

Employment Creation Potential for Youth in the Kenyan Economy

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List of abbreviations and acronyms

AERC	African Economic Research Consortium
AGOA	Africa Growth and Opportunity Act
ASEAN	Association of Southeast Asian Nations
BPO	Business Process Outsourcing
CBST	Core Business Skills Training
CGE	Computable Generalized Equilibrium
COVID-19	Corona Virus Disease 2019
EC	Economic Complexity
ERF	Economic Research Forum
EPI	Export Potential Indicator
FDI	Foreign Direct Investment
FTP	Formal Training Provider
GDP	Gross Domestic Product
GEM	General Equilibrium Models
GIFF	Growth Identification and Facilitation Framework
ICT	Information and Communications Technology
IDLO	International Development Law Organization
IILS	International Institute for Labour Studies
ILO	International Labour Organization
INCLUDE	Inclusive Development
ISIC	International Standard Industrial Classification
ITC	International Trade Centre
IWOSS	Industries without Smokestacks
KIHBS	Kenya Integrated Household Budget Survey
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
KYEP	Kenya Youth Empowerment Programme

LST	Life Skills Training
MAPSKID	Master Plan Study for Kenyan Industrial Development
MBIE	Ministry of Business, Innovation and Employment
MIIYA	Ministry of ICT, Innovation and Youth Affairs
MSEA	Micro and Small Enterprise Authority
MSMEs	Micro, Small and Medium-sized Enterprises
NEET	Not in Employment, Education and Training
NESC	National Economic and Social Council
NGOs	Non-Governmental Organizations
NITA	National Industrial Training Authority
NYS	National Youth Service
ODI	Overseas Development Institute
PDI	Product Diversification Indicator
PS	Product Space
SAM	Social Accounting Matrix
SAPs	Structural Adjustment Programmes
SITC	Standard International Trade Classification
SMEs	Small and Medium-sized Enterprises
SSA	Sub-Saharan Africa
TTW	Two and Three-Wheeler
TVET	Technical and Vocational Education and Training
UNCTAD	United Nations Conference on Trade and Development
YEDF	Youth Enterprise Development Fund
YESA	Youth Employment Scheme Abroad

Abstract

Job creation is a key development objective for most economies, Kenya included. However, expansion of employment opportunities has not kept pace with the rapidly expanding working age population. The main objective of this study was to evaluate the sectors with high potential of creating employment opportunities for the youths in Kenya. The study utilized Input-Output approach using Social Accounting Matrix (SAM) 2015 to determine sectors with highest job creation potential. The findings indicate that agriculture, transport, trade, construction, and education have the highest potential to create jobs for the youth. The employment multipliers were as follows: agriculture (2.1); transport (1.74); trade (1.89); construction (1.84); and education (1.85). Activities with high potential to create jobs include livestock, vegetables (horticulture), rice production, textile and footwear production, and hotels and restaurants. Further, the results imply that the sectors of the Kenyan economy are interdependent and diverse, spanning agriculture, services, and manufacturing. Expansion of one sector has backward and forward linkages with the other sectors. It would, therefore, be important to adopt a comprehensive multisectoral approach in job creation strategy for the country. There is great opportunity to create jobs by supporting further developments in agriculture and services sectors and putting in place robust strategies to enhance investments in manufacturing.

Key words: *Economic sectors; Youth employment potential; Constraints; Kenya.*

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1. Introduction

Job creation is a key development objective for most economies, especially in Africa. However, employment creation has not kept pace with the rapidly expanding working age population. In Africa, youth unemployment and underemployment continue to be major obstacles to development despite various policy interventions to curb youth unemployment and relatively strong economic growth in the region since the early 2000s (Maisiba & Gongera, 2013; Mbaye et al., 2019). In East Africa, poverty and unemployment remain major problems facing the young people. In Kenya, these problems continue to hinder youth empowerment and growth.

While economic growth is important for job creation, Kenya's economic growth performance has been erratic since the country attained its independence in 1963. The country experienced relatively high economic growth rates after its independence in 1963 through the 1970s. Economic growth waned following the global recession in the early 1980s and improved in the mid 1980s. In the aftermath of the implementation of the structural adjustment programmes (SAPs) in the 1990s, economic growth declined (Table 1). The SAPs were associated with cuts in government expenditure, public sector downsizing, privatization, collapse of some private firms, and retrenchment of workers in others; all of which adversely impacted employment growth in the public sector. Kenya's economic growth picked up in the first half of 2000s, generally improving over the period except for the elections and COVID-19 shocks experienced in 2007/08 and in 2020 (Table 1), respectively.

Table 1: Average growth rates achieved over the years since independence (%)

Period	Average Growth Rate	Lowest Growth Rate for the Period	Highest Growth Rate for the Period
1965–1980	5.25	-1.01	12.84
1981–1990	4.27	0.35	5.97
1991–2002	2.19	0.40	4.82
2003–2008	4.82	1.5	7.0
2009–2012	4.38	2.7	5.8
2013–2016	5.4	4.6	5.9
2017–2019	5.5	4.8	6.3

Source: Authors' computations from Economic Surveys (various issues).

Economic growth performance has markedly improved in the recent years, with GDP growth averaging about 5.4% in the period 2013–2016 and 5.5% in 2017–2019. However, economic growth contracted by 0.3% in 2020 due to the adverse effects of COVID-19, but is expected to rebound strongly in the subsequent years (KNBS, 2021).

According to the 2019 Kenya Population and Housing Census, the youth aged 15-34 years accounted for 36.1% of the total population which was estimated at about 47.6 million people. The country has recorded mixed experiences in the labour market, characterized by expansion in labour force, increased employment in absolute numbers, coexisting with various forms of labour market underutilization such as inactivity, underemployment, and unemployment, especially among the youth. In the most recent survey (in 2015/16) total unemployment rate was estimated at 9.7%, and that of the youth cohort aged 15-24 was higher at 13.7%.

It is estimated that close to 500,000 to 800,000 youths are entering the Kenyan job market annually. A World Bank report on Kenya's unemployment in 2015 indicated that, the country needs to create 900,000 new jobs every year between 2015 and 2025 as a way of absorbing the high number of youths joining the job market. However, Kenya Social Protection and Job Programmes Public Expenditure Review (2018) indicated that the country had not kept pace in job creation with the number of new entrants into the labour market. According to the review, only 826,600 jobs were created annually between 2013 and 2017 (Third Medium Term Plan, 2018) which was short of the target of creating 6.5 million jobs during the said period. Further, more than 80% of the new jobs created were in the informal sector, suggesting that the relatively high economic growth was not accompanied by creation of high-quality jobs.

These observations indicate that there is need to create, not only more, but also decent jobs if the country is to succeed in dealing with the problem of unemployment among the youth. The unemployment problem can be addressed through full exploitation of the opportunities and addressing various barriers hindering growth of various sectors of the economy. Therefore, creation of productive and sustainable employment opportunities remains the core of employment policy interventions in Kenya (Omolo, 2012).

The government of Kenya with support from various stakeholders has undertaken short-, medium- and long-term measures for employment creation. The short- and medium-term interventions included public works programmes such as the “*Kazi kwa Vijana or jobs for the youth*”, infrastructure and rural development. Other measures taken to create jobs for the youth have been through the Youth Employment Scheme Abroad (YESA), Youth Enterprise Development Fund (YEDF), and Kenya Youth Empowerment Programme (KYEP). These measures have not fully tackled the unemployment challenge as the country continues to face high rates of unemployment and underemployment among the youth.¹

As part of the broad policy interventions to create employment, Kenya is implementing its Kenya Vision 2030 through the medium-term plans. The Kenya Vision 2030 and the medium-term plans identify priority sectors that can spur growth. As an example, the Medium-Term Plan III prioritizes investment in manufacturing sector for

job creation under the Big Four Agenda, while the Vision identifies tourism, agriculture, manufacturing, and business process outsourcing (BPOs) as key sectors. Even so, the choice of these sectors/industries needs to be informed by robust research that can identify high employment generating industries/sectors. In addition, studies on employment creation in the country are dated and may have focused on a narrower set of sectors Wambugu et al. (2010) and National Economic and Social Council (NESC, 2012).

Thus, the study responded to the following question: Which are the most promising sectors and activities that have the potential to improve youth employment in Kenya, and why? The main objective of this study was to evaluate the growth sectors with high potential of creating employment opportunities for the youths in Kenya and emerging constraints. Specific objectives included to:

- Identify the most promising sectors and activities that have the potential to improve youth employment;
- Establish challenges constraining job creation for the youth; and
- Draw implications for policy.

2. Literature review

The identification of the most promising job creation sectors in Kenya may be informed by a review of studies that have analysed sectors to be prioritized for greatest impacts on employment. There are various studies across the globe that assesses sectors that are key in enhancing employment. This section focuses on synthesizing the commonly used methods in these studies, beginning with studies across the globe before presenting a review of studies for Kenya.

Assessing sectoral employment: Global studies

One of the techniques employed to assess sectoral employment creation potential is the general equilibrium models (GEM). The GEM is typically used to simulate the potential impact of policy changes and seeks to account for the interdependence among all sectors in an economy. Typical questions that this method could answer revolve around effects of specific policies on employment (wages and output). Some recent examples of studies include ILO and ILS (2013) that assessed the labour market implications of economic integration among the Association of Southeast Asian Nations (ASEAN). CGE models can be used to inform employment projections such as those used by the Ministry of Business, Innovation and Employment (MBIE) of New Zealand. One of the drawbacks of the GEM is the difficulty to isolate what is driving the results.

Input-Output Analysis is another relatively common method which is based on technical coefficients derived from input-output tables. The input-output table in turn summarizes inter-industrial exchanges within an economy and with the rest of the world. The method generally produces static outcomes and has several variants (Ernst et al., 2015). The multipliers derived from the input-output tables can be used to assess the direct and indirect employment effects of introducing changes to a sector of the economy. The method can be used to assess how employment effects of increasing outputs differ between sectors. Examples of studies using this method include an application in the multiplier analysis in the construction sector in Rwanda by Lieuw-Kie-Song and Abebe (2019), a study on employment multipliers for South Korea by Haemyoung (2018), and Bekhet (2011) for a study in Malaysia.

An extension of the input-output tables used extensively in assessing sectoral employment is the social accounting matrix (SAM). The SAM is used to measure the

direct and indirect employment effects of public investment through a multiplier analysis. Study examples encompass Mendez-Parra (2015) for Tanzania and National Economic and Social Council (NESO) (2012) in a Kenyan study. Some of the limitations of the use of Input-Output Analysis and SAM tools are that the results provided are static and relatively strong assumptions are used. Examples of these assumptions are that there are no supply constraints, and that production is characterized by constant returns to scale. The methods also provide little insight on the quality of jobs created.

There are also a group of methods (referred to as sectoral identification) whose objective is to identify promising products and corresponding sectors for structural transformation and export expansion. These methods are collectively commonly referred to by their specific methodologies and include: (i) the growth identification and facilitation framework, (ii) the economic complexity and product space method, and (iii) the International Trade Centre (ITC) export potential and product diversification indicators. These methods are born out of renewed interest in a new generation of industrial policies motivated by the belief that well-designed and implemented industrial policies are key to sustainable structural transition processes. All the methods are designed to inform targeted industrial policies and sectoral strategies—and identify sectors with export potential for a particular country.

The growth identification and facilitation framework (GIFF) is a method to identify potentially promising sectors by identifying comparative advantage based on the country's factor endowments. The economic complexity (EC) and product space (PS) method identifies potentially promising sectors largely based on multidimensional analyses of export data at the four-digit SITC level, encompassing roughly 1,000 products. The International Trade Centre developed two indicators to identify potentially promising sectors: the export potential indicator (EPI) and the product diversification indicator (PDI), both based on export data at the six-digit Harmonized System classification level, encompassing roughly 4,000 products. One shortcoming of these sectoral methods/analyses is that the methods exclude non-tradeable sectors of the economy, including locally rendered services such as health, education, construction, and transport. Nevertheless, the methods can be applied to complement other methods and provide good insights for identifying promising sectors for job creation. Study examples applying these methods include Hausmann et al. (2014) on growth sector for Uganda; ITC (2018) in a case study of Jordan; and Lin and Xu (2016) for a study of Uganda.

Kenyan studies on the most promising sectors that would create employment

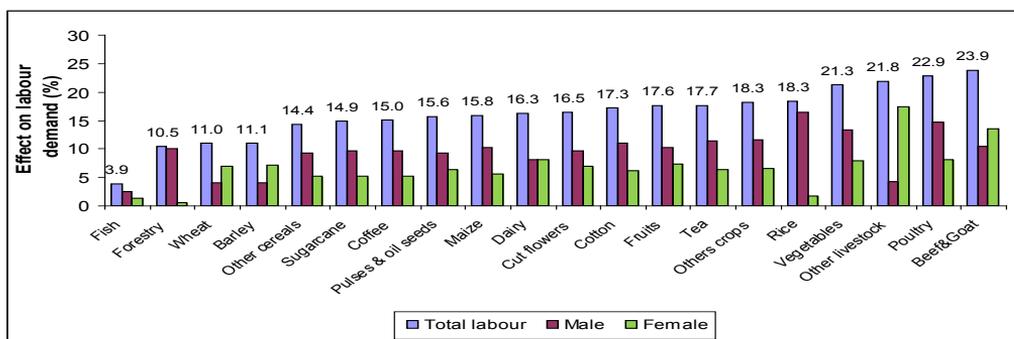
There are a few studies conducted for Kenya and some of these studies are dated, thus justifying the present study. Some of these studies include the Master Plan Study for Kenyan Industrial Development (MAPSKID) of 2007 and the Cluster Analysis Study

by the Kenya Institute for Public Policy Research and Analysis (KIPPRA) in 2010.² With respect to methods, the MAPSKID study applied statistical and cluster analyses implemented using the diamond model while the KIPPRA study applied a cluster analysis.³

Based on these two earlier studies, it could be averred that agro-industry and horticulture were identified as the most important sectors in contributing to growth and job creation in Kenya, respectively. Specifically, the MAPSKID study identified food processing—which is a subset of agro-industry—as having the largest contribution to employment relative to other eight sub-sectors.⁴ In addition, the textiles and garments sub-sectors were identified as important in terms of job creation. Factors that favour these sectors include: the relatively large agricultural sector with which there would be significant backward and forward linkages, its strong export performance (especially horticulture), its labour-intensive nature, and the policy support provided by the government. For KIPPRA (2010) horticulture was selected as one of the most important clusters based on its performance.⁵

A study by NESCA (2012) employed the Social Accounting Matrix (SAM) of 2003 to simulate the impacts on categories of employment of exogenous interventions across Kenya's sectors. The simulations found agriculture the most favourably disposed sector in employment creation. They find that within agriculture, a stimulation of the livestock sub-sectors yields the highest employment effect (Figure 1). Among crops, vegetables and rice production yields the largest labour effects although this is skewed towards demand for male labour. Within industry, stimulation of wood and paper manufacturing leads to the highest increase in additional labour income while hotels and restaurants (a proxy for tourism) had the highest employment effect within the services.

Figure 1: Effects of an exogenous stimulus to agriculture on employment (%)



Source: NESCA (2012).

The findings by NESCA (2012) seem to be buttressed by Boulanger et al. (2018) that used linear multipliers, value chain analyses and key sector analysis to determine which value chains in Kenya had the greatest effect in terms of employment, output and value-added. Regarding the capacity to create new jobs, they used employment

multiplier analysis which showed that agricultural and livestock sectors, in general, had multiplier values above the Kenyan economy. Further, they established that large farms accounted for a larger share of employment generation, notably in relation to agricultural products for export. It would be important to build on this and other findings in the current study.

There are other sectoral-based studies on youth job creation such as Munga et al. (2021), which use mixed methods encompassing Delphi methods and value chain analyses. Munga et al. (2021) identified Trade and Repairs, ICT, and horticulture as sectors with the greatest job creation potential. Further, the study finds that smallholder farms absorb a large proportion of unskilled labour compared to other scales of production. There are other related sector-based studies such as Kyule and Nguli (2020) for Kenya Dairy Industry and Tunje and Yogo (2020) for motorized two and three-wheeler (TTW) transport. These studies, however, do not estimate the number of jobs created in the respective sectors but identify the main barriers to growth of the sectors. Some of these barriers include poor road networks, irregularity in power supply and water, competition from informal establishments, limited access to finance, and strict customs/tariffs and regulations, among others.

3. Methodology

To identify the most promising sectors that have the potential to create youth employment, this study employed complementary methods—informed by the reviewed literature. The primary method adopted by the study is the Input-Output (I-O) table and its main advantage is that it encompasses the sectors across the economy in a more detailed manner. The Input-Output table provides a framework for analysing the interrelationships between industries in an economy in terms of the production and uses of the products.

This approach is complemented by two additional approaches. The first is the decomposition of per capita output growth into contributions of employment growth, productivity growth, labour force growth, and change in working age population using the Shapley decomposition method. This method was, however, restricted to the broad sectors of the economy encompassing agriculture, industry, and services. The contribution of the analysis is to understand the link between employment growth and overall economic growth. The second is sectoral analysis using the International Trade Centre (ITC) export potential and product diversification indicators to identify sectors with export potential and tie this up with the analyses from the Input-Output tables.

Theoretical framework

Jobs are created because of an increase in products demand for materials and services attributable to the process. If the goods and services come from existing inventories, then no new jobs are created. Only when those inventories are replaced do so-called “backward linkages” come into play, as desired inventory/sales ratios are restored. The replacement requires capital and labour, and if the process does not crowd out other sources of demand, there is a rise in the demand for labour. In the short run, the labour intensity of production processes increases; in the longer term, there must be new savings, new investments, and net accumulation of capital stocks. This will stimulate other domestic sources of supply that produce intermediate goods. However, in low-income countries, there may not be backward linkages, especially for industries producing products for direct consumption, resulting into imports (Flaherty, 2017).

Job creation in an economy among the different agents can thus be presented in Input-Output tables. The Input-Output tables represent an accounting framework to

describe production and flows of goods and services between sectors of the economy. There are several ways that input-output techniques can be used to measure the importance of a sector in terms of its contribution to employment. The effects include direct effects and indirect or induced effects of inter-industry connections following flow of intermediate inputs through supply and demand mechanisms. Sharma et al., (1999) and Miller and Blair (2009) have classified these procedures into three broad categories: final demand-based; output-based; and hypothetical extraction (shut down) of an industry.

Each approach has its own limitations, and the approach used depends on structure of the economy and research issues being addressed. The final demand-based approach entails modelling of industry production and demand of goods and services. However, the final demand and output-based input-output approaches face such limitations as assumption of linear structure of the model, the models assume that the labour coefficients are constant, and inputs are non-restricted (Lopes, 2011). The approaches do not also consider the capital inputs and technological progress in the given economy.

Despite the weaknesses, the approaches remain the most feasible widely used tools for assessing the direct and indirect employment effects in an economy. The basic idea in the hypothetical extraction of an industry approach (Schultz, 1977) is to solve the Leontief production system after extracting one or a group of industries and comparing the results after the “shut down” with the output before extraction (Groenewold et al., 1993). This approach is operationalized with algebra of partitioning the Input-Output System of Matrices. However, the main limitation with this approach is that it is impossible to shut down an entire industry in any given economy (Lopes, 2011), except in the event of an industry collapse.

Jensen et al. (1988) have provided a theoretical framework for the third approach, which underpins the measurement of the significance of an industry in terms of output, employment and value added. West (1993), in his I-O software package (GRIMP), has included an option enabling practitioners to measure the industrial significance at both national and regional levels using the shutdown of industry approach.

The Input-Output analytical framework

The input-output (I-O) framework assumes that the inputs used in production process of a given product are linearly correlated to the industry outputs and that the production coefficients are fixed in the short run (European Commission, 2008). In the table form, the I-O framework is presented as a square industry-by-industry table, consisting of equivalent number of columns and rows. The same rows and columns represent production and use of one output. Thus, each column represents a production technique in an input-output coefficient table. The columns of the Leontief inverse input-output table show the amount of (direct and indirect) inputs requirements on all other producers, generated by one unit of output (European Commission, 2008).

Under the I-O, the following two identities must hold: (i) total supply of product/industry = total use by product/industry; and (ii) total input by product/industry = total output by product/industry. Further, the Keynesian macroeconomic framework must also hold, that is:

$$Y + M = C + G + I + X \quad (1)$$

Where: Y represents gross domestic product; M denotes imports; C is final household consumption; G is government expenditure, I represents gross fixed capital formation and X represents exports. The 2015 Input-Output table for Kenya is derived from the Social Accounting Matrix (SAM)⁶. The 2015 I-O for Kenya matrix had 13 industries (with various activities) and equivalent number of users (Table 4). The framework also consists of the value-added, compensation of employees, taxes and other subsidies and imports. In the supply-side, households, investments, and exports are also included.

Leontief Input-Output model specification

The analysis was based on the traditional open economy Leontief Input-Output model (Miller & Blair, 2009). The Leontief system can be specified as follows:

$$X = Ax + y \quad (2)$$

Where: x represents the gross output vector of the n sectors of the economy; A denotes the domestic technical coefficients matrix for intermediate input requirements per unit of gross economic output; and y is the sectoral vector of final consumption, gross investment, and exports. From Equation 1, the solution of the Leontief system is:

$$x = By \quad (3)$$

Where, B is the Leontief Inverse matrix:

$$B = (I - A)^{-1} \quad (4)$$

Each element of the matrix B is the production multiplier that gives the aggregate direct and indirect effects in one's sector production of unit increase in the domestic final demand directed to a given sector. Thus is the overall impact on a given sector's i production when the domestic final demand of sector j increases by one unit. The employment multipliers for sector j can be calculated as follows:

$$EM_j = \sum_{i=1}^n e c_i b_{ij} \quad (5)$$

Where: which represent labour coefficients, or requirements of labour in total work hours or number of equivalent workers per unit of production of each sector. The labour coefficients are fixed.

Employment multipliers and elasticities

The employment multipliers give additional information about employment potential of the various sectors or industries of an economy. They consider both direct flows of job creation in own sector; and indirect or induced effects of job creation generated by sectoral linkages. Thus, more sectoral linkages imply more complexity of the economy and hence greater employment creation potential. The general EM_j denotes the total amount of employment created in the economy by individual sectors and all other units of production when final demand directed to the sector j augments another unit of production. Thus, the high employment sectors in any economy are those with above average employment multipliers (Rasmussen, 1957; Hirshman, 1958). Overall, the multipliers tend to overcome the unit of measurement problem.

However, the traditional employment multipliers do not consider the relative production and employment weights of individual sectors in an economy. Thus, relative employment (Type 1) multipliers (Valadkhani, 2005) are calculated as follows:

$$RM_j = \frac{\sum_{i=1}^n ec_i b_{ij}}{ec_j} \quad (6)$$

Where: RM_j is the relative employment multiplier, ec_i is the weighted labour coefficient and b_{ij} is the overall impact on a given sector i production. This means that for each additional person directly employed in sector j , a further RM_j are employed in the economy due to the multiplier and forward effects of the sector j .

Further, the relative importance of the different sectors brought about by the different sector employment potentials can be calculated using the employment elasticities (Ramoni-Perazzi & Orlandoni-Merli, 2019) as follows:

$$Ee_i = \frac{\partial L}{\partial y_j} \cdot \frac{y_j}{L} \quad (7)$$

Where: L denotes total employment in the economy, y_j is the final demand directed to sector j and $\frac{\partial L}{\partial y_j}$ is the employment multiplier for sector j . Employment elasticities corresponding to sector j can be calculated by substituting Equation 4 (employment multipliers) into Equation 6 as follows:

$$Ee_i = [\sum_{i=1}^n ec_i b_{ij}] \cdot \frac{y_j}{L} \quad (8)$$

4. Results and discussion

This section presents descriptive statistics and findings on sectors with job creation potential for the youth, factors influencing access to employment and underemployment among the youth, inequalities, and constraints to youth employments

Decomposition of growth in per capita value-added

Table 2 summarizes the results of the decomposition of growth in per capita income. The choice of the five periods is partly informed by distinct per capita growth episodes. The annual growth per capita in value added averaged 1.08% for the entire period, i.e., from 1991 to 2018. The first period, 1991 through 2003, was characterized by relatively low economic growth and per capita growth in value-added was negative (on average) from 1991 through 2003. The rest of the period had relatively high economic growth rates, averaging close to 5% with the 2003–2013 period characterized by a shock in 2007/08.

The overriding result is that, change in productivity rather than changes in employment rate was a key factor contributing to the growth in per capita value-added across all periods. Changes in the employment rate have generally low levels of contribution to growth in per capita value-added. Between 2013 and 2018, change in productivity (69.5%) and changes in the share of working age population (26.6%) accounted for the lion’s share of the growth in per capita value-added—and these together with the participation rate are projected to be key in explaining per capita value-added growth in the period 2018 through 2025 (Table 2).

Table 2: Decomposition of growth in per capita value-added (% of total change), Kenya

Constant 2010 USD per person	1991-2003	2003-2013	2013-2018	1991-2018	2018-2025
Annual growth per capita value-added	-0.86	2.44	3.09	1.08	3.35
due to changes in productivity	97.9	88.1	69.5	75.0	64.7
due to changes in employment rate	12.8	1.4	3.5	-1.6	-35.7
due to changes in participation rate	75.5	-6.7	0.5	-32.8	46.0
due to changes in share of working age population	-86.1	17.2	26.6	59.4	25.0
Total change in per capita value-added (%)	100.00	100.00	100.00	100.00	100.00

Source: Authors’ computations.

The analysis also examined change in value-added per worker resulting from net movements of workers between the broad sectors of agriculture, industry, and services. A key message is that, there was little structural change in employment. The share of employment in agriculture increased from its 1991 level of 47% to a share close to 60% in the years after 2000 (Table 3). On the other hand, output grew faster in services as its share of output increased. This suggests that productivity declined in agriculture and increased in services and industry.

Table 3: Total employment and its share distribution (%) across agriculture, industry and services

	1991	2003	2013	2018	2025
Total employment (000s)	8,001	11,288	15,247	18,033	20,992
Share of employment (%):					
In agriculture (%)	47	57	59	57	56
In industry	13	8	7	8	8
In services	40	35	34	35	36
Total	100	100	100	100	100

Source: Authors' computations.

Input-Output multipliers

To estimate the output and employment multipliers for the Kenyan economy, the study utilized the Kenyan Social Accounting Matrix (SAM) 2015. In the Kenyan SAM 2015, the Input-Output tables contained activities and commodities that are traded in the economy. The multiplier effect analysis shows commodities with capacity to generate output within the economy at a faster rate (growth) while creating job opportunities. However, due to some limiting assumptions of SAM multiplier effect, results should be taken with caution (Mainar Causapé et al., 2018). The limiting assumptions are mainly related to the excess capacity in all sectors, and unemployed factors of production and fixed prices (Miller & Blair, 2009; Round, 2003).

The multipliers results show that the average employment multiplier is 1.71, suggesting that about 1.7 units of jobs are created for every unit increase in demand for output. The sectors with the highest level of employment multipliers are agriculture, fishing, and forestry (2.10); finance, real estate and business services (2.04); and trade (1.89) (Table 4). Manufacturing, hotels and restaurant, and electricity and water have the lowest employment multipliers which are below the national average (1.71) at 1.03, 1.25 and 1.56 respectively. Similar findings have been reported by Mainar Causapé et al. (2018), who found that the agriculture sector, with backward linkages to agro-processing has the highest potential for job creation. Notably, the study further identifies specific value chains with the highest output multiplier. These include vegetable, fruits, livestock, and dairy (Mainar Causapé et al., 2018)).

Table 4: Liner output multipliers for the Kenyan SAM 2015

	Sector	Output Multiplier	Employment Multiplier
1	Construction	4.01	1.84
2	Trade	3.75	1.89
3	Finance, real estate, and business services	3.64	2.04
4	Education	3.62	1.85
5	Mining and quarrying	3.57	1.86
6	Agriculture, fishing, and forestry	3.56	2.10
7	Health and social work	3.45	1.75
8	Transport and communication	3.44	1.74
9	Public administration	3.38	1.66
10	Other services	3.16	1.63
11	Electricity and water	2.97	1.56
12	Hotels and Restaurants	2.60	1.25
13	Manufacturing	2.18	1.03
	Average	3.33	1.71

Source: Kenya SAM 2015 computation.

Further, the results show that the sectors of the Kenyan economy are interdependent. Expansion of one sector has backward and forward linkages with the other sectors. Interestingly, empirical evidence indicates that, while the primary agricultural sector makes a great contribution to employment creation, this employment creation is concentrated in larger farms compared to smallholder producers ((Mainar Causapé et al., 2018). While value chain identification was not undertaken in this specific study, drawing on findings from existing evidence is important in identifying relevant value chains across different sectors. It would, therefore, be important to adopt a comprehensive multisectoral approach in job creation strategy for the country. Indeed, economic activities vary across counties hence need to stimulate activities where each county has comparative advantage for sustained job creation for youth and long-term growth.

However, the relationship between output and employment is not straightforward in developing countries like Kenya and care should be taken in interpreting the results of the input-output model. This is because of several factors. These include: more demand for output may increase number of hours worked due to high levels of underemployment; there is also widespread informality and self-employment suggesting difficulty in capturing output and employment fully. Moreover, for an economy like Kenya, small and market-based economy, external factors such as shocks in the export market, more often than not have an effect on aggregate demand thus affect output and employment. For this reason, we present supporting analyses including the computation of employment and wage elasticities across sectors.

Employment and wage elasticities by sector

Table 5 present the employment and wage elasticities by sector for the period 2016–2019. According to the results, the sectors show a mixture of positive and negative employment and wage elasticity in the period under review. Negative employment elasticity with respect to the total income means higher total income will lead to lower employment, while positive employment elasticity means higher total income will lead to higher employment (Mazumdar & Sarkar, 2020). Further, results show that some sectors had positive employment elasticity in some years and negative in other years. This indicates that, in some years, a sector growth would support employment, while in other years a sector growth would lower employment (Thuku et al., 2019).

Comparison between employment multipliers and elasticities indicate different findings on sectors with the highest potential to create employment. While the multipliers are highest within the agriculture, finance and business-related sectors, elasticities show that some service activities, e.g., water supply, sewerage, waste management and remediation activities had the highest positive employment elasticity (2.00) followed by construction (1.13) while professional, scientific and technical activities had the highest negative employment elasticity (1.22) in 2016.

In 2017, water supply, sewerage, waste management and remediation activities still had the highest positive employment elasticity (4.23) followed by public administration and defence and compulsory social services (4.00), then administrative and support services (2.46) and human health and social work activities (2.37). In 2018, only water supply, sewerage, waste management and remediation activities had an employment elasticity exceeding one (3.96). In 2019, mining and quarrying, administrative and support services and human health and social work activities had employment activities that marginally exceeded one. On average, employment elasticity for all the sectors was highest in 2017 (0.85) and lowest in 2018 (0.38).

In terms of wage elasticity, none of the sectors had wage elasticity that exceeded one in 2016 and 2019, while only financial and insurance activities and water supply, sewerage, waste management and remediation activities had wage elasticity that exceeded one in 2017 and 2018, respectively. On average, wage elasticity for all the sectors was highest in 2017 (0.38) and lowest in 2019 (0.22) (Table 5).

Table 5: Employment and wage elasticities, 2016-2019

	Sector	Employment Elasticity				Wage Elasticity			
		2016	2017	2018	2019	2016	2017	2018	2019
1	Agriculture, forestry, and fishing	-0.01	-0.87	0.23	0.17	-0.01	-0.18	0.13	0.05
2	Mining and quarrying	0.51	-0.15	0.49	1.86	0.41	-0.06	0.19	0.22
3	Manufacturing	0.53	0.94	0.28	0.49	0.21	0.07	0.12	0.14
4	Electricity, gas, steam and air conditioning supply	0.26	1.19	0.08	0.33	0.46	0.92	0.20	0.23
5	Water supply, sewerage, waste management and remediation activities	2.00	4.23	3.96	0.56	0.89	0.78	1.58	0.35
6	Construction	1.13	0.36	0.34	0.22	0.85	0.44	0.27	0.16
7	Wholesale and retail trade, repair of motor vehicles and motorcycles	0.90	0.80	0.56	0.51	0.27	0.31	0.28	0.24
8	Transportation and storage	0.60	0.34	0.38	0.26	0.54	0.26	0.33	0.19
9	Accommodation and food service activities	0.13	0.22	0.13	0.17	0.37	0.36	0.29	0.23
10	Information and communication	0.50	0.56	0.49	0.10	0.35	0.46	0.41	0.10
11	Financial and insurance activities	0.49	-0.74	0.20	0.40	0.51	-1.21	0.18	0.29
12	Real estate activities	0.29	0.40	0.58	0.44	0.55	0.27	0.32	0.36
13	Professional, scientific, and technical activities	-1.22	0.82	0.62	0.48	-0.69	0.26	0.29	0.24
14	Administrative and support service activities	0.99	2.46	0.81	1.28	0.51	0.59	0.46	0.42
15	Public administration and defense, compulsory social security	0.79	4.00	0.12	0.34	0.45	0.86	0.09	0.33
16	Education	0.64	0.54	0.54	0.60	0.39	0.38	0.30	0.37
17	Human health and social work activities	0.60	2.37	0.95	1.07	0.29	0.53	0.33	0.36
18	Arts, entertainment, and recreation	-	0.20	0.21	0.35	0.00	0.28	0.22	0.25
19	Other service activities	0.78	0.65	0.69	0.71	0.44	0.27	0.31	0.31
20	Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	0.19	0.55	0.22	0.32	0.04	0.10	0.04	0.06
	Overall Economy	0.55	0.85	0.38	0.45	0.35	0.38	0.24	0.22

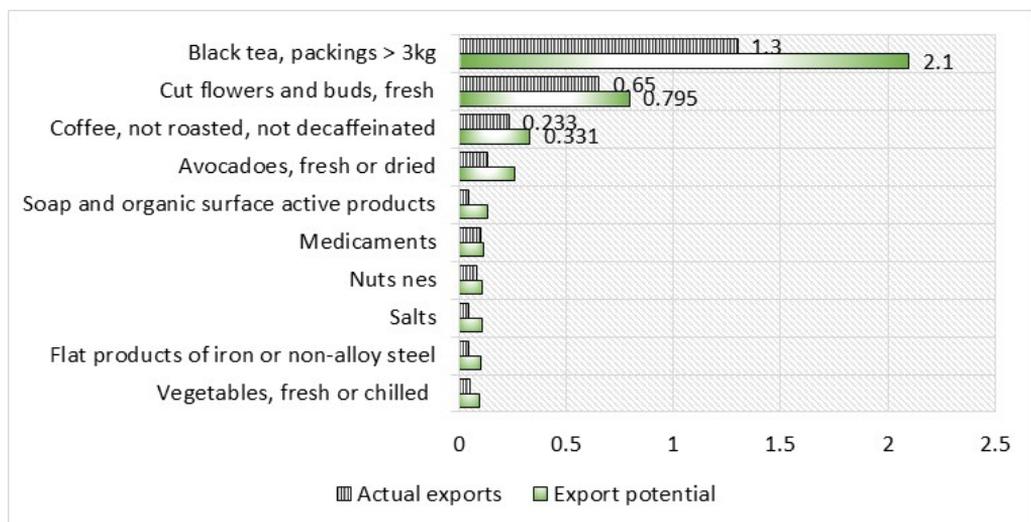
Source: Economic Surveys (various).

Sectorial identification

The main purpose of presenting these results is to identify any linkages with the earlier results emanating from the input-output analyses. The results of the International Trade Centre (ITC) export potential and product diversification indicators indicate that the products with the greatest export potential from Kenya to the World are mixed, but the leading three are all agricultural. These are black tea packings greater than 3kg; cut flowers and buds, fresh; and Coffee, not roasted, not decaffeinated. This result augurs well with the results of the input-output analyses, in which agriculture, fishing, and forestry had the highest employment multiplier.

This measure of potential is illustrated in Figure 2 which is a gap chart capturing the export potential map for Kenya. All the top four products with the largest gap between what is actually exported and what could be potentially exported are agricultural products, i.e., black tea, cut flowers, coffee, and avocados.

Figure 2: Export potential map for Kenya



Source: <https://exportpotential.intracen.org/en/products/gap-chart?toMarker=w&market=w&fromMarker=i&exporter=404&whatMarker=k>

Whether these products and agriculture in general would be recommended for job creation may need careful qualification. A general observation is that these products are labour-intensive in their production processes and could create employment for the economy if targeted for growth. But there is likely to be further benefits to the country if the export promotion can be supported by efforts to enhance value addition in our exports.

Caution is required especially if value addition is not achieved since larger exports of raw or semi processed commodities does not usually imply increased export value (due to secularly declining prices of raw products), leading to low wages and jobs that

are not decent. In efforts to achieve diversification of its exports, and perhaps create more employment, the ITC export potential map suggests that, besides agriculture, Kenya can set its eyes on specific subsectors in manufacturing including soaps and medicaments. There is great potential in enhancing production of medicaments consisting of mixed or unmixed products since these products face the strongest demand potential in world trade.

Sectoral employment potential and projections, 2023-2025

It is estimated that close to 500,000 to 800,000 youths are entering the Kenyan job market annually. Many youths have not been absorbed in gainful employment over time, and it is estimated that the country needs to create at least 900,000 new jobs every year between 2019 and 2025 as a way of absorbing the high number of youths joining the job market. The employment to population ratio was estimated at 71.6% for the working age group (in the 2015/16 KIHBS [Kenya Integrated Household Budget Survey]) and is much lower for the youth aged 15-34 at 59.7%, implying a large share of the youth are either inactive and or not in employment, education and training. In 2020, 43.8% of the youth were not in employment, education and training (NEET).

This section outlines the potential of selected sectors to generate jobs for the youth in the labour force. The sectors are based on the international standard industrial classification (ISIC). Job creation potential is forecasted for 2023, 2024, and 2025. The major assumptions are as follows:

- (i) Output and employment growth trajectory between 2009 and 2018 is maintained into the future with 2018 used as the base year.
- (ii) We assume that the tourism sector is unlikely to grow at the same pace of its pre COVID-19 era and its growth is revised to about two-thirds of its rate between 2009 and 2019.
- (iii) The structure of the economy will not change radically, and that no major shocks will occur.

Table 6a presents the 2019 employment levels as well as projected employment to the year 2023, 2024, and 2025. The table also presents the share of total employment across the sectors of the economy in 2018 and 2025. The analysis shows that if the economy grows at the same rate as it grew between 2012 and 2019, in 2025, the leading sectors with respect to total employment shall be agriculture, forestry, and fishing; wholesale and retail trade, repair of motor vehicles and motorcycles; construction; other service activities; and manufacturing.

Table 6a: Total employment by sector 2019-2025, and sector shares to total wage employment (2019 and 2025)

	2019	2023	2024	2025	Share 2019 (%)	Share 2025 (%)
Total	17,980,100	20,131,529	20,561,815	20,992,101	100.00	100.00
Agriculture, forestry, and fishing	9,778,964	9,797,558	9,801,277	9,804,996	54.39	48.67
Mining and quarrying	176,952	251,887	266,874	281,861	0.98	1.25
Manufacturing	937,302	1,118,516	1,154,759	1,191,001	5.21	5.56
Electricity, gas, steam, and air conditioning supply	26,810	36,930	38,954	40,977	0.15	0.18
Water supply, sewerage, waste management and remediation activities	24,431	35,255	37,420	39,584	0.14	0.18
Construction	924,410	1,371,239	1,460,605	1,549,971	5.14	6.81
Wholesale and retail trade, repair of motor vehicles and motorcycles	2,614,239	3,200,627	3,317,905	3,435,182	14.54	15.90
Transportation and storage	705,100	810,941	832,109	853,277	3.92	4.03
Accommodation and food service activities	212,344	240,774	246,460	252,146	1.18	1.20
Information and communication	150,362	198,474	208,097	217,720	0.84	0.99
Financial and insurance activities	83,921	98,232	101,094	103,956	0.47	0.49
Real Estate activities	7,410	8,339	8,525	8,710	0.04	0.04
Professional, scientific, and technical activities	102,408	111,373	113,166	114,959	0.57	0.55
Administrative and support activities	57,575	72,431	75,402	78,374	0.32	0.36
Public administration and defence, compulsory social security	312,126	400,212	417,829	435,446	1.74	1.99
Education	621,883	870,650	920,404	970,157	3.46	4.32
Human health and social work activities	177,567	231,323	242,074	252,826	0.99	1.15
Arts, entertainment, and recreation	32,988	36,444	37,136	37,827	0.18	0.18
Other service activities	912,498	1,111,103	1,150,824	1,190,545	5.08	5.52
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	117,905	125,599	127,138	128,677	0.66	0.62
Activities of extraterritorial organizations and bodies	2,905	3,620	3,763	3,907	0.02	0.02

Source: Economic Survey (various issues) and authors' computations.

Focusing on the wage employment share (for the working age population), as well as projected wage employment for 2023 through 2025, wage employment is projected to grow from 2.9 million in 2019 to 3.9 million in 2025. If the economy grows at the same rate as it grew between 2012 and 2019, in 2025, the leading sectors with respect to wage employment shall be education, public administration, manufacturing, and construction.

Table 6b: Total wage employment by sector 2018-2025, and sector shares to total wage employment (2019 and 2025)

	2019	2023	2024	2025	Share 2019 (%)	Share 2025 (%)
Total Wage Employment	2,928,500	3,666,355	3,813,926	3,961,497	100.00	100.00
Agriculture, forestry, and fishing	338,600	339,244	339,373	339,501	11.56	9.25
Mining and quarrying	15,900	22,633	23,980	25,327	0.54	0.62
Manufacturing	353,300	421,605	435,267	448,928	12.06	11.50
Electricity, gas, steam, and air conditioning supply	23,800	32,783	34,580	36,376	0.81	0.89
Water supply, sewerage, waste management and remediation activities	15,400	22,223	23,587	24,952	0.53	0.61
Construction	221,500	328,566	349,979	371,392	7.56	8.96
Wholesale and retail trade, repair of motor vehicles and motorcycles	269,200	329,583	341,660	353,736	9.19	8.99
Transportation and storage	92,500	106,385	109,162	111,939	3.16	2.90
Accommodation and food service activities	82,900	93,999	96,219	98,439	2.83	2.56
Information and communication	132,300	174,633	183,100	191,566	4.52	4.76
Financial and insurance activities	77,900	91,184	93,841	96,498	2.66	2.49
Real estate activities	4,400	4,951	5,062	5,172	0.15	0.14
Professional, scientific, and technical activities	70,800	76,998	78,238	79,477	2.42	2.10
Administrative and support activities	6,400	8,051	8,382	8,712	0.22	0.22
Public administration and defence, compulsory social security	304,600	390,562	407,754	424,947	10.40	10.65
Education	597,800	836,934	884,761	932,588	20.41	22.83
Human health and social work activities	158,000	205,832	215,399	224,965	5.40	5.61
Arts, entertainment, and recreation	7,400	8,175	8,330	8,486	0.25	0.22
Other service activities	38,000	46,271	47,925	49,579	1.30	1.26
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	116,400	123,996	125,515	127,034	3.97	3.38
Activities of extraterritorial organizations and bodies	1,400	1,745	1,814	1,883	0.05	0.05

Source: Economic Survey (various issues) and authors' computations.

It is important to note that the wage trends exclude nonwage jobs which form a large part of the informal component of employment. There are wide variations across the sectors in the growth in informal employment. Between 2009 and 2018, horticulture and export crops and financial services sectors experienced high output growth but low or declining wage employment growth. This is attributed to a large increase in nonwage jobs in form of self-employment. As an example, the banking sector wage employment grew 1.5 times in 2018 relative to 2007 (i.e., from 21,657 to 31,889 employees) while mobile money transfer agents (many of whom are self-employed) grew 130 times over the same period (from 1,582 agents in 2007 to 205,745 agents in December 2018).

Constraints and emerging issues in youth employment creation

(i) Vulnerability in employment

Evidence indicates that a high proportion of Kenyans are in vulnerable employment. These are mainly own account and contributing family workers. These jobs are characterized by informal working arrangements, lack of adequate social protection, and in most cases low productivity and hence low earnings or pay. Evidence on what works and what do not work is scant on the youth employment creation programmes implemented in Kenya. Most employment interventions are rather isolated in nature, suggesting that comprehensive approaches yield superior results. Even though the majority of the youth (about 63%) fall in the category of the employed, about 77% of all employed youth and 79% of those aged above 35 years are engaged in vulnerable employment. Youth also face challenges of multidimensional poverty and related deprivations (see Table A1 in the appendix).

Although open and narrow unemployment rates are low, majority of the youth are engaged in informal and vulnerable unemployment. Open unemployment ratio (of the unemployed to the total labour force), was 8.6% in 2009, ranging from 5% in Nyanza and Western regions to about 23% in North Eastern region. Accordingly, at 62% the national employment rate is high, and varies from 49% in North Eastern to 65% in Western region. The proportion of inactive members of the labour force is about 30% across all regions and consists mainly of students. The bulk of the active labour force is in smallholder agriculture and the informal sector, with the latter hosting the highest concentration of underemployment. The informal sector accounted for 81% of total employment in 2011 and 83% in 2019.

(ii) Low education attainment

Kenya's labour force has low education attainment. Although education attainment is associated with employment opportunities, about 65% of the labour force population only has primary or incomplete secondary education, and another 10% has never attended school. About 90% of the employed primary school graduates are engaged

in vulnerable jobs, compared to a 21% share for tertiary and university graduates. In addition, the share of the youth who have never attended school was 11% for all youth; while the shares of inactive and openly unemployed youth stood at 18% and 21%, respectively. The youth employment and joblessness challenge can be summarized as follows: i) About 24% of youths (or about 3.4 million youth) had “poor quality jobs” if poor quality jobs are defined to include those jobs that took up either over 65 hours per week or under 29 hours per week; ii) 11% of all youth—1.5 million youth—are inactive, making this status a greater challenge than open youth unemployment; and iii) About one million youths, or 7% of their total population, are openly unemployed.

(iii) High levels of child labour

The country has high levels of child labour. An estimated 3.8 million children aged 5-14 years reported working in the last one week to the 2019 census. About half of these children (or 51%) worked for over 65 hours during the last seven days. This implies that Kenya has a large group of children who are likely to graduate into youths without meaningful labour market skills.

(iv) Weak job search infrastructure

The problem of youth unemployment is worsened by the weak job search infrastructure in the country. According to the recent study on job search methods in Kenya (Wambugu, Onsomu and Munga, 2012), informal channels of job search—notably social networks—are more prevalent than formal job search methods. Public and private employment services are either lacking or are weak where they exist. However, informal channels promote inequalities: youths without strong social networks are likely to remain continually disadvantaged in accessing opportunities for decent employment. Even then, the presence of efficient job search infrastructure would be beneficial if more better-quality jobs are created.

(v) Skills deficits

A skills gap is the difference between the skills employers need for a job and the skills that prospective employees in the labour market possess. A skills gap exists where there are open positions, but employers cannot find individuals with the required skills from the labour market to fill these positions. Skills gap analysis is increasingly becoming important for policy makers with the growing body of literature which points out that there exists a discrepancy between what the industry requires and what is taught in institutions of higher learning (World Bank, 2019). This study aimed at establishing the sectors of the economy with potential to create jobs for the youths. Therefore, this part of the study aimed at identifying the constraints in these sectors which hinders the youths from being employed. One of the constraints is the skill gap which was established by identifying the skills requirements of the sectors and

compared them with the existing skills of unemployed youth to give an indication of skills gap and possible ways of addressing the identified gaps to enhance youth employment within the sectors. According to the Industries without Smokestacks (IWOSS): Kenya Case Study (2021) skills gap was measured through an occupational skills gap which was calculated as the difference between the skills requirement for a given occupation and the modal education level of the unemployed youth in Tourism, horticulture, and ICT sectors (Munga et al., 2021).

Despite tourism being one of Kenya's key foreign earners, there are some constraints that hinder the youths from getting fully engaged. Such challenges include lack of enough data about the sector. Data on young people's perspectives of the sector hinders the ability of decision-makers to develop sound, youth-friendly programmes and policies. Tourism sector is also perceived to dominate areas with major attractions such as coastal region, a factor that blocks youths from other parts of the country from engaging in tourism activities. Additionally, the tourism industry in Kenya has suffered in recent years, largely due to implications of perceived insecurity following intermittent terrorism attacks. This, in addition to the latest effect of COVID-19, led to closure of tourism activities as a result of lockdowns in different countries. Tourists could not travel into the country, which is greatly affecting the growth of the sector and its potential to create employment.

Skill mismatch is another factor hindering the youths from getting employed in the tourism sector. A 2017–2018 Youth Think Tank Report established that both young people and employers feel the burden of the skills mismatch. The research showed that 87% of youth working in the sector had received on-the-job training from their employers, as training institutions are not delivering the required skills. The gap many described is in the ability of formal training programmes to provide practical exposure. The widespread mismatch in skills and inappropriate curricula means that Kenyan employers are finding graduates, male and female alike, are not sufficiently prepared for the workplace, and that industry is advancing faster technologically than the institutions training graduates (Nyerere, 2018). Employers identified other challenges as outdated instructional methods, unmaintained equipment, trainers not undergoing continual learning, inflexible curricula, and low life skills training as contributing to this (Nyerere 2018). The mismatch between the skills taught to young people through various education systems and the skills demanded by the labour sector has resulted in the youth population being underprepared for the labour market. Tourism had skills deficit for all skills levels, particularly those related to external communication, product quality, value packaging and quality management (Munga et al., 2021).

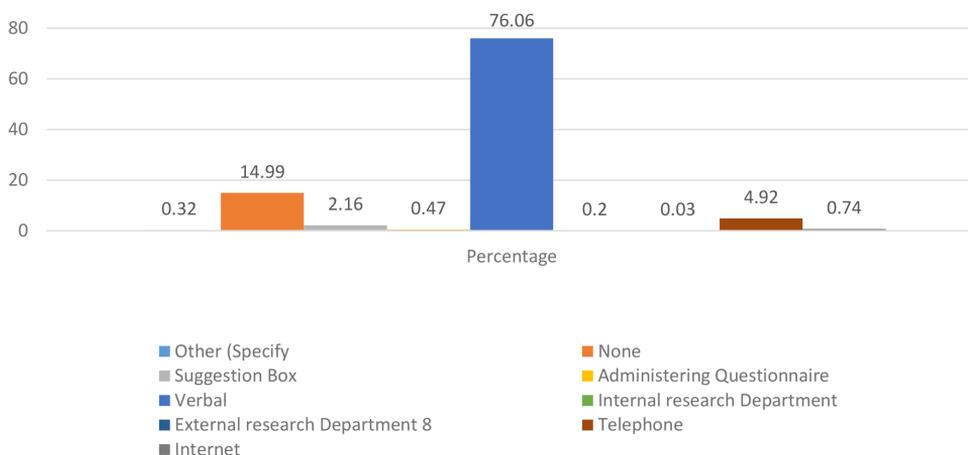
(vi) Low access to internet affects ICT sector

The ICT sector has great potential to create employment opportunities among the youth. This is possible by incorporating ICT in all other sectors of the economy as a business enabler. The integration has the potential to increase productivity in the

sectors hence creating more employment opportunities. An important aspect of ICT is the use of internet, which is a product mostly consumed by youths. Increased internet coverage is likely to create more employment opportunities. However, this opportunity might not be fully exploited since majority of Kenyans (77.9%) do not have internet access as per KIHBS 2015/16.

ICT has the potential to increase the productivity of services sectors, which may in turn be responsible for further job growth. Figure 3 shows that only 22.1% of the households reported to have internet access. About 78% of the households did not have internet access. This limits the information access and innovation by the youths. Examples of ICT occupations with large skills gaps include computing design, cyber security, big data and artificial intelligence, and programming languages (Munga et al., 2021). Other factors that are hindering the youths from being employed in the ICT sector include the low use of ICT related services by the different businesses. For example, KNBS MSMEs Survey 2016 indicates that many SMEs do not use internet in most of their communications.

Figure 3: Primary customer feedback mechanism



Source: KNBS MSME Survey, 2016.

From Figure 3, only a small per cent (0.74%) of the businesses were using internet as a form of getting feedback from customers. This is as opposed to 76% of the businesses using verbal form in getting the feedback. With the adoption of the ICT in businesses accompanied by use of internet, this can create employment opportunities for the youths. Additionally, only a few businesses reported to have used computer for the official purposes. This is one area that would have employed the youths operating the computers to facilitate business transactions. Only 15.5% of the enterprises used a computer for official purpose(s) during the year.

(vii) Volatilities of agricultural sector

Agricultural sector, horticulture, and agribusiness have the potential to create jobs for the youths (Table A1 in the appendix). However, there has been alienation of the youths where agriculture is for the elderly and uneducated. The agricultural sector also suffers from the perception that it is for those who have not been successful in finding employment elsewhere. Therefore, young people with secondary education or higher prefer to seek employment in other sectors (Irungu et al., 2015). Climatic conditions are also contributors of barriers to youth employment due to unpredictable conditions. Dependence on water for farming limit the full exploitation of the sector hence no full production. Youth are not finding agriculture profitable because they are in vulnerable employment positions, have little access to land, credit or social capital, and are unlikely to own the land on which they are working. Therefore, agricultural sector can be made youth friendly by introducing ICT and other innovation to attract the youth. Horticulture has skills deficit for occupations requiring post-primary education, and skills surpluses for occupations in skills that require at least some secondary education (Munga et al., 2021).

(viii) Unsatisfactory education level affects youth employment

Education plays a critical role in equipping the youths with the necessary skills needed by the job market and plays an important role in imparting knowledge and skills needed for the various industries. Hence education has a strong correlation to employment. Lack of the required sectoral skills is one of the contributors of the underemployment among the youths in Kenya. However, some of the education institutions do have enough resources to adequately prepare the youth for the job market. A good example is where primary, secondary, and tertiary institutions have high student-teacher ratio hence compromising on the quality. While Kenya prioritizes education at the primary level, offering free and universal access across the country, both quality and access to higher levels of education are limited, posing clear challenges to the preparedness of Kenyan youth for the employment market and their attractiveness to employers. Fewer than 5% of Kenyan youth enrol at university, while TVET courses—which could link up well to the existing labour market—face challenge of courses that are not practical oriented and limited resources.

Table 7 shows that majority of the unemployed youths had no education. They account for 74.6% of the total unemployed. There is a statistical significance of the Chi-squared test. This means that there is statistically significant relationship between education and employment level.

Table 7: Education and employment level

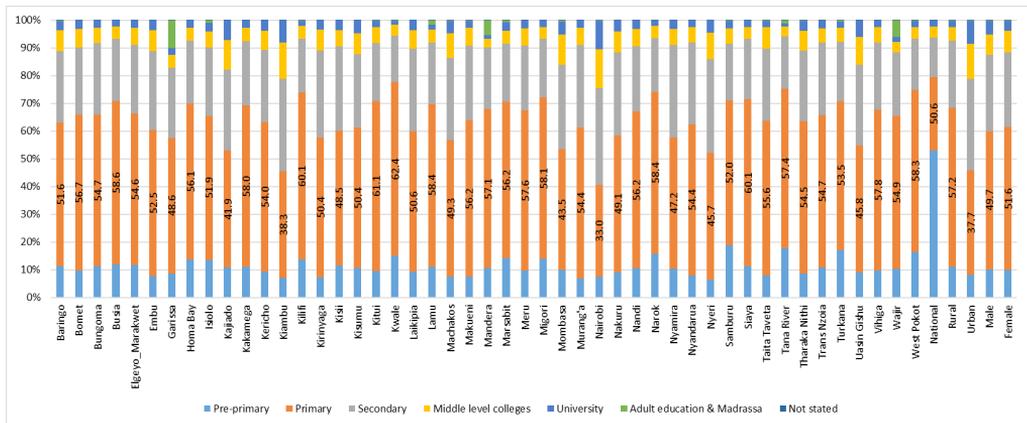
Education Level	Employment Level		Total
	Employed	Unemployed	
No Education	16	47	63
	25.4	74.60	100.00
	15.69	63.51	35.80
Primary	41	17	58
	70.69	29.31	100.0
	40.20	22.97	32.95
Secondary	26	8	34
	76.47	23.53	100.0
	25.49	10.81	19.32
College	16	2	18
	88.89	11.11	100.00
	15.69	2.70	10.23
University	3	0	18
	100.00	0.00	100.0
	2.94	0.00	10.23
Total	102	74	176
	57.95	42.05	100.00
	100.00	100.00	100.00

Pearson $\chi^2(4) = 45.2952$ Pr = 0.000

Source: KIHBS 2015/16.

Figure 4 shows the education attainment by county. According to the analysis, most of the population in the counties have attained primary education followed by secondary education. University and college educational attainment is low, at less than 15%. The low level of education attainment among the population shows that even the youth attainment in education will be low coupled with low skills attainment.

Figure 4: Highest level education among population aged 15 years and above, 2019 (%)



Source: Kenya Housing and Population Census, 2019.

(ix) Constraints and opportunities in foreign and local investment

Over the years, Kenya has been taking measures and reforms to attract job creation and economic development for both local and foreign investors. Within the East and Central Africa region, Kenya is recognized as the largest economy. This is hugely because of the opportunities of trade facilitated by the Africa Growth and Opportunity Act (AGOA) and the upcoming African Continental Free Trade Area. As a result, the country’s average performance in the 2020 World Bank’s Doing Business rankings improved from 61st in 2019 to 56th in 2020.⁷ Notable improvements were observed in issuance of construction permits through reduction of fees and applications through a publicly accessible e-platform, improved reliability in electricity supply and ease of access to credit through online registration platforms.⁸

The country’s best performing categories include business dynamism where it is ranked at 51st. The ranking looks at the process of starting a new business in Kenya in terms of time taken, and the cost including licensing and certifications from various regulatory bodies. The improvement is an indication of steps that the Kenyan Government has taken to encourage foreign investment which has been demonstrated in the ongoing negotiations for a Free Trade Agreement between Kenya and the USA.⁹ Notably, over the years, a number of tax reforms such as Tax Laws (amended) Bill (2018) and the Finance Act (2018), establishing new procedures and provisions relating to taxes, simplifying registration procedures for small businesses, reducing the cost of construction permits, easing the payment of taxes through the iTax platform, and establishing a single window system to speed movement of goods across borders have been instituted in an effort to improve the business environment (World Bank, 2020).

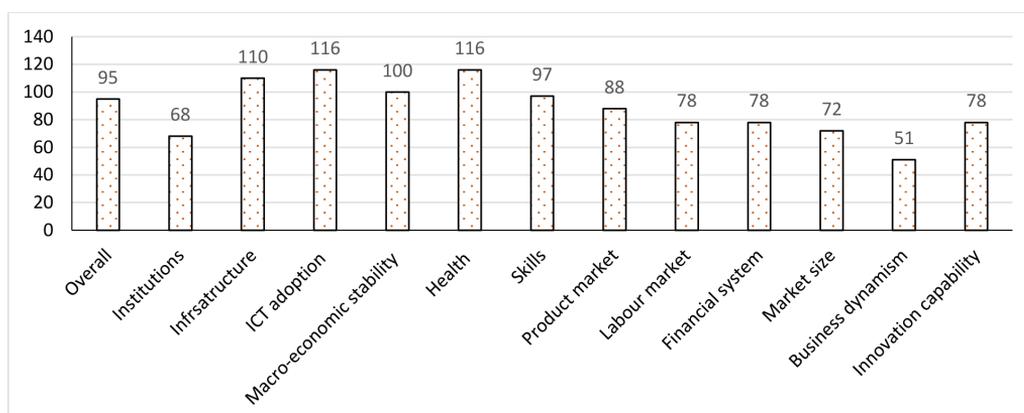
Centrality of the country as a regional financial and technological hub, as well as its history as a private sector development hub, provides an opportunity for investment and employment creation (UNCTAD, 2012). Alongside Nigeria, Kenya has emerged as a top FinTech innovation hub supported by high mobile subscription rates and internet

penetration. The agriculture sector, for example, is one of the fastest growing. Rail, road and air transport is developed and expanding as observed by construction of the standard gauge railway between Mombasa and Nairobi, and the LAPSET project aimed at expansion of the port.

(x) Gaps in Kenya's competitiveness

The general development of Kenya's economy faces key barriers like poverty, corruption, inequality, governance, low investment, and low firm productivity. In 2020, Transparency International ranked Kenya at 124 out of 179 in the annual corruption perception index (Figure 5) with an overall competitiveness index ranking of 95 (Figure 5).¹⁰

Figure 5: Kenya's competitive index ranking, 2019



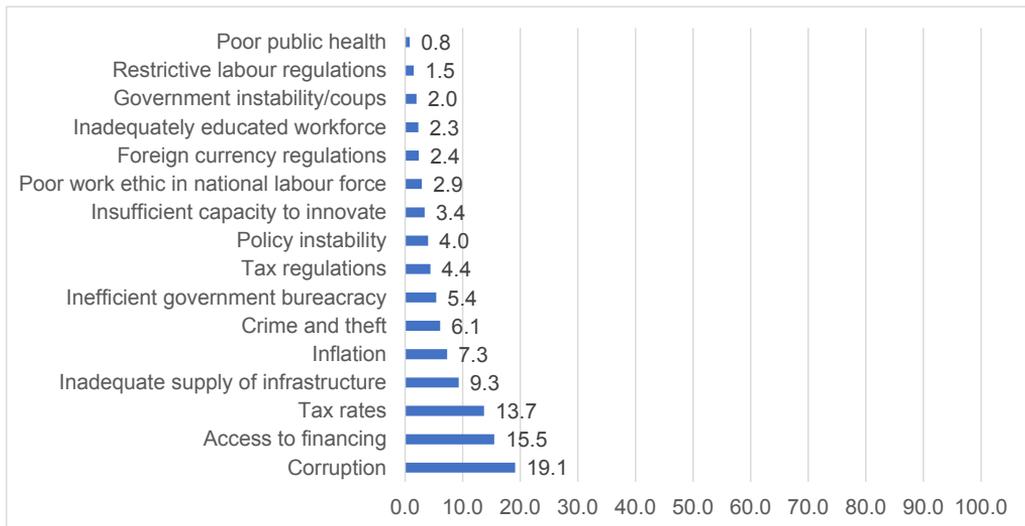
Source: World Economic Forum, 2019.

There is a slow transition of traditional command of regulations to a modern and digitized user friendly and systemized approach of regulations. Rules and regulations are being promulgated without enough needs assessment and grounding in evidence, especially for consideration of implementing business policies. The general climate in Kenya boasts a robust financial sector, a strong telecommunications infrastructure, and an extensive aviation connection throughout Africa, Europe, and Asia.¹¹ In 2018, Kenya airways initiated direct flights to New York City in the US. The Port of Mombasa is a major gateway for most of East Africa trade. The country membership in East African Community as well as other regional trade blocs provide for potential accessibility and growth to larger regional markets.

Kenya's competitiveness has increased over the years from 106 in 2013 to 91 in 2018.¹² Despite said improvement, some of the key factors contributing to low competitiveness include corruption, poor access to financing, high tax rates and inadequate supply of infrastructure (Figure 6). Corruption poses a real threat to Kenya's competitiveness and overall foreign and local investment. High corruption increases

the cost of doing business, imposes a burden to firms conducting business and does not offer a level playing field especially for new market entrants. Empirical evidence on the effect of corruption and its effect on business environment is vast. Findings by World Bank (2019) show that, globally, about a quarter of firms are expected to pay a bribe to get access to some business licenses such as import. This figure is, however, higher in South Asia and East Asia at 27% and 30%.

Figure 6: Indicator performance in Kenya



Source: World Economic Forum, 2018.

In terms of finance accessibility, we observe that there is low availability of affordable credit and scarce availability of long-term finance, especially to micro enterprises. These factors are significant and a hindrance to firms' growth and productivity in Kenya. Limited credit accessibility is also a factor that limits robust economic expansion. A limited access to financing affects productivity in sectors such as agriculture and manufacturing. The manufacturing sector has stagnated and faces competition from cheap imports while the manufactured exports sectors have declined because of growing manufacturing activity within the East African Region. Hausmann et al. (2014) argues that the process of structural transformation and long-term growth involves accumulation of capabilities, which enable a country to move from less complex primary products towards increasing more complex manufactured products.

(xi) Inequitable energy supply and transport network infrastructure

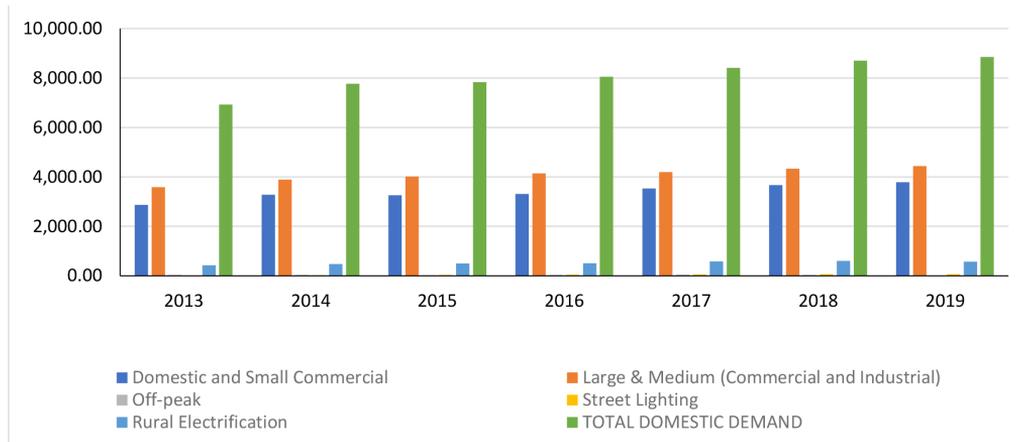
Infrastructure development is considered one of the largest global challenges over time.¹³ In 2010, Kenya enacted the current constitution that saw the introduction of a devolved 47 county governments. It is therefore important to develop and implement

regulatory, institutional and process frameworks to facilitate county governments to initiate large scale infrastructure projects. Currently, majority of infrastructure projects are undertaken by the national government. However, some institutions like; the Public-Private Partnerships Unit and the Ministry of Transport, Urban Development and Housing are taking steps to collate relevant information needed to support the country's infrastructure sector. Infrastructure development is critical to enhancing market accessibility, competitiveness and expansion, especially in developing countries (Deng, 2013). Among the major contributors of huge infrastructure deficit in Kenya are low stock of energy and transportation and need for harnessing the great potential in the ICT sector.

The energy sector has reformed its legal framework which has made Kenya a regional leader in promoting policies and laws which is a driver for sustainable development.¹⁴ Kenya relies on geothermal, hydro and wind power with geothermal capacity making about 50% of the total energy generated. The energy sector has experienced increased production capacity over the years. As of 2018, electricity generation capacity stood at 2670 MW compared to 776 MW in 1996.¹⁵ Despite observed improvement, the energy sector is marred with several challenges characterized by high energy costs, low electricity access rates, monopoly and stringent regulatory framework which increase the overall cost of doing business for firms. As a result, in 2015/16 more than 33 million Kenyans lived without electricity, representing 70% of the population. The "last mile" initiative is however laudable and would enhance access to electricity across the country while promoting job creation for the youth.

Electricity demand in the country increased by 3.9% to 11,620.7 GWh in 2019 compared to 11,182.0 GWh in 2018 (KNBS, 2020). Domestic demand for electricity increased from 8,702.3 GWh in 2018 to 8,854.0 GWh in 2019 (Figure 7). A large proportion of electricity demands in the large and medium commercial enterprises characterized by manufacturing and high energy need industrial activities. The manufacturing sector uses electricity in its production, processing and distribution of goods. As a result, the sector is the third largest energy end user in the Kenyan economy, with a high utilization of petroleum products and largest consumer of electricity.¹⁶ Level and intensity of use of electricity in a country is an indicator of economic growth, its competitiveness and investment activities. Despite increased electricity demand, Kenya's energy sector is riddled with frequent power outages, which pose a challenge to local and foreign investment.

Geothermal sources have been predominantly used in instances of power shortage. However, the country has experienced an overall increase in wind power production over the years. In 2019, wind power production increased to 1,562.7 GWh compared to 1,313.3 GWh. As a result, there was an overall expansion in total electricity production including imports by 3.9% in 2019. To add to this, overall electricity generation in the country increased in 2019 boosted by addition of the geothermal power plant into the national grid.

Figure 7: Electricity demand by categories

Source: KNBS economic survey (various reports).

Despite said improvement, electricity cost in the country is one of the highest compared to major economies in SSA. Compared to Uganda, Ethiopia, South Africa, and Tanzania, Kenyans pay double the amount for a kilowatt of electricity (US\$0.21) compared to firms in South Africa that pay US\$0.10 per kilowatt hour (World Bank, 2019b; African Development Bank, 2018). Relatively high cost of electricity and utilities has implications on firm level competitiveness and the level of investment in the country. High electricity cost has been associated with increased production and manufacturing cost. In India, Abeberese (2017) found that increased electricity costs forced manufacturing firms to engage in less electricity-intensive production processes. In assessing the effect of electricity shortage on firm productivity in Pakistan, Grainger and Zhang (2017) found a decrease in firm revenue and value-added products by 0.14% and 0.36%, respectively.

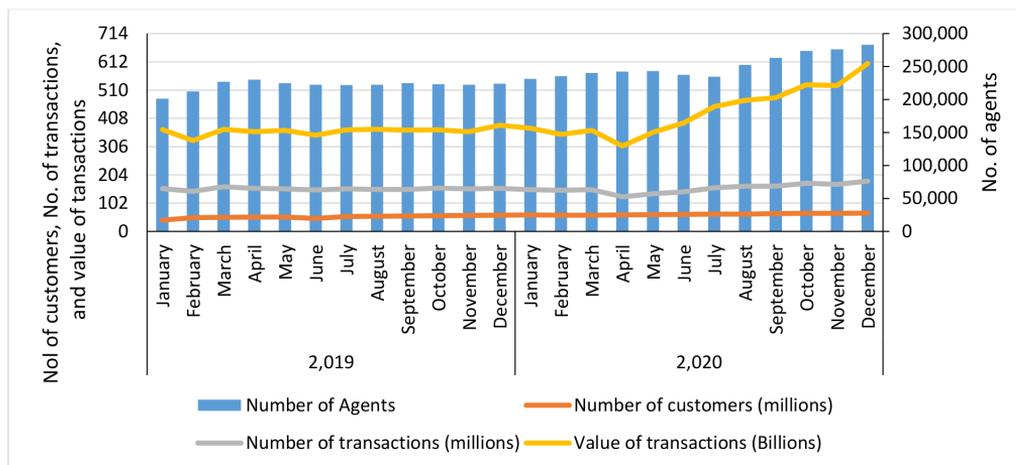
Over the years, Kenya's road, air, and rail transport has experienced local and foreign investment leading to implementation of mega infrastructure projects. The mega infrastructure projects in Kenya come with some social benefits package. One such project is the Standard Gauge Railway which is projected to create at least 60 direct new jobs per kilometre during the construction period, over 1,000 jobs in the local industry and approximately 3,000 jobs in the service and hospitality industry.¹⁷ Kenya has seen a success in the air transport attributed to a successful public-private partnership. The airline is now a top carrier within the African region and the international airport is a key gateway to Africa.¹⁸

(xii) Low utilization of information communication technologies and digital divide

Popularly known as the "Silicon Savannah of Africa", Kenya is at the forefront of technological innovation.¹⁹ The ICT sector contributed to about 8% of total GDP and created over 8,700 jobs in 2020 (KNBS, 2020). Overall, the value of transactions has

increased over the years, with a slight lag in April 2020, due to the COVID-19 outbreak (Figure 8). The ICT sector provides investment opportunities in various sectors of the economy from education to the financial and transport sectors.

Figure 8: Annual revenue, number of customers and transactions in ICT



Source: Various KNBS reports.

Impressively, the Kenyan Government has legal and institutional frameworks for continued investment in ICT. This includes the digital economy blueprint whose aim is to spur economic growth through digital government, digital business, infrastructure, innovation-driven entrepreneurship and digital skills.²⁰ In addition to this, the ministry of ICT rolled out an ICT training hub in 2017 called Ajira digital, which sought to train at least 10,000 youths for online work.²¹ This was done in partnership with Rockefeller Foundation and Kenya Private Sector Alliance. Such initiatives have placed Kenya as a regional innovation hub, with more innovations now traced to the country. This is an extensive development by the country and private sectors which has made the economy witness development events including innovation meet ups, incubator events, start-up weekends, and accelerators with the aim of equipping the Kenyan youths with ICT skills needed in the labour force. While these efforts are notable, there exists a gap in accessibility to upscaling ICT skills, especially to the geographically marginalized areas, as the initiatives are concentrated in urban areas. This also makes the cost of accessing ICT learning skills higher. It is therefore important to make ICT learning inclusive and affordable.

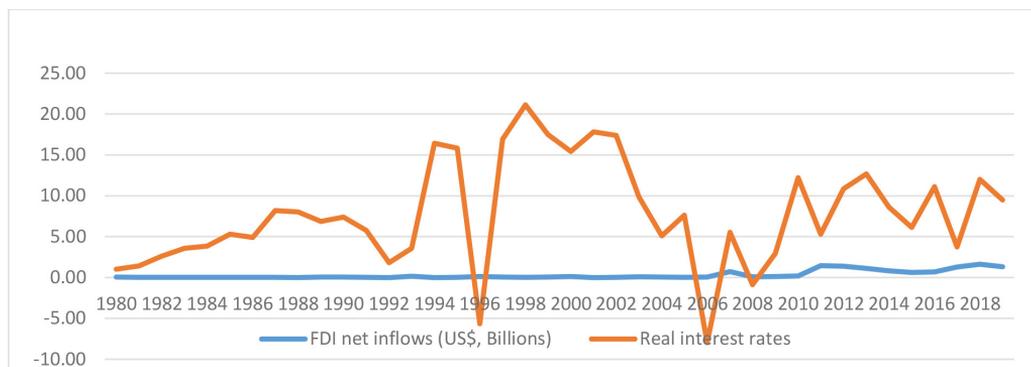
(xiii) Foreign direct investment not adequate for high quality employment creation

Kenya is an advantaged market economy due to its East African regional location and strategically functions as a commercial, economic, logistical, and technological hub. This is also, mainly because of the opportunities of trade facilitated by the Africa

Growth and Opportunity Act (AGOA) and the upcoming African Continental Free Trade Area. Foreign Direct Investments (FDI) is an important attribute towards job creation especially in developing countries, Kenya included. Considered an economic giant in the East and Central Africa region, the country stands to benefit from new business in terms of capital development.

FDI is the largest source of external financing to developing countries.²² FDI's come into the Kenyan market through different sectors which is a huge factor that conditions economic productivity. This factor further effects a competitive advantage over domestic sectorial players to influence policy making. As a result of this, there is a high demand for labour in the country. FDI inflows generate good jobs through higher wages, as compared to domestic firms, hence enhanced firm productivity in developing countries (Javorick, 2015). The total stock of FDI in Kenya, in 2019, stood at US\$15.7 billion while the net inflow of FDI was US\$1.3 billion²³, which is a decrease of 18% from US\$1.6 billion in 2018 (Figure 9). FDI inflows in Kenya are negatively influenced by real interest rates and exchange rates (Ocharo, 2014).

Figure 9: Foreign direct investment and real interest rates, 1980-2019



Source: World Bank Data, 2019.

A large proportion of Kenya's FDI inflows are in the agricultural, manufacturing and infrastructure sectors (Gachunga, 2019). FDI in the infrastructure sector has had a positive impact and significant impact on economic growth. The impact transmits into the economy through the manufacturing and agriculture sector although decimally; and has a positive effect on job creation, poverty reduction and overall economic growth (Gachunga, 2019). Between 2007 and 2017, the sectoral contribution of FDI inflows towards the country's GDP was 0.02% for the infrastructure sector, 0.09% in the manufacturing sector and 0.46% in the agriculture sector.²⁴

(xiv) Gaps in labour market policies and interventions

The study utilized political economy analysis and inequalities analysis to assess the effectiveness of structures, procedures, institutions, and stakeholders in job creation. The Kenyan labour market is characterized by several policies and interventions to address youth unemployment and job creation for the youth. In this section, we review the design of job creation interventions, their overall effects and implementation best practices and challenges. Job creation interventions have key elements, namely: they are aimed at increasing labour demand and increasing chances of integrating workers into productive activities to enable them take advantage of employment opportunities as labour demand increases. Overall, initiatives taken by the Kenya Government are aimed at making the labour market work better, improving chances for entrepreneurs by providing access to finance, skill acquisition by providing vocational training and apprenticeship and facilitating overseas employment, among others. Programmes by the Kenyan Government to address unemployment issues include: National Youth Service (NYS), Youth Enterprise Development Fund (YEDF), KYEOP; Ministry of ICT, Innovation and Youth Affairs (MIIYA), the National Industrial Training Authority (NITA), and Micro and Small Enterprise Authority (MSEA), among others.

The National Youth Service (NYS) came into place in September 1964. In 2014, the NYS was to become a premier agency through which the government executes an elaborate and comprehensive youth empowerment master plan known as 'The 5-Point Vision'. Its directive is to prepare youthful citizens in order to work for the country whereby they are employed in public works that is important for national development. Each year, about 30,000 young Kenyans are recruited into the service and trained in various skills like the paramilitary, engineering, business management, agriculture, secretarial, construction, plant operation, fashion and design, catering, and driving. This kind of training prepares the youths in readiness to be engaged in matters of national service in the armed forces, national reconstruction, and response to disasters.

The Youth Enterprise Development Fund (YEDF) centres on development of enterprise as a major factor for rising chances in the economy for the youth and a means of allowing them to participate in building of the nation. It provides access to capital to youthful entrepreneurs, provides services for business development, and generate market opportunities that benefit youths who produce goods and services. The YEDF also facilitates youth employment in the labour market both locally and internationally. The operations of the YEDF are decentralized and money is paid out through Micro Finance Institutions, banks, Non-Governmental Organizations (NGOs) and Cooperatives that are distributed across the country through various branches.

KYEOP is a government project being funded by the World Bank and implemented by the Ministry of ICT, Innovation and Youth Affairs (MIIYA), the National Industrial Training Authority (NITA), Micro and Small Enterprise Authority (MSEA), and the Ministry

of Labour and Social Protection. The main aim of the project is to equip young people in Kenya by giving essential training, internship, and business grant opportunities. The programme's major focus is on skill acquisition through Life Skills Training (LST), Core Business Skills Training (CBST) and Formal Training Provider (FTP) which allows the trainees to undertake an apprenticeship with a master craftsman. Although there is no impact evaluation of most of these interventions, it will be important to support their sustainability and targeting of the most vulnerable youth.

5. Conclusion and recommendations

The study set to identify most promising sectors that have the potential to improve youth employment. Although the country has been experiencing modest growth rates since 2003, labour market outcomes (such as the quality of employment) are not improving. Whereas the government and private sector have initiated various programmes aimed at creating employment, most of the jobs have been created in the informal sector.

The input-output analysis indicates that agriculture and services, including agro-processing, tourism, ICT, transport, and education have the highest potential to create employment. The findings indicate that these sectors have employment multipliers of 2.1 (agriculture), 1.74 (transport), 1.89 (trade), 1.84 (construction), and 1.85 (education). Additionally, agriculture sector has several nodes along the value chain which accommodates all kind of persons including those with low or no education.

Activities with high potential to create jobs include livestock, vegetables (horticulture), rice production, textile and footwear production, and hotels and restaurants. The measure of export potential suggests that the country can expand its employment further in horticulture (cut flowers and avocados) if it is able to tap in its export potential. The input-output multipliers suggest that manufacturing ranks high in its potential, while the measure of export potential suggests the specific sub-sectors such as medicaments can grow exponentially if export markets are fully exploited.

Kenya's data indicates that the country has good prospects to stimulate a wide range of sectors to ensure creation of quality and productive jobs in the modern economy. The following observations emerge from the study.

There is need to enhance the performance of agriculture and services in job creation as part of a wider job strategy that supports industrial development. With respect to agriculture and services the country need to:

- (i) *Improve quality of jobs in agriculture through enhancing agricultural productivity.* Agriculture and its sub-sectors shall be key in job creation in the coming decade. Better outcomes will emanate from interventions to improve the quality of jobs in the sector through productivity improvements.

- (ii) *Create employment opportunities in industry and services to stem over-employment in agriculture.* Creating employment in other sectors to facilitate or trigger movement of labour from agriculture should be a key strategy in reducing underemployment in agriculture as well as boosting its productivity.
- (iii) *Exploit the untapped export potential of agricultural products and manufactured products (such as horticulture and medicaments).* This will require addressing the binding constraints facing these subsectors—which can boost production and create new jobs.

There is need to support aggressive industrialization and particularly manufacturing ability as a means of stemming secularly declining price of raw material exports. Success in agriculture and services may need to be supported by similar success in industry. In this regard, the more successful countries in Asia, such as China, can offer key lessons on industrial policy directions. A key lesson is that all these countries were marked by government intervention in industry and technology. These included efforts to help the firms avoid coordination failures by providing early investments in areas such as training, technology, education, and infrastructure development; supported with strong institutions and regulatory frameworks. In this regard, Kenya can:

- (i) Promote value addition by supporting agro-based industries.
- (ii) Create incentives for investments in manufacturing.

Notes

1. Sessional Paper No.4 of 2013 on employment policy and strategy for Kenya.
2. KIPPRA (2010). Cluster Analysis for Enhancing Productivity and Competitiveness of the Kenyan Economy JICA (2007). The Master Plan Study for Kenyan Industrial Development (MAPSKID).
3. KIPPRA performed a cluster analysis for Kenya supported by ECORYS Netherlands.
4. The eight sub-sectors included: food processing, petroleum and other chemicals, pottery and glass products, and electrical machinery.
5. The focus of the study was on the most important clusters based on performance, spatial concentration of economic activities, network data and parallel government policy. Based on these criteria, the selected clusters included: Transport and Logistics at Port of Mombasa; Coast Beach Tourism; Inland Fisheries in Kisumu; ICT in Nairobi; Beef in Garissa; and Horticulture in Naivasha-Limuru.
6. The SAM is an analytical tool for studying the effects of sectoral growth on various sectors of the economy. The SAM identifies the linkages within an economic system, involving producers and users of various economic outputs. The SAM summarizes the interdependence between productive activities, factor shares, household income distribution, balance of payments, capital accounts, among others, for the economy as a whole at a point in time. Given the technical conditions of production, the value added is distributed to the factors of production. The value added accrued by the factors is further received by households according to their ownership of assets and the prevailing wage structure. In the matrix form, the SAM consists of rows and columns representing receipts and expenditures respectively. As an accounting constraint, receipts must equal expenditures. For every income, there exists a corresponding expenditure. The SAM is therefore a means of presenting the System of National Accounts (SNA) which are accounts in a matrix form which elaborates the linkage between supply and use tables and institutional sector accounts. The SNA consists of a coherent, consistent and integrated set of macroeconomic accounts, balance sheets, and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules.
7. <https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf>

8. <https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf>
9. <https://www.state.gov/reports/2020-investment-climate-statements/kenya/>
10. [2020 - CPI - Transparency.org](https://www.transparency.org/en/cpi/2020)
11. <https://www.state.gov/reports/2019-investment-climate-statements/kenya>
12. http://www3.weforum.org/docs/GCR2017-2018/03CountryProfiles/Standalone2-pagerprofiles/WEF_GCI_2017_2018_Profile_Kenya.pdf
13. <https://kam.co.ke/mega-infrastructure-projects-are-the-key-to-sustainable-development/>
14. <https://www.idlo.int/what-we-do/initiatives/energy-development-kenya>
15. <https://www.worldbank.org/en/results/2019/04/18/maximizing-financing-for-development-in-action-the-kenya-energy-sector-experience>
16. <http://www.ku.ac.ke/schools/economics/images/stories/research/the-demand-for-energy-in-the-kenyan-manufacturing-sector.pdf>
17. <https://land.igad.int/index.php/documents-1/countries/kenya/investment-3/637-impact-of-infrastructure-development-on-economic-competitiveness-in-kenya/file>
18. <https://openknowledge.worldbank.org/handle/10986/3361>
19. <https://www.trade.gov/country-commercial-guides/kenya-information-communications-and-technology-ict>
20. <https://ca.go.ke/the-digital-economy-blueprint/>
21. [ICT ministry seeks 10,000 youths for online work - The Standard \(standardmedia.co.ke\)](https://www.standardmedia.co.ke/ict-ministry-seeks-10000-youths-for-online-work)
22. <http://documents.worldbank.org/curated/en/956231593150550672/Foreign-Direct-Investment-and-Employment-Outcomes-in-Developing-Countries-A-Literature-Review-of-the-Effects-of-FDI-on-Job-Creation-and-Wages>
23. <https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=KE>
24. [https://www.researchgate.net/publication/333565438_IMPACT_OF_FOREIGN_DIRECT_INVESTMENT_ON_ECONOMIC_GROWTH_IN_KENYA\)](https://www.researchgate.net/publication/333565438_IMPACT_OF_FOREIGN_DIRECT_INVESTMENT_ON_ECONOMIC_GROWTH_IN_KENYA)

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Appendix

Table A1: Main sectors where youth (18-34 years) work by county, 2019 (% shares)

	Formal Private Sector	Public Sector	NGOs, FBOs and Self-Modern	Informal Sector (including self-employed)	Small Scale Agriculture and Pastoralist	Private Household	Other
Baringo	9.1	4.5	2.5	42.7	38.3	2.8	0
Bomet	12.1	2.7	1.6	39	42.6	1.9	0.1
Bungoma	6.5	2.7	1.8	40.3	46.3	2.3	0.1
Busia	5.4	3	2.6	33.8	53.5	1.7	0.1
Elgeyo Marakwet	7.8	4.7	1.7	42.3	40	3.4	0.1
Embu	11.2	3.9	2	39.4	37	6.1	0.4
Garissa	4.2	3.3	3.1	63.4	25.4	0.6	0
Homa Bay	6.7	3.1	2.1	45	41.8	1.4	0.1
Isiolo	8	8.3	3	48.4	30.8	1.4	0.1
Kajiado	26.8	5.5	5.4	42	14.8	5.4	0.2
Kakamega	9.8	3.1	2	42.1	40.3	2.6	0.2
Kericho	19.4	3.4	2.6	38.1	33.5	2.9	0.1
Kiambu	29.4	5.3	4.4	37.1	15.5	8.1	0.1
Kilifi	24.3	3.6	4.2	42.5	21.4	3.9	0.2
Kirinyaga	9.6	2.6	2.2	35.9	44.9	4.6	0.2
Kisii	8.5	2.9	2	36	49.3	1.1	0.2
Kisumu	14.4	5.3	4.5	56.2	16.8	2.7	0.1
Kitui	8	4.2	6.4	56.5	17.1	7.6	0.2
Kwale	14.1	3.2	3	39.5	37.4	2.7	0.1
Laikipia	18.5	5.3	2.8	40.9	28	4.2	0.2
Lamu	8.6	6.5	3.2	40	36.5	4.1	1.2
Machakos	19.8	4.1	4.3	46.2	16.9	8.4	0.3
Makueni	13.2	4.6	4.2	43	23.5	11.4	0.1
Mandera	1.3	1.8	1.8	56.2	37.8	0.9	0.2
Marsabit	2.8	4.7	1.9	42.6	46.3	1.6	0
Meru	11.1	2.4	2.5	41.2	38.6	4	0.2
Migori	7.7	3.2	1.7	37.8	48.8	0.7	0.1
Mombasa	40.7	6.3	5	41.3	1.4	5.1	0.2
Murang'a	12.8	3.1	2.4	31.3	43.7	6.5	0.2
Nairobi	38.9	6.1	5.6	44.1	-	5.2	0.2
Nakuru	26.1	5.4	3.7	39	22.7	3	0.1
Nandi	17.1	3.3	1.8	41.4	31.3	5	0.2
Narok	7.8	2.3	2.3	45	41.3	1.2	0.1
Nyamira	7.1	2.6	2.1	29.8	56.5	1.8	0
Nyandarua	12.4	1.8	2.1	25.5	54.9	3.2	0.1
Nyeri	16.5	4.6	2.6	35	35.9	5.4	0.1
Samburu	3.7	4.2	2	42.4	46.6	1	0.1
Siaya	6.8	3	2.5	45.9	39	2.7	0.2
Taita Taveta	12.6	4.5	4.1	41.9	31.7	4.9	0.4
Tana River	4	3	2.4	43.1	45.5	1.8	0.1
Tharaka Nithi	8.5	3.8	2.3	33.6	46.2	5.6	0.1
Trans Nzoia	15.2	4.2	3.5	39.7	33.6	3.7	0.1
Turkana	1.5	1.3	2.1	49	45.7	0.4	0.1
Uasin Gishu	20.9	7.3	4.7	48	13.6	5.3	0.2
Vihiga	9.2	4.2	3.2	49.4	30.5	3.2	0.2
Wajir	1.5	2.2	0.8	52.2	42.4	0.7	0.3
West Pokot	3.6	2.8	1.6	53.3	37.8	1	0
National	12.5	3.9	2.9	42.5	35.3	3.5	0.2

Source: Kenya Housing and Population Survey (2019).



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