacity were power interruption, shortage of inputs both from domestic and foreign markets, low labor productivity, low working capital and high cost of credit (DAB DRT, 2014).

## **5. Assessment of Ethiopian Comparative Advantage in Textile and Apparel Sector in the Global Context**

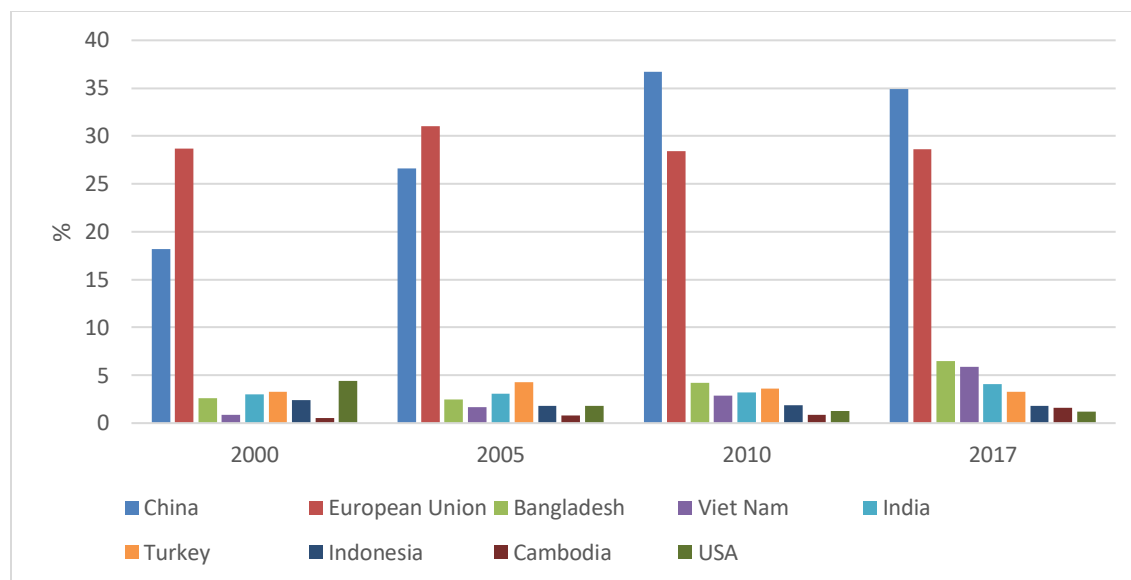
### **5.1. Global Context**

Comparative advantage is one of the most powerful concepts in international trade. The notion of comparative advantage is very important for a solid understanding of the pattern of international trade. Comparative advantage is broadly defined as the ability of a given economy to produce a product more efficiently than other countries do; which can be reflected in terms of the directions and specializations of exports and imports.

At the turn of the 20<sup>th</sup> century, developed countries (mainly the EU and US) were the main sourcing destination of garment production and export in the global context. However, in recent years, the pattern of international trade clearly shows geographical shift in the production and export of apparel industry, from developed countries to developing countries. Figures 16 and 17 present trade pattern of clothing and textile sector in the world market. The figure depicted a clear pattern of continues decline of apparel production in the developed countries, and a geographical shift of production towards developing countries.

The figures clearly indicated that Europe was the main sourcing region for clothing and textile products in the period between 2000 and 2005. The export share was about 29% and 31% of world total clothing export during the same time respectively. However, in subsequent periods the sector has witnessed a tectonic shift in the market share in favor of Asian countries. In the late 2000s, Asia overtook Europe as the main sourcing region of textile and garment products. For instance, China is the top exporting country in the world (account for about 37% and 35% of world exports of textile and clothing respectively in 2017) followed by the European Union (see Figures 16 and 17). The dominance of Asian countries in the industry expected to continue in the near future due to rising role of countries such as Bangladesh, Viet Nam and India which could even eat into the Chinese share of the world market.

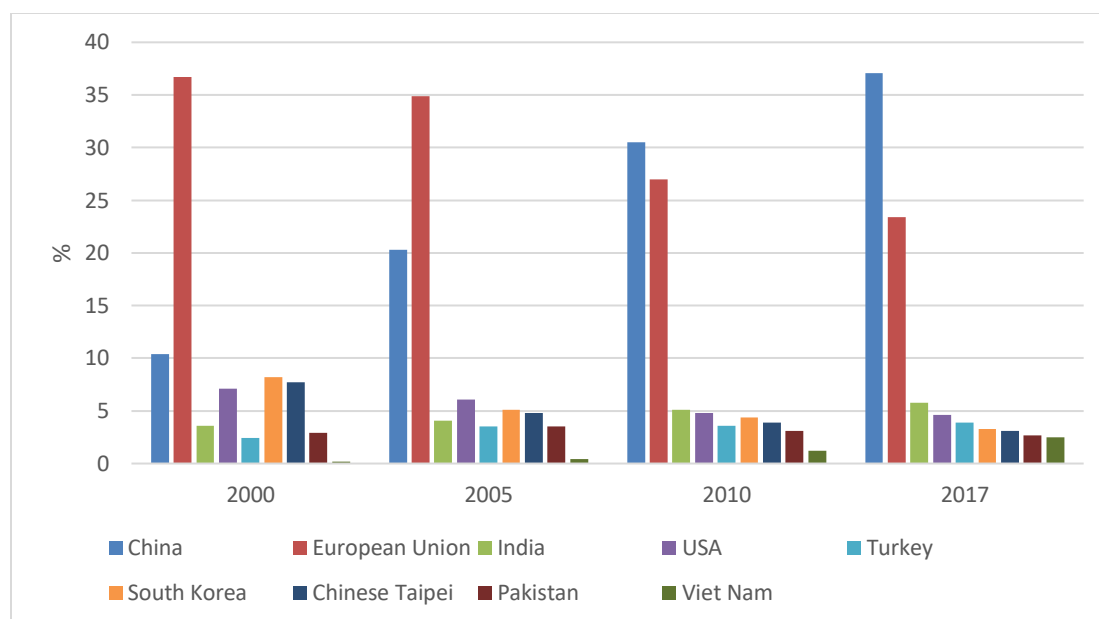
*Figure 16: Top Ten World Exporters of Clothing in 2017*



Source: WTO (2018)

Moreover, in the coming years demand for apparel industry is expected to grow significantly in the densely populated fast-growing economies of Asia and Latin America as well as parts of Africa and Eastern Europe (WTO Statistics Review, 2018). The rise in labor cost in the Asian countries including China is likely to continue to push garment production towards developing and emerging countries. The growing relocation of Chinese manufacturers first from coastal areas to hinterlands and then to South Asia and South-East Asia demonstrates how sensitive the textile and garment production is to rising cost of production. Consistent with the Flying Geese theory, as labor costs rise, an increasing share of textile and garment producers are expected to move in search of cheaper costs of production in Ethiopia and elsewhere in the global South.

*Figure 17: Top Ten World Exporters of Textile in 2017*



Source: WTO (2018)

## 5.2. Potential Comparative advantage in textile and garment products

Indeed, recently, East African countries, such as Kenya and Ethiopia, have been considered as potential sourcing destinations for the apparel industry. A study by Mckinsey company projects that Ethiopia will become one of the top ten apparel sourcing locations in the future, ranked seventh following Bangladesh, Viet Nam, India, Myanmar, Turkey and China (Achim et al, 2015).

In addition to favorable government policies and strategies, the comparative advantage the country has attracted many investors, many of which are, or supply, large global brands. Ethiopia is placed as a country that has abundant and easily trainable young labor force, low labor cost, low energy cost, abundant and cheap water supply, untapped raw material potential (mainly cotton), relative proximity to Europe and the Middle east, preferential trade agreements (quota and duty free market privileges in US and EU) and huge domestic market potential (due to large population size and recent economic surge) (ITC, 2016; TIDI, 2018).

Table 5 summarizes the source of comparative advantage for Ethiopia in textile and garment sector compared to the competitor countries. The table depicts that Ethiopia has the lowest cost of labor and energy (important inputs for textile and apparel production) compared to the comparison countries. For instance, average labor cost in Ethiopia is 50-60 USD per month which is about half

of Kenyan, one third of Indian and one tenth of Chinese labor cost. Furthermore, the cost of energy also relatively low, ranges from 2-5 US cent per kilowatt hour which is far lower than countries like Kenya and China. Cost of borrowing, which determines the investor's decision to invest in the clothing factories, is also relatively moderate in Ethiopia (about 8.5%), lower than Kenya and Tanzania but slightly higher than China and Viet Nam.

*Table 5: Comparison of costs and competitive factors between Ethiopia and selected competitors*

	Ethiopia	Kenya	Tanzania	India	China	Viet Nam
<b>Export Value of Textile and Clothing (USD million, 2013)</b>	94	377	248	40192	273959	21534
<b>Cotton production (thousands of 480 IB. bales)</b>	175	32	375	30000	30000	17
<b>Cost of labor (USD per month)</b>	50-60	110-150	70	175	550	180-200
<b>Labor skills</b>	Low	Low-medium	Low	High	Very high	High
<b>Cost of electricity (US¢ Per kilowatt hour)</b>	2-5	16-18	12	7-12	9-15	8
<b>Cost of construction (USD per ft2)</b>	40	21	34	18-20	15-20	20-25
<b>Lending rate (annual % rate)</b>	8.5	14-18	19	7-13	7	6-7
<b>Time to clear Customs, inputs + exports (days)</b>	37	31	44	12	17	15

Source: ITC (2016)

#### **Kenya vis-vis Ethiopia**

Ethiopia and Kenya are East African countries that have enormous potential for the apparel industry. The two countries, however, have substantial variation in the cost of inputs that are used in the production of textile and apparel industry. For instance, the wage of Kenyan workers engaged in the industries varies depending on the workers skill, but usually range from US\$ 70 to US\$ 130 for unskilled workers and ranges from US\$ 125 to US\$ 170 for skilled workers (Varun, 2016). Sewing operators in Kenya cost US\$180 per month on average, about three times those of Ethiopia (US\$60) (WB &GDS, undated). Furthermore, the cost of power is relatively high in Kenya; it ranges from 16-18 cents per KWH (see table 6) and even has gone over 20 cents per KWH in 2014 (this constitutes 25 percent of Kenyan textile firms' operating costs), about three times the cost in China (seven cents per KWH) (WB &GDS, undated). In Ethiopia, however, the cost of electricity ranges from 2-5 cents USD PER KWH (see table 6). In 2014, it was six cents per KWH (WB & GDS, undated) and electricity constituted 7 to 10% of firm's operating cost (Figure 11; WB&GDS, undated). Interest costs are also high in Kenya compared

to Ethiopia, China, India and Viet Nam. The lending rate in Kenya ranges from 14-18%, almost twice that of Ethiopia (which stood at 8.5%) (table 6). These numbers imply that Kenyan firms are at a competitive disadvantage on a cost basis vis-a-vis Ethiopia.

In other important aspects that are critical for the profitable operation of the textile and garment industry Kenya performs better than Ethiopia. For example, Table 4 indicates that while Kenya faces higher logistic costs and has limited availability of skilled labor compared to Asian exporters, yet it generally tends to perform better than Ethiopia. The 2016 Doing Business report of the World Bank, for example, shows a cost disadvantage of \$432 per container, mainly due to internal transportation costs. The more recent reports do not include transportation costs. However, as the new railway from Addis to Djibouti was finished in 2017 it is possible that there has been a change in costs since the 2016 report was prepared. Further, there is ongoing development aimed at enhancing the quality of port infrastructure in Djibouti, which is expected to bring down trading costs substantially.

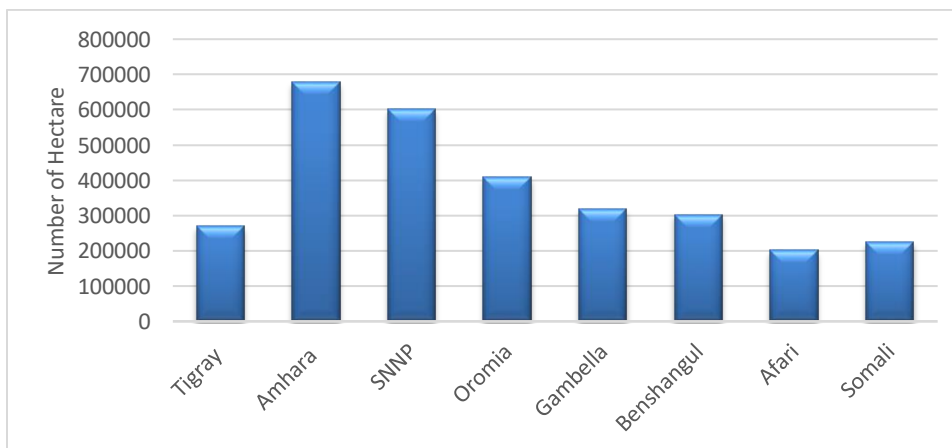
Kenya also seem to have better skilled workers suitable for the textile and garment industry than workers in Ethiopia. It is thus not surprising that Ethiopia is among the lowest ranked countries even compared to those with the same level of development in labor productivity,

### 5.3. Comparative advantage in Cotton Commodity

Another potential source of Ethiopian comparative advantage in textile and apparel industry is the presence of huge potential the country has for cotton cultivation. Cotton is the widely used and key input for textile and apparel manufacturing. Given its good climate and soil conditions, Ethiopia has abundant potential for cotton production especially in the areas such as Omo-Gibe, Wabi-Shebelle, Baro-Akobo, Blue and Tekeze river basins. The country has around 3 million hectares of land potential suitable for cotton production (MoA, 2011; Staritz et al, 2016).

Figure 18 shows the cotton production potential of Ethiopia by region. As shown in the figure, the Amhara region has the largest potential areas for cotton cultivation followed by the South Nation, Nationalities and People and Oromia.

*Figure 18: Cotton Potential Areas in Ethiopia, by region*



Source: Ministry of Agriculture (2011)

In particular, the country has the potential to produce around 37 million kg of yarn, 88 million meters of woven fabrics, 30 million kg of knitted fabrics, 18 million pieces of garment and 62 million of knitted garments (EIC, undated). Further to the huge potential, Ethiopia also has a rich spinning, knitting and weaving history which can give a competitive edge over the competitor countries (Françoise, 2017).

However, the area of land cultivated for cotton production lags far behind the potential level. Figure 19 shows area cultivated along with production and consumption of cotton lint over the last fifteen years in Ethiopia. The first panel depicts the cultivated area of cotton product. Though we observe some fluctuation of land area used for cotton cultivation, after reaching its highest level in 2011/12 (which was 132 thousand of hectares), the land used for cotton cultivation shows declining trend (reached 65.9 thousand of hectares in 2015/16). The International Cotton Advisory Committee (ICAC) forecast also indicates further reduction of land area covered by cotton product. For instance, in 2017/18 only 60 thousand hectares of land is expected to be used for cotton cultivation.

There are several explanations for both the low utilization of land suitable for cotton cultivation and the recent decline in land under cotton cultivation. Firstly, the recent reduction in cotton cultivation is partly explained by farmers' shift to alternative crop production.<sup>11</sup> Poor weather conditions along with disease and pests put pressure on cotton production encouraging farmers to substitute cotton with other more diseases resistant and drought tolerant cash-crops such as sesame (USDA FAS, 2018). Ethiopian cotton cultivators produce primarily one major seed variety that is increasingly vulnerable to pests and disease (USDA FAS, 2018). Secondly, the expansion of cotton production is hindered further due to the low average yield of cotton compared to other crops which have a high value, such as sesame and sugarcane (see Gudeta and Egziabher, 2019). For instance, in recent years, despite conducive conditions for cotton production and productivity in the Awash valley, cotton farms in this area are largely replaced by sugarcane plantations and producers shifted to other areas, mainly the Southern Nation Nationalities and People's regional state (EIAR, 2017). Thirdly, the availability of inputs such as seeds and pesticides was limited for cotton growers. Fourthly, the rain-fed based production with limited access to irrigated schemes has reduced farmers' incentive to invest in cotton production (ITC, 2016).

The actual area used for cotton cultivation clearly indicates how far Ethiopia lags behind its potential level in cotton production. For instance, if the existing potential would have been fully utilized, each year about 4200 tons of raw cotton on 1400 hectares of land would be produced which could result in farm productivity of about 3 tons per hectare, but only 5% of this potential has been cultivated (Ministry of Industry, 2017) which in turn affects the manufacturers of textile and garment industry in the country. Thus, the Ethiopian government needed to develop and

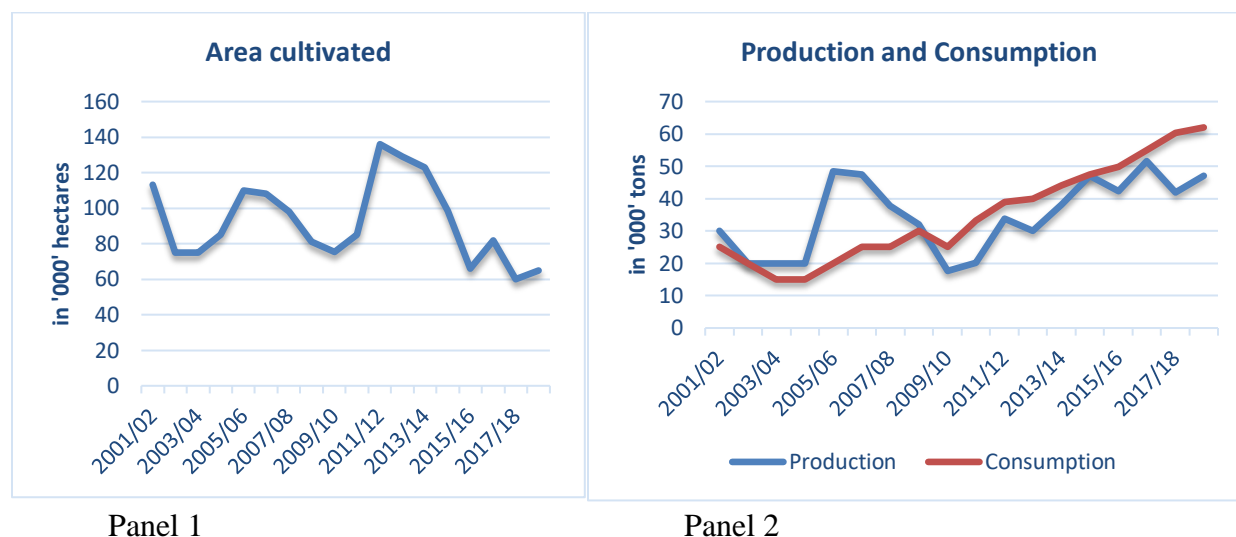
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<sup>11</sup> As shown in Figure 19, local demand first exceeded local supply in 2018, and suggest that it may be too early to conclude that farmers are unresponsive to the local demand they expect. Perhaps we might also suggest that farmers might plant more if their productivity was higher, giving them an opportunity to make higher returns.



implement policies and strategies that will support increased commercialization of the cotton production as well as raising the production of raw cotton to its potential level.

*Figure 19: Area, Production and Consumption of cotton lint in Ethiopia<sup>12</sup>*



Source: Authors computation using ICAC data portal

The second panel of Figure 19 depicts the production and consumption trend of cotton lint. Over the last fifteen years, cotton production is characterized by fluctuations, with a rising trend (particularly, since 2009/10) which can be partly explained by fluctuation in cotton cultivation areas caused by weather conditions, disease and pests pressures. The gap between consumption and local production indicate the effective local demand for cotton which is filled by imports. Due to constraints both in cotton fibre production and textile producers processing capacity, the size of the gap does not necessarily indicate the volume of cotton that should be locally produced to nullify imports. It is important to note the vicious cycle in low supply reducing processing capacity, which in turn reduces effective demand, which in turn affects farmers' decision to plant cotton next season or not.

Cotton production has been taking place mainly by state-owned enterprises, private commercial farms and small-holder farmers. The private commercial firms account for the major share of cultivated land area (about 43%). Of total annual production, private firms offer dominant share (around 56% of total production) followed by state farm enterprises (32%) and smallholder farmers (12%) (Merima and Gezahegn, 2013)). According to Deloitte (2014) about 70% of total cotton production is produced by commercial firms mainly concentrated in Awash valley using irrigation schemes.

<sup>12</sup> The figure for 2016/17 was estimated whereas 2017/18 and 2018/19 are forecasted value by ICAC.

Despite Ethiopia's widespread areas of cotton cultivation and its huge potential for expansion, the large commercial and medium scale cotton farms, such as the Awash and Omo valleys, western and northwestern cotton producing areas (both under rain-fed and irrigation scheme), satisfy only about 70% of lint demand in the country (EIAR, 2017). Therefore, textile and apparel enterprises must satisfy the remaining cotton lint demand by importing from the rest of world. For the good part of the last past decade, the volume and value of cotton lint import remained largely stable. However, in 2018, there was a sharp rise in the volume of cotton imported (reached historic peak, about 34 million USD).

Moreover, there are productivity variations among cotton producers in the country. Table 7 summarizes productivity levels of the cotton industry by type of producer and production scheme. State owned and private commercial farms are approximately twice as productive as small holder peasant farms. Unsurprisingly, cotton production under irrigation scheme is more productive, about 1.5 times, than rain-fed production. Furthermore, cotton production undertaken by research institutes generates a relatively large output per hectare. Recently, the Ethiopian government's target to improve productivity of cotton to satisfy the future demand, planned to double cotton productivity from 0.8 ton/ha in 2015 to 2.0 ton/ha in 2020 on an average thereby resulting in an increase in total production of cotton lint by more than twenty five times, from 0.055 million ton in 2015 to 1.13 million ton in 2020 (EIAR, 2017).

*Table 6: Productivity of cotton, by type of producer*

Type of producer	Productivity (output per hectare)	
	Rain-fed	Irrigated
Small holder	5-10	-
Private commercial farms	15-20	20-30
State owned farms	15-20	20-30
Research institutes	-	35-40

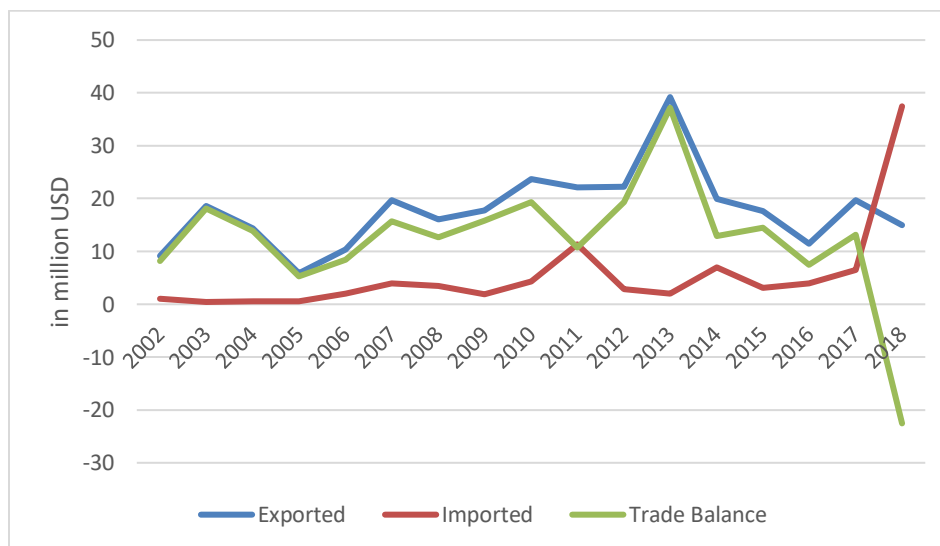
Source: Werer Research center as cited in Merima and Gezahegn (2013)

Contrary to production, consumption of cotton lint has been steadily growing, outpacing production and is expected to rise substantially in the coming decades. The rise in cotton consumption is because of growing demand from the newly established textile and apparel industrial parks in the country. According to ICAC report (2014), Ethiopia is the largest consumer of cotton lint among Eastern and Southern African countries. To overcome shortage of cotton lint, the government, through Textile Industry Development Institute, has planned to establish additional spinning mills to increase the annual processing capacity of cotton lint production to 200 thousand metric tons (FAS, 2018). This is an attempt to indirectly encourage cotton production by offering a more stable market for lint thereby creating linkages with purchasing firms. Such linkages between buying firms and cotton-producing farmers generates an economic interest in raising output, productivity and quality among cotton farmers. This can potentially

improve economic returns sufficiently to make cotton more attractive in comparison with competing crops.

Figure 20 reveals the trend of export, import and the trade balance of cotton commodity in Ethiopia. Cotton exports show fluctuations whereas imports virtually remain steady. Despite the shortage of cotton lint in domestic market, Ethiopia continued to export cotton lint mainly to Indonesia and some EU countries. Between 2005 and 2013 the foreign exchange earnings from this product shows a rising trend. The 2013 government ban on exporting cotton lint unsurprisingly reduced cotton lint exports substantially. However, the ban was less successful in achieving its intended goals of increasing usage of domestically produced cotton lint by textile and apparel manufacturers due to the low quality of locally sourced cotton lint and the financial constraints faced by some factories (USDA FAS, 2018).

*Figure 20: Export, import and trade balance trend of cotton in Ethiopia (in million USD)*



Source: UN COMTRADE

#### 5.4. From potential comparative to revealed advantage: key challenges

While Ethiopia has a clear potential comparative advantage in the textile and garment industry, its strategy of becoming a key sourcing destination of garment products in Africa is challenged by many factors. The garment industry is not yet in a position to be competitive in the international market. Low levels of both labor and factor productivity are among the key factors that undermine the competitiveness of sector in the global context. The level of productivity in Ethiopia is among the lowest in the world. For instance, in 2013 the manufacturing sector labor productivity is about 36% and 34% of Bangladesh and Viet Nam labor productivity respectively (authors computation

using WDI and ILO Database). According to Staritz et al (2016) productivity of apparel firms in Ethiopia is 30 percent less than in Bangladesh while the production costs are 20% higher than in Bangladesh. The low level of productivity mainly resulted from limited skills of workers, weak management capacities and reliance on outdated equipment (ITC, 2016).

The Ethiopian garment sector is also characterized by high production costs mainly due to low skills, limited capability of own design and development, limited utilization of capacity, low quality of raw material and inefficient production systems which seriously challenge the competitiveness of the sector<sup>13</sup>. . Furthermore, lack of scale economies, foreign currency constraints, poor firm strategy, and poor work discipline are also severely undermining competitiveness of the sector (Getahun et al, 2018).

Furthermore, weak regional trade could also play a role for the poor performance of Ethiopian exports. Though Ethiopia enjoys quota and duty-free access to major markets in the EU and US, Ethiopian products are still subjected to quota and high tariffs to many other developing countries that are important markets. Having a strong regional preferential trade agreement would give the country geographically close customers and hence reduce logistic costs such as transportation cost. Hence, the recently signed Free Trade Area (FTA) among African countries as well as being a full membership of COMESA and other regional economic block is believed to increase the competitiveness of the country due to proximity advantage over other more distant competitors and hence will give scope for ambitions for textile and garment manufactures in the coming years.

In general, if the existing competitive advantage was wisely utilized such as greater utilization of cotton production potential areas, creating strong market linkages (both forward and backward), improving factor productivity, upgrading quantity and quality of raw materials, and strengthening regional trade (especially with neighbor countries such as Kenya, Sudan, etc.), Ethiopia could exploit the opportunity to become one of the main sourcing destinations of the textile and garment industry.

## **6. Value chain of Garment Industry in Ethiopia**

A value chain identifies the various steps that producers take to bring a product or a service from its conception to its end use by final consumers where at each stage (such as design, production, marketing and distribution) value is created (Staritz et al, 2016). A well-developed value chain of the textile and garment industries will play a vibrant role in the process of economic transformation in the country. In recognition of such potential, a comprehensive value chain roadmap of textile and garment (2016-2020) was formulated with targets of building six hundred new production lines (which will be developed by Ethiopian firms in yarn, textile and apparel production),

increasing export of textile and garment by 35% annually, generating more than 45 thousand new jobs and ensuring new equipment and technical capacities for more than 200 firms by 2020 (ITC, 2016).

Figure 21 and 22 summarizes the value chain of the sector.<sup>14</sup> As indicated in the figure, the cotton lint produced by different farmers is transported to various ginneries (either directly by cotton cultivators or indirectly through local collectors).

*Figure 21 Summary of value chain in the textile and garment industry*

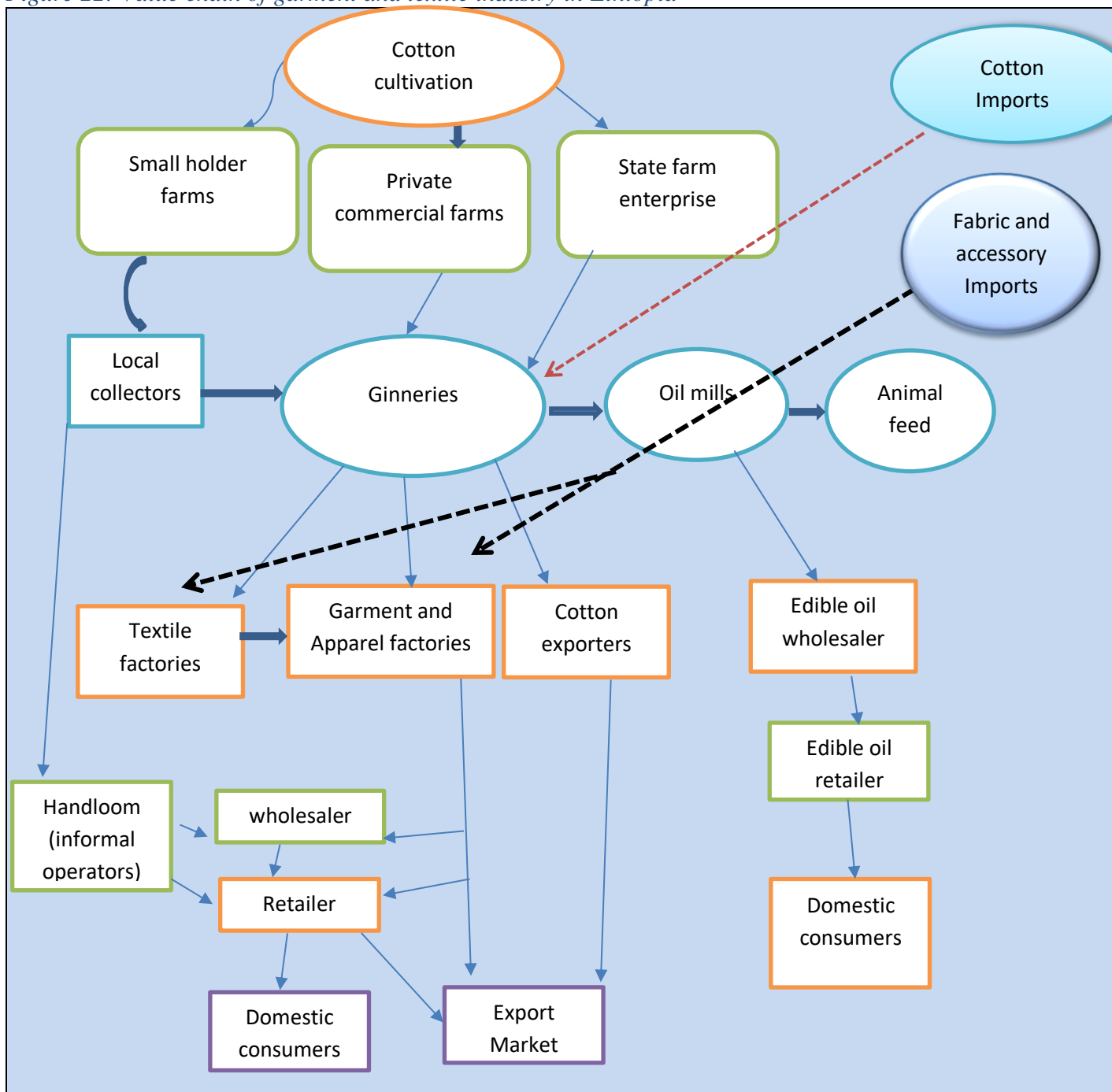


In addition to textile and garment factories, cotton is also directly sold to handloom enterprises that are engaged primarily in the production of cultural clothes. For instance, in Addis Ababa there are a number of handloom clusters consisting of weavers who mainly come from rural areas of the country. While traditional cloth makers usually acquire the skills and know-how of the art of making clothes through learning-by-doing, modern training centers teach finishing and designing skills have recently flourished. The vast majority of such producers are, however, still challenged by lack of product development skills as well as diminutive innovation, product diversification and value addition (UNIDO 2010).

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<sup>14</sup> An alternative value chain of the sector developed by the Ministry of Industry in 2015 is given in Appendix 4.

Figure 22: Value chain of garment and textile industry in Ethiopia



Source: Adapted from Merima and Gezahegn (2013)

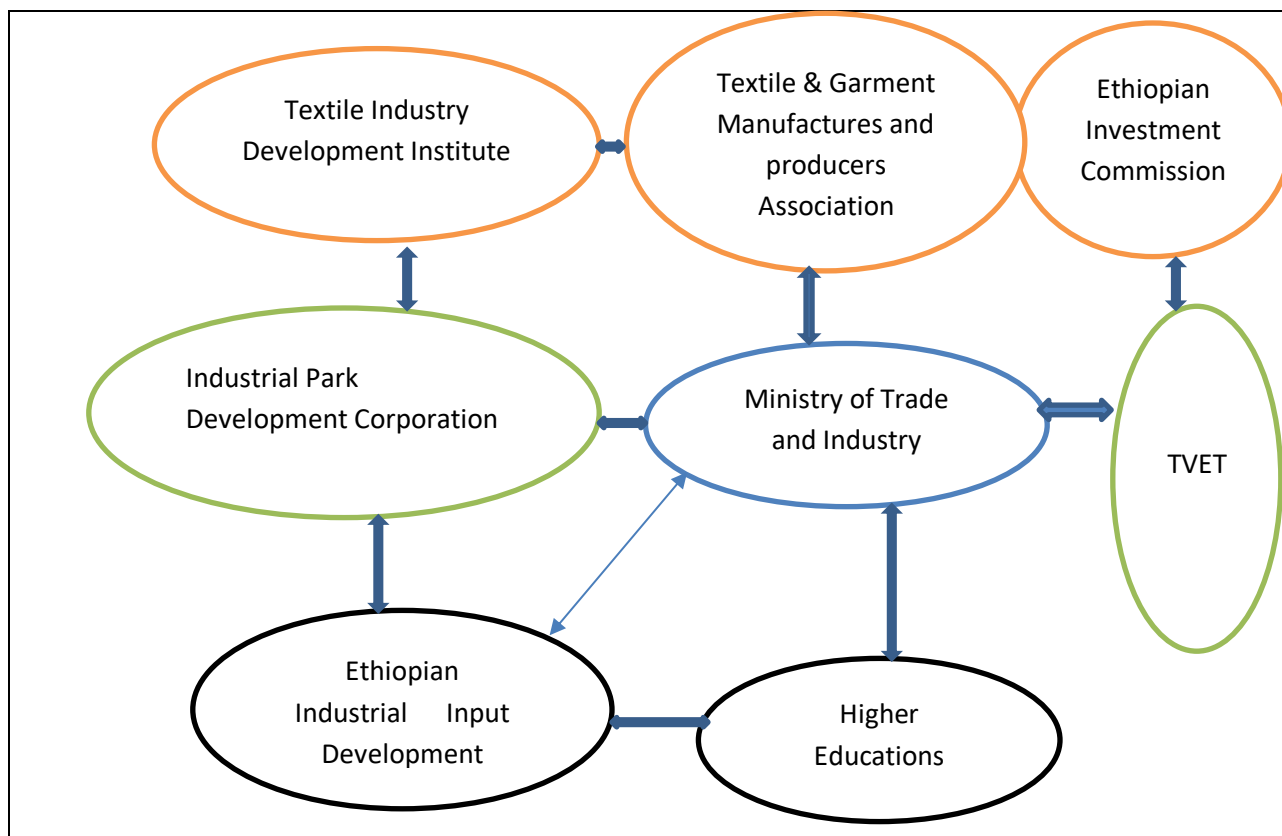
As indicated in the value chain map, ginneries play an important role in linking cotton lint with the garment and textile industries, either in domestic and /or international market. However, the majority of Ginneries are located far from cotton producing areas. For instance, it takes on average more than 700km for raw cotton to reach the Ginneries. Lack of proximity of the Ginneries to the

cotton farms adds significant costs to cotton producers, a cost that is further transmitted up through the value chain (ICAC, 2014).

Once ginning is done, the product of Ginneries is sold to textile and garment factories, and/or cotton exporters. Textile and garment factories produce fabrics and finished apparel to be either locally sold or exported. Local sales usually take the form of selling to retailers or wholesalers. In some few cases, producers directly sell to end users. On the other hand, the byproduct of the ginneries is cotton seeds, which go to oil mills to be used to produce animal feed and edible oil.

Today, Ethiopia recognizes the decisive role industrialization plays for sustainable development. To catalyze the industrialization process, the government set ambitious targets to make the country one of the main production and sourcing locations for global apparel buyers in the coming years. The realization of this vision requires effective leadership and coordinated effort of all stakeholders to fully implement strategies articulated in the development plan, including the integration in the global value chain. Therefore, to increase value added in each processing stage by fully integrating into global value chain, textile and garment sector should be supported by public and private institutions.

*Figure 23: Key institutions in the garment industry*



Source: Authors Compilation

The Ministry of Trade and Industry has been a pivotal agency for developing and implementing strategies that promote the manufacturing sector. Accordingly, the Ethiopian Textile Industry Development Institute (ETIDI) was established in 2010 with the mandate to formulate and implement strategies and programs aimed at stimulating the cotton, textile and apparel industries. In particular, the institute is tasked with providing sector specific support in investment promotion (including the preparation of project profile and feasibility study, engineering support and overall investment facilitation), product and productivity enhancement (like providing education and training, product development, consulting services as well as engaging in research and development) and provide various testing and marketing support service.

The Ethiopian Textile and Garment Manufacturers Association (ETGAMA) is another key player in the industry from the private enterprises side. The association represents the interests of the textile and garment producers. The association also provides information on current global business trends to its members. It also aspires to become the industry's knowledge hub by conducting seminars, trainings and workshops with development partners. Additionally, the association is working on advertising the products of members; building relationships between local exporters & international buyers; and helping members meet national & international standards (ETGAMA, 2015 as cited in ITC, 2016). For instance, the ETGAMA has become main partners with international firms such as H&M which will help in building the capacity of local firms in producing the international standard products. For instance, H&M has been buying significant amount of clothing items' such as basic T-shirts from a number of manufacturers consists of Almeda textile Plc, Arvind Lifestyle Apparel, Concept International Ethiopia plc, Hirdaramani Garment PLC Factory, etc. Further, the big brand global buyers are also providing training for domestic producers to enable them to be able to better handle international buyers and their demands.<sup>15</sup>

Another key stakeholder is the Ethiopian Investment Commission (EIC) which has the main task of attracting and supporting investment in the industry, mainly through the attraction of foreign investors. As repeatedly mentioned in this report, securing raw material both in quantity and quality is vital for the growth of the textile and garment industry in Ethiopia. For this purpose, the Ethiopian Industrial Input Development Enterprise (EIIDE) was established with the mandate of securing availability of raw materials, mainly cotton, for the industry.

The Ethiopian Industrial Park Development Corporation (IPDC) is another key stakeholder set up for the development of textile and garment industry in the country. IPDC was established in 2014 with the mission to boost industrial parks development through mainly the promotion of export in labor-intensive industries. The mandate of IPDC includes developing and administering industrial

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<sup>15</sup> Esther de Haan & Martje Theuws (undated). Quick Scan of The Linkages Between the Ethiopian Garment Industry and The Dutch Market.



parks, preparing detailed national industrial parks master plan, ensuring infrastructure services accessibility, etc.

## 7. Skills Development in Garment Industry

Despite improvement in recent times, Ethiopia still considerably lags far behind peer countries and its potential production level in the textile and garment industry. Of course, there are several factories that described in detail in this report and other studies that have precluded the efficient operation of the industry. Among many factors that hindered the growth of the sector, skill gap is the key focus of this section. In the interest of providing a comprehensive view of the skills situation of the country in general and this industry in particular, we start off with describing the skill profile of the urban labor market.

### 7.1. Skill profile in urban Ethiopia

The occupational profile of the Ethiopian labor force highlights the level and depth of skills in the economy. The percentage of workers in the skilled and high-skilled category has increased in 2018 compared to 2010 and 2003. The proportion of professional and service and sales workers has significantly increased in 2018 while the percentage of workers in crafts and elementary occupations declined in 2018. Overall, occupations requiring high skill have increased in presence in 2018 compared to 2010 and 2003. Table 7 reports the occupational profile of workers based on the International Standard for Classification of Occupations (ISCO).

*Table 7. Occupational profile of the workforce for the Urban economy*

	2003	2010	2018
<b>High Skill</b>			
Managers	3.2	3.11	3.29
Professionals	2.72	6.62	10.06
Technicians and associate professionals	8.25	6.47	8.22
<b>Skilled or semi-skilled</b>			
Clerical support workers	4.38	5.44	3.74
Service and sales workers	24.2	23.21	32.45
Skilled agricultural, forestry and fish	5.04	8.46	6.37
Craft and related trades workers	23.75	18.67	14.17
Machine operators and assemblers	3.96	5.21	7.6
<b>Low Skill</b>			
Elementary occupations	24.5	22.82	14.12

Source: computed from the UEUS (2003 - 2018)

7.2. The state of production of skills in the textile and garment industries  
Skilled worker supply for the manufacturing sector in Ethiopia including the textile and garment industry is conducted by higher education institutions (university and TVET), NGOs, sector development institutes such as the Textile Industries Development Institute (TIDI), and in-house training by enterprises themselves.

The textile and garment industry mainly requires operator level skill. These are equivalent to attending TVET Levels I and II (MoI, 2015). About 65% of all workers in the industry are operator level workers requiring skills equivalent to Level I & II TVET qualifications followed by middle skill manpower comprising 20% of the workforce. The remaining 7% are high skilled professionals, 6% are engineering service personnel, and other supporting staff make up to 2%.

Table 8 and 9 provide the skill profile for various categories of occupation in the garment and textile sub-sectors in 2015. Close to 85% of the workforce in the garment sub-sector are level I or II TVET graduates. More than 70% of the workforce in the textile sub-sector is engaged in basic textile operation, ginning, spinning, weaving and knitting. Moreover, close to 65% of the workforce in the textile sub-sector has level I or II TVET qualification.

*Table 8: TVET and university education levels of workers in the garment sub-sector (2015)*

Occupation	Level	Number of workers	% of workers
Basic Apparel Operation (B10 operator)	I	2016	11.25
Intermediate Apparel Production Junior Operator	II	13158	73.45
Advanced Apparel Production Operator	III	1966	10.97
Apparel Fashion Designing and Technology Supervisor	IV	287	1.60
Apparel Production and Technology Management	V (BSc)	138	0.77
Garment Engineering	BSc-MSc	349	1.95
<b>Total</b>		<b>17914</b>	<b>100</b>

Source: MoI (2015)

*Table 9. TVET and university education levels of workers in the textile sub-sector (2015)*

Occupation	Level	Number of workers	% of workers
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Basic Textile operation	I	3735	10.39
Ginning and Spinning Operation	II	12292	34.19
Ginning and Spinning Operation	III	3297	9.17
Weaving and knitting operation	II	3429	9.54
Weaving and knitting operation	III	2698	7.50
Textile chemical processing operation	II	3410	9.48
Textile chemical processing operation	III	3369	9.37
Textile Technology and production Management	IV	1560	4.34
Textile Technology and production management	V (BSc)	1080	3.00
Textile Engineer	BSc	1082	3.01
<b>Total</b>		<b>35952</b>	<b>100</b>

Source: MoI (2015)

Tables 10 and 11 provide a forecast for the skill qualifications required for the garment and textile sub-sectors computed by the Ministry of Industry. The forecast is based on the potential growth of the textile and garment sub-sectors and the country's five-year development plans.

*Table 10. Skill requirement for the garment sub-sector*

Occupation	Level	2016	2017	2018	2019	2020
Basic Apparel operation	I	26864	50367	62808	76782	93000
Intermediate Apparel production junior operator	II	36565	68557	91404	111786	135222
Advanced Apparel Production operator	III	8242	15453	20350	26043	31226
Apparel fashion designing and technology Supervisor	IV	1204	2258	2980	3752	4623
Apparel production and Technology Management	V	779	2144	2832	3367	4048
Garment Engineer	BSc	1764	2834	3875	5042	6161
Fashion Designer	BSc	1411	2236	2995	3827	4326
Garment Technologist	BSc	1843	2527	3205	4237	5569

Garment Engineer	MSc	1349	1892	2549	3385	4399
Garment Technologist	MSc	960	1512	1958	2567	3307
Clothing and Merchandizing personnel	MSc	80	152	173	224	287
Fashion Designer	MSc	1349	1892	2549	3385	4399
R&D (Textile design, Clothing and Merchandizing)	MSC	911	1489	2039	2517	3316
<b>Total</b>		<b>83321</b>	<b>153314</b>	<b>199717</b>	<b>246912</b>	<b>299881</b>

Source: MoI (2015)

*Table 11. Skill requirement for the textile sub-sector*

<b>Occupation</b>	<b>Level</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Basic Textile operation	I	4084	7771	9960	12866	15668
Ginning and Spinning Operator	II	13439	25574	32778	41049	50266
Ginning and Spinning Operator	III	3605	6860	8793	10875	13447
Weaving and knitting operation	II	3750	7135	9147	11095	13668
Weaving and knitting Operator	III	2950	5614	7195	9473	11496
Textile chemical processing Operator	II	3728	7094	9093	11032	13439
Textile chemical processing Operator	III	3683	7009	8983	11002	13428
Textile Technology and production	IV	2706	3639	4908	7170	8937
Textile Technology and production management	V	1981	2782	3848	5003	6290
Textile Engineer	BSc	2183	3544	4594	5751	7158
Textile Engineer	MSc	411	686	910	1242	1533
Textile Technologist	MSc	469	898	1153	1417	1752
Textile Manufacturing	MSc	391	749	961	1182	1460
Textile Chemist	MSc	489	935	1201	1478	1826
R&D (Yarn Technology, Textile Design, Clothing and Merchandizing)	MSc/PhD	195	374	480	591	730
<b>Total</b>		<b>44064</b>	<b>80666</b>	<b>104004</b>	<b>131226</b>	<b>161099</b>

Source: MoI (2015)

The forecast for both the textile and garment industries projects that the sector will require substantial workforce and an increase in the depth of skills. The skills supply would have to increase by four fold between 2016 and 2020 in both garment and textile sub-sectors. Current data on the number of workers meeting the desired qualification levels is not, however, available. We cannot thus quantify the gap between the targeted skills levels and the actual skills available in the market.

The gap between the actual supply of semi-skilled and skilled workers graduating from the TVET institutes and universities engaged in the garment and textile industry provided in Tables 8 and 9 and the forecast number of required skills expected from TVET institutes and universities provided in Tables 10 and 11 is strikingly massive. Currently, enterprises are filling the skill gap by hiring unskilled workers and training in-house. The provision of in-house training has become an important source of skill upgrading and skill supply in the textile and garment industry. However, in the face of high labor turnover, the incentive to provide in-house training may eventually decline.

Moreover, high labor turnover means the in-house skill training is limited to basic skills such sewing and stitching operations. Firms have less incentive to provide advanced costly training to workers; hence limiting the potential for skill upgrading and accumulation.

The current reliance by firms on in-house basic training is not sustainable in the face of high labor turnover. The training firms provide to workers constantly due to high labor turnover is disruptive to firms and adversely affects their productivity and timely delivery of production.

Currently, not only do the TVET institutes and universities have limited capacity to produce the required number of qualified workers in the textile and garment industries, but also the programs are limited to five levels with the minimum level (level 1) being a one –year training. The scale of shorter-term training by TVET is limited even though most production workers in the textile and garment industry only require a few months of initial training. Hence unless the education and training system of the country produces enough numbers of production workers with the required basic training, the skill gap observed in the textile and garment industries will continue to be a binding problem adversely affecting productivity in the industries.

In what follows we discuss qualitatively the current state of skill provision and whether the forecast skill requirements are likely to be met by analyzing the skill provision by the various actors specifically the TVET system, university and sector development institutes.

### **7.2..1. TVET Training**

The TVET institutes aim at producing middle-level skilled manpower including operators and technicians to the manufacturing sector. There is nearly one TVET institute in each Woreda across the country with differing size and depth of courses provided. In addition to their formal training, TVET institutes also assist the micro and small manufacturing industries including those in the textile and garment sector through their outreach services called Industry Extension Service (IES). TVET colleges provide entrepreneurship training, Kaizen, technical training, and technology support for enterprises in their locality. Therefore, TVET institutes are one of the actors in the skill development of the textile and garment sector through their production of skilled labor and their outreach services.

The TVET institutes provide regular training programs in the textile and garment discipline with a range of sub-specializations. There are about 13 sub-specializations in the textile and garment stream. Candidates who complete grade-10 are admitted to these programs in one of five levels (levels 1 to 5 increasing in skill level). However, most training institutes provide the training in a more general way (like textile or garment production) and few sub-specializations are being offered. Table 12 provides the list of sub-specializations provided by TVET institutes.

*Table 12. List of specializations offered in TVET institutes*

Basic apparel
Advanced Apparel Production
Apparel Fashion Designing and Technology Supervision
Apparel Production and Technology Management
Basic Apparel Production
Basic Textile Operations
Intermediate Apparel Production
Textile and Garments
Textile and Garments production
Textile Chemical Processing Operations
Textile production
Textile Technology and Production
Textile Technology and Production Management

Source: TVET Agency

The total number of enrollments in TVET colleges is reported by the TVET agency and the Ministry of Education abstracts. However, they do not report enrollment by field of specialization. Table 13 reports the number of graduates in textile and garment stream that we compiled from various sources from the TVET agency. The number of students admitted in textile and garment related fields have increased from 9,290 in 2013/4 to 30,046 in 2017/8.

*Table 13: Enrollment of TVET students in Textile and garment disciplines in all levels (2013/4- 2017/8)*

Year	Male	Female	Total
2013/4	4,884	4,406	9,290
2014/5	3,023	5,601	8,624
2015/6	8,713	8,544	17,218
2016/7	7,784	6,012	13,796
2017/8	13,231	16,707	30,046

Source: Own compilation from Federal TVET Agency data

Table 14 reports the total number of graduates from TVET institutes in 2017/8 by region. In 2017/8 almost 5000 new TVET graduates trained from level 1 to level 5 in textile and garment production. This accounts for about 5% of the total number of annual TVET graduates in all fields of studies. Given that the textile and garment industry is among the priority sectors, the number of graduates is far too small compared to the potential demand by the industry.

*Table 14. Graduates in textile and garment discipline by gender and regions*

Region	Male	Female	Total
Tigray	447	239	686
Afar	0	0	0
Amhara	237	837	1074
Oromia	856	1089	1945
Somali	-	-	-
Benishangul Gumuz	0	0	0
SNNP	20	40	60
Gambella	0	0	0
Harari	-	-	-
Dire Dawa	-	-	-
Addis Ababa	251	872	1123
Total	1811	3077	4888

Source: Own compilation from Federal TVET Agency data<sup>16</sup>

In addition to the regular training programs, the TVET institutes also provide several short-term training schemes aimed at filling different skill-gaps for industry operators and start-up businesses. The statistics reported in Tables 10 and 11 do not include the short-term trainees.

Despite the availability of a number of universities and around 100 TVET institutions providing training in textile and garment, there has been seen limited improvement with regard to the quality

<sup>16</sup> For Afar, Amhara, and Harari, 2016/7 data was used due to unavailability of data for 2017/8

of training, teachers, and infrastructure. The garment sector is not only characterized by shortage of skilled man-power, but also the presence of mismatch between industry and training. For instance, Yamada and Otchia (2016) assessed the labor market of sector in Ethiopia by focusing on the mismatch between expected and actual skills of young workers. They surveyed 13 garment factories based in Addis Ababa or its vicinity, five public TVET colleges in Addis Ababa (which are the top five in student enrolment in garment production programs) and 19 new employees. Their findings show the existence of a mismatch between trainers (TVET and TIDI) and factory managers on the production skills of workers. The trainers are generous in grading, appreciate comprehensive skills and value basic literacy and numerical skills of workers than factory managers. The variation is particularly large for sewing and finishing worker skills. Furthermore, the difference in worker skills also contributed to the gap as skills of workers in garment industry. Workers with a TVET background perform better in patternmaking and comparing garment dimensions; however, they lack skills including sewing, ironing, and finishing products which are important in the textile and garment industry. Currently, such skills are obtained through in-house training in the sector.

According to the forecast by the MoI in 2017/8, the required workforce with TVET level I and above is about 153,00 for garment (Table 10) and 81,000 for textile (Table 11). However, the total number of enrollments in TVET is barely more than 30,000. Since the graduates from universities in the textile and garment is limited, the skill supply in the economy for the textile and garment industries falls short of the required demand. In 2017/8, the number of graduates in textile and garment related fields by TVET institutes was 4,888 which was extremely low compared to the projected requirement. Hence, enterprises are forced to depend on in-house training especially for low-skill operations.

Our discussion with managers of firms in Hawassa and Mekelle industrial parks asserted that they depend on in-house training for their skills needs, especially for low and mid-level operations.

The Federal TVET Institute provides training to TVET teachers. Its faculties include electrical/electronic and ICT, civil and mechanical technologies, and garment/apparel fashion among others.

The Federal TVET Agency is the regulatory body of the TVET system in the country. Its areas of focus include capacity building of TVET institutes and TVET instructors, guidance and leadership of TVET institutes, and development of training and technology development frameworks among others.

In addition to public TVET institutes, private TVET colleges and specialized institutes such as the Ethiopian Kaizen Institute are engaged in the provision of training. Various non-government actors are also involved in skills development. For example, UNESCO is hosting Better Education for Africa's RISE (BEAR) Project focusing on quality of training in agro-processing. Similarly, UNIDO



launched Programme for Country Partnership for Ethiopia engaged in supporting skills development such as the creation of R&D units linked to universities and TVET institutions. ILO has a project engaged in the development of Youth Employment Service center. GIZ is starting a second phase of the Sustainable Training and Education Programme (STEP) focusing on training to employment transition of graduates. In addition, GIZ is partially funding centers of excellence in skills development in Mekelle and Hawassa.

### 7.2..2. Universities

Currently, there are about 42 public universities in Ethiopia six of which have departments to train students in textile, garment, and fashion design disciplines in their degree programs. These are Bahir Dar University, Hawassa University, Wollo university, Dire Dawa University, Axum University, and Wolkitie University. These universities aim to produce middle to high-level professionals for the manufacturing sector including the textile and garment subsectors. Except for Bahir Dar University, the universities lack the required equipment to enhance the practical hands-on experience of the students. According to the respondents from TIDI, it is only Bahir Dar University that is reasonably well equipped with workshops and other facilities to train its students to the required standard. In the 2018/9, academic year, five of the six universities graduated a total 3504 students in textile and garment fields.

The Ethiopian Institute of Textile and Fashion Technology at Bahir University is the leading institute in the production of high-skilled labor in the textile and garment profession. Recently, with the support of German government through GIZ the training center of skilled workers and managers for the textile and garment sector was established in Mekelle and Hawassa city to produce competent workers for the sector. The objective is to establish a ‘Centre of Excellence for the Textile Industry’ by providing workers and managers training in accordance with international standards.

*Table 15: Universities offering Textile and Garment related courses*

Universities	Programmes
Bahir Dar, Ethiopian institute of textile and fashion technology	Undergraduate degree programmes (B.Sc.) <ul style="list-style-type: none"> <li>• Textile Engineering</li> <li>• Garment Engineering</li> <li>• Fashion Design</li> <li>• Textile &amp; Apparel merchandizing</li> <li>• B.Ed. in Textile technology</li> <li>• B.Ed. in Garment technology</li> </ul> Postgraduate programmes <ul style="list-style-type: none"> <li>• Textile Manufacturing</li> <li>• Textile chemistry</li> <li>• Fashion technology</li> </ul>

	<ul style="list-style-type: none"> <li>• M.Ed. in textile technology</li> <li>• M.Ed. in garment technology</li> </ul> PhD programme Sandwich programme with a German University (degree issued by Bahir Dar University)
Welkite University, School of technology for Garment, Fashion and Textile	Undergraduate Pogrammes <ul style="list-style-type: none"> <li>• Fashion Design</li> <li>• Textile Engineering</li> </ul>
Axum Universities, textile department	Undergraduate Pogrammes <ul style="list-style-type: none"> <li>• Textile Engineering</li> <li>• Garment engineering (planned to open in 2010 E.C)</li> <li>• Fashion Engineering (planned to open in 2011 E.C)</li> </ul>
Wollo University, Kombolcha Institute of Technology, School of Textile, Leather and Fashion Technology	Undergraduate Pogrammes <ul style="list-style-type: none"> <li>• Textile Engineering</li> <li>• Garment Engineering</li> <li>• fashion Designs</li> <li>• leather engineering</li> </ul> Post-gradaute programmes (MSc) <ul style="list-style-type: none"> <li>• Textile Chemistry</li> <li>• Textile Manufacturing</li> </ul>
Dire Dawa university, textile department	Undergraduate Pogrammes <ul style="list-style-type: none"> <li>• Textile Engineering</li> </ul>
Hawassa University, textile department	Undergraduate Pogrammes <ul style="list-style-type: none"> <li>• Textile Engineering</li> </ul>

Source: Authors Compilation

## BOX 1

### **Case study: Contribution of Bahir Dar University to the development of the apparel industry**

Bahir Dar University was inaugurated on May 6, 2000 through the merger of two former higher institutes (Bahir Dar Polytechnic Institute, established in 1963 and Bahir Dar Teachers College, formed in 1972). The university has five colleges, four institutes, seven faculties, two academies and one school. The Ethiopian institute of Textile and Fashion Technology (EiTEX) is one of the institutes in the university. The institute was upgraded and started to offer diplomas both at undergraduate and postgraduate level (BSc, MSc and PhD) in the textile and garment

professions. In particular, the institute is awarding BSc diplomas in textile engineering, garment engineering, leather engineering, fashion design, and Textile & Apparel merchandizing, B.Ed. in textile technology and B.Ed. in garment technology. The MSc diploma is awarded in textile manufacturing, textile chemistry, fashion technology, leather product design and engineering, M.Ed. in textile technology and M.Ed. in garment technology and PhD programs. Furthermore, currently the institute has started offering PhD level training with the support of the German government. The curriculum at the institute is developed by Ethiopian and German experts in textile, garment and fashion professions taking into account the knowledge, skills and attitude the industry and sectorial stakeholders need from the graduates.

The institute's aspiration is to be one of the top three African institutes by 2025 with the mission of producing labor force of high level of competence for industry and social needs. In 2018/19 academic calendar year, the institute has 2288 trainees, about 4% in master students. The establishment of EiTEX has started to play an important role in the development of textile and apparel sector. For instance, most of institute graduates are holding top management position in the textile and apparel firms (Nguku, 2012). To increase involvement of the institute in industries there are also ongoing discussion with the TIDI.

### 7.2..3. The Textile Industry Development Institute (TIDI)

The Textile Industry Development Institute (TIDI) was established by the Ministry of Industry to serve as skill and technology hub for the textile industry. The TIDI provides skill development training in two ways: Demand driven, and program based.

- **Demand-driven-** beneficiaries such as the industry, TVET or universities can request the institute for trainings needed. This modality often serves as a short-term solution for urgent skill needs.
- **Program-based:** the institute has also prepared a structured course catalogue, with course name, code, description, objective, target group, and duration of the training for each course. The course catalogue is organized in 7 major types of training having a total of 77 types short term courses as presented in appendix in Table A1. The institute advertises to offer some of them in a given period and interested trainees (industries) enroll for the course. These courses are provided for any target groups for free. As a standard, the number of trainees who are enrolled for a short-term course should be at least 10. There is no any educational level requirement for a worker to get a short-term training offered by the ETIDI.

The TIDI has a well-organized laboratory and staff trained locally and abroad.

However, the TIDI engages in routine facilitation works for the textile and garment enterprises such as providing work-permit for expats rather than fully engaging in skill production and technology transfer. Engaging in routine facilitation activities poses a risk to derail TIDI from its main objective of serving as the skill and technology hub for the textile and garment industry.

Moreover, TIDI is currently based in Addis and hence its training facilities are not being adequately used by enterprises outside of Addis Ababa. The target firms of TIDI training are domestic small and medium enterprises located around Addis Ababa. Firms outside Addis and all FDI firms mainly depend on in-house training for their skill needs. In 2018/9, TIDI provided short-term training to 3,276 individuals. According to data obtained from TIDI, a total of 19,014 individuals received short-term training by TIDI in the period 2011- 2019. While this is a substantial number, it is meager in comparison to the demand for short-term training by the textile and garment industry.

### 7.3. Analysis of Skills based on discussion with enterprise in Hawassa and Mekelle

We visited eight firms engaged in the textile and garment enterprises in Hawassa industrial park (four), Mekelle industrial park (two) and two firms outside the industrial park in Mekelle to discuss the key challenges they face focusing on issues of skill. The list of firms visited is provided in Table A2 in the appendix.

The key constraints faced by the firms include

- Inadequate local raw material especially cotton in the desired quality and quantity;
- Expensive logistics and distance from ports (especially those in Mekelle);
- Unavailability of adequate middle and high skilled operators and technicians;
- Shortage of adequately trained supervisors and middle-level managers; and
- High labor turnover among production workers

Table 16 reports the ease of recruiting workers based on the skill level. The majority of firms hire unskilled or fresh workers as it is not possible to find skilled workers with the right experience. They train them in-house for up to 30 days. As shown in the table, low skilled or unskilled workers are easy to find. However, the challenge is labor turnover. They have to constantly train to make up for workers leaving the factory. This impacts the quality and timely delivery of products. Six out of the eight firms find recruiting middle and high skilled workers rather difficult. Hence, most of the firm hire fresh workers, train them and if they stay provide them the opportunity to be promoted to operator and supervisory levels.

*Table 16. Ease of recruiting workers with varying skill levels*

Firm	Experience level of majority production workers upon hiring	Ease of Recruiting		
		Low skill	Middle skill	High skill
Firm -1	Fresh	Easy	-	-
Firm -2	-	Difficult	Difficult	Difficult
Firm -3	-	Easy	Difficult	Difficult
Firm -4	Fresh	Easy	Difficult	Difficult
Firm -5	Fresh	Easy	-	-
Firm -6	Fresh	Easy	-	-
Firm -7	Fresh	Easy	Difficult	Difficult
Firm -8	Fresh	Difficult	Difficult	Difficult

Source: Enterprise interview

The degree of shortage of skill varies by the process/stage of production in the textile and garment industry. Mapping the production process, the share of workers in each process, and the extent of skill shortage provides a better understanding of the skill-gap in the industry.

Table 17 reports, the average share of workers employed in each process, the average percentage of workers that require additional training to be fully productive, and the degree of skill shortage in each process. Sewing/Stitching employees by far the largest share of workers (53%), followed by packing/shipping (9.2), and checking/quality control (7.4%).

The table also shows that there is heterogeneity in terms of skill-gap (additional training required) in the various stages (processes). On average, the share of workers that require additional training is the highest in production management, planning and engineering (80%), followed by those in packaging and shipping (77%), machine maintenance and repair (76.3%), and facility management and maintenance (74%). The share of workers that require additional training is the least in Embroidery and Screen Printing (20%), Dyeing (32.5%), and spot cleaning/laundry (32.5)<sup>17</sup>. Overall, more than half of the workers (54.4%) require additional training to be productive. The last column of Table 17 shows the degree of the impact of the skill shortage. Processes such as design, machine maintenance and repair, and production management, planning and engineering to suffer from the highest adversity of skill-shortage.

In what follows, we briefly examine some of the key skills shortage for each occupation levels and the responses by the factories to such shortages one-by-one.

<sup>17</sup> Note that most of firms have expats as their designers or their design is made elsewhere. Hence, the low proportion of additional training required in design is due to most designer being expats, or the design being done elsewhere.

**Sewing/stitching:** Basic sewing skills are fundamental to any type of garment production from t-shirts to suits production. The type of skills required in sewing and stitching ranges from inserting a thread to a needle to choosing the right thread and needle combination and stitching a button or a zipper. Most of the companies that we spoke to said no institute teaches or trains students with the basic art of sewing or the basics of garment production. As a result, all of the companies have to offer in-house training to introduce workers to such skills. In Hawassa, for example, factories fill their vacancies from the grading center by recruiting workers that are tested for basic fit for garment processing and then offer technical skills training to these workers.

Most companies offer three to five weeks of in-house training on basic sewing and stitching skills. While many of the workers learn quickly and become proficient in garment production at the beginning of the third month, there are several problems that hinder them from achieving a high level of efficiency. First, high labor turnover implies that the skilled workers leave in the first three to six months and companies have to continuously train new recruits. In an ongoing work in Hawassa industrial park, for example, Abebe et al (forthcoming) find that nearly two-thirds of new recruits leave within the first six months. Second, absenteeism severely affects production planning and hence each factory's efficiency levels. Third, strict production targets required by management add further pressure on new workers who just completed training leading to tensions with supervisors and managers.<sup>18</sup> Fourth, language problems between trainers and trainees reduce the scope of learning or knowledge acquired by the new recruits and hence workers will be shouted at for substandard performance. Factory managers had these to say on training and skill shortages:

*“Workers are still stuck at 24 % efficiency level. They certainly need more skills. Skills shortages, absenteeism, and replacement of the skilled workers are key problems.”*

*“The trainers are expats and the trainees have no knowledge of English, even communication in Amharic is problematic. The English knowledge of the expats is also not that great. This creates misunderstanding further fueling tensions between the expat and local experts. This in turn affects the desire and interest for skills upgrading.”*

Skill shortages in sewing or stitching occupation, while not severe at least compared to other occupations, still make production planning difficult. In some cases, the lack of skills makes it difficult to meet the standards that buyers set. It also affects the time with which factories can export products to the buyers.

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<sup>18</sup> A company representative, for example, said that “For production workers with no prior experience in garment sector, we offer 21 days training when they first join. They will then directly go to production. When they join the production line, they are first given small targets in the beginning. One month after they become full workers, they will be considered regular workers. Accordingly, they will be given full production workers.”

While factories seem to be happy to continue offering firm-specific in-house technical training in basics of sewing, to reap the benefits from such training programs they are keen to find ways of reducing worker turnover. Further, factories realize that offering continuous training is an important area that they can explore to upgrade the skills of workers. Offering these training programs in the language that they understand also helps the skills development endeavor.

In our survey, we also find that many of the factories do not have any formal analysis of skills shortages and hence do not deploy any systematic tools to understand the skills situation. Once training is completed and the trainees are moved to the production floor, the focus is on how the workers would quickly meet the target that is set for them through mainly monitoring and a performance-based pay system. Skills issues would then be sidelined and there are no mechanisms of checking how effective the training has been and what skills the workers on the shop floor lack.

**Knitting:** The creation of textile or fabric from yarn relies on different skill sets than those required in stitching processes. Garment products such as sweater and socks largely rely on workers who do knitting very well. Compared to other garment factories, knitting factories face relatively limited turnover and competition on their workforce, such as poaching, as the skills required and gained are very specific to the knitting industry. This is partly because there are few competitors in the market engaged in knitted products. There is, for example, only one company that produces socks in Hawassa Industrial Park.

Knitting skills are however in short supply and companies have to recruit fresh graduates to provide training on knitting processes. There are, for example, no formal programs that can teach knitting skills to these workers. Public training on knitting and supervision of knitting production activities is not available. For example, short-term diploma training programs do not exist.

A knitting company that we spoke expressed its desire to organize a short-term training program in collaboration with interested training or academic institutes. We heard that the Hawassa University does not offer such training programs at the moment. If the university is willing, the company said they are ready to co-finance a short-term training not exceeding 6 months. The company is ready to send workers to such training programs.

**Cutting/Laying/Marking:** Skills in pattern cutting are key competencies to produce high-quality garment products. As in the sewing and stitching occupations, workers skilled in manual cutting are not available in the market and hence firms have to train them afresh. In some factories, sewing workers are prompted to cutting department when they become sufficiently experienced. This is true in factories where cutting is mostly manual and requires more complicated tasks and thus workers who would move to these department have to be very good. In some of the garment factories, there is no need for skilled workers in the cutting department as the process is mostly automated.

**Checking/Quality control:** this is a key process that involves measuring, examining, testing or gauging the production processes and the final product to confirm compliance with product specifications and standards set by the factory or the buyers. It requires a skill of carefully checking conformity of processes and products following a pre-established checklist on the product specifications. Our qualitative survey indicate that the availability of the skills and trained manpower is highly limited. Table 17, for example, indicate that nearly two third of the existing quality control workers require additional training. The existing education does not produce these kinds of skilled people as it is highly theoretical and does not equip people with practical skills. “Theoretically okay, but practically none” was how one manager summed up the skills problem of new recruits for quality control positions.

A key skills problem here is the ability to communicate quality aspects in written form. Some of the quality control specialists know what they need to do in their head and can perform well when they are given instructions and are monitored. But when asked to explain the quality checking process and key quality attributes, such as patterns, appearance, labelling and packing, they often struggle. In addition to the technical skills developed through learning-by-doing, it is important to get quality control specialists get accustomed to using checklists properly.

In fact, in one of the companies, there were three positions that have stayed open due to lack of good candidates for the quality control vacancy that they have advertised. Some of the vacancies including supervisory level workers remained open for nearly 3 months. Lack of experienced quality control workers imply that the usual means of filling these vacancies is the combination of in-house training for workers and promotion from production floor.

**Human Resource Management:** Managers are in charge of orchestrating the production process. Recent evidence shows that firm that are better managed tend to have lower labor turnover and higher productivity. With the objective of improving worker retention and worker/employer relationships, several programs targeting managers, supervisors and workers have been planned and implemented in Hawassa Industrial park. A capacity building intervention to enhance the people’s management skills was, for example, planned to be offered to human resources managers in the park.<sup>19</sup> The plan involved setting up a “Human Resource Center” that would extend support to human resource managers of factories in tackling fundamental reasons for high levels of worker turnover, absenteeism, work tiredness and low productivity. The plan also involved setting up “Counselling Centre” that provides counselling services for workers with the hopes of preventing premature quits of workers. At the time of writing this report, however, the plan does not seem to have materialized and we have not heard of neither the “Human Resource Center” nor the worker “Counselling Centre”.

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<sup>19</sup> Enterprise Partners in collaboration with the Ethiopian Investment Agency were two of the key players in drafting the plan.



**Design:** Design requires various skills sets including drawing skills, ability to pay attention to details, understanding texture color and fabric, costing, understanding the needs of the target client, identifying design accessories among others. As such, design is a combination of technical and artistic skills. Our survey indicates skill in design is severely in short supply in the local economy. We found that only one of the eight firms that we interviewed employed a local designer and the rest relied on designs done overseas.

While fashion schools are recently mushrooming in the country, it is relatively a new territory for many Ethiopian students and one that requires greater skills to become internationally competitive.

**Production management, planning and engineering:** high level management skills required to run garment operations appears to be one of the critical skills in short supply in the industry. Our survey indicates that very few local workers participate in such high-level management positions in the industrial parks. Such occupations instead attract a large number of expatriate workers from India, Sri-Lanka, Pakistani, Indonesia and China. Further, of these, Figure 17, show that 80% of workers require additional skills to become more efficient in their tasks and that skills shortage is cited as a key problem in the industry (the last column of the table). As large-scale garment production is a recent phenomenon in Ethiopia, it is not surprising that such skills are missing.

Historical experiences of Asian countries, such as China and Japan, demonstrate that over time, such skills can be diffused to local workers and with spin offs the knowledge could further spread throughout the economy (Otsuka and Sonobe, 2011). Indeed, spin-offs and information flow through interaction between local and foreign experts can greatly shape the future of the industry. A good example, for this is the rise of the garment industry in Bangladesh through first technology learning from South Korea and then through the entry of highly educated entrepreneurs who were quick to learn from garment production and marketing from foreign companies that invested in Bangladesh (Mottaleb and Sonobe, 2011). While there is some encouraging evidence from a study of manufacturing enterprises in Ethiopia, it is not clear to what extent such spin-offs and technology transfers are upgrading local production management, planning and engineering capacity (Abebe et al., 2018B). Further study is warranted to provide more lessons on this.

In short, even in the process such as sewing, stitching, and knitting which constitute the majority of workers in the garment industry (53% in the firms we interviewed) but require only basic skills, more than half of them require additional training. This shows the extent to which skill-shortage even for those that require rudimentary skills has become a challenge. This partly arises due to high labor turnover and hence the need to constantly train new workers. Moreover, high level of absenteeism and unpunctuality implies the need to reshuffle workers whenever some workers are absent. Hence, each worker requires to be trained in more than one specialization, which in turn means less mastery of each skill.

Currently, designing is either done elsewhere or done in-house by expats.

Table 17. Skill by Production process

Production process	Average share	Average Share of Workers Requiring Additional Training	Is skill shortage a main problem: 1 is not a problem at all to 5 a severe problem.
Design	0.1	32.0	3.5
Receiving Fabrics	0.4	54.0	2.0
Fabric Relaxing	0.3	68.6	3.0
Spreading, Form Layout, and Cutting	2.3	47.2	2.5
Laying	0.1	54.6	2.6
Marking	0.0	54.6	2.6
Cutting	0.6	55.5	2.7
Embroidery and Screen Printing	0.2	20.0	2.3
Sewing/ Stitching	53.0	54.3	2.4
Knitting	4.2	54.7	2.0
Dyeing	0.6	32.5	2.0
Checking/Quality control	7.4	67.9	2.4
Spot Cleaning and Laundry	1.3	32.5	1.5
Fusing and Pressing	0.2	44.3	1.8
Packaging and Shipping	9.2	77.3	2.7
Production management, planning and engineering	2.4	80.0	3.0
Machine maintenance and repair, Facility management and maintenance	2.9	76.1	3.1
Other	1.9	74.0	2.7
	12.8	-	-
Overall Average		54.4	2.5

Source: Enterprise interviews in Hawassa and Mekelle

**Soft Skills:** Our discussions with the firms in Hawassa and Mekelle suggest the need for the provision of soft skills training to workers prior to joining the industries by government entities, NGOs or TVET institutes or universities. Currently, firms try to provide soft skill training in-house; however, this is not effective as there is a trade-off with the provision of technical skill training. The ongoing training at community and TVET levels on soft skills is limited. The firms also have a shortage of soft-skill trainers in-house. For example, one company administrative manager told us the following:

*“There is no initial soft-skills training given in a very formalized way. The training given following recruitment is mostly related with Induction and introduction to soft skills, which*

*lasts for a maximum of two days. This focuses on introducing workers to the basics of the work environment, the labor law, punctuality and so forth.”*

*“Both technical and soft skills are key concerns in that the workers here do not understand the value of work and as to why they are there working for the company. This causes loss of interest in the work. They mainly want to get salary irrespective of whether they work or not. They do not seem to care to develop their skills by working and learning from the work environment. Motivation is a big concern.”*

*“We first offer HR induction on the company policies rules and regulations, working hours compensation, insurance and safety induction. Soft skills training for three days. The content is on personal hygiene, respecting bosses and taking orders, toilet utilization, punctuality, and so forth.*

In collaboration with the Hawassa Industrial Park Investors’ Association, the Ethiopian Investment Commission (EIC) and the Ethiopian Textile Industry Development Institute (ETIDI), Enterprise Partners also operated a prominent labor sourcing and soft skills training program in Hawassa Industrial Park. The program was given a catchy name, HIPSTER, implying Hawassa Industrial Park Sourcing and Training Employees in the Region. HIPSTER mostly focused on labor sourcing, testing and grading services of young female workers and was designed to set up a system “to match work-force demand with job seekers through the development of sustainable sourcing, screening, training, and recruitment mechanisms”. Consequently, several screening centers in various catchment areas within and outside of Sidama zone were set up. The screening centers were used to publicize the factory job opportunities and register job seekers in places where they leave. By March 2019, the program had 25 screening centers in different parts of the region. Nearly 67,797 workers were sourced from these centers and using a grading center in Hawassa, more than 36000 workers were tested for dexterity and ability to fit garment job (Hilton 2019).

A key component of the HIPSTER program was its commitment to offer soft skills training to new recruits for the park. For young, agrarian and inexperienced workers, industrial parks constituted entirely a different world that are far removed from their rural villages that may not even be

connected to an electricity grid let alone have any sort of industrial culture. Thus, soft skills training on timeliness, communication skills, motivation, industrial orientation, workplace safety and hygiene were considered vital skills to smooth transition of workers from rural areas to formal jobs in the factory settings. Local trainers were employed to offer the soft skills training and more than 7200 workers received the training (Hilton, 2019).

The HIPSTER program was modeled as a public-private partnership to provide market-based solutions to the labor sourcing and skills problems observed in the garment industry. The initial plan of factories co-funding the training program after the first batch of 7000 trainees does not seem to be carried out at the moment. During our own visits, we noticed that the factories assessment of the soft skills training is mixed, some highly appreciate of the program and others not so enthusiastic about it citing that it is less tailored for their specific skills problems. Low willingness to pay for such kind of training programs with substantially economy wide externalities is not surprising and ensuring firm commitment from the factories in the park remain a key challenge moving ahead with such kinds of programs. In short, a proper and an impartial evaluating of the impact on the soft skills training can offer more creditability and hence induce greater willingness to pay for such services by the factories in the long-term.

Similarly, to overcome the shortage of skilled and experienced workers in the market, firms are forced to hire unskilled workers and train them in-house in basic rudimentary skills. They suggest the need to produce sufficient number of production workers equipped with basic skills by way of short-term training by the TVET system,

Another critical issue is the shortage of adequately skilled supervisors and managers. Currently, most firms employ expats in most managerial and supervision positions. Success in attempts to replace expats in such positions by locals has been limited. Management knowledge transfer from expats to locals has been limited. Hence, a sustainable solution is for the education and training systems to produce sufficiently trained supervisors and managers. Firms do not have a system of knowledge transfer from expats to locals. While provision of in-house technical training to workers is manageable in the short-term, training in management and supervision in-house sufficiently is untenable. Cultural difference between expats and workers sometimes leads to conflicts, which

exacerbates labor turnover and affects productivity adversely. Language barriers are another challenge that prevents seamless relationship between managers and locals.

In summary, shortage of labor with various levels technical and soft skills is highly concerning. In the short run firms manage the lack of technical skill by hiring unskilled worker and training them in-house. However, the disruption this creates and the cost it implies affects the competitiveness of the firms in international market. The shortage of supervisors, managers and middle to high skill workers is critical.

#### **7.4. Binding constraints in skill production**

Currently, skill production in the textile and garment industry faces several challenges. We discuss the key challenges here.

##### **7.2..1. Poor TVET-Industry linkage**

The TVET institutes and industries have poor linkages. The participation of the industry representatives in TVET curriculum development is limited. For example, Yamada et al., (2016) find limited interaction between TVET institutions and the garment factories in Ethiopia.

Despite a high number of vacancies for skilled production workers, only a fraction of firms contacted TVET institutions to fill their vacancies. In a survey by the World Bank, less than a quarter of firms surveyed reported contacting TVETs to fill outstanding technical positions (World Bank, 2013). In the same survey, only half of firms reported hiring TVET workers directly from TVET institutions. Hence, the coordination between TVET colleges and the industry remains poor (see also World Bank, 2015).

Enterprises are reluctant to provide internship and apprentice opportunities to trainees from TVETs except for government-owned ones. Firms perceive TVET graduates as not competent and hence deny them access to their expensive machines and equipment. Moreover, firms perceive the supervision of TVET candidates during apprenticeship as time-consuming and costly exercise (See, for example, Krishnan and Shaorshadze, 2013). Woldetsadik and Lumadi (2015) find partnership between TVET and the industry as practically non-existent in their case studies around Addis Ababa.

The weak TVET-Industry linkage also means that skill provision is curriculum-based and hence supply-driven (see, for example, EDRI's 2018 BDS survey). This has resulted in a gap between TVET output and the industry requirements (see, for example, Enadalkachew, 2018). To address

the skill mismatch in the textile and garment industries TVET institutes should restructure their programs to be responsive to the needs of the industries. One such approach is to involve enterprises in the design of the TVET curriculum and to ensure the industry is willing to provide internship and apprenticeship opportunities to TVET trainees.

### **7.2..2. Poor quality of TVET/University training**

TVET/University training is theory-based and offers little practical experience to students. While an objective assessment of the quality of the TVET system in Ethiopia is absent there is a general agreement among stakeholders and the industry about the poor quality of TVET training (see, for example, ITC (2016) for the Ethiopian Textile and Clothing Industry). Key informant interviews with staff members of TIDI and discussions with firms in Hawassa and Mekelle industrial parks indicated TVET graduates lack practical knowhow. In general, our discussions indicated lack of skilled manpower for the textile and garment sectors. Skilled manpower is meager and of low quality. Low competence of TVET instructors, inadequate machinery, lack of apprenticeship/internship opportunities for trainees are among the key factors for the low quality of TVET training. TVET instructors do not have the chance to upgrade their skills by spending time at factories. TVET trainees have limited opportunity to use machineries for training due to limited availability in the TVET institutes. Firms are hesitant to provide apprenticeship and internship opportunities to TVET trainees as TVET-industry linkage is very weak.

Managerial capacity of TVET/Universities is also particularly weak. Discussions with firms from the Hawassa and Mekelle industrial parks emphasis the particularly poor quality of managerial skills of TVET/University graduates. While the firms attempt to fill the technical skill gap through in-house training, the managerial aspect is particularly pressing, and they struggle to address it.

Our focus group discussion with eight enterprises from Hawassa and Mekelle industrial parks indicated that almost all of them hire fresh unskilled workers and train them in-house. Seven out of eight firms indicated that middle and high-level skilled workers are scarce. Similarly, all of the firms stressed that it is very difficult to find an experienced technicians or operators in the textile and garment industry.

Except for unskilled technical workers or fresh graduates, all firms stresses the difficulty of filling skilled non-technical, managerial or administrative workers.

For technical skills, most of enterprises conduct in-house training. The challenge is, however, high labor turnover as workers leave after training. This forces firms to continuously train workers as they come and go affecting productivity and timely delivery of products.

Nearly 60% of workers in the firms we interviewed required additional skill training to enhance their productivity. Our interviews also indicated that high labor turnover, language barriers,

limited capacity of workers, and lack of government support in skill development to be the key barriers for skill upgrading of workers.

### **7.2..3. Poor Industry culture**

There is a poor industry culture in terms of fulfilling the expectation of manufacturing firms by both unskilled categories of workers and the skilled coming out of TVET institutes and universities alike. The unskilled workers come from rural agricultural background or an urban informal sector and hence are used to a more flexible working environment. Hence, the high level of work discipline that the industrial sector particularly the manufacturing sector requires is largely absent in Ethiopia.

The poor industrial work culture coupled with several social engagements such as religious holidays, lengthy funerals, and extended weddings ceremonies often result in high absenteeism and poor punctuality of the industrial workforce.

Similarly, those who graduate from TVET/universities do not have the required soft skills in terms of attitude and work discipline. They do not have the mental preparation for a blue-collar type of work. There is a tendency to prefer office work among graduates. This is emphasized by all eight enterprises we discussed with in Hawassa and Mekelle industrial parks.

This has resulted in high labor turnover, which impacts productivity. Low productivity, in turn, entails low wages. In the presence of large informal sectors that pay at least as much as the industrial sector or even more, keeping labor in the industrial sector becomes difficult. A study by Blattman and Dercon (2017) that compares manufacturing jobs with informal self-employment shows those workers found manufacturing jobs to be more hazardous to health, poorly paid, and difficult resulting in high turnover.

### **7.2..4. Poor labor market information systems**

Most workers join the manufacturing sector without adequate information and distorted perceptions. Lack of a proper job center that provides basic soft skills prior to coming to the production floor is one of the key reasons for the lack of discipline in workers such as high absenteeism levels. There are negative perceptions regarding the manufacturing sector that it is exploitative instills a negative attitude of workers, which makes it difficult to create an amicable relationship between workers and management. Workers do not seem to have the awareness that as they stay and build their skills in the factories, the benefits they get in terms of boosting their career development would be enhanced.

Wrong expectations of wages and other benefits as well as little awareness of manufacturing work discipline also cause a high labor turnover in most firms according to our discussion with firms in the industrial parks.

## 8. Strength, Weakness, Opportunities and Threats (SWOT) Analysis of Textile and Garment Industry in Ethiopia

The textile and garment sector has a great potential to create jobs and boost foreign exchange in Ethiopia. As such the industry has become one of the key priority sectors since the first GTP. However, performance has been below par for almost a decade. Identifying the strengths, weaknesses, opportunities and threats of the industry can inform policy makers on approached to tackles the challenges and ensure the sector becomes competitive in the global markets. In this section, we provide a summary of the strengths, weaknesses, opportunities and threats based on the preceding discussions and interviews we conducted with eight enterprises in Hawassa and Mekelle industrial parks.

Table 18 summarizes the SWOT of the Ethiopian textile and apparel sector. The availability of large potential for cotton cultivation, existence of abundant labor and water supply, economical cost of energy and strong government support will give competitive advantage to the sector over the competitors. However, this advantage will be weakened by low level of technology, low skills, underdeveloped linkages (backward and forward linkages), poor market institutions and high logistic costs.

*Table 18: Summary of SWOT for Textile and Apparel Industries*

Strengths	Weakness
<ul style="list-style-type: none"> <li>• Low raw material cost: the country has comparative advantage in the production of raw-material, mainly cotton</li> <li>• Abundant labor force</li> <li>• Abundant and cheap water supply</li> <li>• Cheap energy cost</li> <li>• Technical and financial support by government, donors</li> <li>• High government commitment and favorable policies towards the sectors.</li> <li>• Continuous investment in infrastructure by governed in roads and railways.</li> <li>• Commitment by government to open up some of the sectors such as logistics services.</li> </ul>	<ul style="list-style-type: none"> <li>• Existence of skills gap such as low managerial and technical skills. TVET curriculum is largely theory-based and suffers from low competence of instructors</li> <li>• Limited quantity and quality of raw material (such as low cotton lint supply, limited garment accessories)</li> <li>• Low level of technology and productivity</li> <li>• Slow and costly trade logistics, Huge logistics costs due to distance to the port especially in remote industrial parks such as Mekelle</li> <li>• Limited market institution</li> <li>• Weak supply chain integration leading to high lead time</li> </ul>



	<ul style="list-style-type: none"> <li>• Firms are forced to train in-house, but labor turnover is resulting in high cost and low productivity</li> <li>• Costly and tedious services in ports</li> <li>• Restrictive financial policy: difficulty to send money abroad</li> <li>• Lack of functional export promoting system: lack of clarity in mandates between Ethiopian Investment Commission, the Ministry of Trade and Industry, and the Textile Industries Development Institute</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Increasing production costs in competitor countries, for example in china and India</li> <li>• Access to free trade (AGOA, EBA, COMESA. FTA)</li> <li>• Vertical integration</li> <li>• Huge potential in terms of labor and raw materials (untapped resources currently)</li> <li>• Great location for export due to proximity to Europe, Asia and the rest of Africa</li> <li>• High commitment for regional trade integration (e.g. African Continental Free Trade Area)</li> <li>• Cheap electric power in the future</li> <li>• Significant potential for backward and forward linkage</li> <li>• Government commitment to improve ease of doing business</li> <li>• Government commitment to green industrialization means enterprises will have to confirm to environmental standards and social compliances which will boost their global market as there is an increasing concern</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change (Rain-fed production of raw material, notably cotton production)</li> <li>• Political instability and deteriorating investors' confidence</li> <li>• Competition from the informal sector</li> <li>• Macroeconomic stability especially inflation affecting workers real wages</li> <li>• New technologies that can produce fabric from man-made yarn replacing cotton.</li> <li>• Biased (negative) media international media reporting.</li> </ul>

<p>among consumers about the environment and labor issues.</p> <ul style="list-style-type: none"> <li>• Increasing involvement of development partners in enhancing productivity and working conditions</li> </ul>	
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Furthermore, Ethiopia has various opportunities including a rise in the cost of production of labor-intensive products in the competitor countries (for instance raising wage cost in Bangladesh, China, India and Viet Nam), duty-free access to US and EU markets and the recently signed Free Trade Area among African countries. However, there are also threats which could negatively affect the country's competitiveness in the textile and apparel sectors, including variation of climate, recent political instability and the ensuing decline in investor confidence.

## 9. Summary and Concluding Remark<sup>20</sup>

The textile and garment industry is one of the key priority areas of the development plans of the country due to its labor absorption capacity and export potential. The textile and garment industry is prioritized as of number one sector in the recently formulated development plan due to its labor-intensive nature, strong linkages with the agricultural sector and required relatively low fixed (sunk) costs. While in recent years it has shown signs of revival due to investments in the industrial parks, the performance of the textile and garment industry has been below par in terms of value addition and exports in the last decade.

This paper explored the profile and competitive advantage as well as the existing government policies and strategies of the textile and garment industry in Ethiopia. In spite of recent improvement, the sector remains among least developed industry mainly compared to its potential and the performance of peer countries in the region. The industry has particularly low value addition and lagged far behind the government's export targets and the performance of competitor countries in generating foreign exchange earnings. There are many factors that are considered to be major constraints that could undermine Ethiopian potential to become one of the main sourcing destinations of the apparel sector at global level.

Attainment of a fully integrated value chain is being hindered mostly by insufficient cotton production (both in quantity and quality), limited production of garment accessories, and limited diversity of domestic inputs, high logistics costs and slow customs clearance especial for those outside Hawassa industrial park; low labor productivity due to poor quality of training resulting from weak TVET system and high labor turnover.

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<sup>20</sup> The recommendations that appear on this section are tentative and would be refined in consultation with workshop participants and government officials.

In order to participate in the global value chain, attracting foreign direct investment and enhancing the ability of domestic firms to produce high quality goods is very important. For this skills are fundamental.

Due to a shortage of skilled and experienced workers, firms are forced to hire fresh workers and train them in-house. However, the high labor turnover has a disruptive impact on the production floor impacting quality and timely delivery of products. There is variation in the degree of the impact of skill shortage on the textile and garment value-chain. The processes that have the highest skill gap are production management, planning and engineering, packaging and shipping, machine maintenance and repair, and design.

The weak TVET system has forced enterprises to hire unskilled workers and train them in-house. Middle and high-skilled labor force is scarce in the market. Moreover, supervision and managerial skills are also in short supply. The industrial culture of workers is poor as most of them come from agricultural background and hence absenteeism and lack of punctuality negatively affect productivity.

Furthermore, understanding the dynamics of clothing market (produce and stock goods, increasing management and ICT capacity to efficient and timely sharing information, improving workers working environment and upgrading man-made fibers also contribute significantly to enter global value chain for Ethiopia. For instance, in 2013 man-made fibers accounted for 70% of fiber production worldwide (ITC, 2016).

Some of the key policy interventions required to enhance the productivity and competitiveness of the textile and garment industry include:

- Identify the key constraints in the quality of raw material production especially cotton.
- Speedup the reforming of the logistics sectors.
- Speedup the process of opening Eritrean ports for Ethiopian manufacturers as distance and logistics costs pose a threat to exports.
- Enhance the quality of TVET training by investing on equipment and competence of instructors.
- Enhance industry engagement in the TVET curriculum so the TVET system produces the skills the economy requires. This can also increase the confidence of enterprises to provide internship and apprenticeship opportunities for TVET trainees.
- Enhance soft skill training prior to joining the manufacturing sector. Such training can be financed by government and NGOs and coordinated by bureaus of labor and social affairs in regions.
- Avail quality management training system particularly focusing on the priority areas such as textile and garment.

## References

- Abebe Girum & Tigabu Degu & Gebrehiwot Ageba, (2018). "What drives productivity change in the manufacturing sector? Evidence from the metalworking industry in Ethiopia," Working Papers 020, Ethiopian Development Research Institute.
- Abebe Girum & Margaret S. McMillan & Michel Serafinelli, (2018b). "[Foreign Direct Investment and Knowledge Diffusion in Poor Locations: Evidence from Ethiopia](#)," [NBER Working Papers](#) 24461, National Bureau of Economic Research, Inc.
- Achim, B., Saskia H., and Bill, R. (2015). "East Africa: The next hub for apparel sourcing?" Mckinsey company.
- Addis Ababa Chambers of Commerce and Social Association (AACCSA, 2014). "A Survey of Ethiopian Manufacturing Sector," Ethiopia, Addis Ababa
- Bedane, G. and Arkebe, E. (2019). "Cotton production potential areas, production trends, research status, gaps and future directions of cotton improvement in Ethiopia," *Greener Journal of Agricultural Sciences*, Vol. 9, no. 2, pp. 163-170. <http://doi.org/10.15580/GJAS.2019.2.040619064>
- Central Statistical Agency (CSA, 2014). "Statistical Report on the 2013 National Labor Force Survey," Statistical Bulletin, Ethiopia, Addis Ababa.
- Davies, E. and L. Nilsson. 2013. "A Comparative Analysis of EU and US Trade Preferences for the LDCs and the AGOA Beneficiaries." European Commission Chief Economist's Note, Issue 1.
- Ethiopia News Agency (ENA, 2019). "Ethiopia Earns 103 Million USD Export Revenue from Industrial Parks" available at <https://www.ena.et/en/?p=7619>
- Ethiopian Institute of Agricultural Research (EIAR, 2017). "Cotton Research Strategy:2016-2030," Addis Ababa, Ethiopia.
- Ethiopian Investment Commission (EIC, undated). "Cotton, Textile and Apparel Sector Investment Profile Summary," Addis Ababa, Ethiopia.
- Ethiopian Investment Commission (undated) "Ethiopia: Hawassa Industrial Park—a Journey towards Industrialization" "<http://www.investethiopia.gov.et/about-us/how-we-can-help?id=466>
- Ethiopian Textile Industry Development Institute (ETIDI, 2018). "Investment Opportunity in the Cotton, Textile and Garment Industry in Ethiopia," Addis Ababa, Ethiopia.
- Françoise, N. (2017). "Chinese Investors in Ethiopia: The Perfect Match?," Notes de l'Ifri, Ifri, March 2017.

- Gebreeyesus, M (2013). “Industrial Policy and Development in Ethiopia: Evolution and Present Experimentation,” WIDER Working Paper, No. 2013/125.
- Getahun, T., Kebedew, G., Balineau, G. and Fikru, S. (2018). “Manufacturing Competitiveness in Ethiopia: Developments, Challenges and Prospects,” Addis Ababa, Ethiopian Development Research Institute, Research Report 32.
- Hilton Thomas (2019). “Skills for Skills for Competitiveness – Hawassa Industrial Park Sourcing and Training Employees in the Region: Private Enterprise Programme Ethiopia,” Business Environment Reform Facility March 2019
- International Cotton Advisory Committee (ICAC, 2014). “Cotton: Review of the World Situation,” Volume 67 - Number 6.
- International Trade Center (ITC, 2016). “Textile and Clothing Value Chain Roadmap of Ethiopia:2016-2020,” Geneva, Switzerland,” Available online at <http://www.intracen.org> (accessed on 14 April 2019).
- Iqubay, A. (2018). “The Structure and Performance of the Ethiopian Manufacturing Sector,” African Development Bank Group, Working Paper Series, n° 299.
- Merima, A. and Gezahegn, A. (2013). “Agri-Chain Analysis of Cotton Sub-Sector in Ethiopia,” Ethiopian Development Research Institute, Research Report X.
- Ministry of Industry (MOI, 2017). “Investment Opportunity in Manufacturing Industry,” Federal Democratic Republic of Ethiopia.
- Ministry of Industry (MOI, 2013). “Ethiopian Industrial Development Strategic Plan (2013-2025),” Federal Democratic Republic of Ethiopia.
- Mottaleb, Khondoker Abdul, and Tetsushi Sonobe. "An inquiry into the rapid growth of the garment industry in Bangladesh." *Economic Development and Cultural Change* 60.1 (2011): 67-89.
- National Planning Commission (NPC, 2016). “Growth and Transformation Plan II (GTP II) (2015/16-2019/20),” Volume I: Main Text, The Federal Democratic Republic of Ethiopia.
- National Planning Commission (NPC, 2018). “The Second Growth and Transformation Plan (GTP II) Midterm Review Report,” The Federal Democratic Republic of Ethiopia.
- Otsuka, Keijiro, and Tetsushi Sonobe. *A cluster-based industrial development policy for low-income countries*. The World Bank, 2011.
- Staritz, C. and Whitfield, L. (2017). Made in Ethiopia: The Emergence and Evolution of the Ethiopian Apparel Export Sector, CAE Working Paper n. 2017:3.

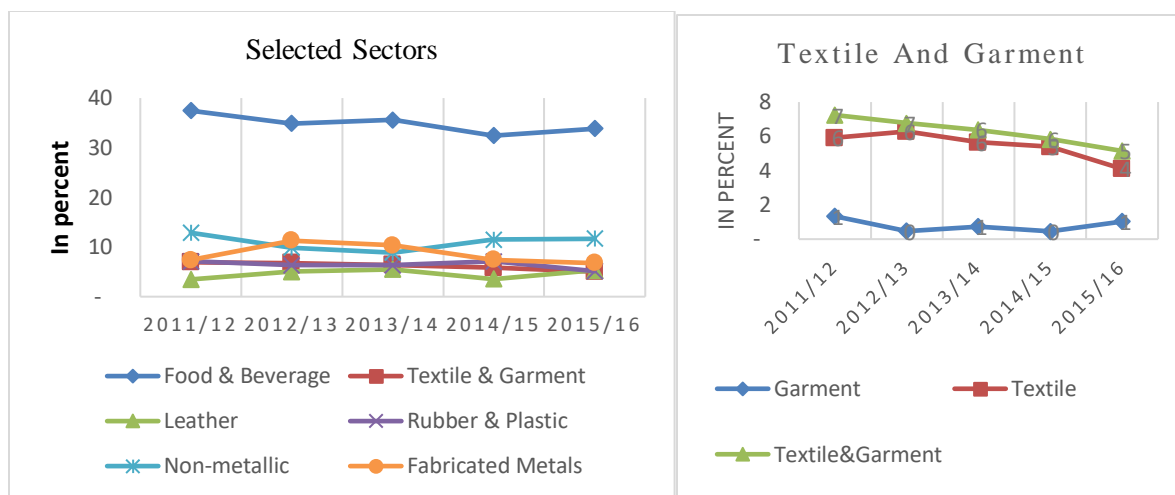
- Startiz, C., Leonhard, P. and Mike, M. (2016). “Global Value Chains, Industrial Policy, and Sustainable Development: Ethiopia’s Apparel Export Sector,” Country Case Study, Geneva: International Centre for Trade and Sustainable Development (ICTSD).
- Tekleselassie, T., Berhe, K., Getahun, T., Abebe, G. and Ageba, G. (2017). Productivity Determinants in the Manufacturing Sector in Ethiopia: Evidence from the Textile and Garment Industries, Ethiopian Development Research Institute
- Textile World. Water and Energy-Saving Solutions. Textile World Special Report. March/April 2008. Available online: <https://www.textileworld.com/textile-world/dyeing-printing-finishing-2/2008/03/water-and-energy-saving-solutions/> (accessed on 8 July 2019).
- United Nation Development Program (UNDP). Understanding African experiences in formulating and implementing plans for emergence Growing Manufacturing Industry in Ethiopia: Case Study. Paper presented at the second edition of the International Conference on the Emergence of Africa (ICEA II) from 28th to 30th March 2017, in Abidjan, Cote d’Ivoire. Available online at:  
<https://www.et.undp.org/content/dam/ethiopia/docs/Understanding%20African%20experiences%20in%20formulating%20and%20implementing%20plans%20for%20emergence%20Growing%20Manufacturing%20Industry.pdf>
- United Nations Industrial Development Organization (UNIDO, 2010a). Cluster development for pro-poor growth: the UNIDO approach. Business, Investment and Technology Services Branch, Program Development and Technical Cooperation Division, Vienna, Austria.
- USDA Foreign Agriculture Service (USDA FAS, 2018), GAIN Report Number: ET1801. <https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Ethiopia%27s%20Cotton%20Production%20Down%20-%20Imports%20Likely%20Up%20Addis%20Ababa%20Ethiopia%201-4-2018.pdf>
- Varun, V. (2016). “Cotton, Textile and Apparel Sector Investment Profile,” International Trade Center.
- Weldesilassie, A., Gebreeyesus, M., Abebe, G. and Aseffa, B. (2017). “Study on Industrial Park Development: Issues, Practices and Lessons for Ethiopia,” EDRI Research Report 29. Addis Ababa: Ethiopian Development Research Institute.
- World Bank Group (WB, 2014). “3rd Ethiopia Economic Update: Strengthening Export Performance Through Improved Competitiveness,” Washington DC, US.
- World Bank Group and Global Development Solutions (WB &GDS, undated). Kenya Apparel and Textile Industry: Diagnosis, Strategy and Action Plan. The report prepared for Ministry of Industrialization and Enterprise Development, Kenya.

World Trade Organization (WTO, 2018). “World Trade Statistical Review,” Geneva, Switzerland.

## **Appendix**

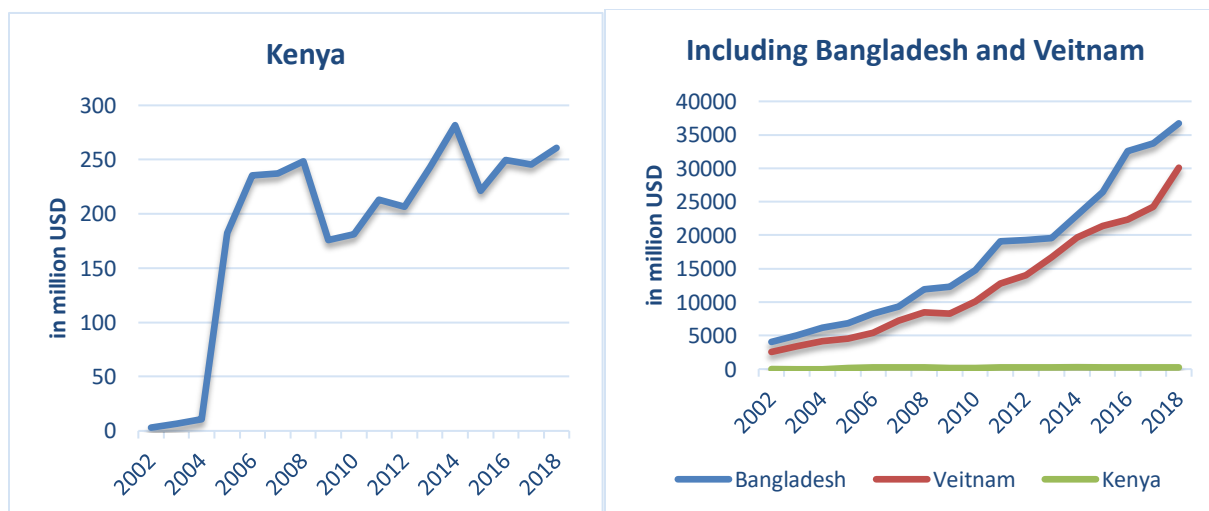
Appendix 1: Production Share of Selected Manufacturing Sector in Ethiopia (% of Total, Manufacturing)





Source: Authors' computation using CSA Large and Medium Manufacturing Survey

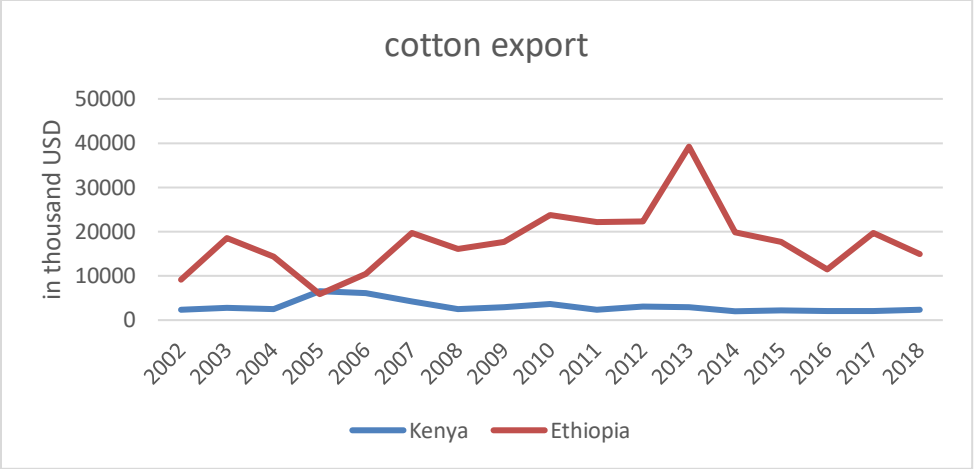
Appendix <sup>21</sup>2: The Exported Garment Value Variation between Ethiopia and benchmarked countries



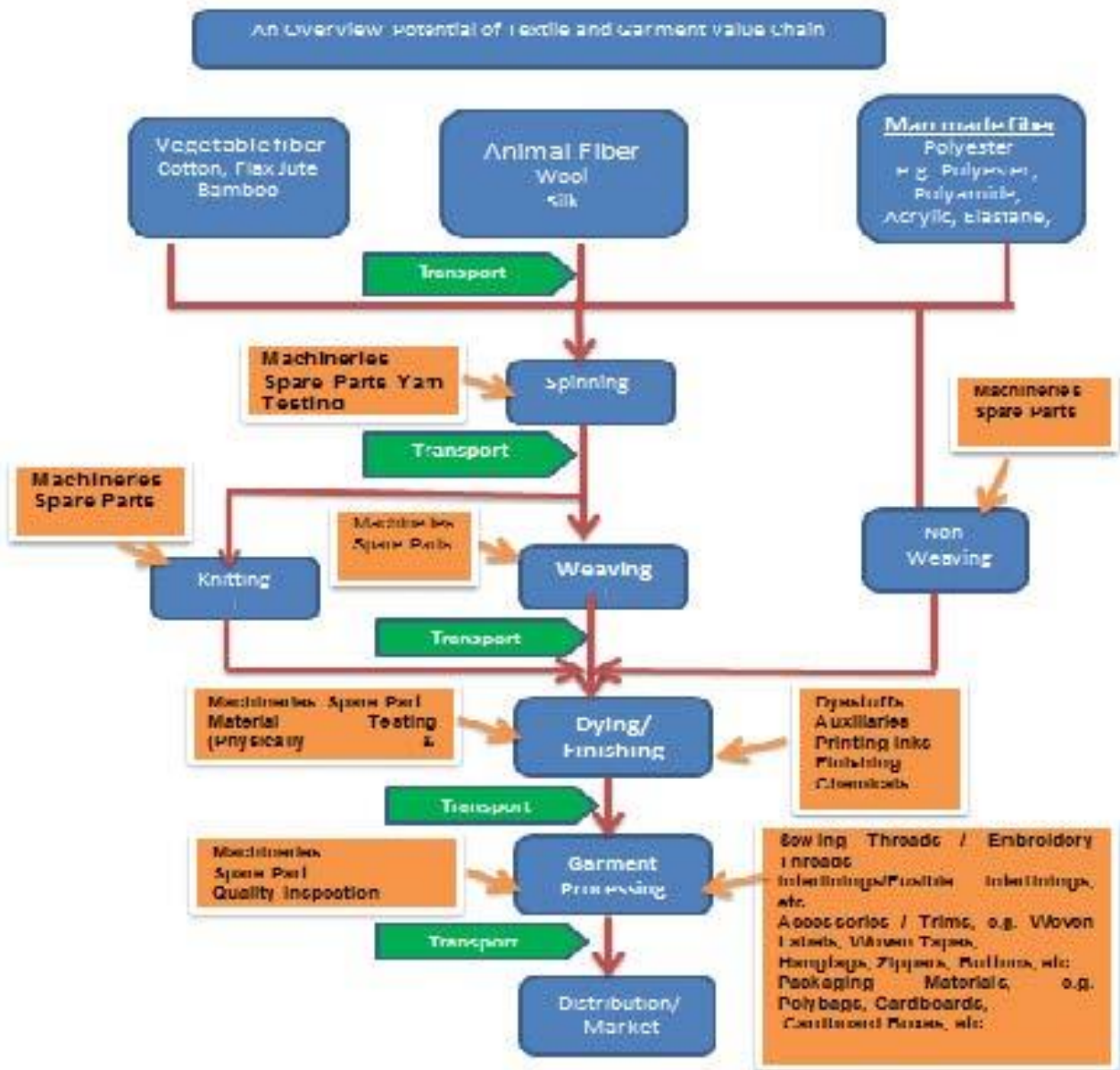
Source: Authors computation based on UN COMTRADE

Appendix 3: Trend of cotton export in Ethiopia vis-vis Kenya

<sup>21</sup> The gap was computed by taking the difference between export value of competitors countries and Ethiopia at a given time.



Source: UN COMTRADE



Source: Mol (2015)