

The **KENYA INSTITUTE** for **PUBLIC**
POLICY RESEARCH and **ANALYSIS**

Assessing the Cotton, Textile and Apparel Sector Employment Potential in Kenya

Wario Malicha and Lawrence Njoroge

DP/229/2020

THE KENYA INSTITUTE FOR PUBLIC POLICY
RESEARCH AND ANALYSIS (KIPPRA)

YOUNG PROFESSIONALS (YPs) TRAINING
PROGRAMME

Assessing the Cotton, Textile and Apparel Sector Employment Potential in Kenya

**Wario Malicha
Lawrence Njoroge**

**Kenya Institute for Public Policy
Research and Analysis**

**KIPPRA Discussion Paper No. 229
2020**

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Published 2020

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ISBN 978 9966 817 37 2

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Abstract

Cotton-textile and apparel (CTA) sector is arguably one of the industries with the potential to absorb skilled, semi-skilled, and non-skilled workers within its chain of production. This paper explores the CTA sector value chain in Kenya and specifically aims to pinpoint the segments of the CTA value chain that have the potential to contribute to job creation; identify the key constraints to growth in the CTA value chain; and to identify labour skills requirements to reach the employment potential. The global value chain analysis was employed in the value chain mapping with major nodes of the value chain being identified as cotton growing; ginning; textile milling, spinning, weaving and yarning; export market; and domestic market. Key constraints were identified across the value chain, including low participation of the youth in the lower chain of the CTA value chain, low education attainment of individuals involved in CTA activities, low yields, and low cotton quality and quantity production of cotton lint. Further, low productivity among milling firms, high cost of energy, competition from informal establishments, access to finance, cost of business permit after devolution, unfavourable fabric/apparel import and export trade, importation of firm raw materials, transport, customs, trade regulation and lack of research and development are major constraints in the sector. Sectoral skills gap analysis elucidated the existence of a skills surplus among the unemployed youth. It was computed by comparing the stock of skills in the wider target population of the unemployed youth to those required by the sector proxied by the distribution of employment in the sector by skill level. The use of skills availability ratio was employed to meet the shortfall of the sectoral skills gap analysis and revealed that higher education attainment would not attract the youth to the CTA sector. Moreover, occupational skills gap computed exist among fiber preparers, weavers, knitters and related works; weaving, knitting and sewing machine operators' occupations; tailors, dressmakers and related workers and among textile preparing, spinning and winding machine operators' occupations. The study recommends research and development to improve the sector; the establishment of a Technology Upgradation Fund; and linking education training to meet CTA sector needs. Further, to bolster the sector's growth, there is need to develop a comprehensive national policy framework to guide the development of the sector; develop a pro-sector power policy; establish an apex body to act as a focal point for the CTA stakeholders; and upholding of rule of law.

Abbreviations and Acronyms

ACTIF	African Cotton and Textile Industries Federation
AFA	Agricultural and Food Authority
AGOA	African Growth Opportunity Act
c/kWh	Cents per Kilowatt Hour
CLMB	Cotton Lint and Seed Marketing Board
CoK	Constitution of Kenya
COMESA	Common Market for Eastern and Southern Africa
CTA	Cotton Textile Apparel
DANIDA	Danish International Development Agency
DEMATEL	Decision Making Trial and Evaluation Laboratory
EAC	East Africa Community
EPZ	Export Processing Zone
EPZA	Export Processing Zones Authority
FAO	Food for Agricultural Organization
GDP	Gross Domestic Product
GoK	Government of Kenya
GVC	Global Value Chain
ICDC	Industrial Commercial Development Corporation
ICT	Information Communication Technology
IEA	Institute of Economic Affairs
IGAD	Intergovernmental Agency for Development
IMF	International Monetary Fund
ITC	International Trade Centre
KAM	Kenya Association of Manufacturers
KICOMI	Kisumu Cotton Mills
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KNOCS	Kenya National Occupations Classification Standard
MFA	Multi Fibre Agreement
MOUNTEX	Mount Kenya Textiles

RIVATEX	Rift Valley Textiles
SAPs	Structural Adjustment Programmes
SHC	Second-hand Clothes
USA	United States of America
USAID	United States Agency for International Development



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1. Introduction

The Cotton, Textile and Apparel (CTA) sector is a strategic sector and a key pillar in the manufacturing industry and the Kenyan economy at large. The sector is labour-intensive and employs both semi-skilled and un-skilled workers and hence a key contributor to rural livelihoods. Specifically, about 200,000 households and an estimated 40,000 farmers rely on proceeds from cotton growing (KenInvest, 2016). The value chain includes cotton production, ginning, spinning, and weaving, apparel production and output sales and marketing.

The tremendous nature of garments and textile sector dates back to as far as 1954 when it had the ability to absorb a large mix of labour force and contribute immensely to GDP. According to the Institute of Economic Affairs (2016) report, there were 74 textile enterprises that thrived during the early years due to import substitution strategy and had the capability to absorb close to 2,477 people in employment. The affluence of the sector during the pre-independence period is also attributed to substantial government financial investment channelled through the Industrial Commercial Development Corporation (ICDC). Recent estimates from the Kenya Association of Manufacturers (KAM) 2017 show that the CTA sector employs 21,000 and over 30,000 people in the formal and informal sectors, respectively.

Moreover, there are 65 textiles and apparel manufacturers, with 26 per cent operating under the Export Processing Zones (EPZ) while the remaining 74 per cent operate outside EPZ. In 2017, the total annual revenue of the textile and apparel sector was Ksh 62 billion while yarn exports accounted for Ksh 859 million (Kenya Association of Manufacturers, 2018). Despite the prospective moves realized through increased firm's turnover, the textile and apparel sector faces various challenges in illicit influx of unaccustomed wears into the local market, leading to loss of government revenue of up to Ksh 23.1 billion.

At micro level, the CTA contribution can be seen through the lens of households and individuals growing cotton and engaged in plucking of cotton in large-scale farms. Further, the CTA sector has high-level vertical linkages both at upstream and downstream level. The upstream segment entails cotton farming while the downstream section involves ginning, spinning, weaving, and garment manufacturing. At the upstream level, the CTA contribution can be seen through the lens of the micro level where households and individuals growing cotton and engaged in plucking of cottons in small scale and large-scale farms. This contribution can be a source of wealth for households and income generation for individuals.

At the downstream level, which is similar to the macro level, the key contribution made by the sector is through the export of garments and making of knitted apparels.

This segment comprises of a mixed labour force from casual labourers with low or no skills to highly skilled technical personnel.

Previous research has attributed lack of improvement and competitiveness of the sector to high energy cost of unit production, competition from cheap imports and secondhand clothes, illicit trade, high cost of financing and low level of mechanization of equipment (Konisha et al., 2015). The upstream segment largely faces increased cost of cotton farming and low quality of cotton fibres. Additionally, with drastic decrease, which has led to exit of several textile mills, the demand of Kenya fabric greatly surpasses local supply.

The CTA sector is among the key priority sub-sectors of the industrial formation earmarked to drive development of the manufacturing pillar under the “Big Four” agenda that has been mainstreamed into the Medium-Term Plan III of the Kenya Vision 2030. The renaissance of the sector is expected to boost value addition in cotton and textile apparel, which will have the capacity to increase cumulative investment to US\$ 2 billion with 500,000 new cotton jobs and 100,000 new apparel jobs by 2022 (Government of Kenya, 2015). The revitalization of the sector is in part expected to be realized through review of policy and incentives that will see the establishment of 5 million square feet of industrial sheds, increased cotton farming capacity to 200,000 hectares and capacity building through training of 50,000 youths and women (KAM, 2017). Undoubtedly, resuscitation of the textile and apparel sector in Kenya would harness its potential to offer employment opportunities and generate revenue for households.

Despite the weaknesses in the sector, it has potential to generate income for the large base of cotton growers in addition to significant linkages with other sectors such as transport, chemical producers, oil factories, design and marketing (Chemengich et al., 2013a). Therefore, it is important to enhance efforts towards exploiting its full potential. Given the CTA sector’s great potential to contribute to employment opportunities and spur economic growth and development, this research explores the potential of the CTA value chain in Kenya. Specifically, the research aims to: pinpoint the segments of the CTA value chain that contribute to job creation; identify the key constraints to growth of the value chain; and to identify labour skills requirements within the CTA value chain.

The rest of the paper is organized as follows: Section 2 presents the assessment of policy, institutional and legal frameworks of the CTA sector in Kenya and how it has evolved over time; Section 3 is the literature review; Methodology and data are presented in section 4; while the findings and discussions and conclusion and policy recommendations are discussed in section 5 and 6, respectively.

2. Assessment of the Policy, Institutional, and Legal Framework

2.1 Evolution of Institutional and Policy Framework in Kenya

The CTA sector in Kenya has metamorphosed from being one of the key sectors that offered job opportunities to many, second after civil service, to one of the low-absorbing sectors and among the lowest foreign exchange earners. Prior to the Government involvement in cotton production, the sector was largely controlled by the private sector until independence in 1963. From 1963-1990, the Government invested heavily through assisting the cooperatives to purchase ginneries from colonial administrators (Ikiara and Ndirangu, 2003) and introduced policy measures to control farmers prices and marketing arrangements. Substantial assistance occurred in the 1980s when the Government and donor institutions such as the United States Agency for International Development (USAID) and Danish International Development Agency (DANIDA) provided measures such as credit schemes and farm inputs that enabled development of cotton production.

In terms of institutional arrangement, after the exit of private colonial ginners, the Government came up with institutions to bolster cotton production and assist the farmers to handle marketing inefficiencies and other constraints. These included the formation of the Cotton Authority, and the Cotton Lint and Seed Marketing Board under Cotton Act to provide for policy directions in almost the whole CTA value chain from farming to marketing.

The CTA sector has experienced many policy changes ranging from substitution policy of 1963 to 1986 that called for reduction in import of goods and donor reliance to the regionalization and trade agreement under economic blocks. The Government sustained policy support to the CTA sector including market expansion under regional agreements and the AGOA initiative, which led to increase in incomes for the people. Table 1 shows a summary of policy interventions and their impact on the sector.

Cotton production started in early 1900s and spread to other parts of the country such as Nyanza, Rift Valley, Eastern and Coast in 1960s (Ikiara and Ndirangu, 2003). The production was mainly controlled by the private sector until 1963 when the Government introduced import substitution policy (Chemengich et al., 2013a). The policy was hinged on the backward integration to cotton production to facilitate industrialization through subsidy support, such as irrigation schemes and extensive Government involvement. It was not long before the cotton-textile sector was eroded by the Structural Adjustment Programme (SAP) in mid-1990s

Table 1: Review of policy regimes

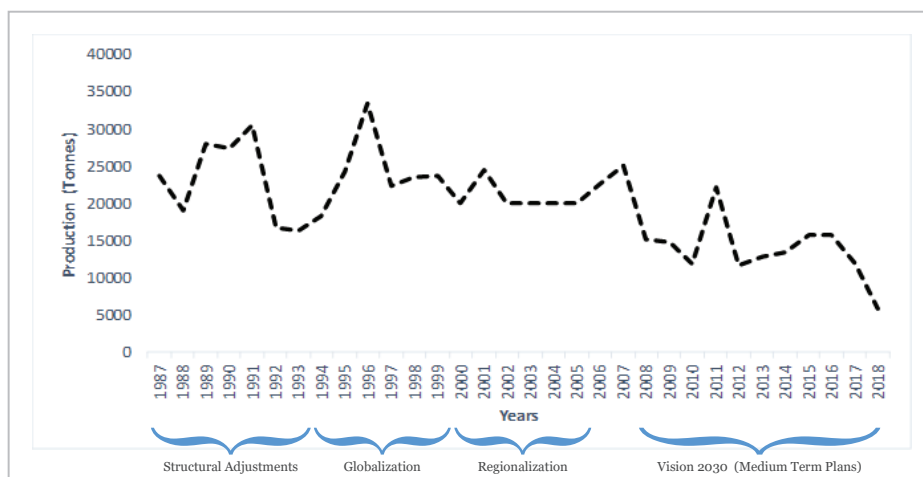
Policy Interventions	Policy Contents	Bearing on CTA sector
Import substitution regime (1962-1986)	<ul style="list-style-type: none"> • Backward integration • High tariff walls (100% duty on imported goods) • Subsidy to increase yield 	<ul style="list-style-type: none"> • Created employment and boosted cotton production • Government involvement reduced the cost to players along the value chain • Thriving of high capacity textile mills such as Kisumu Cotton Mills (KICOMI), Rift Valley Textiles (RIVATEX), Mount Kenya Textiles (MOUNTEX)
Structural Adjustment Programmes (SAPs) (1986 to mid-1990s)	<ul style="list-style-type: none"> • Reduction in international donor support • Loosening restriction on economic systems • Outsourcing, privatization • Outward-oriented development strategy 	<ul style="list-style-type: none"> • Inflow of secondhand clothes (<i>Mitumba</i>) • Beginning of CTA deterioration • Loss of jobs in the production and processing nodes for cotton
Bilateral agreements (AGOA)	<ul style="list-style-type: none"> • Market access to developed economies guaranteed without signed contract 	<ul style="list-style-type: none"> • Diversification of Kenyan textile trade basket to the United States of America (USA) market
Vision 2030 (Medium Term Plans) and Big Four Agenda	<ul style="list-style-type: none"> • Blueprint to strategize competitiveness of CTA sector • CTA earmarked for promotion and value addition 	<ul style="list-style-type: none"> • Performance remains unresponsive • Revival of RIVATEX • New variety Bt cotton • Cotton identified as a key industrial fibre crop that would stimulate growth and development as well as job creation

Source: Various policy documents

that led to export led policy regime and a reduction in Government support and withdrawal of donors.

In 1995, the Government implemented the regionalization policy, which harmonized markets-based approach through neighbourhood blocs such as the Common Market for Eastern and Southern Africa (COMESA), and Inter-Governmental Agency for Development (IGAD) (Chemengich et al., 2013a). This policy was based on market blocs that had limited impact to stop the decline of the cotton-textile sector in Kenya.

Figure 1: Cotton production in Kenya (1987-2018), in tones



Source: FAOSTAT

The curve plummeted in the 1980s due to structural adjustments policies where the International Monetary Fund (IMF) and the World Bank introduced stabilization and adjustments packages. The key ingredient of SAPs was liberalization of the economy, privatization model, and outward-oriented development strategy. These were exacerbated by world oil shocks and famine in late 1980s, that impacted adversely on the Kenyan economy making it hard for the Government to provide public utility to its citizens. The change in policy under SAPs regime was not complemented with review of Cotton Act, leading to disbanding of Cotton Board of Kenya (African Cotton & Textile Industries Federation (ACTIF) 2013). Additionally, the private sector worsened the situation due to the lack of capacity to provide certified cotton seedlings, inadequate credit facilities, and poor pricing regimes.

The next phase of regionalization was ignited by the global integration of economies and industries. For individual country markets to sustain significant trade and create wider investment base, it was imperative for them to synchronize tariffs, and trade mechanisms such as transport and market regulations.

The last phase of the policy was hinged on the successful implementation of the Economic Recovery Strategy Paper (2003) that led to the development of the Kenya Vision 2030 blueprint. The proposal was geared towards mapping target sectors that were earmarked to stimulate growth and development in the economy through value addition and creating backward and forward linkage with other sectors. The Ministry of Industrialization selected cotton as the key industrial fibre crop that would stimulate growth and development and promote job creation. Key

targeted intervention cuts across the entire value chain from farming to export/import markets. Some of the interventions among the many proposed are the “Buy Kenya Build Kenya”, which was designed to motivate local textile firms, and extension of AGOA initiative, which has enhanced foreign direct investment and export of local textiles.

2.2 State of Affairs: Global and Regional CTA Market Trends

The cotton and textile sector is vital to the economic growth and development of both 1st and 3rd world countries. Cotton is an essential input for wealth, catalyst for industrialization, and acts as an impetus to the development of a country. Further, the sector provides livelihood for the poor rural masses through provision of income streams. According to the International Trade Centre (ITC), globally, cotton is among the widely grown and highly tradable agricultural and industrial crops that occupy 2.5 per cent of the arable land after soybeans and food grains with more than 150 countries engaging in import and export trade. The cotton and textile sector has the ability to offer opportunities either indirectly or directly. More than 100 million family units directly take part in production of cotton, but in the process of value addition and work in ancillary service such as transportation, the sector has the capability to engage an estimated 350 million people (Frederick, 2010).

Sub-Saharan Africa countries have significantly expanded their export market in the CTA sector, but at a slower pace than its Asian counterparts (Morris, Plank, and Staritz, 2016). This development was driven by the change in domestic policies towards enhancing the cotton-textile sector and external policies framework such as Multi-Fibre Agreements (MFAs) and other trade agreements that aided export and foreign investments. Nevertheless, the phase out of these external regulatory frameworks such as MFA in 2004 led to a decline in the export market, which was additionally accelerated by the 2008 global economic tragedy.

According to literature, 99 per cent cotton production in the East Africa region (Ikiara and Ndirangu, 2003; Muradzikwa, 2001) is grown in arid areas, without irrigation, by small scale farmers with exemption of Ethiopia where production is done by large scale farmers accounting for 12 per cent of the regional production. In the EAC region, Tanzania is the largest producer of cotton while Ethiopia, Uganda, Madagascar and Kenya, follow respectively (USAID, 2014). Rwanda abandoned the CTA sector after it found it unproductive and less competitive in the regional market.

2.3 Synopsis of Kenya CTA Sector

The manufacturing sector in Kenya is important for economic growth and development. About 20 per cent of Kenya's Gross Domestic Product (GDP) comes from the manufacturing sector which offers job opportunities to 300,000, and 3.7 million people in formal and informal sectors, respectively (Kimemia, 2018). The CTA sector is one of the key sectors targeted by various policy instruments such as the Kenya Vision 2030 and "Big Four" agenda to put back the economy in the path to recovery. In 1984, the CTA sector recorded the highest performance when the sector had the ability to supply the local textile industry with 70,000 bales of cotton, (Ndirangu and Ikiara, 2004) and absorbed 42,000 people in the labour force (Chemengich et al., 2013b) accounting for less than 2 per cent of GDP (Institute of Economic Affairs, 2016).

As highlighted in Ikiara and Ndirangu (2003), the colonialists initiated cotton production in the 1900s but it did not gain coverage to other regions until 1960s when production of other cash crops such as tea and coffee were unsustainable. Most of the cotton farming takes place in the semi-arid parts of Kenya, particularly Lower Eastern, Coastal region and Rift Valley and Western and are carried out by small-scale farmers under rain-fed conditions. Cotton production under irrigation system was first introduced in Tana River District in 1956 under Hola Irrigation Scheme (Ikiara and Ndirangu, 2003) but did not expand well due to erratic water supply that led to farmers abandonment as a result of poor returns.

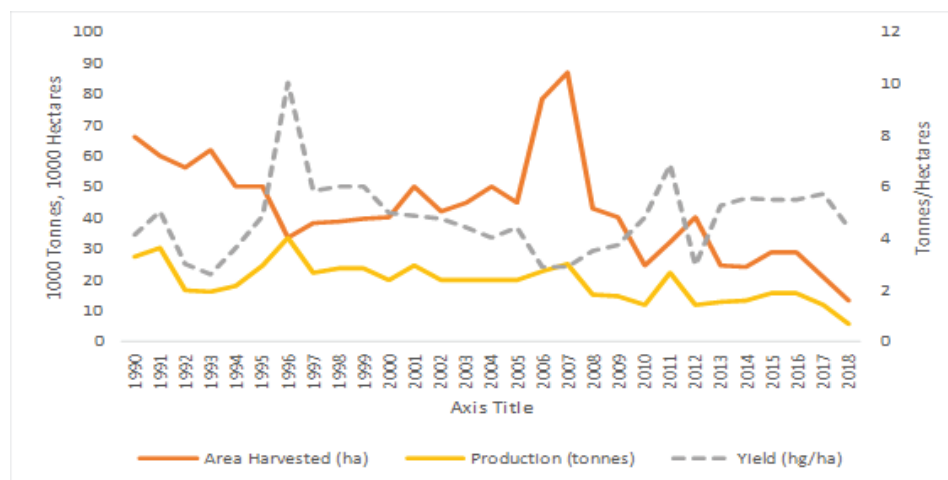
2.4 Cotton Production and Utilization

According to Export Processing Zones Authority (EPZA), the Kenyan cotton sector traditionally grew the long American strain since 1900s but the dominant strain varieties are HART 89M and West KSA 81 grown mostly in Central and Eastern; and Western and Nyanza regions, respectively (EPZA, 2005). The Government is now in the process of trying new variety cotton, Bt cotton, scientifically coded *Bacillus Thuringiensis*, which is considered to produce high yields and is resistant to pests and diseases. Empirical finding from Dowd-Urbe and Schnurr (2016) found that Bt cotton in Burkina Faso has had problems with quality relating to staple length and ginning ratios. The finding further echoed that the cotton fibres were 1/32 inch shorter than the conventional cotton strains. The decision made by the Burkina Faso government to revert back to its original conventional varieties made other countries such as Ghana, Nigeria, and Uganda to be sceptical after pilot testing of the new Bt cotton. Kenya has not fully adopted the use of Bt cotton, and is in its pilot testing stage.

As shown in Figure 2, the area harvested, yield and seed cotton production nose-dived as a result of market liberalization and the SAPs. As seen from the figure, seed cotton production declined steeply in 2007-2008, 2012-2013, 2017-2018, but this specific decline could be attributed to the political climate in the country. From 2005, the yield of seed cotton rose until it plunged in 2008 after post-election violence. Additionally, the promulgation of the Cotton Bill (2007) and provision of certified seeds by the Government prompted the cotton farmers to cultivate it on more land.

Seed cotton production plunged steeply in 2008 due to post-election crises and continuously leaped as the ripple effect of world financial crisis in 2008/2009 set in. This world crisis led to drop in import of textile by 4.5 per cent (COMESA, 2009) affecting world seed cotton production. Figure 2 indicates that the production is low in as much as the area planted has increased over time. This was due to the poor rains caused by prolonged drought in 2008, high content of cotton trash, attack by pests and diseases and lack of price incentives.

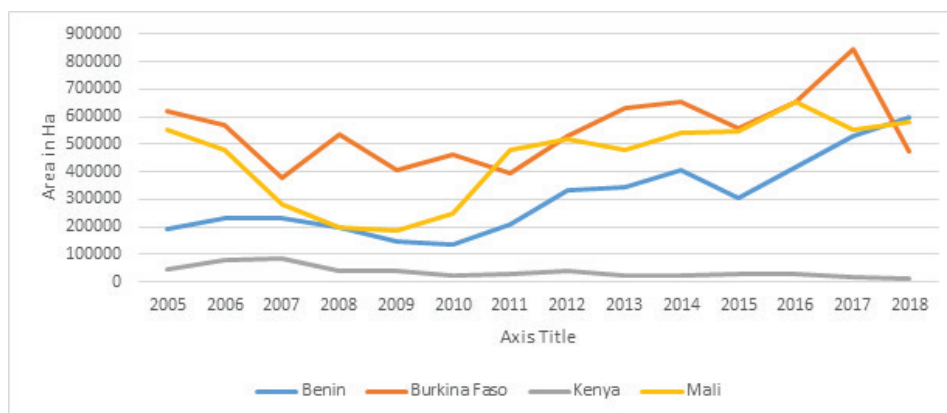
Figure 2: Area harvested, yield, and seed cotton production in Kenya, 1990-2018



Source: FAOSTAT

Figure 3 provides comparison across the countries in the global south that are among the largest producers of seed cotton. The figure shows that Kenya’s average area harvested over the period is low (below 100,000ha) compared to Burkina Faso, Benin, and Mali, which are considered the largest producers of cotton in Africa. As shown in the figure, every country has its season of deep curves, but Kenya’s curves deep slightly every election year.

Figure 3: Country comparisons of area harvested of seed cotton, 2005-2018



Source: FAOSTAT

The ginning stages encompasses the removal of cotton fibres from seeds using cotton gin machine, thus enabling much greater productivity and speeds up cotton separation. Kenya has 23 ginneries with fitted capacity to gin 140,000 bales of cotton yearly. According to KenInvest (2016), Kenya is currently at 20,000 bales of capacity utilization, accounting for less than 13 per cent of the ginneries that are operational. After the ginning stage, the cotton fibre then goes through the spinning process to generate yarn, which is then knitted to make different varieties of fabric products. According to EPZA (2005), spinning in Kenya is either done through semi or fully integrated mills, of which 10-20 per cent of yarns are exported to Rwanda, Uganda and Nigeria while the residual 80-90 per cent is integrated into the domestic value chain, which helps in weaving and knitting of the fabrics.

Kenya textile mills have had severe alteration after the SAPs policy adjustments, which saw the decline of textile mills. Kenya's potential mills only serve 7 per cent of the market while the remaining 93 per cent is imported from other countries (Chemengich et al., 2013b). The justification for this is that it is expensive to produce fabrics in Kenya compared to the imported fabrics.

Ginning is the focal point of primary cotton sector and its position and effectiveness is critical to the CTA sector. Domestic ginners consume the seed cotton produced by farmers where it is separated to cotton lint and cottonseeds. The cotton lint is later taken to textile millers where the lint is converted to yarn and seeds are transformed to cakes to be used as animal feeds. According to Agricultural and Food Authority (AFA) 2016 report, Kenya has only eight (8) operational ginneries, which are all privately-owned. They include three in Coast region, one in Nyanza,

three in Eastern and one in Rift Valley. Four of the factories are modernized. However, these ginneries have low capacity utilization at 17-31 per cent contingent on the ginnery due to low capacity and limited supply of seed cotton. There are three operational textile mills, namely, Supra textile, Thika textile mills, and Rivatex East Africa Limited.

3. Literature Review

3.1 Introduction

Structural transformation in Africa has been a topic of debate in academia, development practitioners, and donor forums. Over the last couple of years, there has been serious concerns among these stakeholders on the pace and nature of transformation in Africa. While movement of workers from low productivity to high ‘modern’ level of productivity has been the key characteristics of structural transformation among the East Asian Tigers such as Taiwan and Singapore (Bhorat et al., 2016; Newfarmer, Page and Tarp, 2019), the growth prospect in African economies did not take similar development trajectories. Based on historical perspectives, the growth path has taken on structural transformation, mostly the manufacturing sector but of recent the advancement in information technology is changing the boundaries of the industries. Lately, a wide range of tradable and highly value-added sectors are emerging, among them horticulture, Information Communication Technology (ICT), tourism, livestock, transport, cotton and textile sector and other range of services and agro-industrial-based sectors. They have been contributing much to the job creation through linkages with manufacturing industries in Africa.

3.2 Theoretical

Michael Porter first presented the concept and approaches of GVC in 1985. In his prominent book, *“Competitive Advantage: Creating and Sustaining Superior Performance”*, Porter distinguishes value chain as list of firm/company’s activities that it undertakes to deliver the goods or services in usable form to the final users in the market. He further stipulates that value chain entails auxiliary activities that facilitate the efficiency of primary activities such as production, marketing and research and development (Jones, Demirkaya and Bethmann, 2019).

Domestic and global economy are highly structured along value chains, which account for the share of a country’s Gross Domestic Product (GDP) and employment. The GVC analysis therefore entails collection of inter-firm activities that firms perform to bring product to its market and link to final consumers. Gereffi and Fernandez-Stark (2016) stressed that GVC through its power to link producers to final users of the goods/services across and other firms at the global stage can give the ability to low-income economies to capture gains about national economic development.

The methodological application of value chain analysis offers a deeper understanding of the actors and the commercialization of products. The analysis further offers opportunity to comprehend firm activities, stakeholders involved at different stages, value adding functions and stages of product development. The value chain analysis approach has also been adopted in other CTA sector studies such as Chemengich et al. (2013b) and Shrinivas and Gómez (2016).

3.3 Empirical Literature

There is a growing body of empirical literature on industries without smokestacks that focuses on the CTA policy and trade issues. On the other hand, there is limited literature on the sector's job creation potential and constraints that tend to impede the capability of the sector to enhance productivity, thereby boosting job creation prospects along its value chain.

Gardas, Raut and Narkhede (2018) investigated challenges of cotton-textile sector through expert opinions using a Delphi decision making trial and evaluation laboratory (DEMATEL) method in India to model critical challenges that affect the sustainability of the sector. The analysis found that deficiency of effective government policies and poor infrastructure were the weightiest obstacles affecting sustainability in the sector.

Information symmetry is key in the success of any sector across all the players. Shrinivas and Gómez (2016) carried out a study that scrutinized the price transmission asymmetries in Vidarbha in the Indian cotton supply chain from 2002 to 2012. The study established that the Indian market and international market were well-integrated. Evidence from the fieldwork further indicated that traders made gain in an increase in the international market price at the expense of inadequate market information among the cotton farmers. The implication of this price indifference is the effect it has on the revenue accrued to cotton farmers at the lower node of the value chain. This has the potential to discourage farmers from engaging or further enhancing their productivity thus distorting the value chain.

Brambilla and Porto (2011) analyzed the impact of cotton marketing reforms on yield from cotton farmers in rural Zambia. The study explored the effects of reforms using farm surveys, post-harvest surveys of the Zambia Central Statistical Office that spanned from 1997-2002, which carried out a survey on a cross section of cotton growers with information on land allocations, cotton outputs and inputs factors. The findings were in two phases when the outgrowers'/farmers' schemes had failed to enhance contract enforcement and commitment and when they achieved the latter. In the first period, cotton farmers resorted to slide back to subsistence farming and hence a general decline in the cotton yield per hectare

translating to a 32 per cent decline of cotton output at the national level from 1988 to 2002. The next phase, marked with the revival of the out growers' schemes, saw majority of the cotton farmers committing large portions of their lands to cotton farming, which led to subsequent increase in substantial cotton yields. In the Kenyan CTA sector, growing of cotton has been cited to be below its potential and thus the study seeks to seek alternative policy directions to increase production.

Midega et al. (2012) carried out a field research on cotton pest managements and controls, which affects cotton yields. The study was conducted in cotton growing agro-ecological zones of Western Kenya, namely Rarieda, Bondo, Siaya, Homa Bay in 2011 using a combination of farm-level cross sectional data. The study established that cotton farmers lacked adequate knowledge with regard to ascertaining pest and disease management approaches. About 93.2 per cent cited pests as the main factor that affected cotton production. The low output in growing affects the whole CTA sector and thus the study seeks to establish whether constraints are still a hindrance in the value chain at the lower node.

Chemengich et al. (2013b) investigated the Kenyan CTA policy framework using secondary review of literature and primary data. The collection of primary data comprised of a representative sample of 55 stakeholders in the CTA value chain to obtain key information on historical policy environments in the sector. The sample stakeholders cut across the entire value chain, consisting of farmers groups, ginners, spinners and mills, weavers, knitters and processors, garment manufacturers, university and training centres, fashion designers, research institutions and trade and investment promotion institutions.

The study mapped constraints along the value chain and found that cotton farmers complained of high input cost accounting for 35 per cent to 57 per cent of the overhead costs. Coupling this was the poor cotton yields as result of over dependency on rain-fed farming, use of uncertified seeds and marketing challenge. At the ginning stage, the main challenge highlighted low supply of seed cotton and high cost of electricity. The study analyzed the cost of energy among different countries and found that Kenya charges US\$ 0.15 c/kWh compared to its competitors such as Ethiopia with US\$ 0.04 c/kWh. Constraints relating to increased energy costs cut across the complete value chain; for instance, at the spinning and milling phase, energy accounted for 25 and 35 per cent of combing costs and dyeing cost, respectively. At the garment manufacturing level, 20 per cent of the maintenance cost accrued to power and the cost per kilowatt per hour ranged from US\$ 0.15 - \$0.18 c/kWh. The price of power sustained by manufacturers was 2.7 times more compared to developed states such as China. The study sought to further investigate the current impact of energy in the value chain more so at the manufacturing node and establish other constraints along the value chain.

Food for Agriculture Organization (FAO) conducted a study to investigate the analysis of incentive and disincentives of the Kenyan CTA sector from 2005 to 2010. The study concluded that the low supply of cotton lint in the local market resulted to importation of cotton lint from regional partners such as Tanzania and Uganda. The findings further showed that cotton growers received price impediments throughout the period under analysis, with the prevailing cost structure in the cotton value chain. Further, the analysis underscored that import prices of lint rose while domestic prices reduced for ginneries and farmers, which likely led to textile mill's monopsony powers over ginneries and subsequently over cotton growers.

A survey by ur Rehman and Ali (2008) on skills and knowledge gap in garments shops in Pakistan revealed that prices of clothing varied from Rs 2,000 to Rs 50,000 when creative designs are employed. This implies that design of a garment indicates a substantial value to the garment products. About 25 per cent of the respondents in the survey labelled creativity as an instrument that contributed value to the garment, thereby potentially fetching globally a higher market price. The finding vividly exemplifies that capacity development in creativity in the fashion and clothing sector would potentially add to the revitalization of the sector and open more opportunities.

4. Methodology

The study adopts descriptive design to answer its objectives based on the nature of the study. To achieve the first objective of the study of identifying the segments of the CTA value chain that contributes to job creation, the study drew from the global value chain (GVC) analysis (Jones, Demirkaya and Bethmann, 2019).

To achieve the second objective of identifying constraints to growth across the CTA value chain, descriptive statistics was employed, including the use of tabulations and frequencies. Moreover, qualitative data was analyzed thematically to suit the needs of the study. To achieve the third objective on identifying labour skills requirements for the CTA sector to reach employment potential, the study adopted the methodology employed by (Bhorat et al., 2020). Their study suggested a framework of identifying sectoral skills gaps and occupational skills gaps.

Skills gap computation is achieved by comparing the stock of skills in the wider target population of the unemployed youth to those required by the sector proxied by the distribution of employment in the sector by skill level. Education attainment is used as the proxy to determine the skill requirement of the sector as it is easier to determine from available data. The sectoral skills gap is illustrated by the set of equations below.

$$S = [s_1, s_2, \dots s_j] \quad 1(a)$$

$$D = [d_1, d_2, \dots d_j] . \quad 1(b)$$

$$S - D = [(s_1 - d_1), (s_2 - d_2), \dots (s_j - d_j)] \quad 2$$

The single row matrix, S , represents skills supply with the number of unemployed youth being separated in education cohorts. Single row matrix, D , illustrates the number of workers required in each education cohort for a single sector, which is calculated by summing the individuals required in each skill level for all occupations in the sector. Subtracting matrix D from matrix S gives a matrix of the skill gap, or the shortage/surplus of workers for each level of skill.

However, a limitation of the sectoral skills gap is that it only notes whether the skills exist in the target unemployed youth population. Thus, it does not consider that not all the target population will be employed in this specific sector for the skills base will need to accommodate other sectors as well. As an alternative, the skill availability ratio for the sector is considered in this case as a broader indicator of skills availability. This ratio measures the skills that exist in the unemployed youth population against the skills required in the sector for each of the skills

categories. It is a measure of the extent to which the required skills exist in the target population.

$$\text{Skills Availability ratio} = \text{Skill Supply} / \text{Total skill requirement}$$

Very large skills availability ratio insinuates that not only are the skills existing within the general unemployed youth population, they can also be attracted to the sector. Moreover, when the availability ratio is below 10, there may be concerns about whether the skills can be attracted to the sector.

For the occupational skills gap, mapping was based on the Kenya National Occupations Classification Standard (Government of Kenya, 2000). In this case, the occupational skill gap was calculated as the difference between the skills requirement for a given occupation based on KNOCS and the national modal education level, as measured by years of schooling of the unemployed youth.

The measure indicates the extent to which an individual is under- or over-qualified for a given role in a particular sector. Besides, the approach has the added value of allowing occupations to be ranked according to the types of jobs with the biggest misalignment in skills.

In equation form, for each occupation i , we would have a skill requirement as per the chosen measure of skill, R , and this would then need to be compared against the typical youth's skill level according to that measure, Y . For any occupation i , the occupational skill gap can then be represented as:

$$Y - R_i$$

A negative gap indicates that there is a gap that needs to be filled to meet the occupational skills requirement for the typical unemployed youth, while a positive number suggests that the typical unemployed youth already has the skills required for that occupation.

4.1 Data

The study used secondary data from the World Bank (2018) Enterprise Survey and 2005/06 and 2015/2016 Kenya Household Integrated Budget Survey (KHIBS) collected from different regions of the country. Analysis of these dataset was done using STATA v.16

The World Bank (2018) Enterprise Survey had a three level of stratification in terms of industries, firm sizes, and regions using stratified sampling of 1001 samples. Specifically, the survey covered the region of Nairobi, Mombasa,

Kisumu, Migori, Trans Nzoia, Kilifi, Machakos, Kirinyanga, Kiambu, Uasin Gishu and Nakuru. The sector-sampling sector comprises of food, textiles and garments, chemical, pharmaceutical and plastics, retail, tourism, other manufacturing, and other services. From this dataset, the study investigated the constraints within the CTA sector, particularly the middle level and high-level node of the value chain and the characteristics of firms and the types of jobs available at different nodes in the sampled regions where the sector was located.

The World Bank dataset in addition had 301 variables, of which several variables relating to firms' constraints and employment at production and non-production, and individuals' skills were examined. Constraints scrutinized were political instability, trade regulations, informal sector competition, tax rates, and tax administration, labour regulations, education levels, imports of raw material, international market share and access to finance.

The cross-sectional household and enterprise survey from the Kenya Household Integrated Budget Survey (KHIBS) 2015/2016 took into consideration the number of households, area of residence and the domains of analysis using stratified sampling by dividing each county into urban and rural areas, which led to creation of 92 sampling strata. Employing two-stage selection on each sampling stratum of 2,400 clusters from with equal chance of selection from 5,360 clusters, the households considered for the study translated to 24,000 households.

KIHBS 2005/06 was the first integrated household survey to be conducted by KNBS. The survey covered all the districts in Kenya with its representativeness being from the national; urban/rural; provincial; and district levels. The survey drew a sample from the set of 540 urban clusters and the 1,260 rural clusters under the national sampling frame. The survey covered a total of 1,343 clusters with a total sample of 13,430 households, stratified by district and by urban/rural. The 1,343 clusters were selected with equal probability within a district from the national sampling frame at the first stage. In the second stage, 10 households were selected with equal probability in each cluster.

The study further used desk-based reviews based on literature to further fill gaps where available secondary data fell short. In addition, more secondary data was obtained from KNBS and the International Trade Centre (ITC).

5. Results and Discussion

This section presents the findings from data analysis, which also integrated available and relevant literature in the discussions appropriately.

5.1 Descriptive Statistics

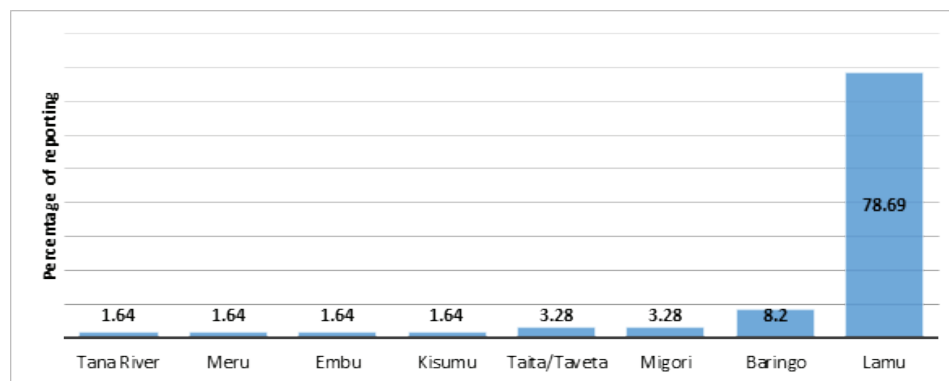
5.1.1 Cotton growing

Growing of cotton - counties engaging in CTA value chain activities

The Kenya CTA sector is largely characterized by diverse stakeholders. At the lowest node of the chain are the cotton growers that rely on rain-fed cotton farming in the arid and semi-arid lands (ASALs) of Kenya. Majority of the cotton farming is done on smallholding of less than one hectare. Most of the cotton-cultivated regions are Coast Province (Lamu, Taita Taveta and Tana River), Nyanza Province (Kisumu and Migori), Eastern Province (Meru and Embu) and Rift Valley Province (Baringo) (KHIBS, 2015/16).

In addition, farmers receive free seeds at a subsidized rate from the Government while other farmers source inputs from agro-input dealers or at their local ginneries at a high cost (Feed the Future, 2018).

Figure 4: Counties growing cotton from KHIBS2015/16 survey



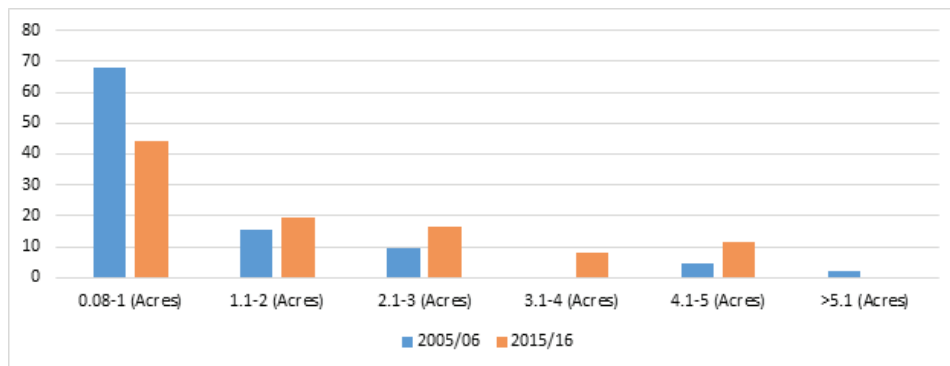
Source: KHIBS 2015/16

Land under cotton cultivation

The maximum acreage of land under cotton cultivation in 2015/16 was 5 acres, a 0.5 acres reduction from 2005/06 while the minimum was 0.5 acres, which was an improvement from 0.08 acres in 2005/06. On average, 2.2 acres of land were

under cotton cultivation in the growing counties, which was an improvement from 1.3 acres in 2005/06. Majority of households practicing cotton farming use an acre of their land or less. In 2005/06, there were no farms that ranged 3.1 to 4 acres that reported to grow cotton while in 2015/16 the maximum land under cotton growing ranged from 4.1 to 5 acres, which was a 7 per cent improvement from 2005/06.

Figure 5: Land under cotton cultivation



Source: KIHBS 2005/06 & 2015/16

Total output and derived income from cotton growing

Despite the number of households that grew cotton reduced by 55 per cent from 2005/06 to 2015/16, while output from the households improved by 1.7 per cent. The total output of the cotton grown in 2015/16 was on average 695.5 kgs per household, which recorded 82 per cent improvement from 2005/06 averages of 383 kgs. Moreover, the maximum harvest recorded was 3,300 kgs, which was also a 6.7 per cent increase from 3,100 kgs in 2005/06. The minimum harvest recorded was 50 kgs, which was an additional 49 kgs from the previous period of 2005/06. All the output was reported to have been sold, earning the household an average of Ksh 31,101 in 2015/16, which was an additional Ksh 22,107 from 2005/06. The minimum a household earned in 2015/16 was Ksh 2,500 while the household with the most output earned Ksh 165,000 compared to Ksh 190 and Ksh 68,200, respectively in 2005/06 (KIHBS 2005/06 and 2015/16).

5.1.2 Ginning

After cotton is harvested from farms which are generally smallholder cotton farms, the product is sold to ginneries that separate the fibre from the seed to produce cotton lint. The cotton lint is then sold to local spinners or textile mills while about 10 per cent of the seeds are used for replanting. The remaining cotton seed is

processed into oil and cottonseed cake for animal feed (Monroy, Mulinge, and Witwer, 2012). Moreover, 70 per cent of the ginneries purchase the seed cotton directly from farmers while 30 per cent bought through agents. In addition, the supply of local cotton seed is not enough to meet the ginnery capacity, thus the country imports additional lint to meet the local demand from textile mills (Feed the Future, 2018).

There are 24 ginneries in Kenya with only 10 of them reported to be active. Most of them collapsed after the decline of cotton farming in the regions of their operation. Some of the major privately owned ginneries are Kibos and Nyanza Ginneries in Nyanza Province and Tharaka Ginnery in Eastern Province. The estimated installed capacity of the ginneries is 140,000 bales annually, but the utilized capacity is 14 per cent that translates to about 200,000 bales. This suggests that even with a 400 per cent increase in cotton production, the ginneries would still be able to handle production (African Cotton and Textile Industries Federation, 2013).

5.1.3 Spinning and weaving

In the 1980s, slightly before the SAPs, and according to Regional Agricultural Trade Expansion Support Programme (2003) study, Kenya had giant spinners such as KICOMI, Mountex, Raymond's, Heritage millers and RIVATEX (revitalized by the Government in 2019) which became obsolete due to technological advancement.

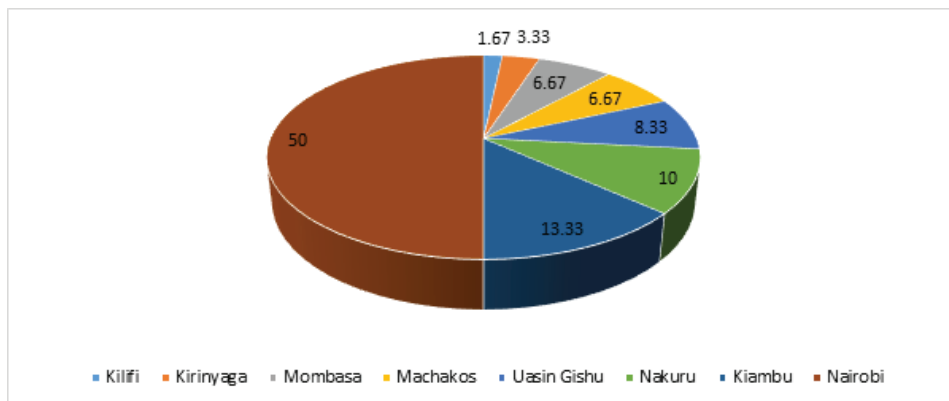
Kenya is currently reported to have 52 textile mills in total that convert fibre into yarn. Only 15 of the mills are operational, utilizing 45 per cent of their total capacity. Notably, the technology employed in the mills is outdated hence low productivity of the mills which also suffer from low skilled labour force supply. Besides, the capacity of the mills is 140,000 spindles but only 40–50 per cent of the capacity is utilized. A few mills produce cotton yarns, blended yarn, and polyester, acrylic, and sewing threads, which are sold in Kenya and exported to Uganda, Rwanda, Tanzania, and Nigeria. Some semi-integrated mills cover the entire production value chain from spinning to knitting, dyeing, and finishing. Stand-alone knitting and weaving firms import their yarn from India, Indonesia, China, and Taiwan but also use 80-90 per cent of domestic yarns (World Bank and Global Development Solutions, 2015).

According to the ACTIF (2013) report on the policy research on the Kenyan textile sector, Kenya manufactured less than 12 million square meters of woven fabric per year. This was only 7 per cent of the market potential, resulting to importation of the remaining 93 per cent, which was considered to be economical given the high cost of production in the country.

5.1.4 Textile and garments manufacturing

The following counties had firms engaged in the manufacturing of textiles and garments: Kilifi, Kirinyaga, Mombasa, Machakos, Uasin Gishu, Nakuru, Kiambu and Nairobi. Nairobi recorded the largest number of firms interviewed in the 2018 World Bank Enterprise Survey.

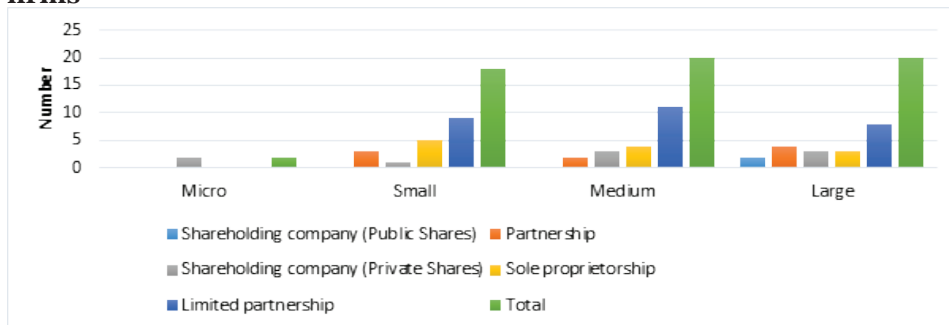
Figure 6: Counties engaging in the manufacturing of textiles and garments



Source: World Bank (2018) Enterprise Survey

In terms of firm characteristics, the World Bank survey considered: limited partnerships; sole proprietors; shareholding companies whose shares were privately traded and those that were publicly traded in the stock market; and partnerships. Their sizes are defined by the number of employees from micro; small; medium; and large. Figure 7 presents the summary of the respondent companies. Majority of the respondent firms were medium and large-sized firms.

Figure 7: Firm characteristics of the textile and apparel-manufacturing firms



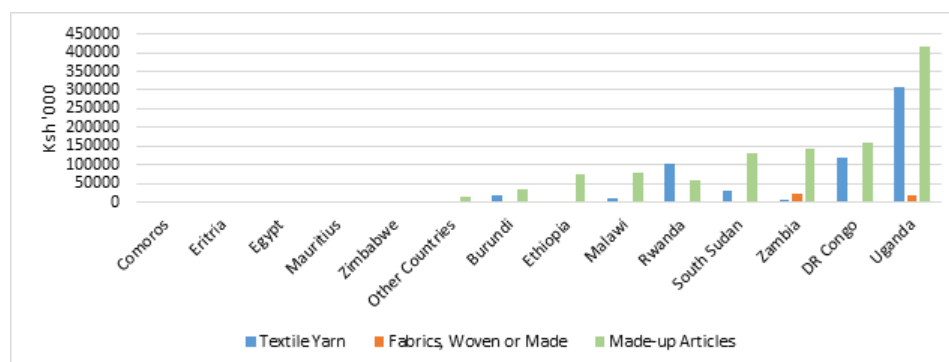
Source: World Bank (2018), Enterprise Survey

5.1.5 Export market

Kenya has a preferential trade agreement (AGOA) with the US that will end in the year 2025. Kenyan firms therefore receive a duty and quota free access to the US. The agreement has seen Kenyan apparel exports to the US take the largest share (US\$ 352 million) of the total exports in 2016. In a nutshell, textile and garment manufacturers have a strong export-orientation despite most of their inputs being imported, more so cotton lint (Feed the Future, 2018).

Moreover, KNBS (2019) data on exports indicates that Kenyan exports to the COMESA region were mostly sold in Uganda (Ksh 746,257,000) which translates to 42 per cent of the total exports. The most exported products to the region were made-up articles (Ksh 1.1 billion) and textile yarn (Ksh 0.6 billion) with only Ksh 0.05 billion recorded for fabrics, woven or made exported too. There were no exports to the Comoros and Eritrea in 2018 while a very minimal exportation worth Ksh 6,000 was made to Egypt.

Figure 8: 2018 COMESA exports



Source: KNBS (2018), Economic Survey

5.2 Segments of the CTA Value Chain that Contribute to Job Creation

From the value chain development, the key nodes of the CTA value chain were identified as: cotton growing; ginning; milling and spinning; manufacturing; and sale of outputs both in the local and export market. Various stakeholders, activities, and jobs created were also mapped in the chain development (Figure 9).

Figure 9: Mapping of CTA value chain, actors, value adding functions, and prospective jobs



Source: Author's Conceptualization

5.3 Constraints to Growth of the CTA Value Chain

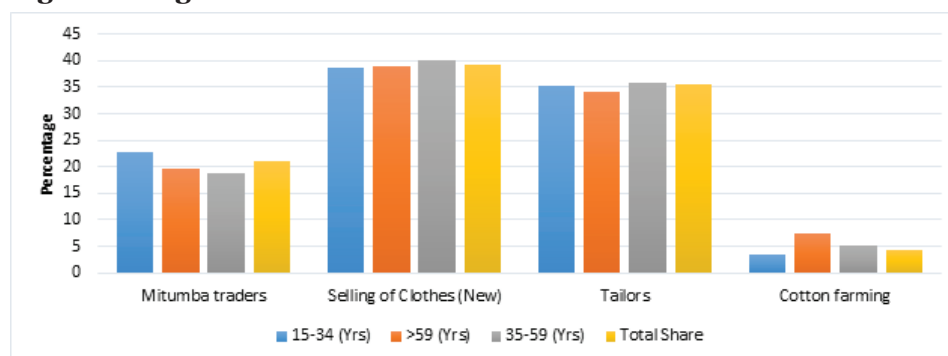
Literature (Chemengich et al., 2013b; Gitonga et al., 2010; Muradzikwa, 2001) indicates that the nature of constraints determines the level of firms and farm productivity and employment opportunities within that sector. The study hypothesized that firm characteristics and degree of constraints would significantly impact the ability of the sector to realize the potential to create employment and enhance growth and development of the sector. The following are the study findings.

5.3.1 Growing of cotton and individual business

Low participation of the youth in the lower chain of the CTA value chain

From the KIHBS data analysis, the involvement of individuals in CTA activities was classified as: *Mitumba* trading (sale of secondhand clothes); selling of clothes (new); tailoring; and cotton farming. Findings indicate that most of the people interviewed were working in the sale of clothes (39.2%), followed by tailoring (35.4%), and sale of *Mitumba* (21.1%), respectively. Cotton farming (4.3%) had the least participation in the CTA value chain. Considering the age of persons involved in the activities, majority of the youth were in the sale of clothes, followed by tailoring and sale of *Mitumba*, respectively. Their participation in cotton farming was the least (3.4%). Notably, the youth form the majority in the sale of *Mitumba* (22.7%), those aged above 59 years in cotton farming (7.3%) while those aged 35-59 years form the majority (40.1%) in the sale of clothes (Figure 10). This suggests that most of the youth are more likely to be in the higher nodes (value addition) of the value chain compared to the lower nodes that is cotton farming. This is a challenge given their potential in contributing to the growth of the value chain in the growing of cotton.

Figure 10: Age and business involvement

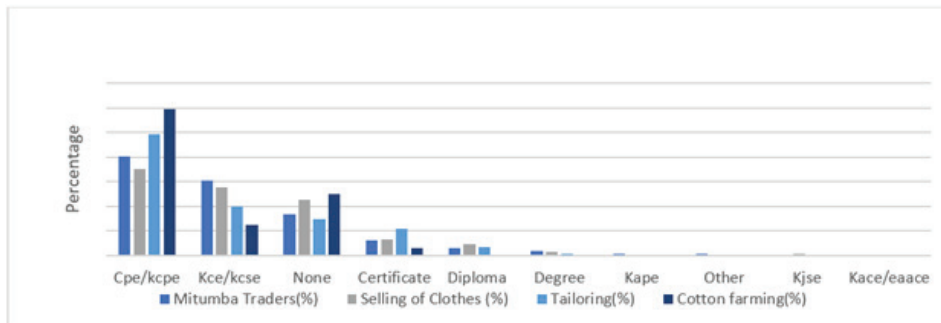


Source: KIHBS 2015/16

Low education attainment of individuals involved in CTA activities

The more an individual has higher education attainment, the less likely the individual is to be involved in the sale of *Mitumba*, selling of clothes and tailoring. In addition, an individual with a degree is more likely not to engage in cotton farming and will probably be selling *Mitumba*, clothes or minimally engage in tailoring. Those engaged in the farming of cotton were more likely to have either attained primary level education (CPE/KCPE), no education, secondary level education or the highest education attainment being a certificate. Similarly, an individual with primary level of education is more likely to be a tailor and a *Mitumba* and a new clothes seller (Figure 11). The findings insinuate that there is a need for high skilled labour force across the value chain. Those with higher educational attainment have the capacity of unlocking the full potential of the CTA value chain to increase its productivity and ability to employ more persons. However, this should go hand in hand with creativity; as ur Rehman and Ali (2008) note, when creative designs are employed, the products fetch higher market prices with a higher potential to penetrate global markets.

Figure 11: Education level and CTA activities



Source: KIHBS 2015/16

Low yields

Farmers have cited that poor-quality seed, high input costs, weather, and low farmgate prices that prevent re-investment as key contributors to low yields. Additionally, the lack of access to funds to improve farming have led to the farmers failure to meet the market demands for both yield and quality, perpetuating low incomes and preventing investments in higher quality inputs. Besides, limited public capacity for extension services excludes farmers from climate-smart agriculture practices that could offset costs, improve yields and build resilience (Ikiara and Ndirangu, 2003; Feed the Future, 2018). To unlock the full potential of the CTA sector, the cotton seed production process has to improve so as to supply the required quality and quantity of seeds demanded in the production process.

5.3.2 Ginning constraints

Low cotton quality and quantity production

According to the Feed the Future (2018) policy brief on enhancing investment attractiveness in Kenya's cotton sector, the poor quality of cotton production limits the quality and quantity of cotton lint produced by ginneries. This later translates to low quality domestic fabric that is not fit for export, which inhibits the growth of the CTA sector. The low quality and quantity of lint is also exacerbated by the use of old and inefficient ginning equipment (Monroy, Mulinge and Witwer, 2012). Thus, unlocking of the CTA sector's potential will only be achieved if the updated processing technology is utilized and the supply of the correct seeds quantity and quality is also supplied from the local cotton farmers.

5.3.3 Textile milling constraints

Low quality and quantity supply of domestic cotton lint

As aforementioned, low quality seed results to low production of cotton lint, which is not appropriate for production of export quality products. As a result, the textile mills are forced to import input materials from abroad, which translates to about 93 per cent of the cotton lint they use (ACTIF, 2013; World Bank & Global Development Solutions, 2015).

Low productivity

The World Bank and Global Development Solutions report (2015) also attributed low productivity to the use of outdated technology in the textile mills and low levels of skilled labour supply. It is therefore imperative to address the two issues as a means of unlocking the full potential of the CTA value chain for job creation and economic progress.

5.3.4 Constraints in the manufacturing of textiles and garments

Cost of energy (electricity)

Most (52%) of the firms reported that to an extent, electricity was an obstacle in the course of their daily operations. This translated in affecting the profit making of the businesses; for instance, 14 per cent of the firms attributed 10 per cent of their annual sales losses to power outages. 83 per cent of the firms had reported that they experienced power outages during the fiscal year of operation. Moreover, the number of power outages in a typical month during the fiscal year of operation was on average 5 while the maximum number of outages were 20 with the minimal

being one. In addition, preceding researches attribute lack of improvement and competitiveness of the sector to high energy cost of unit production (Konisha et al., 2015).

Competition from informal Establishments

Most (56.7%) of the firms sighted competition from informal establishments as an obstacle in their growth at varied degrees. However, 38 per cent of the firms did not consider the competition as a challenge. Most of the complaints were from the small, medium, and large-sized companies.

Access to finance

Access to finance was considered a constraint in the operation of the textile and garments manufacturing firms by over 65 per cent of the firms in varying extents. About 21 per cent rated access to finance as a moderate obstacle in the operations of their manufacturing activities while only 3 per cent of the firms reported it as a severe obstacle.

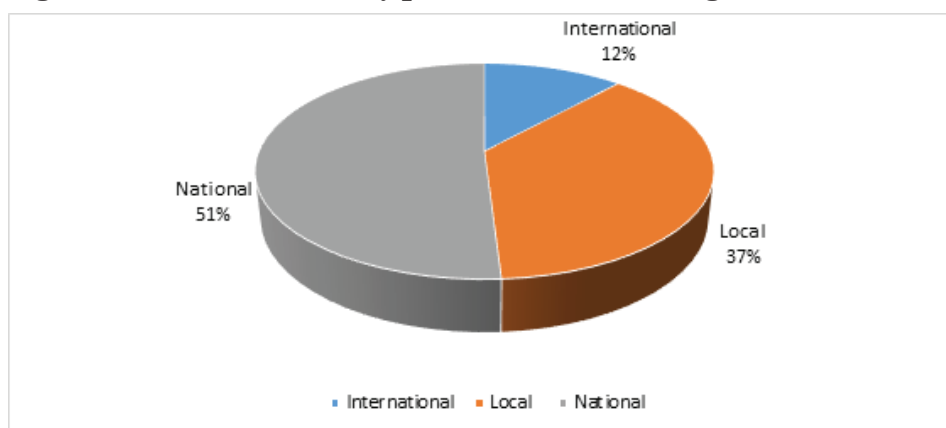
Cost of business permit after devolution

The introduction of devolution in the country resulted in the establishment of County Governments. To raise their revenues, County Governments charge some fees when issuing/renewing business permits to businesses. About 72 per cent of the firms felt that County Governments increased the cost of the service, with only 20 per cent of the firms reporting that the cost remained the same after devolution. This can be a major hindrance to a business that is yet to be formalized or those that are yet to be established, especially if they are micro and small enterprises. Besides, only approximately 3 per cent of the firms felt that the cost had decreased while for the other 3 per cent, they felt it was not applicable to their firms and the remaining 2 per cent were not aware of the change. The same challenge is elucidated when 65 per cent of the firms indicated that the cost of business licensing and permits were an obstacle in the operation of their firms, with the remaining 35 per cent stating otherwise.

Unfavourable Fabric/Apparel Import and export trade

The main products from the Kenyan textile and garment firms are sold within the country, with only 12 per cent of the products reported to be exported in the international market (Figure 12). 51 per cent of the main products were sold across regions within the country while 37 per cent was sold within the proximity of the firm. The small share of the exported product is a constraint towards the growth of the local firms as the country is reported to have imported more than it exports as shown in Figure 13 and Figure 14.

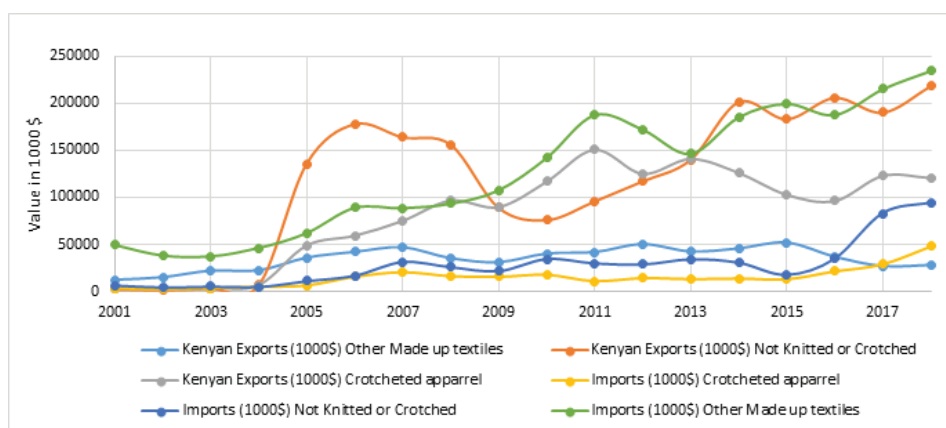
Figure 12: Market for locally produced textiles and garments



Source: World Bank (2018) Enterprise Survey

Data from International Trade Centre (ITC) reveals that the value of imports for other made-up textiles exceeded the value of exports in the entire review period. The difference between the two values increased more from the year 2008 onwards. Kenyan exports for crocheted apparel exceeded imports significantly from the year 2004, with the best performance recorded in 2011 although the gap seems to be slowly narrowing since 2016. Kenyan exports for not knitted or crocheted apparels exceeded imports for the same from 2004 in the review period. The exports performed well until 2008 before declining up to the year 2010 and improved continuously to the year 2014. After a series of fluctuations in 2015 to 2017, the exports improved, recording their highest value in 2018 slightly below other made-up textile imports.

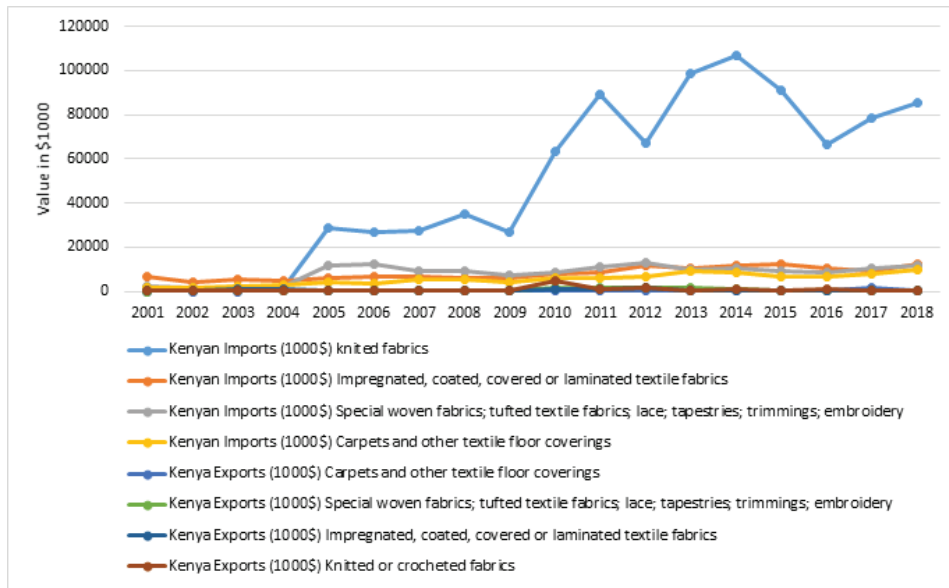
Figure 13: Kenya exports versus imports of textiles and apparels



Source: ITC (2018)

From Figure 14, Kenya's imports value for knitted fabrics since the year 2004 improved compared to other exports and imports of fabrics mainly because of the AGOA policy. The imports were mainly used for the manufacture of clothes to be exported as a result of the AGOA policy. There was a slight decline in 2009 due to the expiry of the policy but after its renewal, the imports value improved up to the year 2011 and sharply declined in 2012 and 2016. This shows the effect the value of imports has on locally knitted fabric whose values are low compared to the exports hindering the growth of the local fabric market.

Figure 14: Assorted fabric products trade



Source: ITC (2018)

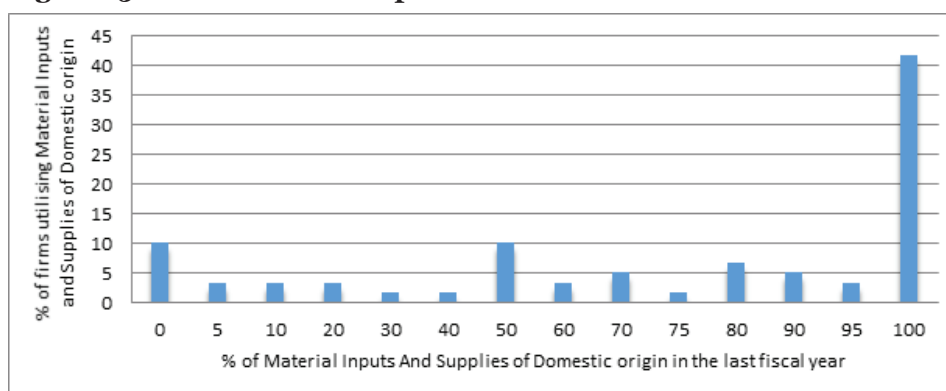
Importation of firm raw materials

Considering the source of inputs in the firms, 48 per cent of the firms imported a proportion of their inputs for production compared to 42 per cent of the firms that utilized 100 per cent local inputs. Besides, 10 per cent of the firms reported to import 100 per cent of their inputs for their production process. With majority of the firms importing all or part of their firm inputs, the growth of the local inputs value chain faces a growth challenge given the current state of affairs (Figure 15).

Transport, customs, and trade regulation

About 27 per cent of the responding firms did not consider transport as an obstacle in the operations of the firms. However, 63 per cent of the firms reported transport as a hindrance in the operations of the firms. 35 per cent of the firms considered

Figure 15: Sources of firm inputs



Source: World Bank (2018), Enterprise Survey

customs and trade regulations in the country to be no obstacle in the operations of their firms, while 65 per cent of the firms cited it as a form of obstacle in the conduct of their operations. This insinuates that the growth of most of the firms in the manufacture of textiles and garments is hampered by these constraints.

Lack of research and development

Considering the last fiscal year before the interview, firms were asked to report whether they spent any amount on research and development (R&D). Majority of the firms representing 87 per cent of the respondents reported to have not committed any funds to R&D, with only 13 per cent of them reporting to have done so. Research and Development (R&D) plays a pivotal role in the growth of any sector of an economy and thus the implication of not carrying out R&D impedes the growth of the textile and garments manufacturing value chain node. The situation is further evident when the firms are asked to report whether they have carried out any training on the development of new products or processes with 58 per cent of the firms reported not to have done so. Only 40 per cent of the firms reported that they had done so with the remaining 2 per cent reporting not to be aware of such an activity within the firm.

Challenges of technological upgrade

The use of the appropriate technology in the manufacturing process improves efficiency and effectiveness of a firm, translating to optimization. An upgrade of technology in the production process is therefore bound to translate in the growth of the firm due to optimized productivity. Firms were asked how lack of skilled manpower, financial constraints, and incompatibility with existing technology hindered their technology upgrade. About 67 per cent of the firms in the survey agreed that lack of skilled manpower was an obstacle; 78 per cent attributed the

challenge to financial constraints, and 60 per cent cited that incompatibility with existing technology was an obstacle too.

Crime, theft, and disorder

An establishment will always thrive in a safe and secure environment that is free from theft, crime, and disorder. The existence of these atrocities may cause the establishment to spend on securing itself rather than growing the establishment. About 52 per cent of the firms indicated that crime, theft, and disorder were to an extent an obstacle in the cause of their business endeavours, 47 per cent indicated that it was not an obstacle to their establishments and the remaining 1 per cent indicated they did not know about it.

Tax rates and tax administration

Taxation regimes in any country may attract or discourage the establishment of firms. Moreover, it may affect the growth of the existing firms depending on how the rates are set and administered. Majority of the firms constituting 83 per cent of them indicated that tax rates were obstacles in their operations within the country, with further 72 per cent of the establishments indicating that the manner in which administration of the tax is implemented was also part of the obstacles they face in their operations. The findings suggest that the tax rates and tax administration, therefore were a form of challenge that textile and garments manufacturers faced in the Kenyan context.

Political instability

Political climate impacts how firms and other business establishments carry out their day-to-day activities in an economy. In developing countries such as Kenya, politics play a role in the growth of the economy as has been experienced in the past. When political temperatures are stable, the country tends to thrive economically. About 85 per cent of the firms indicated that to certain degrees, political instability was an obstacle to their operations while only 15 per cent indicated that it was not an obstacle. The findings indicate that the growth of these firms is to an extent dependent on the prevailing political situation in the country.

Corruption

Corruption hinders the attainment of sustainable development of any society. The survey sought to establish the opinions of the responding firms on how corruption acted as an obstacle in the operations of firms. About 25 per cent of the firms indicated that corruption was not an obstacle that they faced. On the other hand, 75 per cent of the firms indicated that corruption was an obstacle in their operations with varying extents. With majority of the firms indicating this, the

findings portray the continuous need to address corruption, which has also been blamed for affecting the growth of other sectors of the economy.

Administration of justice in courts

The judicial arm of the government plays a role in the administration of justice for a just and prosperous society. The survey sought to establish the opinion of the firms on the conduct of the court as an obstacle to the operation of their activities. Less than half of the respondents (47%) indicated that the courts were an obstacle in the conduct of their operations while 45 per cent indicated otherwise. 8 per cent of the firms indicated that the question did not apply to them.

Labour regulations

The survey also sought to determine the extent to which the firms involved in the manufacture of textiles and garments were affected by the existing labour regulations. About 42 per cent of the firms indicated that labour regulations were not obstacles in the activities of the firms. However, about 52 per cent of the firms indicated that they experienced labour regulations as an obstacle in the operation of their activities at varying degrees.

Inadequately educated labour force

An adequately educated labour force is believed to have also attained the necessary skill level required to perform certain tasks. The presence of an inadequate labour force may prompt the employer to incur more in training the worker to attain a pre-determined set of skills required to perform tasks in the firm. These are funds that may be used for other growth activities of the firm if the training of the workers is not on specialized skills that are not offered within the education system. The survey established that about 68 per cent of the firms experienced inadequate educated labour force as an obstacle in their operations at varying degree while 32 per cent reported not to have faced the same as an obstacle.

5.3.5 Domestic market constraints

Imports of second-hand clothes (Mitumba)

In the early 1980s, the domestic textile sector was the leading manufacturing activity in Kenya, employing over 200,000 farming households and about 30 per cent of the labour force in the national manufacturing sector. This suggests that the local domestic market consumed output from the local production during the time. However, in the mid 1980s onwards, the dumping of used clothes locally

referred to as ‘*Mitumba*’ that were originally meant for the troubled Great Lakes region in a way got into the local market, retailing at low prices.

This led to the collapse of the local textile sector in the early 1990s and as expected the collapse of the local industries’ domestic market (EPZA, 2005). According to the ACTIF (2013) report, new clothes are also imported in disguise as *Mitumba* and get into the market without importers paying the required taxes. This in turn challenges the local textile producers to find a domestic market for their products. The reverse of this is far from realization as Kenya’s efforts to phase out *Mitumba* importation in 2017 was not actualized (Feed the Future, 2018). However, it should also be noted that *Mitumba* business is part of the CTA sector value chain and creates some jobs for a number of Kenyans.

5.3.6 Export market constraints

Under exploitation of the AGOA/other international markets

While Kenya enjoys access to the US market, the extent to which it has been exploited is yet to be optimized by the local manufacturers. Given that the country’s potential in the CTA sector is unexploited to its full potential, it is thus possible to overcome the constraint at optimal operation that will yield to high quality and quantity products for the export market (Feed the Future, 2018).

5.4 CTA Value Chain Labour Skills Requirement for Employment Potential

Based on KIHBS 2015/16 data analysis, the study established that there was no existing skills gap in the CTA sector but rather the existence of a skills surplus across all the education categories. The most skill surplus (3,041,059) is within the category of the unemployed youth who have primary level of education as the highest education attainment followed by those with no education at 1,618,652. Those with secondary education were 1,375,615 in surplus. The least surplus was among those with college education while none of those with education were reported to be working in the CTA sector. This could be explained by the fact that for the identified occupations in the dataset, none required university education.

Moreover, the skill availability ratio across all the first three categories of education was more than 10, indicating that the unemployed youth can be attracted to the CTA sector. Those with college education can also be attracted to the sector but not in comparison with the aforementioned education categories. In addition, those with university education are not likely to be attracted to the identified sectors of the CTA sector as shown in Table 2.

Table 2: Estimating the sectorial skills gap for the CTA sector

	No Education	Primary Education	Secondary Education	College Education	University Education
Skill Supply	1,646,159	3,101,625	1,408,104	238,676	81,010
Skill Requirement	27,507	60,566	32,489	24,413	-
Fibre Preparers	682	-	-	-	-
Weavers, Knitters & Related Workers	3,464	2,844	913	936	-
Tailors, Dressmakers and Related Workers	18,733	55,010	31,290	21,676	-
Textile Preparing, Spinning and Winding Machine Operators	-	651	286	-	-
Weaving, Knitting and Sewing Machine Operators	3,276	2,061	-	363	-
Textile Bleaching, Dyeing and Cleaning Machine Operators	1,352	-	-	1,438	-
Skill Gap	1,618,652	3,041,059	1,375,615	214,263	81,010
Skill availability ratio	59.85	51.21	43.34	9.78	0

Source: KIHBS 2015/16

Considering occupational skill gaps, the study established that there was no occupational skills gap for textile bleaching, dyeing and cleaning machine operators. On the other hand, occupational skills gap was more among fiber preparers; weavers, knitters and related works; and weaving, knitting and sewing machine operators' occupations. Besides, there were relative occupational skills gap also identified among tailors, dressmakers and related workers and among textile preparing, spinning and winding machine operators' occupations.

Kenya offers training and education preparedness to textile and apparel sectors. These educational centres are vital in providing capacity to human capital and build skills required in the CTA sectors, which will further enhance market, expand and venture in world apparel market. From the analysis of literature, the study found that Kenya has training courses both at university and Technical Vocational Education and Training (TVET) institutes that are largely self-sponsored and the Government offers little funding (Konisha et al., 2015; Nguku, 2012). Below is the profile of institutions that offer courses related to textile and apparel sector.

Table 3: Occupational skills gap for the unemployed youth by years of schooling

Occupation	Skill supply	Skill requirement	Skill Gap
Fibre Preparers	0	14	-14
Weavers, Knitters & Related Workers	0	14	-14
Tailors, Dressmakers and Related Workers	8	14	-6
Textile Preparing, Spinning and Winding Machine Operators	8	14	-6
Weaving, Knitting and Sewing Machine Operators	0	14	-14
Textile Bleaching, Dyeing and Cleaning Machine Operators	14	14	0

Source: KIHBS 2015/16

Primarily, CTA is one of the largest providers of jobs in Kenya. The sector has capability to employ a significant quantum of labour force particularly at the inception of the chain (cotton growing) and the end of the chain (garment making). This was not commensurate with number of training centres in the country that offer special skills to textile and apparel. There are institutions both university and vocational centres that offer courses on textile and apparel. According to a study conducted by Nguku (2012), Kenya has nine (9) universities, colleges and twenty-seven (27) private middle level colleges and technical training colleges that offer skills and training in textile-related courses to bridge the gap demand and supply in the sector. These institutions do not offer sufficient training with regard to operation of textile machines, as such leading to skills gaps. This can be linked to inadequate facilities and textile equipment. There is huge requirement of skilled work force in specific nodes of the value chain, notably in spinning, weaving, and garment segment.

Table 4: Institutional profiles with key skills and trainings

Institutions	Skills and Trainings Offered
Technical University of Kenya (TUK)	<ul style="list-style-type: none"> • Sewing tools and equipment • Textile fibres • Pattern drafting • Fashion design • Fashion marketing • Design development • Clothing construction
Technical Development Centre (TDC)	<ul style="list-style-type: none"> • Textile fibres • Pattern drafting • Fashion design • Apparel making
Mascal School of Design	<ul style="list-style-type: none"> • Textile exploration • Pattern drafting Fashion design • Fashion marketing • Clothing construction
Univeristy of Dedan Kimanathi	<ul style="list-style-type: none"> • Sewing tools and equipment • Textile fibers • Pattern drafting • Fashion design • Apparel making
Moi University	<ul style="list-style-type: none"> • Spinning • Weaving • Textile fibres • Apparel making • Industrial engineering

Source: Assortment of literature

Analysis reveals that TVETs focus on offering skills and trainings on fashion and design, which appeal to the larger population of young generations than focusing on highly skilled multi-skilling training on production technology and equipment. Further exploration discloses that most of the equipment used in training in these institutions has been used on average for 15 years without replacement. This makes Kenya textile market to lag behind in technological advancement and adoption of the latest equipment to compete in the world fashion and design market. From Table 4, there is higher concentration of fashion and design rather than physical production of cotton, textiles and garments. This implies skills mismatch in supply of production skills that are important to the sector and that the market does not readily absorb these graduates from these trainings institutions. Additionally, fashion design is a lucrative niche in the textile and garment sector given the global apparel stores prefer in-house design and work collaboratively with manufacturers to produce those designs.

The CTA sector experiences low skills in comparison with global competitors such as India and Pakistan. Economies such as India are known for comparative advantage in textile sector and have set up robust training infrastructure and government policy measures to launch various schemes in garment development skills and building capacity of those institutions. In Kenya, the existing institutions are limited in number, with low capacities and few enrolments. For instance, there are few or no institutions that offer skills on efficient farm practices. Therefore, there is need to exploit the market skills gap and offer significant need to enhance exiting old institutions, and open new frontier institutions in line with sector demand. Further, it is necessary to equip training centres with necessary infrastructure and advanced equipment to inject qualified work force into the market.

6. Conclusion and Policy Recommendations

6.1 Conclusion

Kenya's cotton, textile and apparel sector has the capability to absorb large mix of workers and provide revenue for the Government due to Kenya's position in Africa. Similarly, preferential trade initiatives with other regional and global states such as through AGOA and MFA have increased revenue generated from the CTA. Nevertheless, due to CTA market structure and many disincentives encountered by cotton farmers and the primary textile sector, the cotton and textile sector has not reached its potential to absorb many people at different nodes of the value chain. Thus, the results of this study indicate that constraints along the CTA value chain present significant threats to the capability of the sector to create jobs.

6.2 Policy Recommendations

6.2.1 Farm level–cotton production

For the cotton sector to roll back to its historical times of prosperity and capability to employ most people, it is important that the Ministry of Agriculture strategizes on enhancing greater cotton output whether under rain-fed condition or irrigation cotton farming. This can be achieved through research and providing improved cotton seeds to farmers for increased yields, and providing extension services to the farmers.

Moreover, the Ministry can pursue innovative ways of attracting the youth and educated Kenyans in cotton farming to increase production for domestic and export use. This will enable the local ginneries to revive and operate at full capacity, as well as the local textile mills. The increase in production will also ensure that importation of cotton lint is reduced from the current 93 per cent importation rate.

6.2.2 Institutional and policy frameworks

The Ministry of Agriculture needs to put in place a comprehensive national policy framework that guides the development of the CTA sector by addressing the constraints that span across the vertical and horizontal continuum of the CTA value chain. These constraints entail the challenges related to farm gate price of cotton outputs, improving the quality of cotton fibres to make it globally competitive, shielding the garment manufacturing sector from 'Mitumba' imports,

high energy cost and incentives to facelift cotton-related extensions. Addressing these constraints would make the sector attractive to investors and youths, thus increasing the potential of the sector's employability.

Coupling this national policy framework is the need to strengthen and synchronize CTA agencies, particularly cotton farmers at County levels and the National level by establishing an apex body (reporting to the Ministry of Agriculture) that acts as a focal point for CTA stakeholders to heighten horizontal, vertical, backward and forward linkages for sectoral growth.

6.2.3 Textile and apparel manufacturing

The Ministry of Agriculture in collaboration with the Ministry of Industrialization could establish a Technology Upgrading Fund to enhance financing of technology upgrade among textile and apparel manufacturing firms. To start with, after establishing the Technology Upgrading Fund, the Government could provide capital to firms to upgrade their existing technology with an agreed repayment period (this can be 10 years) inclusive of moratorium period (for instance 2 years). This will give the textile firms an ample time to potentially increase capacity and improve energy costings. Such kind of policy arrangement has been recognized to be effective in economies such as India and has potential to spur textile and apparel sector growth.

In addition, the Ministry of Education can also contribute through research and development of customized technology for the local firms and with a possibility of exporting the technology to the international market.

Apart from experiencing losses due to power outages, textile and apparel firms also suffer from high energy tariffs locally. The study recommends the improvement of the local energy infrastructure to ensure continued power supply to firms without fluctuations. This will ensure that the firms no longer suffer losses attributable to power outages.

Further, the Ministry of Energy could develop a pro-sector power policy that reduces power tariffs and removes some energy levies to enable productivity among CTA firms. This can incentivize foreign investors to relocate their firms into the country, thus spurring development and the creation of additional employment. Subsidies can also be an instrument of revitalizing the sector by for instance offering a 3 per cent power subsidy to firms with export earnings of Ksh 300 million to Ksh 500 million and 5 per cent for companies with earnings surpassing Ksh 500 million.

To enhance research and development, coupled with the challenge of an inadequately educated labour force, firms should set aside at least 30 per cent of

their proceeds for research and development activities to improve productivity. Moreover, the funds will be critical in building capacity for employees to acquire the requisite skills.

There is need to review the tax rates on firm inputs, and the value added tax on finished products to incentivize firms. The Ministry can consider zero rating on inputs and reducing the value added tax to improve on the firm's products price competitiveness. This will encourage productivity and price competitiveness in both the local and international market in the long run.

In conclusion, while the study established that there was a surplus of skills supply from the unemployed youth with notable occupational skills gap, it recommends that the Ministry of Education in collaboration with other stakeholder's spearheads occupational capacity development among the unemployed youth. The Ministry should ensure that the training offered in institutions of higher learning and vocational training centres is current and the technology employed in the training. Moreover, the training should aim at offering high level multiple skills pegged on production technology and equipment. There is therefore need to link training and capacity development in academic institutions, with sector needs that not only caters for current requirements, but future needs.

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ISBN 978 9966 817 37 2

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