Cost of Living and the Role of Markets

KENYA ECONOMIC REPORT 2023

KENYA VISION 2030

To create a globally competitive and prosperous nation with a high quality of life by 2030

KIPPRA
The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

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Thinking Policy Together

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COST OF LIVING AND THE ROLE OF MARKETS

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The Kenya Economic Report is prepared annually by the Kenya Institute for Public Policy Research and Analysis (KIPPRA), pursuant to Section 23(3) of the KIPPRA Act No. 15 of 2006. This is a flagship report, which reviews Kenya's economic performance and provides prospects for the medium-term. The Kenya Economic Report 2023 themed *"Cost of Living and the Role of Markets"* is timely, considering the inflationary pressure the country has experienced.

The theme is in line with the Bottom-up Economic Transformation Agenda (BETA), which aims to position the economy on a strong foundation and trajectory for inclusive growth. The development agenda recognizes the importance of managing the cost of living through well-functioning markets to enhance productivity, availability and affordability of goods and services for all citizens. Therefore, the Kenya Economic Report 2023 provides policy evidence and recommendations on the development of well-functioning markets through macroeconomic stability, boosting production, enhancing trade and distribution, boosting household earnings, financial access, infrastructure development, institutional transformation and access to quality market information. By laying emphasis on these pillars of market development, the report provides key insights that contribute towards achieving the Bottom-up Economic Transformation Agenda.

To cushion Kenyans against high cost of living and provide long-term solutions, the government has implemented several measures, including: tightening of monetary policy to anchor inflationary expectations, subsidizing fertilizer to enhance agricultural productivity, importing essential food to bridge the supply gap, establishing a financial inclusion fund, developing standards and reducing import duty to promote uptake of electric vehicles, and enacting competition and consumer protection laws to improve the business environment. While these interventions are key in addressing the cost of living, strengthening market systems is imperative.

The Kenya Economic Report 2023 provides policy recommendations to strengthen measures to address the cost of living, including: adopting timely and adequate monetary policy interventions; scaling up investment to boost agricultural production and expand agro-processing to smoothen food supply; improving distribution logistics and taxes to enhance distribution of consumer commodities; aligning minimum wage to the prevailing living wage and providing comprehensive social protection system to adequately cushion workers; deepening the credit market to offer diverse and appropriate products responsive to household needs; building key infrastructure to enhance uptake of electric mobility; and strengthening enforcement mechanisms for competition and consumer protection laws. These measures are tailored around markets development, while leveraging on enabling role of the available policy frameworks.

The Government is committed to lowering the cost of living and ensure that Kenyans live a decent life in line with the Bottom-up Economic Transformation Agenda. The Kenya Economic Report 2023 therefore provides rich and timely evidence to policy makers in addressing the high cost of living in the country. I therefore call upon all the stakeholders to consider the policy recommendations provided in this Report.

Prof. Njuguna S. Ndung'u, CBS
Cabinet Secretary
The National Treasury and Economic Planning

FOREWORD

The Kenya Economic Report 2023 provides evidence-based policy recommendations to support initiatives in making markets work while managing the cost of living in the country. The preparation of this Report enables the Institute to fulfill the statutory requirement under the KIPPRA Act No. 15 of 2006, Section 23(3), which requires it to develop the Kenya Economic Report in consultation with the Ministries responsible for Planning, Finance, National Development, and the Central Bank of Kenya.

The KIPPRA Board of Directors provided oversight and strategic leadership in preparation of the Report. I thank the management and staff for their devotion, diligence and professionalism that went into the preparation of this Report. I recognize and appreciate the contributions and insights from the stakeholders through the various consultative forums.

I also wish to thank the Government of Kenya for the continued financial support to KIPPRA. The support has enabled the Institute to undertake objective policy research and analysis that facilitates the Institute's role in providing advisory and technical services on public policy issues to the Government, the private sector and other stakeholders.

Dr Benson Akong'o Ateng'
Chairperson
KIPPRA Board of Directors

PREFACE

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is mandated to undertake public policy research, analysis and economic forecasting to inform formulation of medium and long-term development plans and goals in Kenya. To achieve this mandate, the Institute reviews the macroeconomic and sectoral performance through the preparation of the Kenya Economic Report. The Kenya Economic Report 2023 is the 15th edition in the series of this flagship Report.

This Report comes at a time when policy makers are seeking evidence for informed policy decisions to manage the cost of living. The economy has experienced shocks emanating from prolonged drought and the spillover effects of external shocks such as the Russia-Ukraine war that disrupted global food and commodity supply chains. The shocks saw a surge in prices of food, fuel and other commodities in the country. This elicited policy debate in search of appropriate policy action to secure the purchasing power of households. It is against this backdrop that the theme of the Kenya Economic Report 2023 was selected.

Addressing the high cost of living by strengthening the role of markets will strengthen the country's ability to withstand economic and climate-related shocks. This requires exploiting opportunities in various sectors of the economy in managing the cost of living and strengthening the market structures.

The report offers key policy recommendations for policy makers to consider in addressing the cost of living. Exploiting the opportunities brought out in the policy recommendations is pivotal in strengthening market systems for a stronger and resilient economy. This serves to increase availability and affordability of goods and services in the country.

Dr Rose W. Ngugi
Executive Director
KIPPRA

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The Kenya Economic Report 2023 was prepared through participation of various stakeholders. We acknowledge and appreciate the KIPPRA Board Chairperson, Dr Benson Ateng', Board of Directors; and the Executive Director, Dr Rose Ngugi, for their leadership and guidance during the preparation of this Report.

The Institute acknowledges the exceptional dedication and teamwork of the Kenya Economic Report 2023 Technical Committee under the leadership of the chairperson, Adan Shibia. Other members who authored the Report are Daniel Omanyo, Hellen Chemnyongoi, Dr Evelyne Kihiu, Grace Waweru, Dr Eldah Onsomu, Melap Sitati, Dr James Ochieng', Shadrack Mwatu, Dr Humphrey Njogu, Brian Nyaware and Dr Judith Nguli.

The Institute is also grateful to other KIPPRA researchers who generously provided their support and insights during the peer review processes, and quality control seminars and workshops. The Report would not have been realized without the support of KIPPRA staff in the Knowledge Management, Communication, Finance, Supply Chain Management, and Transport Departments whose valuable support ensured the Report was finalized on time.

Further, the Institute sincerely appreciates the support of the Ministries, State Departments, and Government Agencies that availed data and information used in this Report. The Institute particularly appreciates the insights of the National Treasury and Economic Planning, the Central Bank of Kenya, and the Kenya National Bureau of Statistics. Appreciation also goes to the Kenya Revenue Authority, the Ministry of Agriculture and Livestock Development, the Ministry of Labour and Social Protection, the National Cereals and Produce Board, the Kenya National Trade Corporation and the Kenya Roads Board, who generously availed data that was used in the Report. Further, the Institute appreciates various retail outlets who provided insights as key informants. The Institute acknowledges the contribution and participation of all other stakeholders who were involved in the preparation of this Report.

The completion of this report was made possible through financial support to KIPPRA by the Government of Kenya.

ABBREVIATIONS AND ACRONYMS

AAAM	African Association of Automotive Manufacturers
AC	Alternating Current
ACA	Anti-Counterfeit Authority
ADC	Agricultural Development Corporation
AFA	Agriculture and Food Authority
AfCFTA	African Continental Free Trade Area
AGOA	African Growth and Opportunity Act
AGPO	Access to Government Procurement Opportunities
APR	Annual Percentage Rate
ASALs	Arid and Semi-Arid Lands
ASTGS	Agricultural Sector Transformation and Growth Strategy
BETA	Bottom-up Economic Transformation Agenda
BEV	Battery Electric Vehicle
BOP	Balance of Payments
BROP	Budget Review Outlook Paper
BRT	Bus Rapid Transit
CA	Communications Authority
CAD	Current Account Deficit
CAK	Competition Authority of Kenya
CBA	Collective Bargaining Agreement
CBK	Central Bank of Kenya
CBOs	Community-Based Organizations
CBR	Central Bank Rate
CEPA	Comprehensive Economic Partnerships Agreement
CF	Common Framework
CGE	Computable General Equilibrium
CGS	Credit Guarantee Scheme
CMA	Capital Markets Authority
COICOP	Classification of Individual Consumption by Purpose
COL	Cost of Living
COLI	Cost of Living Index
COTU	Central Organization of Trade Unions
COVID-19	Coronavirus Disease 2019
CPI	Consumer Price Index
CRR	Cash Reserve Ratio
DAP	Di-ammonium Phosphate
DC	Direct Current
DCC	Debt Carrying Capacity
DFC	Development Finance Corporation
DPP	Director of Public Prosecutions
DSSI	Debt Suspension Service Initiative
EAC	East African Community
EACC	Ethics and Anti-Corruption Commission
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EM-DAT	Emergency Events Database
EPRA	Energy and Petroleum Regulatory Authority
EPZ	Export Processing Zones

EV	Electric Vehicle
EVCI	Electric Vehicle Charging Infrastructure
FAO	Food and Agriculture Organization
FBOs	Faith-Based Organizations
FCC	Fuel Cost Charge
FiT	Feed-in-Tariff
FKE	Federation of Kenya Employers
FOB	Free On Board
FSD	Financial Sector Deepening
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GOK	Government of Kenya
GSK	GlaxoSmithKline
HDI	Human Development Index
ICE	Internal Combustion Engine
ICT	Information and Communication Technology
IDF	Import Declaration Fee
IEA	International Energy Agency
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
IMF	International Monetary Fund
IT	Information Technology
ITC	International Trade Centre
KCB	Kenya Commercial Bank
KCERT	Kenya Carbon Emission Reduction Tool
KEBS	Kenya Bureau of Standards
KEMRI	Kenya Medical Research Institute
KEPSA	Kenya Private Sector Alliance
KER	Kenya Economic Report
KIHBS	Kenya Integrated Household Budget Survey
KIE	Kenya Industrial Estates
KIIs	Key Informant Interviews
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KM	Kilometre
KIRDI	Kenya Industrial Research and Development Institute
KNBS	Kenya National Bureau of Statistics
KNES	Kenya National Electrification Strategy
KNTC	Kenya National Trading Corporation
KOSAP	Kenya Off-grid Solar Access Programme
KPC	Kenya Pipeline Company
KPLC	Kenya Power and Lighting Company
KRA	Kenya Revenue Authority
KRB	Kenya Roads Board
Ksh	Kenya Shillings
KTMM	KIPPRA-Treasury Macro Model
LMCP	Last Mile Connectivity Programme
LPG	Liquefied Petroleum Gas
LPO	Local Purchase Order
LTM	Long-term Mean
MPC	Monetary Policy Committee

MPPI	Manufacturing Producer Price Index
MSEA	Micro and Small Enterprises Authority
MSMEs	Micro, Small and Medium Enterprises
MT	Metric Tonne
MW	Megawatt
NCA	National Construction Authority
NCPB	National Cereals and Produce Board
NDA	Net Domestic Asset
NDC	Nationally Determined Contribution
NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NFA	Net Foreign Asset
NFR	National Food Reserve
NGOs	Non-Governmental Organizations
NHIF	National Hospital Insurance Fund
NTSA	National Transport and Safety Authority
OECD	Organization for Economic Cooperation and Development
PAYE	Pay as You Earn
PHEV	Plug-in Hybrid Electric Vehicle
PMI	Purchasing Managers Index
PPG	Public and Publicly Guaranteed
PPI	Producer Price Index
PPP	Purchasing Power Parity
PPPs	Public-Private Partnerships
PSV	Public Service Vehicle
R&D	Research and Development
RAI	Rural Access Index
REA	Rural Electrification Authority
REP	Rural Electrification Programme
REREC	Rural Electrification and Renewable Energy Corporation
SACCOs	Savings and Credit Cooperatives
SDCDAR	State Department for Crop Development and Agriculture
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
STIP	Strategic Trade and Investment Partnerships
TLB	Transport Licensing Board
UAE	United Arab Emirates
UHC	Universal Health Coverage
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNFCC	United Nations Framework Convention on Climate Change
US	United States
US$	United States Dollar
VAT	Value Added Tax
WEF	Women Enterprise Fund
WHO	World Health Organization
WRS	Warehouse Receipt System
YEDF	Youth Enterprise Development Fund

EXECUTIVE SUMMARY

Macroeconomic Performance

The Kenyan economy rebounded solidly in 2021 due to improved performance of the services sector and industry, and the re-opening of the economy in the post-COVID-19 period. In 2022, the recovery momentum was, however, disrupted internally by a prolonged drought, which suppressed performance of the agricultural sector, and externally by the spillover effects of the Russia - Ukraine war and the tight global financial markets that saw sustained strengthening of the dollar and high interest rates. In 2022, the economy grew by 4.8 per cent compared to 7.6 per cent in 2021. The average growth of the services sector was 7.0 per cent compared to 10.0 per cent in 2021 while the industry sector grew by 3.9 per cent compared to 7.5 per cent in 2021. The agricultural sector contracted by 1.6 per cent in 2022 compared to an average growth of 0.2 per cent in 2021. Inflation rates crossed the government upper target band of 7.5 per cent, resulting to high cost of living. Previously, inflation rates breached the target band mainly because of drought condition which adversely affected the availability and cost of food. Inflation rates averaged 7.7 per cent in 2022 compared to 6.1 per cent in 2021. The Central Bank of Kenya tightened monetary policy stance by cumulatively increasing the policy rate by 1.75 percentage points to 8.75 per cent in February 2023. The government sustained its commitment to the fiscal consolidation path, with fiscal deficit accounting for 3.5 per cent of GDP for the first three quarters of 2022/23 compared to 4.1 per cent in the same period in 2021/22. However, government revenue and grants for the first three quarters of 2022/23 was 11.7 per cent of GDP against a target of 12.3 per cent of GDP, while expenditures were 15.2 per cent of GDP against a target of 16.1 per cent.

Revitalizing the agriculture sector is a priority, with two key roles in sustaining sound macroeconomic fundamentals. First, the sector is the engine of growth, accounting for 21.2 per cent of GDP and supporting livelihoods through employment and income generation. Second, sustained agricultural productivity is key to enhanced food production and lowering of the cost of living. Besides revitalizing the agricultural sector, it is imperative to contain inflationary pressures through timely and adequate monetary policy action to anchor inflation expectations while minimizing the dampening effects on growth of credit to the private sector. Further, the government could pursue the fiscal consolidation path to build enough fiscal buffers and bring the economy towards sustainable public debt. It is also imperative to pursue diversification of export products and markets while creating an enabling environment for diaspora remittances to strengthen the external position and boost foreign exchange reserves.

Medium-Term Economic Prospects for Kenya

Kenya, like many other countries, was on a recovery path in 2021 before the onset of the Russia-Ukraine war in February 2022. The war disrupted economic activity, leading to a slowdown in economic performance during the second quarter of 2022 onwards. Further, the prolonged drought adversely affected economic activity, causing downside risk to the medium-term outlook. On the upside, there are opportunities that the country could leverage on to realize sustainable economic growth. These include macroeconomic and political stability, and implementation of the priority projects and programmes under the Bottom-Up Economic Transformation Agenda. Notably, the information, communications and

technology sector is a key enabler as it supports the activities in the various sectors of the economy, and therefore government investments under the digital superhighway present a great opportunity to spur growth. With the progressive implementation of the government agenda, the economy is projected to grow at 5.7 per cent in 2023 and on average 6.1 per cent by 2025. The performance will be driven by growth in investments and exports. Cognizant of the downside risks, economic growth may slow down to 5.5 per cent in 2023 and average 5.8 per cent in the medium-term in the event the risks materialize.

Boosting the agriculture sector performance calls for the Ministry of Agriculture and Livestock Development in collaboration with County Governments to encourage farmers to plant early maturing and drought resistant varieties of crops, fodder and pasture, for example short season maize (3-4 months), sorghum, cassavas, and beans, among others. It is also important to intensify sensitization and capacity building of farmers on appropriate technologies, innovations and implementation of smart agriculture to avert more losses caused by drought. To cushion livelihoods in the Arid and Semi-Arid Lands (ASALs), pastoralists are encouraged to conserve pasture during the rainy seasons to ensure their livestock have adequate feed beyond the rainy season. Additionally, farmers need to be encouraged to diversify the fertilizer used to include organic varieties where they experience shortage of the imported fertilizer or have low incomes to afford non-organic fertilizer. With the uncertainties in the developed economies, policy makers need to monitor developments in fiscal and monetary policies in the global markets to inform appropriate policy formulation for the domestic economy. Further, fast-tracking implementation of priority projects in the Bottom-up Economic Transformation Agenda is critical to ensuring sustained economic growth in 2023 and beyond.

Inflation Dynamics in Kenya

Kenya experienced a high cost of living in 2022, with monthly inflation rates increasing from 5.1 per cent in February 2022 to 7.1 per cent in May 2022, before crossing the government upper target band of 7.5 per cent in June 2022. Thereafter, the inflation rate steadily accelerated to 9.6 per cent in October 2022 before easing to 9.2 per cent in February 2023. The surge in inflation in 2022 was driven by food inflation, which reached a double-digit inflation from April 2022 and increased persistently from 12.1 per cent in April to 15.8 per cent in October 2022. The persistent surge in inflation in 2022 was attributed to the prolonged drought and lower than expected precipitation in 2021 and 2022. Importantly, the 2022 surge in inflation is not an isolated case, with similar experiences during the 2011 and the 2017 droughts. In 2011, overall inflation rates averaged 14.0 per cent, and food inflation averaged 20.4 per cent while in 2017, overall inflation averaged 8.0 per cent and food inflation averaged 12.7 per cent. Other than food inflation emanating from domestic supply-side bottlenecks captured by agricultural output gap, consumer prices in Kenya are driven by external factors such us exchange rate, and international oil prices with pass-through effects to domestic prices. Moreover, presence of second round effects and possible wage-price spiral are observed in Kenya's inflation dynamics. Changes in food and fuel inflation results into an increase in core inflation, implying that surge in cost of living forces workers to demand for higher wages, which in turn leads to demand-driven inflation. A similar observation was made on minimum wage changes; during the inflationary episodes of 2011, 2017 and 2022, collective bargaining activities were high leading to increased minimum wages to workers to cope with the rising cost of living. The analysis also revealed that once inflation rates surge and surpass the long-term target, it takes approximately one and a half years to return to the long-term trend.

Considering that overall inflation is driven by food inflation, it is imperative to comprehensively address the supply-side constraints, especially of staple foods by enhancing production and creating adequate buffer stock to be used during drought periods. Further, it is important to diversify the food basket with drought-resistant food products to cope with weather shocks. Moreover, enhanced monitoring and timely response to early weather warnings will ensure that any required imports are made in good time as exports of essential products is also constrained. In addition, the existing social safety nets need to be reviewed to ensure they are better targeted to protect the most vulnerable groups, since they are the most affected by food inflation.

Food Inflation and the Cost of Living

Food and non-alcoholic beverages take up 32.91 per cent share of the CPI consumption basket, making it a major contributor to the overall CPI in Kenya. Food inflation rose from 8.89 per cent in January 2022 to 15.8 per cent in October 2022, reflecting an increase in the cost of purchasing a food basket over this period. Analysis of the factors influencing food inflation in Kenya reveals that global food inflation contributes to an increase in local food inflation because of price transmissions to domestic prices through trade channels. Kenya imports most of the fertilizer from the global market and is therefore susceptible to rising international fertilizer prices. Additionally, the rise in cost of energy increases the cost of production and transport, which in turn affects food prices. High energy prices also lead to high demand for alternative fuel sources such as biofuel from cereals in developed countries. This results in a reduced food supply for human consumption, which drives prices even higher. Additionally, high dependence on rain-fed agriculture in Kenya contributes to reduced food production owing to erratic rains. Market infrastructure in the agri-food systems plays a crucial role in linking farmers to consumers. However, the Kenya Rural Access Index and road networks are clustered in some areas and low in most of the areas. In addition, poor market information systems constrain efficient distribution systems, posing obstacles to the operation of food traders. As a result, information asymmetry and distributional constraints create a glut in the market, while other parts of the country experience hunger episodes.

The interventions directed to stabilize food prices would have a significant effect on overall inflation given the weight of food in the CPI consumption basket. This would help reduce pressure on the high cost of living, especially for poor households who spend about 60 per cent of their income on food. To enable stable food prices, it is necessary to have an effective policy mix that promotes food production, reduces post-harvest losses, enhances distribution, and cushions consumption when consumers are faced with very high food prices. Increasing investment and awareness of smart agricultural practices is critical in building resilience against climate change. Some of the interventions include cultivation of drought-resistant crops, and crop rotation. It is also imperative to promote agri-food product diversification, including promotion of local indigenous food crops that are less affected by external shocks. At the same time, more research is needed to ensure that suitable crops are identified to suit climatic conditions and soil types. To reduce over-reliance on rain-fed agriculture, it is imperative for the National and County Governments to sensitize farmers on innovative irrigation practices such as drip irrigation by investing in farmer outreach and education programmes. Furthermore, boosting local production of fertilizer would reduce over-reliance on importation. Encouraging farmers to use organic fertilizer, which is cheaper, more accessible and environmentally friendly would help to increase food production and therefore

support lowering market prices. Further, enhancing market infrastructure through rehabilitation of feeder roads and enhancing market information flows would help connect markets and help reduce county disparities in food prices. Cold storage facilities and cold storage trucks present opportunities for extending supply chains, including in areas that have limited market access. Effective social safety net programmes in addition to timely targeting are critical to protecting the poor and vulnerable groups from food inflation shocks and high cost of living.

Minimum Wage and the Cost of Living

The implementation of a minimum wage aims to ensure fair compensation for workers and to protect them from the effects of rising cost of living. Kenya has had a minimum wage policy that is enshrined in law through the Labour Institutions Act of 2007 and in accordance with International Labour Organization (ILO) conventions. Thus, every employer in Kenya is required by law to comply with the minimum wage provisions, which establish the minimum wage payable to workers. Recently, the cost of living has risen, but the minimum wage has not increased at the same pace, reducing the real minimum wage. Further, most workers, making up 77 per cent of the total workforce, still earn wages below the minimum wage. Despite its legal foundation, implementing a minimum wage in Kenya has been a challenge. The statutory minimum wage only applies to salaried workers in the formal sector, who make up only 17 per cent of the total workforce. Most workers in Kenya are in the informal sector (83%), and they are not covered by the minimum wage due to limited coverage and enforcement. Enforcement of the minimum wage is limited by inadequate number of enforcement officers and the complex system of minimum wage setting that varies based on occupation, skills level, and location. Additionally, the minimum wage allocated to workers is still lower than the amount required to achieve a decent living, covering only about half of the total necessary expenses. In 2022, the minimum wage increased by 12 per cent, but the cost of the minimum wage basket increased by an average of 22 per cent, with food expenses being the key driver of the cost.

The Bottom-Up Economic Transformation Agenda of the government aims to enhance the productivity of workers in the informal sector, thereby enabling industries to pay them a living wage. This calls for the Wage Council, Central Organization of Trade Unions (COTU), Federation of Kenya Employers (FKE), and the government (represented by the Ministry of Labour and Social Protection and the National Treasury and Economic Planning) to work together to align the minimum wage with the prevailing minimum living wage based on the cost of living trends and current economic conditions. The Ministry of Labour and Social Protection could build the capacity of the enforcement agencies to monitor the implementation of minimum wage laws, improve data management, and increase public awareness. The Ministry of Labour and Social Protection could implement a comprehensive social protection system (other than minimum wages) to improve the livelihoods and welfare of the poor and vulnerable households. This system could consider measures such as affordable public transport, housing, universal healthcare, and education, which will help alleviate the impacts of the high cost of living on minimum wage earners.

Role of the Credit Market in Managing the Cost of Living

A typical household experiences income shocks of various forms at different points in time. In the absence of robust coping mechanisms such as credit market, such shocks pose severe welfare eroding implications on households in the long-

term. To the extent that data from FinAcess 2021 survey can point to income shocks, high cost of living was the major shock that Kenyan households were exposed to, with approximately 6 out of 10 Kenyan households reporting having experienced high cost of living. Other shocks reported include health-related incidents, job losses and deaths, with health-related shocks being repetitive, revealing some underlying catastrophic health expenditures Kenyans encounter. While households tend to adopt different coping strategies depending on the nature of shocks, most of the coping strategies are inadequate, with the most popular strategies being adjusting expenditure patterns, and reliance on social networks. To some households, expenditure cuts could simply imply falling back to poverty as most of the expenditure is usually spent on food. Although reliance on social networks may suggest existence of strong social ties, such coping strategies tend to be unsustainable in situations where a particular shock persists and affects many households concurrently. The use of formal insurance schemes is limited, with only 1 per cent of households indicating to have used insurance to cope with various shocks. Other coping strategies such as disposal of assets (selling livestock) adopted particularly by rural households may undermine their productivity, further exposing them to risks of poverty. Reliance on formal credit market as a coping strategy is limited.

To strengthen households' resilience to various shocks such as high cost of living, scaling up social protection programmes is a priority. Further, this may require strengthening the existing social protection programmes to ensure that they are well targeted and cover all eligible households. Deepening the financial sector to offer various products that can enhance households' long-term resilience is paramount. Specifically, the formal commercial banks can channel these products through fintechs such as mobile phone technology as households' choices of borrowing are driven by convenience and availability. In addition, expanding formal health insurance programmes could protect households against catastrophic health spending. Increasing coverage of livestock and crop insurance schemes could protect the wealth of rural households and their livelihoods.

Leveraging on Food Manufacturing Towards Lowering the Cost of Living

Manufacturing helps to stabilize consumer prices through processing of primary products such as fruits, vegetables and grains, which facilitates supply of food over time. Manufactured food products account for 24.8 per cent of the consumer expenditures basket, with key constituents being meat products (19.3%), wheat products (14.7%), alcoholic beverages (11.8%), milk (10.8%), rice (8.6%), maize flour (7.6%), cooking oils and fats (6.0%), fish (5.3%), non-alcoholic beverages (4.3%), and all other manufactured food products (11.6%). Food and beverages account for 10.9 per cent of manufactured imports. The imported food in processed form includes rice, milk, cooking oil, sugar and sugar confectionary such as chocolates and candies. Food manufacturing in Kenya is prone to supply disruptions, especially those emanating from droughts that adversely affect agricultural production. This has implications for the overall manufacturing performance, considering that 55 per cent of the manufacturing GDP is in food and beverage processing, which is dependent on agriculture for raw material supplies. Changes in food manufacturing producer prices precede consumer prices, suggesting the role of price transmission channels from manufacturing to consumer prices. The cost of intermediate input, especially raw materials, is a key driver of cost of manufacturing. Manufactured food products that face high input costs are imported, creating additional exposure to international

price inflation. Other constraints include low technology adoption, together with policy uncertainty, low access to credit and skills constrains capacity utilization in food processing, especially among the Micro and Small Enterprises (MSEs), which account for 86 per cent of the food manufacturing enterprises in Kenya.

To leverage on manufacturing in lowering the cost of living, it is imperative to expand opportunities for food processing to reduce dependence on imported food products. This requires minimizing vulnerabilities to droughts to sustain supply of raw materials, including through such infrastructure as aggregation centres and storage facilities. Moreover, it is vital to support food manufacturing MSEs through measures to strengthen technology upgrading and capacity utilization. Measures to expand technology could include finance and skills development, while those for enhancing capacity utilization could include market access opportunities, access to inputs and policy predictability. Further, there is need to strengthen the institutional support of micro and small enterprises (MSEs) by fast-tracking the completion of centres of excellence planned by the government in the medium-term.

Trade and Cost of Living

Trade facilitates product distribution and links consumers with product markets. However, disruptions on logistics and changes in tax policy affect the allocative and pricing functions of markets, with implications on final consumer prices and cost of living. Logistical costs include freight, insurance, and warehousing costs while taxes include Value Added Tax (VAT), customs, and excise duties on imports. For consumer products such as cooking oils, edible products and preparations, wheat, rice, sugar and maize, logistical costs contribute 5.9 per cent to import costs while import taxes contribute 10.9 per cent. Moreover, information asymmetry among players in the consumer goods value chain has seen artificial shortages, price distortions, and gluts co-existing with scarcity.

Complete development of the central registry will enhance transparency in the warehousing receipt system and help to monitor real time the food stocks for timely decision-making. In addition, there is need to incentivize local MSEs to tap into opportunities in the local logistics industry by enabling access to the Warehouse Receipt System. This would help the MSEs to use warehouse receipts as collateral for accessing credit. Diversifying import sources for essential consumer goods will cushion consumers against rise in cost-of-living emanating from disruption of the global supply chains. Furthermore, reducing VAT on animal fats and vegetable oils will cushion poorer households from rural areas against erosion in cost of living by raising their disposable income.

Accelerating Adoption of Electric Mobility for Affordable and Sustainable Transport

High price of fuels is a policy challenge for the cost of living in Kenya. Households experience rising transport costs when prices of fuel increase, which ultimately affects their ability to meet their household needs. Transport accounts for 9.6 per cent of total household expenditure and constitutes a high percentage of government expenditure when fuel subsidies are offered. Reducing reliance on fossil fuels by adoption of electric mobility is a strategic policy shift towards having affordable and sustainable transport. Electric mobility has potential to correct the current and unfavourable mobility model in Kenya, which is dominated by imported second-hand fossil fuel vehicles that run on imported fuels. Electric mobility not only offers affordable and sustainable transport options but presents numerous socio-economic benefits, including job creation

and reduction of carbon emissions. Kenya has made significant efforts to promote the use of electric mobility as evidenced by increased number of innovations, startups, assemblers and financiers. However, the electric mobility sector is still at a nascent stage, hampered by inadequate infrastructure for charging electric vehicles, high electricity prices, low funding and low capacity by suppliers.

Kenya has a huge potential to transform the transport sector and become a leader in electric mobility in Africa, while lowering transport cost. By partnering with private sector players, the sector would be able to build adequate charging infrastructure across major routes. Introduction of subsidized charging fees and offering free parking would support efforts towards accelerating the adoption of electric mobility. Further, electric mobility requires to be financed through creation of a fund to support establishment of prerequisites in the sector. Tapping on the financial inclusion (Hustler) Fund and Climate Change Fund is key to supporting innovations and startups in the sector. Exploring public private partnerships to support the assembling, distribution and selling of electric vehicles and building required technical skills is a key priority. Investing in electricity to enhance generation and distribution capacity and improving the accessibility of electricity are crucial considerations. Further, fast-tracking the approval of the National Electric Mobility Policy Framework that enhances sector-wide coordination is imperative.

Government Interventions in Making Markets Work

The government plays a crucial role in promoting well-functioning markets that are characterized by availability, accessibility, and affordability of quality goods and services. Government interventions are required to correct market failures, which occur due to abuse of market power, information asymmetry, and negative market externalities. While various measures have been put in place to ensure markets work, including the enactment of the Competition Act 2010, Consumer Protection Act 2012, the changing market landscape is revealing emerging gaps.

It is crucial to address regulatory gaps by updating the competition and sector-specific legislations to keep pace with the market dynamics. Standardizing packaging and product information presents an opportunity to keep consumers well informed on the products in the market. Furthermore, building digital essentials in under-served and unserved areas will bridge the digital gap and provide an avenue for sharing market information. To minimize market externalities, there is need to develop and implement sustainable urban plans that prioritize efficient land use and improved public transportation and eco-friendly infrastructure. In addition, agencies with mandate to enforce the competition and consumer protection legislations need to be adequately resourced to enhance compliance.

1 INTRODUCTION

1.1 Background

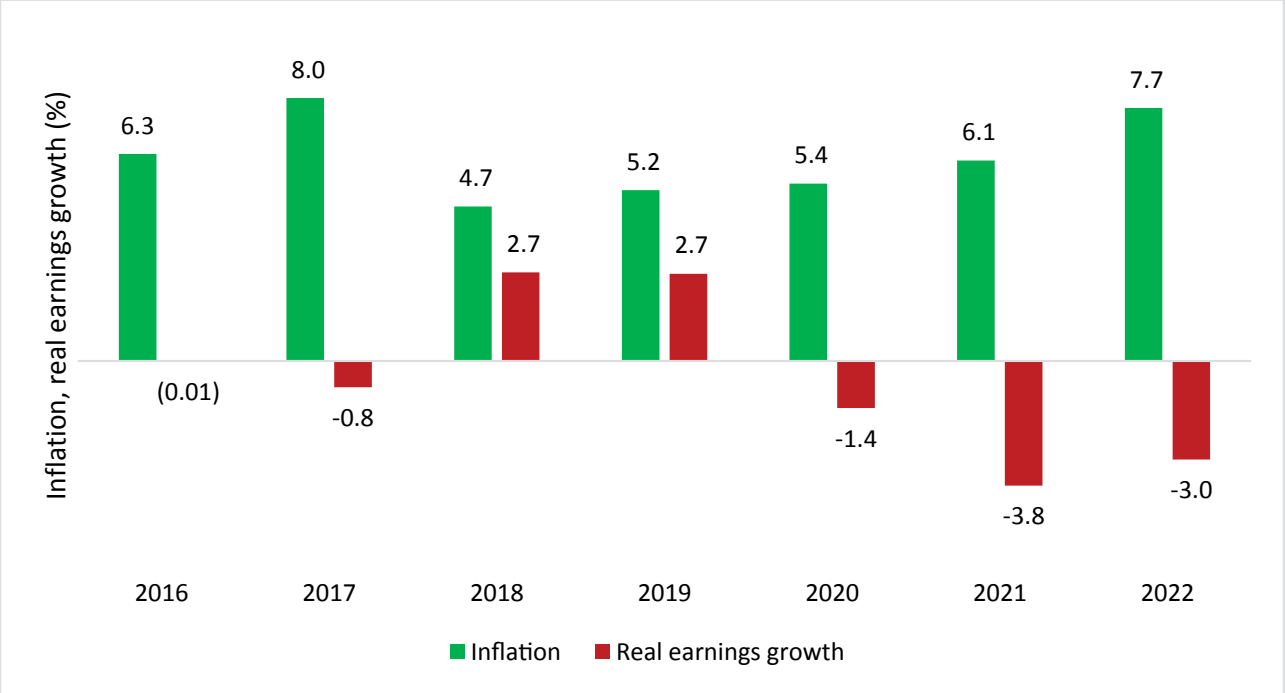
The Kenya Economic Report (KER) is a statutory annual report prepared in accordance with Section 23(3) of the KIPPRA Act No. 15 of 2006. The report reviews the performance of Kenya's economy during the preceding financial year and provides medium-term prospects of the economy for the next three financial years. The KER 2023, themed "Cost of Living and the Role of Markets", seeks to provide evidence-based policy recommendations to unlock markets through effective interactions of demand and supply, as an avenue for addressing the rising cost of living in Kenya.

The theme for KER 2023 comes at a time when progressive recovery of Kenya's economy from the COVID-19 economic recession in 2020 is threatened by domestic market shocks emanating from prolonged drought and the spillover effects of the Russia-Ukraine war that disrupted global food and commodity supply chains. This also came at a time when the economy is just emerging from the electioneering period of 2022. While the high cost of living is experienced globally, there are variations across the regions. For instance, the October 2022 World Economic Outlook published by the International Monetary Fund (IMF)[1] suggests that inflation projections for advanced economies in 2023 will be 4.4 per cent, while those for emerging and developing economies will be 8.1 per cent (IMF, 2022a). The sharp increase in prices results from a multitude of factors, both domestic and international, including the Russia-Ukraine war that severely constrained food, energy and commodity supply chains; accelerated growth in demand relative to supply amid COVID-19 economic disruptions; tightening of monetary policies in advanced economies to tame rising prices; and tightening of labour markets in advanced economies, especially for contact-sensitive sectors, which push up wages (IMF, 2022a). Nonetheless, the magnitude of contributions to the cost of living by these factors varies across regions, with developing economies facing disproportionately higher increase in food and energy prices, and with severe implications for low-income households.

While growth rate bounced back from a contraction of 0.3 per cent in 2020 following the COVID-19 pandemic to a positive growth rate of 7.6 per cent in in 2021 and 4.8 per cent in 2022 (KNBS, 2022a; 2023), the Russia-Ukraine war, surging energy prices and prolonged drought has contributed to inflationary pressures with declining real earnings (after adjusting for inflation and after taxes and benefits), which suggests deterioration in purchasing power of consumers and therefore subdued living standards in Kenya. Between 2018 and 2022, annual inflation increased from 4.7 per cent to 7.7 per cent. Over the same period, growth in real earnings was low or even negative, an indication of erosion of households' disposable incomes and livelihoods. Figure 1.1 illustrates trends in annual inflation rates and growth rates in real earnings.

[1] Tightening labour market implies rising unfilled vacancies due to factors such as barriers to return to the labour market for some segments of the population, change in job preferences, sectoral and occupational mismatch (Duval et al., 2022).

Figure 1.1: Real earnings growth and inflation for Kenya, 2016-2022



Source: KNBS (2022; 2023), Economic Survey

The cost-of-living relates to price changes experienced by consumers in maintaining a constant standard of living or satisfaction (ILO, 2004). Ideally, consumers would substitute products as price relationship of the goods changes. For example, if a consumer would derive the same satisfaction ("utility") from taking tea as they do from taking coffee, then it is possible to substitute tea for coffee if the price of tea falls relative to the price of coffee. Prices of various commodities in the consumer basket, including food (maize flour, vegetables, cooking fat, fruits and meat), detergents, fuel, electricity and transport have risen considerably. For instance, between December 2021 and December 2022, the price of 2kg fortified maize flour increased by 35.3 per cent, price of 1kg maize grain rose by 37.7 per cent while a litre of petrol and diesel, respectively, rose by 36.4 per cent and 46.1 per cent (KNBS, 2022b). These substantial spikes in prices erode the purchasing power of consumers amid depressed earnings, thus contributing to deterioration in the standards of living.

There is therefore an urgent need for the government to cushion households from the high cost of living by reducing the burden faced in acquiring basic commodities. At the same time, it is imperative to increase incomes of low to middle income households to support their capacity to meet their day-to-day needs. This can be achieved through market systems, including coordination, resource allocation and exchange among the surplus and deficit units (Pyndick and Rubinfeld, 2018; Tian, 2021). Promoting development of markets and addressing barriers that would constrain their efficiencies would support more effective interaction of demand and supply, which would benefit consumers through supply of essential products, income growth and market-based exchanges for factor inputs, goods and services. Considering the foregoing, the KER 2023 assessed the contexts, policies and institutional frameworks that influence the operations of the products' markets, financial markets, and labour markets, including the channels through which they can help respond to cost of living challenges. The report also provides policy recommendations on the role of markets through the demand and supply interactions.

1.2 Definition of Key Concepts and Rationale of the Theme

The key concepts that are used in this report are outlined in Box 1.1.

Box 1.1: Definition of key concepts

Cost of Living: Is a measure of minimum cost (expenditures) of maintaining a given standard of living (IMF, 2020). A Cost of Living Index (COLI) measures the change in the minimum cost of maintaining a given standard of living. While similar to CPI in measuring change in expenditures, COLI defers from CPI in that it:

- Allows for substitution effects: Unlike CPI with a fixed basket, COLI allows or assumes that consumers substitute items that have become relatively cheaper for those that have become relatively expensive; i.e., households adjust their patterns of purchases in response to changes in relative prices.
- Allows for changes in consumption baskets: Unlike CPI, consumption baskets in two periods for COLI are generally not the same due to substitution effects.
- The maximum scope of a COLI is the entire consumption goods and services consumed by the designated households from which they derive utility.
- Focuses on uses (goes beyond acquisition) due to the aspect of measuring change in cost of maintaining a given standard of living or level of utility.

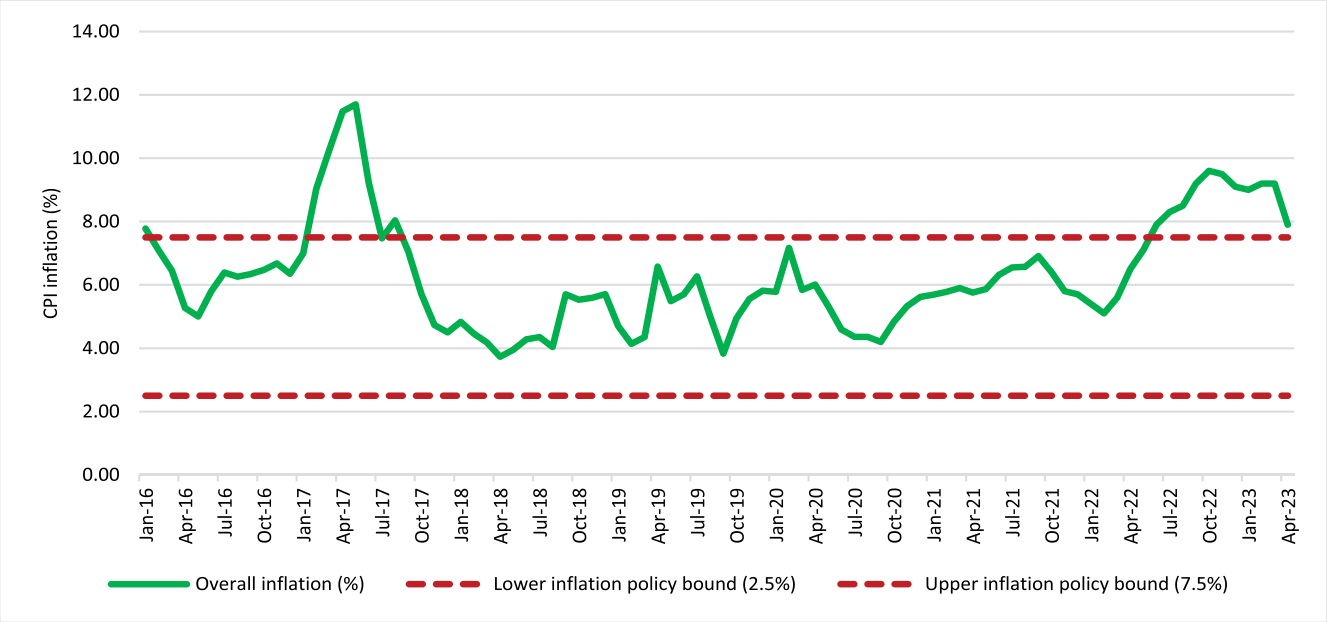
Consumer Price Index: A measure of change over time in the total value of a specified basket of consumption goods and services purchased, or acquired, by a specified group of households in a specified period (IMF, 2020). The basked may, however, be changed at regular intervals, and therefore does not have to remain fixed over a long period of time. However, unlike COLI, it does not allow for substitution by consumers. The kind of goods and services within the basket are defined/fixed within the measurement period.

Markets: Markets entail the institutional arrangements within the economy that defines resource allocation, coordination and distribution through exchanges between buyers and sellers (surplus and deficit units) through actual or potential interactions (Pyndick and Rubinfeld, 2018).

1.3 Rationale for the Theme

The simultaneous surge in prices of various commodities in Kenya has elicited policy debates, as this potentially erodes households' welfare. The need to address the high cost of living is underscored by the government as articulated in the Budget Policy Statements for financial years 2021/2022 and 2022/2023. Various sectors of the economy could offer opportunities for reducing the cost of living through the market systems, including coordination, resource allocation and exchange among the surplus and deficit units. The cost of living as proxied by consumer price inflation increased since 2021 as shown in Figure 1.2. The annual inflation rates rose from 4.8 per cent in October 2020 to 9.6 per cent in October 2022, before easing to 7.9 per cent in April 2023. Thus, the inflation rate surpassed the upper band of medium-term target in line with the price stability objective of the government.

Figure 1.2: Inflationary trends; January 2016–April 2023



Source: KNBS (Various), Monthly CPI Reports

The rise in annual inflation was due to an increase in prices of commodities under various Classification of Individual Consumption by Purpose (COICOP) divisions. These include food and non-alcoholic beverages index; housing, water, electricity, gas and furnishings, and other fuels index; transport index; and household equipment and routine household maintenance index that increased by 13.8, 6.2, 13.0 and 9.9 per cent, respectively, between December 2021 and December 2022.

In response to the high cost of living and in an endeavour to cushion consumer purchasing power and living standards, the Government of Kenya adopted various policy tools, including minimum wage increment, fiscal policies, monetary policies and sourcing of critical products such as fuel from alternative cheaper markets. The average growth rates in real earnings have averaged 0.13 per cent between 2010 and 2022 owing to high inflation, which averaged 6.9 per cent over the same period. These trends raise policy concerns, with adverse implications of reduced purchasing power within the economy. As a partial measure to mitigate this challenge, the government used minimum wage policy to cushion low-income workers from the high cost of living. The average minimum wage rose by 101 per cent from Ksh 4,483 in 2010 to Ksh 9,014 in 2021. The most recent increment in the minimum wage by 12 per cent was in May 2022. Despite this substantial growth, there are still concerns about erosion of consumer purchasing power.

Besides the minimum wage, the government also instituted various fiscal stimulus interventions to reduce the cost of living. This included measures by the government to lower electricity tariffs by 15 per cent over the period January to December 2022. Further, as fuel prices increased, the government rolled out fuel subsidy in October 2021 to cushion consumers by partially offsetting the pass-through of international oil prices to domestic fuel prices at the retail level. Similarly, in April 2022, the government offered a Ksh 5.7 billion fertilizer subsidy fund to subsidize prices for 2.28 million 50-kilogramme bags of fertilizer for farmers. The subsidy was envisioned to boost food production by reducing high farm input costs. The other interventions included reduction of Value Added Tax (VAT) on essential products to enhance affordability, and provision of employment opportunities (Kazi Kwa Vijana).

Further, on 9th May 2022, the government implemented waiver of import duty on white non-GMO maize (not more than 540,000 metric tonnes), up to 6th August 2022. On 20th July 2022, the government waived railway development levy and the Import Declaration Fee (IDF) on imported maize.[2] On the monetary policy front, the Central Bank Rate (CBR), which was retained at 7.0 per cent over the period May 2020 to May 2022, was gradually increased to 7.5 per cent for June to September 2022; 8.25 per cent for October to 23rd November 2022; 8.75 per cent 24th November 2022 to March 2023 and 9.5 per cent for April through May 2023 . This tightening of monetary policy was aimed at curbing demand-pull inflation but is less effective in addressing cost-push inflation that arises from the supply chains. Other measures included signing of a memorandum of understanding (through the National Oil Corporation of Kenya) with the Government of Saudi Arabia to directly source cheaper fuel products from alternative markets.

Notwithstanding the efforts of the government in reducing costs of production, prices of various commodities and services increased during the first half of 2022. The various interventions by the government were subsidy-driven, which constrained public finances against depressed government revenue in the face of prolonged drought and recovery from the COVID-19 pandemic. Consequently, the subsidy interventions on fuel, electricity and maize flour have been phased out. Direct government interventions further induce inefficiencies and distortionary effects (IMF, 2022b). These policy concerns necessitate the need for markets to manage the high cost of living. Well-functioning markets aid in coordination, allocation of resources, and exchanges through supply and demand interactions at lower costs (Pindyck and Rubinfeld, 2018; Tian, 2021). In addition, well enabled markets provide opportunities to enhance households' income to support their capacity in meeting expenditure needs.

The nature and functioning of markets for the various commodities and services affects prices, which drive the cost of living. Understanding the nature of markets and how they work is therefore an important step in efforts to address the cost of living. Markets for commodities and services can be characterized as either: 1) perfect competition; 2) monopolistic competition; 3) oligopoly or 4) pure monopoly, with features of most markets lying on some continuum between perfect competition and pure monopoly. The forces of demand and supply interact in these markets and determine price. There are instances where the forces of demand and supply face disruptions (e.g., weather or supply chain shocks or even changes in market structure and conduct), leading to price distortions with adverse impacts on the cost of living. Various factors have been associated with increasing prices, including impediments to market access and trade restrictions; macroeconomic shocks such as surge in global oil prices and commodity prices; production shocks such as extreme weather events; excess demand shocks; and supply chain disruptions such as those experienced with COVID-19 pandemic and Russia-Ukraine war.

1.4 Conceptual Framework

The high cost of essential products such as food and energy present a public policy challenge with relatively larger negative impacts on low-income households. The increase in prices, which is partly driven by global forces constrain the government's interventions using domestic policies. Ideally, well-functioning and enabled markets will adjust to equilibrium through price mechanisms via the forces of demand and supply. However, in cases where the cost of production is on the rise and demand for goods and services increases, prices subsequently increase to equilibrate with forces of demand and supply. Markets, as institutional arrangements within the economy define resource allocation, coordination and distribution through exchanges between buyers and sellers (Pyndick and Rubinfeld, 2018; Tian, 2021). Markets exist whenever buyers and sellers

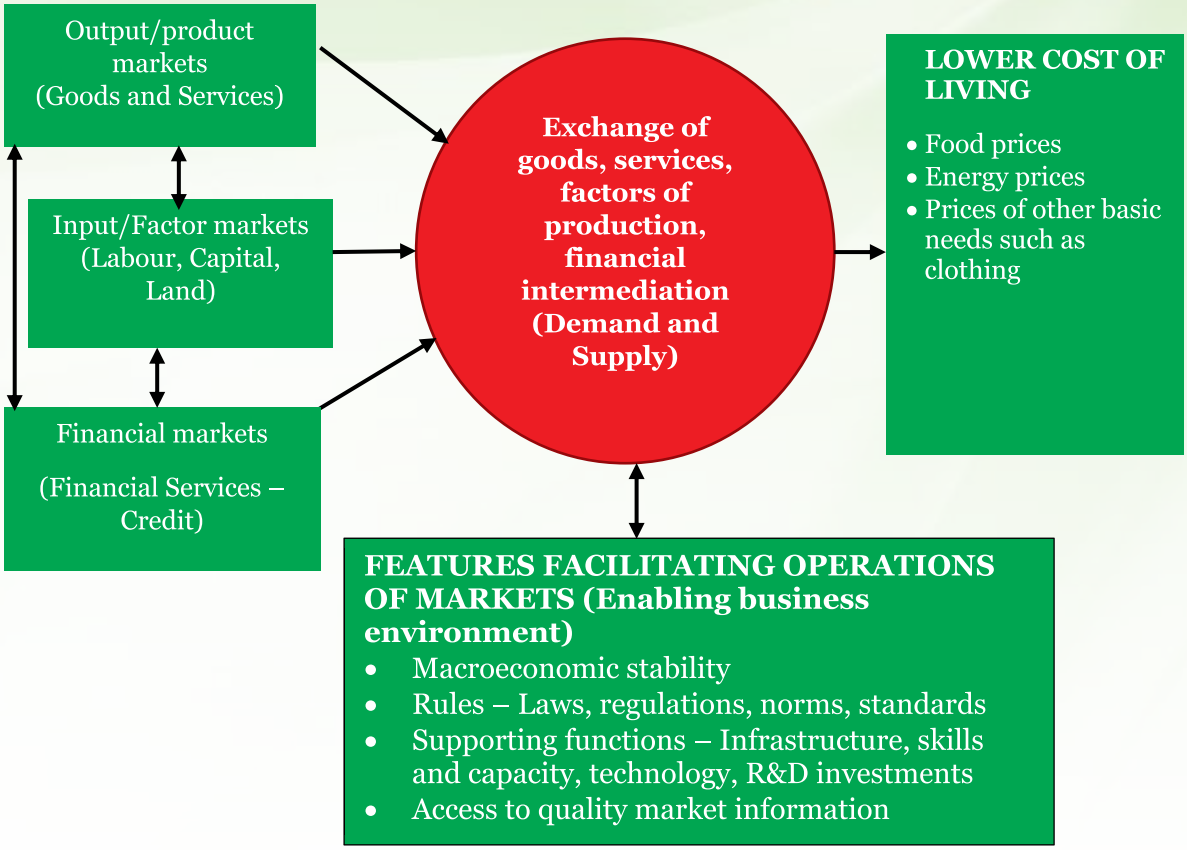
[2] Presidential address of 20th July 2022.

of a product interact through an exchange mechanism; thus, markets can be viewed as a processes, arrangements, or institutions of interactions and exchange between buyers and sellers. The markets determine "what is produced"; "how it is produced" and "who gets what is produced".

The markets broadly comprise of the factors of production, products and financial markets (Tian, 2021). The product markets, also called output markets, are the markets for goods and services. The factor markets, also called input markets, are the markets for inputs in production processes. The markets for labour, land and capital are usually associated with factor returns such as rent, wages and interest. The financial markets aid in financial intermediation, such as savings and credit. The facilitative role of the markets can be constrained by various factors, including: markets that are too thin to sustain meaningful transactions; costs or risks of participating in the market may be too high; exclusions of some market participants (buyers and sellers) due to socio-economic barriers; and macroeconomic instability, resulting to risks and uncertainties (Tian, 2021).

Figure 1.3 illustrates the conceptual framework, bringing together the three segments of markets, features or the enablers of well-functioning markets, which translates into lower prices through effective interactions of demand and supply owing to increased production and lower supply chain costs. The key enablers of a market include macroeconomic stability, rules that define conduct of the market players, supporting functions (infrastructure, skills, technology) and access to quality information. Rules define aspects such as competition and conduct of the market and incentives for the market players. The different markets can also interact. For example, financial markets can support input markets through capital accumulation. Well enabled markets encourage exchanges and increased production at lower costs, with opportunities for improved welfare such as increased and more evenly distributed disposable incomes, consumption, wealth, human capital development, access to affordable finance for smoothing household expenditures and expansion of productive capacities for businesses, and environmental sustainability resulting from less destructive production and consumption activities. Improved business environment is crucial in reducing transactional costs in the market. This can be achieved through enhanced business regulatory frameworks, stable macroeconomic conditions, supportive infrastructure and accessible information in the market to facilitate the exchange of goods and services.

Figure 1.3: Conceptual framework - from markets to lower cost of living



Source: Authors' illustration based on Springfield Centre (2015); and Tian (2021)

Within the conceptualization in Figure 1.3 under the product markets, this report covers manufacturing, trade, agriculture, food, and energy markets given the prominence of markets within these sectors in either serving as a conduit for cost of living, or even helping reduce the severity. For instance, producer prices can serve as a conduit to rising prices and manufacturers may consider passing on high cost of production through wholesale prices that eventually feed into retail prices faced by the consumers. Trade activities enable flow of goods and services through interactions of demand and supply, while transaction costs can drive up prices between the producers and consumers. Food accounts for a third of the consumption basket in Kenya and is, therefore, a key driver of consumer prices, similar to energy, which is the second largest contributor to consumer expenditure basket and creates exposure to international prices through import prices. Energy is a key input that drives productivity in all sectors of the economy from transportation, manufacturing, commercial and agriculture, and it is a basic need in households for cooking, lighting and heating. Therefore, the cost of accessing energy in its various forms is a factor that drives the cost of living. Given the important role of energy in the economy, it is necessary to undertake analysis of the energy market to understand the demand and supply dynamics, in addition to seeking alternatives to reduce exposure emanating from dependence on traditional energy sources. The financial markets focus on the credit market considering its role in supporting household consumption smoothing or investment by businesses to enhance productive capacity. Within the input/factor market, the report focuses on minimum wage as a tool to cushion households' living standards from deteriorating in the face of rising prices. The report further considers the governance environment in terms of the role of the

government through its market enabling role. Analysis in the report is also performed at the macroeconomic levels, both in terms of performance and implications for the cost of living.

The report provides macroeconomic and sectoral analyses with the following chapters: Chapter two provides Kenya's macroeconomic performance, covering economic output, monetary policy, fiscal performance and external sector developments. Chapter three provides economic prospects for Kenya, risks and opportunities related to performance of the economy in the medium-term. Chapter four provides in-depth analyses of inflation dynamics, focusing on key drivers of inflation and pass through effects of prices from domestic and global markets. Chapter five details food inflation and key contributing factors. Chapter six covers analysis of minimum wage and living wage in relation to cushioning low-income households from the high cost of living. Chapter seven analyses the credit market as a channel for consumption smoothing in the face of high cost of living. Chapter eight provides analysis of food manufacturing, detailing the importance of processing primary products to smoothen supply and expand domestic production of manufactured food. Chapter nine provides analysis of domestic and external trade, including transmission channels to the cost of living. Chapter 10 focuses on accelerating the adoption of electric mobility for affordable and sustainable transport by reducing dependence on fossil fuels. It provides analysis on the value chain of electric mobility ecosystem to identify gaps and opportunities to support a shift to electric mobility. Chapter 11 outlines the role of the government in making markets work by addressing constraints to market development emanating from imbalanced market power, information asymmetry, and negative market externalities. Finally, chapter 12 pulls together key conclusions from the preceding chapters and provides policy recommendations.

MACROECONOMIC PERFORMANCE

2

The economy recovered strongly in 2021 following a contraction in 2020 because of the effects of COVID-19 pandemic. The recovery momentum was disrupted in 2022 by the persistent drought effects, and the spillover effects of the Russia-Ukraine war. The real Gross Domestic Product (GDP) growth for 2022 was 4.8 per cent, bolstered by stronger than pre-pandemic growth rates in services and industry. The agriculture sector contracted by 1.6 per cent partly due to the below-average precipitation in 2022 and the high cost of inputs, particularly fertilizer. In the period, inflation rates crossed the upper government target band of 5 per cent plus/minus 2.5 per cent, contributing to the high cost of living. Government fiscal operations continued to support fiscal consolidation objectives, with fiscal deficit reducing to 3.5 per cent of GDP (or Ksh 505.0 billion) as of March 2023 compared to 4.1 per cent of GDP (or Ksh 528.2 billion) at the end of March 2022. Public debt edged towards the ceiling, reaching Ksh 9.4 trillion at the end of March 2023 against a ceiling of Ksh 10 trillion. The Central Bank of Kenya tightened monetary policy in a bid to anchor inflationary expectations. Additionally, the current account balance widened on account of persistent merchandise trade deficit and the weak shilling. Moving forward, enhancing agricultural productivity is necessary to improve the resilience of the sector to weather vulnerabilities and reverse the recent contraction of the sector. Besides, increased budgetary support to manufacturing and services sector will bolster growth. Timely and adequate adjustment of the Central Bank Rate is crucial in containing inflation. Fiscal consolidation and prudence in public financial management is a priority for fiscal stability and debt sustainability. Revitalizing growth in exports by diversifying export markets and value adding export products will help bolster external stability while improving foreign exchange reserves and easing the pressure on the shilling.

2.1 Introduction

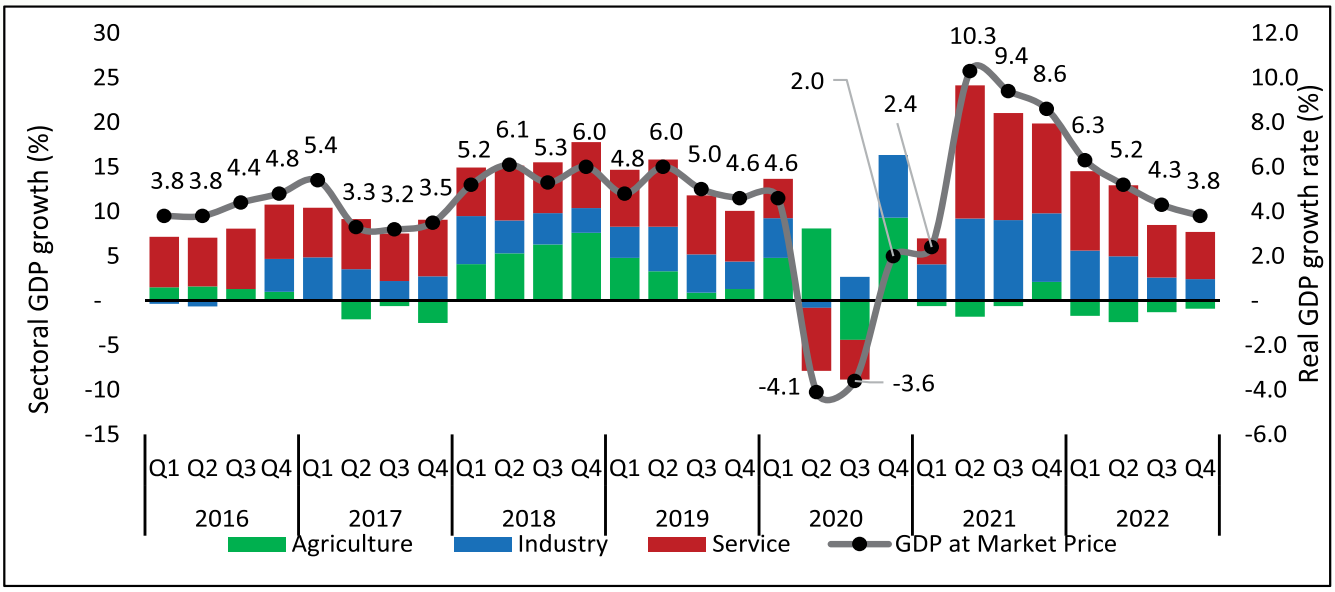
The macroeconomic performance of a country is critical in determining its economic development and stability. Kenya's economy has continued to show resilience in the face of challenges such as the COVID-19 pandemic, political uncertainties, and adverse weather conditions. As an open economy, Kenya's macroeconomic performance is influenced by regional and global economic conditions. The worldwide slowdown in economic activities in 2022, tightening of global financial conditions, and pick up in global inflation slowed the growth momentum attained in 2021, with the fading effects of COVID-19 pandemic. In addition, the persistent drought situation in the Horn of Africa has seen inflation levels in Kenya cross the government target band, thus raising the cost of living. Furthermore, although public debt remained sustainable, it was at high risk of distress, calling for a sustained fiscal consolidation in attaining fiscal sustainability while supporting growth. This chapter examines the country's economic performance and highlights key trends and developments for various economic indicators. The review focuses on four key areas, namely: economic growth, monetary policy and financial sector developments, fiscal performance, and developments in the external sector.

2.2 Economic Growth

The economy solidly rebounded from the effects of COVID-19, posting a growth rate of 7.6 per cent in 2021 following the 0.3 per cent contraction in 2020. However, this incipient recovery momentum was disrupted in 2022 when the economy achieved a real GDP growth of 4.8 per cent. The slowdown in growth momentum was triggered by various domestic and external shocks. These include the prolonged rainfall failure during the short rains (October to November 2021) and long rains (March to May 2022) that dampened agricultural output and hydroelectric power generation. In addition, global developments saw a strengthening of the dollar in the world market, high cost of oil, and disruptions in global supply chains. On a positive side, the country went through a peaceful election period and economic activities picked up in the post-election period.

Figure 2.1 shows the continued divergence in the performance of agriculture and non-agriculture sectors. The deceleration in expansion of economic output in 2022 was driven by the shrinkage of agricultural activity. The poor rains during the period and the high cost of fertilizer and other farm inputs were the main reasons for the contraction of the agriculture sector. The predominance of rain-fed agriculture in Kenya's agricultural production exposed the sector's performance to severe impacts of drought. During the period under review, the sector contracted by 1.6 per cent.

Figure 2.1: Quarterly Real GDP growth rates 2016-2022



Data source: KNBS (Various), Quarterly GDP Reports

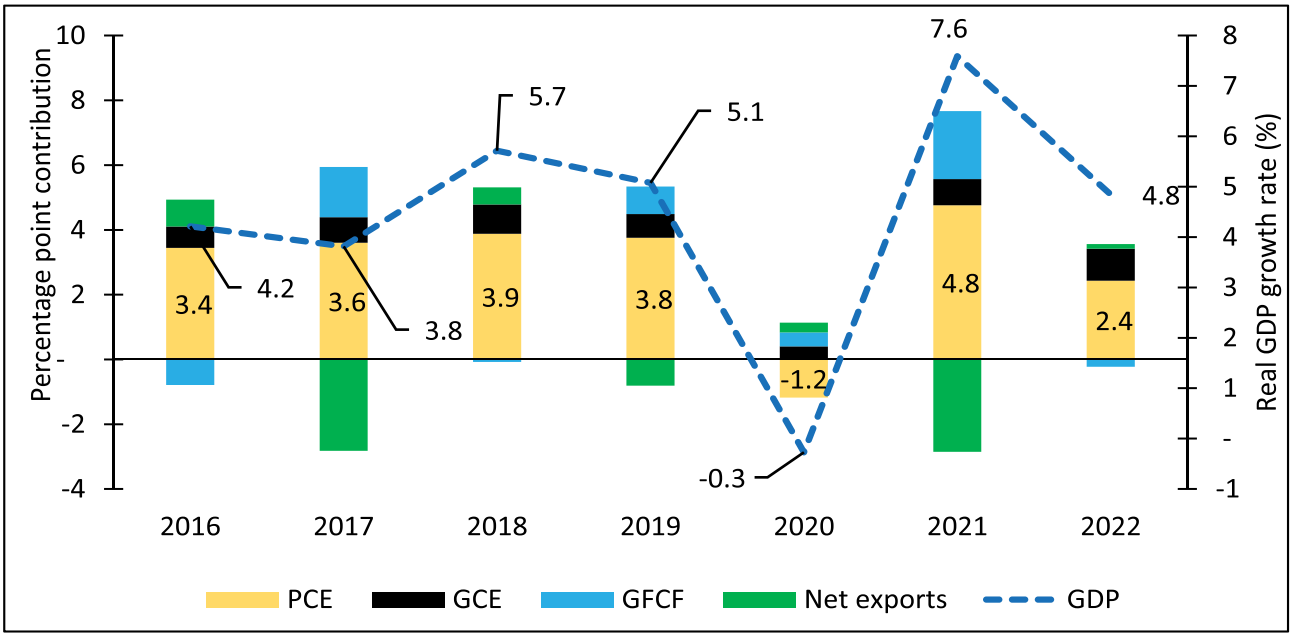
The recovery in services sector moderated the dampening effect of the agricultural sector's performance on overall growth. The services sector grew by 7.0 per cent, contributing some 3.9 percentage points to economic growth in 2022. All services sub-sectors had output expansion. Accommodation and food services was the fastest growing services sub-sector in 2022, posting a growth of 26.2 per cent bolstered by improved security situation in the country, peaceful pre- and post-electioneering period, seamless public administration transition and improved tourism activities. Other services sectors that posted strong growth included professional, administrative and support services (18.1%), financial and insurance services (12.8%), information and communication (9.9%), and transport and storage (5.6%).

Industrial activities expanded in 2022 albeit at a slower pace. Industrial activities

comprise of manufacturing, mining, and quarrying, electricity and water supply, and construction activities which, respectively, account for 44.3 per cent, 5.1 per cent, 10.2 per cent and 40.4 per cent of total industrial output in 2022. Industrial activities grew by 3.9 per cent in 2022 compared to 7.5 per cent in 2021. The government through the bottom-up economic transformation agenda has identified the manufacturing sector as one of the pedestals for creating jobs and ending poverty. However, the manufacturing sector output grew by 2.7 per cent in 2022 compared to 7.3 per cent in 2021 and contributed 0.24 percentage points to overall economic growth. This level of growth was too low to make a significant dent in the unemployment levels, and the increasing number of entrants into the labour markets. The deceleration in manufacturing growth was on account of constrained manufacture of dairy products and manufacture of edible oils, coupled with weakening of the shilling against the US dollar, thus making importation of key inputs costly. Moreover, the prolonged drought conditions resulted into insufficient raw materials for certain agro-processing industries such as sugar and maize meal.

On the demand side, private consumption along with government consumption and net exports boosted growth in 2022. Private consumption made the largest contribution to economic output, accounting for 2.4 percentage points of the overall 4.8 per cent growth in 2022. Government consumption expenditure contributed 1.0 percentage points to GDP growth while net exports contributed 0.1 percentage points to growth. The positive contribution of net exports to economic growth reflects slightly favourable terms of trade in 2022. In contrast, low investments in 2022 affected the growth momentum. The negative contribution was the result of an unprecedented effect of the Russian-Ukraine war, tight global financial conditions that limited access to liquidity, and capital outflows associated with the strengthening of the US dollar. Investments negatively contributed 0.2 percentage points to real GDP decline, additionally reflecting slowed public investment due to fiscal consolidation on capital spending given rigidities on the recurrent side.

Figure 2.2: Demand side contribution to GDP growth (percentage points)



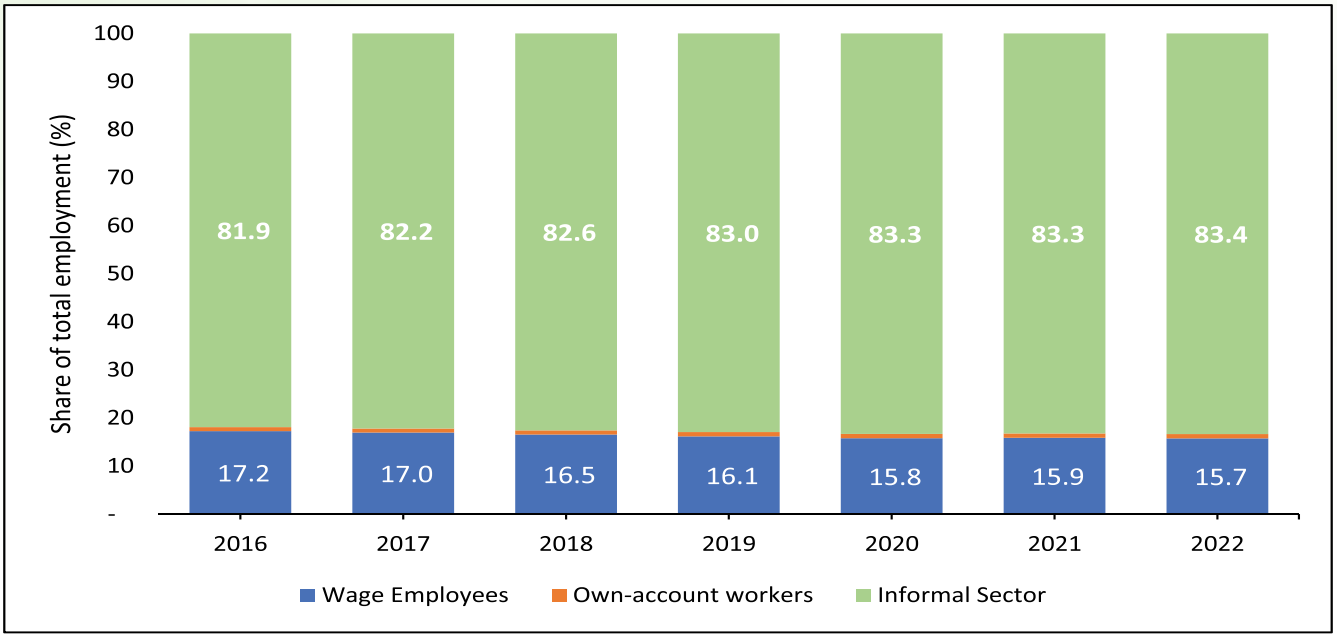
Data source: KNBS (Various), Economic Survey

Note: PCE=Private Consumption Expenditure, GCE=Government Consumption Expenditure, GFCF=Gross Fixed Capital Formation

2.3 Labour Market Developments

Analysis of labour market between 2016 and 2022 shows that the employment structure in Kenya has been dominated by informal workers. In 2022, informal workers accounted for 83.4 per cent of total employment. Kenya's wage employees represent 15.7 per cent of total employment, while the category of own-account workers, who are self-employed and/or unpaid family workers is limited and accounted for 0.9 per cent of total employment.

Figure 2.3: Status of employment in Kenya, 2016-2022 (%)



Data source: KNBS (Various), Economic Survey

Kenya's labour market continued to show recovery. In 2022, a total of 816,600 new jobs were created compared to 925,900 new jobs created in 2021. This growth in total employment is consistent with the post-COVID recovery process. Of the new jobs created in 2022, 73.9 per cent were domiciled in the informal sector. This indicates the importance of the informal sector particularly medium and small enterprises in job creation in the economy and the need to continue institutionalizing reforms that encourage formalization of the jobs since, beside job creation, the sector has a huge potential for generating revenue for the government.

Structural changes of employment in the informal sector by activity have remained on the margin during the analysis period. A large majority (73.2%) of the informal sector employment is in the services sector, followed by the industry sector (22.9%) and a small group (4.6%) is engaged in other activities. Details of the informal services sector reveal that 60.2 per cent of employees are in wholesale and retail trade and hotels and restaurants, indicating the dominance of informal sector in domestic trade.

An overview of the wage employment by industry reveals that in 2022, most Kenyans in wage employment were in the education sector (20.9%) followed by manufacturing (11.7%), agriculture, forestry, and fishing (11.7%) and public administration and defence (11.1%). Similarly, 82.9 per cent of works in wage employment were regular employees while 17.1 per cent were casual.

Table 2.1: Wage employment share in Kenya, 2022

Industry	Sector employment share, out of total (%)	Share of women per sector (%)
Agriculture, forestry, and fishing	11.3	47.5
Mining and quarrying	0.5	14.7
Manufacturing	11.7	26.3
Electricity, gas, steam, and air conditioning supply	0.7	20.9
Water supply; sewerage, waste management and remediation activities	0.5	24.7
Construction	7.7	32.8
Wholesale and retail trade; repair of motor vehicles and motorcycles	8.9	30.6
Transportation and storage	2.9	11.8
Accommodation and food service activities	2.6	31.1
Information and communication	4.7	34.6
Financial and insurance activities	2.7	45.6
Real estate activities	0.1	37.2
Professional, scientific, and technical activities	2.4	24.7
Administrative and support service activities	0.2	25.0
Public administration and defense; compulsory social security	11.1	35.4
Education	20.9	45.4
Human health and social work activities	5.4	56.0
Arts, entertainment, and recreation	0.3	30.4
Other service activities	1.3	26.9
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	3.9	66.4
Activities of extraterritorial organizations and bodies	0.0	28.6
Total	100.0	38.3
Of which: Regular	82.9	38.5
Casual	17.1	37.0

Source: Author's computation based on data from KNBS (2023), Economic Survey

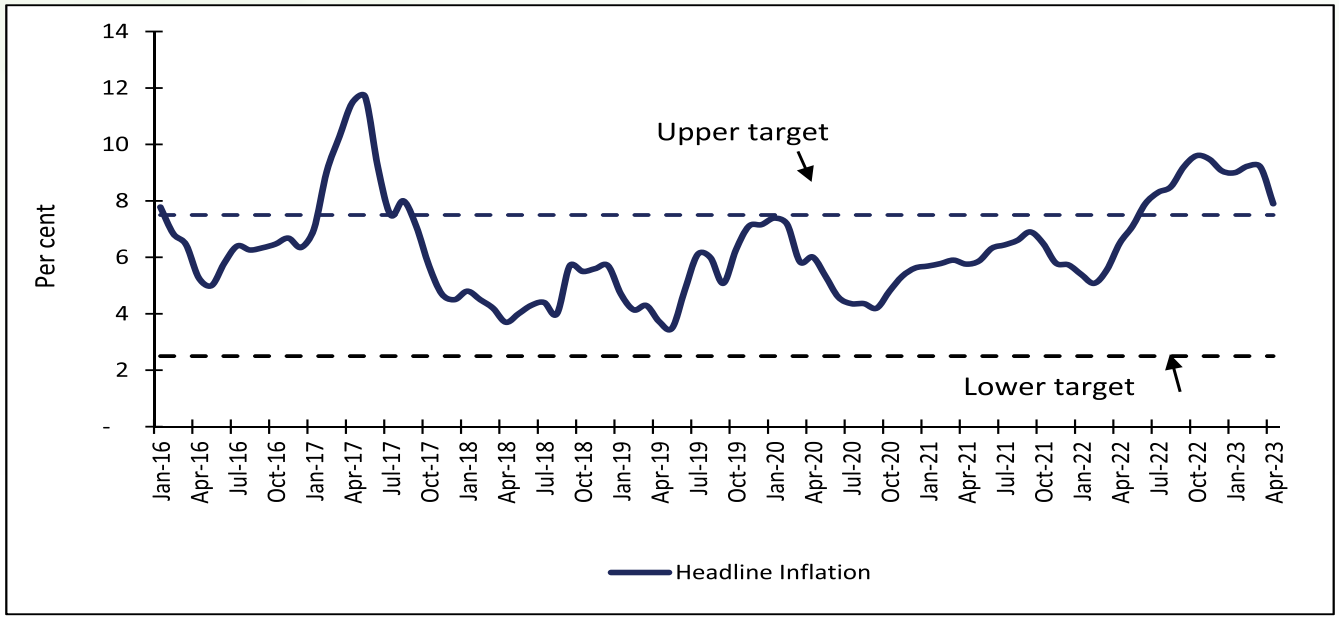
Men are dominating the wage employment in Kenya. Women's aggregate share of total employment is estimated at 38.3 per cent. Considering gender dimensions, the sectors with the largest share of women are activities of households as employers (66.4%), human health and social work activities (56.0%), agriculture, fishing, and forestry (47.5%), financial and insurance activities (45.6%) and education (45.4%). In addition, following the surge in prices in 2022, estimated real average annual wage earnings per employee across all sectors decreased by 3.0 per cent in 2022, and by a striking 5.2 per cent for public sector workers compared to 2.1 per cent for private sector workers. This indicates that most workers were not cushioned from the inflation pressures in 2022.

2.4 Inflation

Headline inflation, which measures the overall change in the consumer price index (CPI), reached its highest level in five years in 2022, primarily due to high food prices and potential pass-through from fuel prices. CPI inflation averaged 7.7 per cent in 2022 compared to 6.1 per cent in 2021, 5.4 per cent in 2020, 5.2 per cent in 2019, 4.7 per cent in 2018 and 8.0 per cent in 2017, breaching the maximum government target band of 7.5 per cent. Inflation spiked at 9.6 per cent in October 2022 compared to 6.5 per cent in October 2021 but decelerated slightly to 9.5 per cent in November 2022 against 5.8 per cent in November 2021 and further to 9.1 per cent in December 2022

compared to 5.7 per cent in the same period in 2021. The recent persistent inflationary pressures have been driven by supply-side factors, and to some extent the underlying demand pressures (Figure 2.4 and 2.6). First, insufficient precipitation experienced during the short rains in 2021 and the long rains in 2022 adversely affected food production, leading to a sharp rise in domestic food prices. Secondly, the onset of the Russia-Ukraine war in February 2022 affected the importation of grains and cereals to compensate for domestic shortfalls. Thirdly, general spikes in global commodity prices, including oil drove up energy and food inflation, a situation exacerbated by the rapid depreciation of the shilling. On the demand-side, while money supply growth in 2022 was 5.9 per cent compared to 8.8 per cent in 2021, the pre-election period marked by intensified political campaigns potentially increased money circulation from the hands of a few to the hands of many.

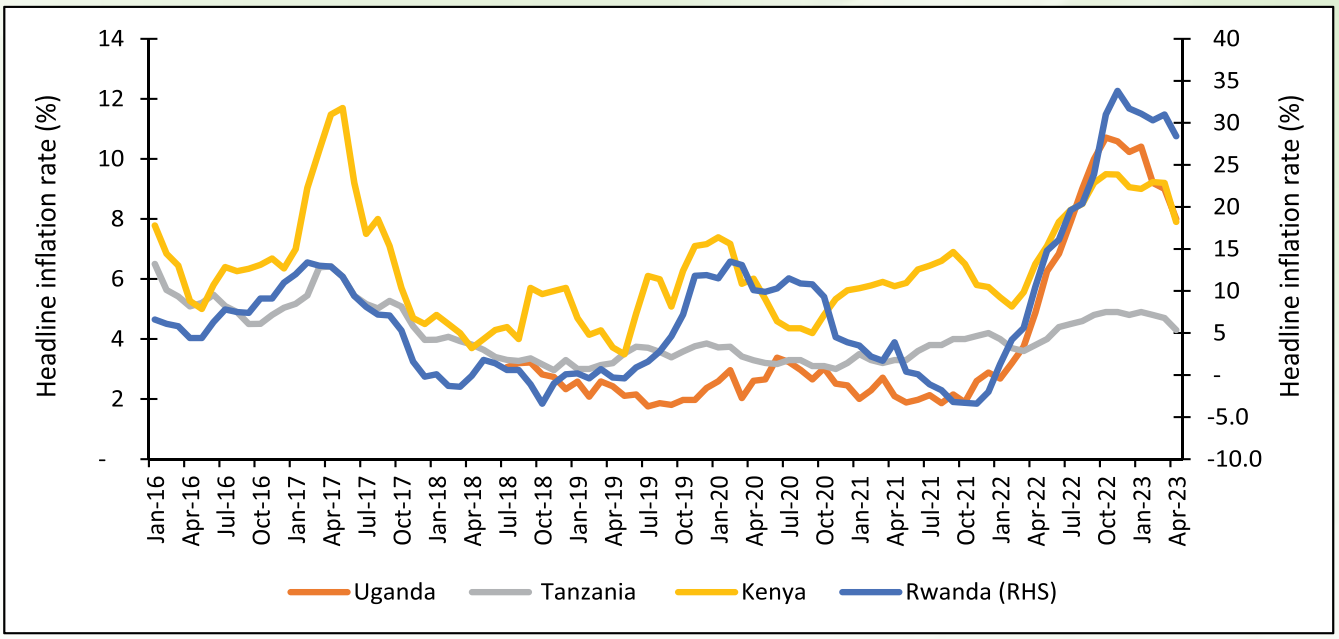
Figure 2.4: Headline inflation trends 2016-2023



Data source: CBK (Various), Monthly Economic Indicators

The Russia-Ukraine war caused major disruptions to the supply of commodities. Russia and Ukraine are the major exporters of energy and agricultural products. The disruptions exacerbated existing stress in commodity markets following the already sluggish recovery from the effects of COVID-19 pandemic. This was so during the initial stages before the signing of the Black Sea Grain Initiative in July 2022, which allowed safe transportation of grain and foodstuffs from Ukrainian ports. Moreover, the sanctions put on Russian cargo ships resulted into Russia re-routing its ships and using longer routes to supply its products to global economies. This was associated with increased cost of cargo, which was potentially transmitted to the importing countries. The Russia-Ukraine war spillover effects affected Kenya, as the country is an importer of various food items, especially wheat and edible oils. The impact of global price movements potentially passed through to domestic prices. However, the government minimized the impact of the global increase in prices on domestic consumers through subsidies on maize and more recently waiving import duties on importation of maize and rice. Notably, the inflationary pressures were also experienced in most countries in the East African Community on account of the drought experienced in the Horn of Africa, and the effects of global economic developments.

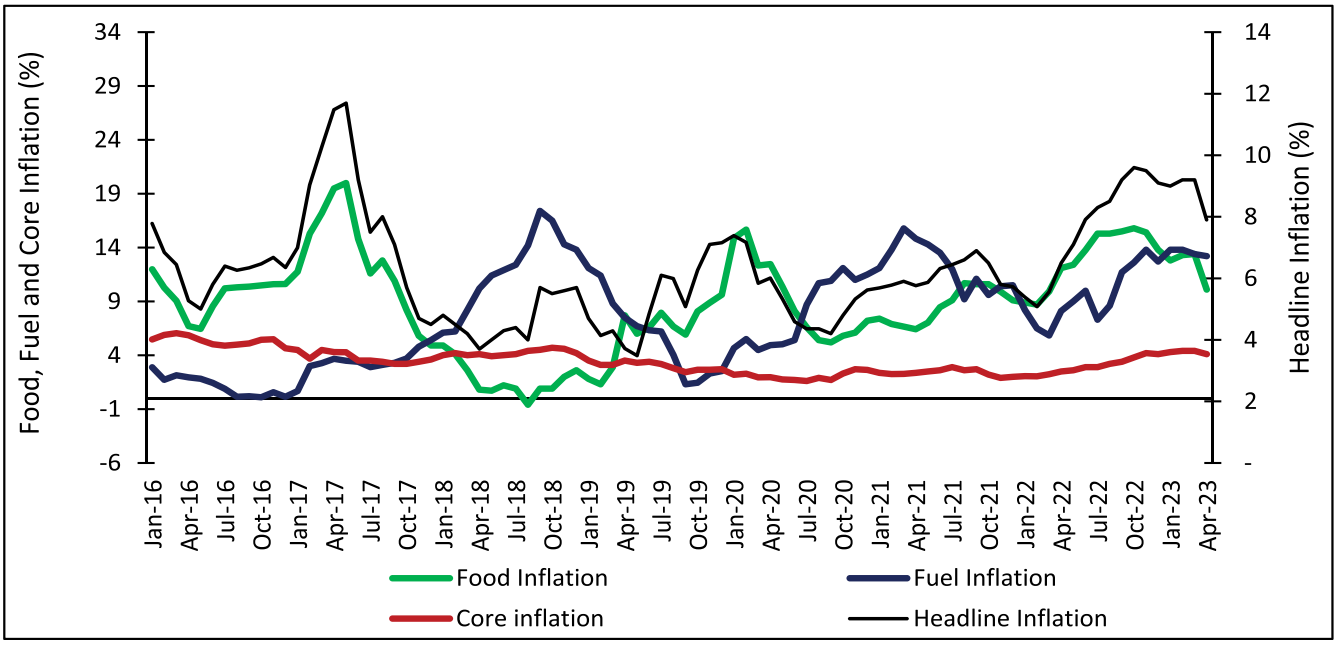
Figure 2.5: Inflationary trends in selected countries in EAC, 2016-2023



Data source: Country specific Statistical Offices

Kenya's inflation in 2022 was driven by food inflation, which averaged 13.1 per cent compared to 8.6 per cent in 2021 while fuel inflation moderated to 9.6 per cent, on average, in 2022 compared to an average of 12.3 per cent in 2021. Inflation in Kenya is a food phenomenon and, historically, whenever the country experiences prolonged drought conditions, food supply is disrupted, thus pushing both food prices and overall inflation upwards. This is like 2017 when drought conditions were prolonged, and inflation breached the government upper target band.

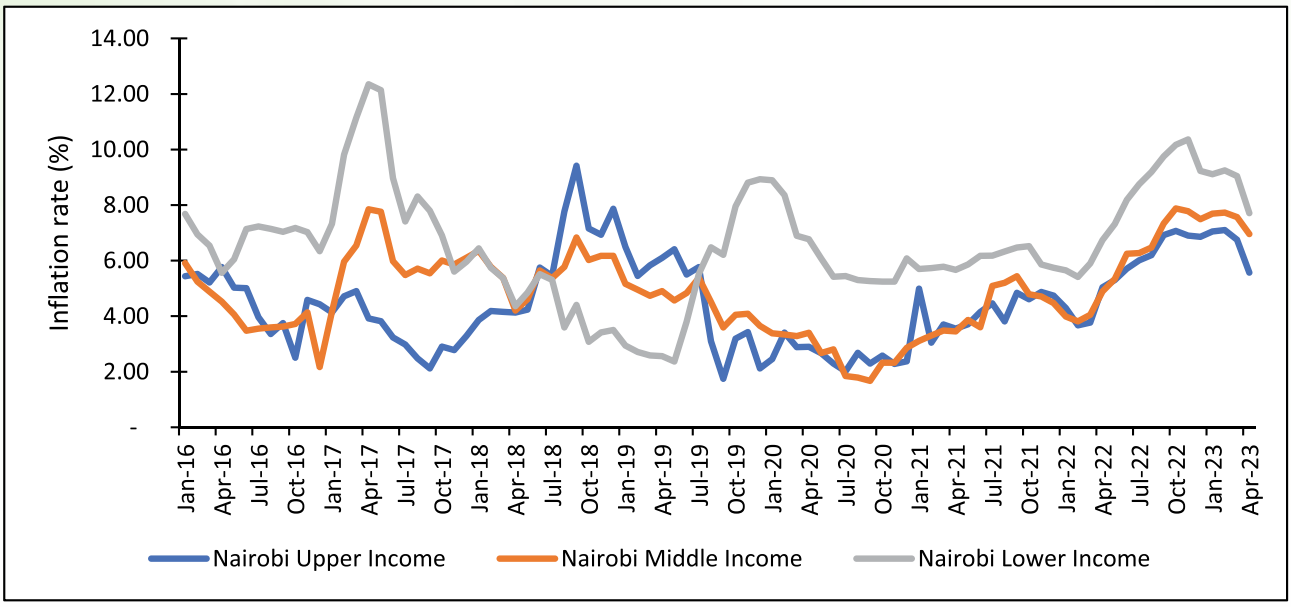
Figure 2.6: Monthly trends in components of overall inflation, 2016-2023



Data source: CBK (Various), Monthly Economic Indicators

Analysis of inflation by income groups reveals that households from lower income groups in Nairobi are the most affected by high cost of living due to drought, which affects food supply. Between January 2022 and December 2022, households from lower income groups faced an average inflation rate of 8.1 per cent compared to their counterparts in middle-and upper-income groups who faced an inflation rate of 6.0 per cent and 5.6 per cent, respectively, in 2022. It emerges that across time, inflation rates for households in lower-income groups face inflation rates above those in middle- and -upper income, save for periods where fuel, electricity and gas prices are up.

Figure 2.7: Inflation trends across income groups in Nairobi, 2016-2023



Data source: CBK (Various), Monthly Economic Indicators

Box 1: Implications of global commodity price developments

The surge in global commodity prices in 2022 was driven by the Russia-Ukraine war, which caused major commodity supply disruptions particularly for commodities where Russia and Ukraine are the major exporters (fertilizer, energy, some cereals, and metals). The surge in commodity prices came at the backdrop of continued resurgence in global demand following the recovery of several economies post-2020 COVID-19 recession.

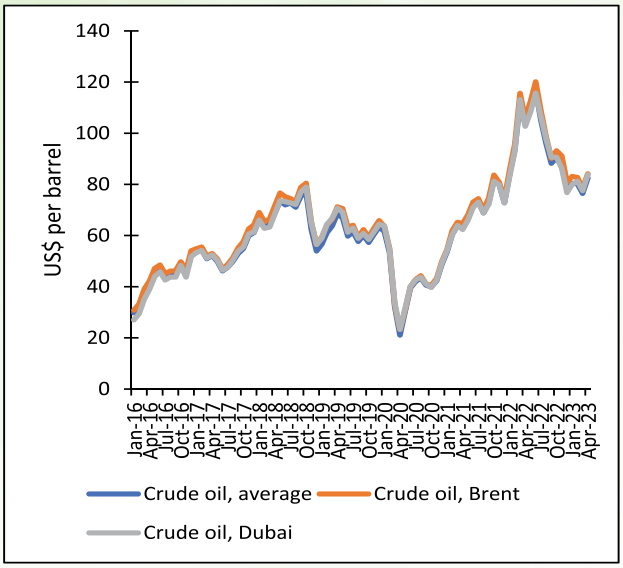
Crude oil prices averaged US$ 97.1 per barrel in 2022 compared to an average of US$ 69.1 per barrel in 2021. This was a result of increased energy demand as economies rebounded from the 2020 recession, in addition to the supply disruption that emanated from the Russia-Ukraine war. Crude oil prices peaked in June 2022, averaging US$ 116.8 per barrel and were largest 27-month increase in energy prices since the 1973 and 1979 oil price hike. Major edible oil prices increased sharply in 2022 compared to 2021. Edible oils are the seventh largest import for Kenya, with palm oil accounting for 93.8 per cent of total edible oil imports. In 2022, global palm oil prices averaged US$ 1,250.3 per metric ton compared to US$ 1,130.6 per metric ton in 2021, representing 10.6 per cent annual increase. Fertilizer prices, particularly Diammonium Phosphate (DAP) used often by Kenyan farmers increased by 28.5 per cent from US$ 600.9 per metric ton in 2021 to US$ 772.2 per metric ton in 2022. Moreover, maize prices increased by 22.9 per cent from US$ 259.5 per metric ton in 2021 to US$ 318.8 per metric ton in 2022.

Higher global commodity prices affect the macroeconomic conditions through three channels. The first is imported inflation. This occurs when there is a sustained increase in the general prices of imported goods and services. Figure 2.8 samples some of Kenya's key imported commodities and tracks their global price developments between 2016 and 2022. There has been an upward trend in global commodity prices following the start of the Russia-Ukraine war, adding to the broader post-COVID-19 supply and demand developments that ensued in the recovery phase. Price increases during April 2020 to June 2022 are some of the largest increases experienced since the 1973 and 1979 global oil spikes. Some of the global commodities are either intermediate inputs into domestic production or are utilized as final products. For instance, oil and wheat are closely linked to consumption goods such as petrol/diesel and bread/chapati. The rise in their prices at the international market raises local production costs, which may be passed through to domestic consumers.

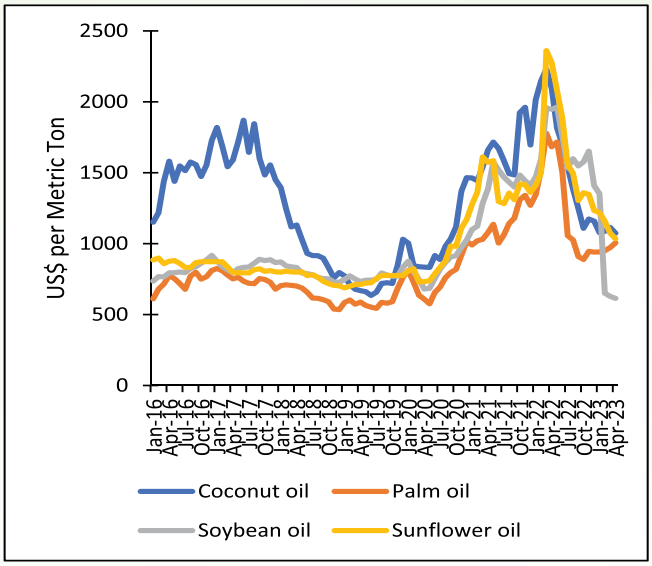
Secondly, rising global commodity prices may adversely affect the domestic production patterns. Igan et al. (2022) notes that hike in global commodity prices pushes domestic firms to substitute expensive inputs with less expensive ones, which may be less efficient, impacting negatively on growth in the short-run and impinge further on investment. Producers may also shift to counterfeiting, which has adverse effects on human health and welfare. Thirdly, rising global commodity prices impact on the terms of trade. For instance, in Kenya where export revenue only covers about 30.1 per cent of imports, rising commodity prices worsen the terms of trade, with huge import bill that cannot be offset by gains in exports. Kenya, being an exporter of primary goods and importer of finished products, suffers welfare losses due to worsening of terms of trade.

Figure 2.8: International prices of selected commodities

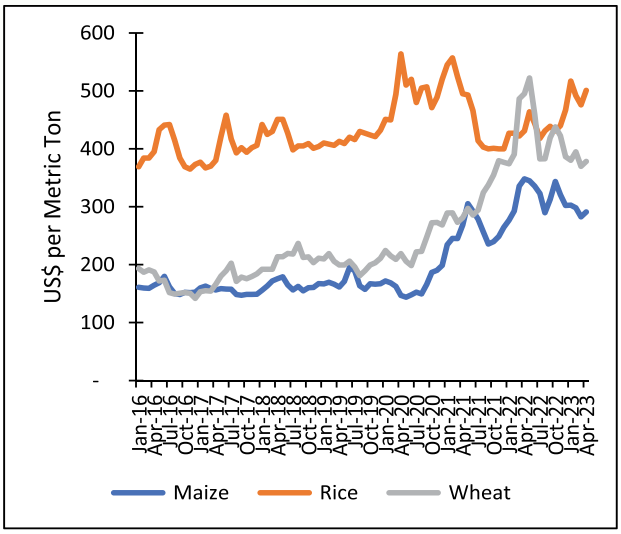
A. Crude oil prices



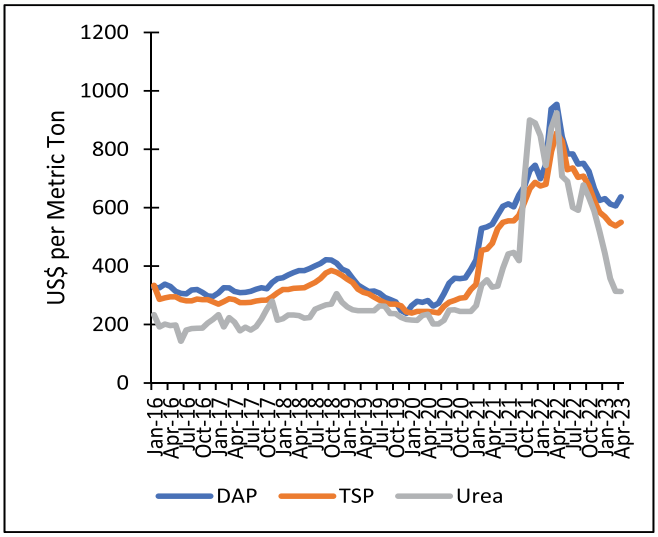
B. Edible oil prices



C. Cereals prices



D. Fertilizer prices



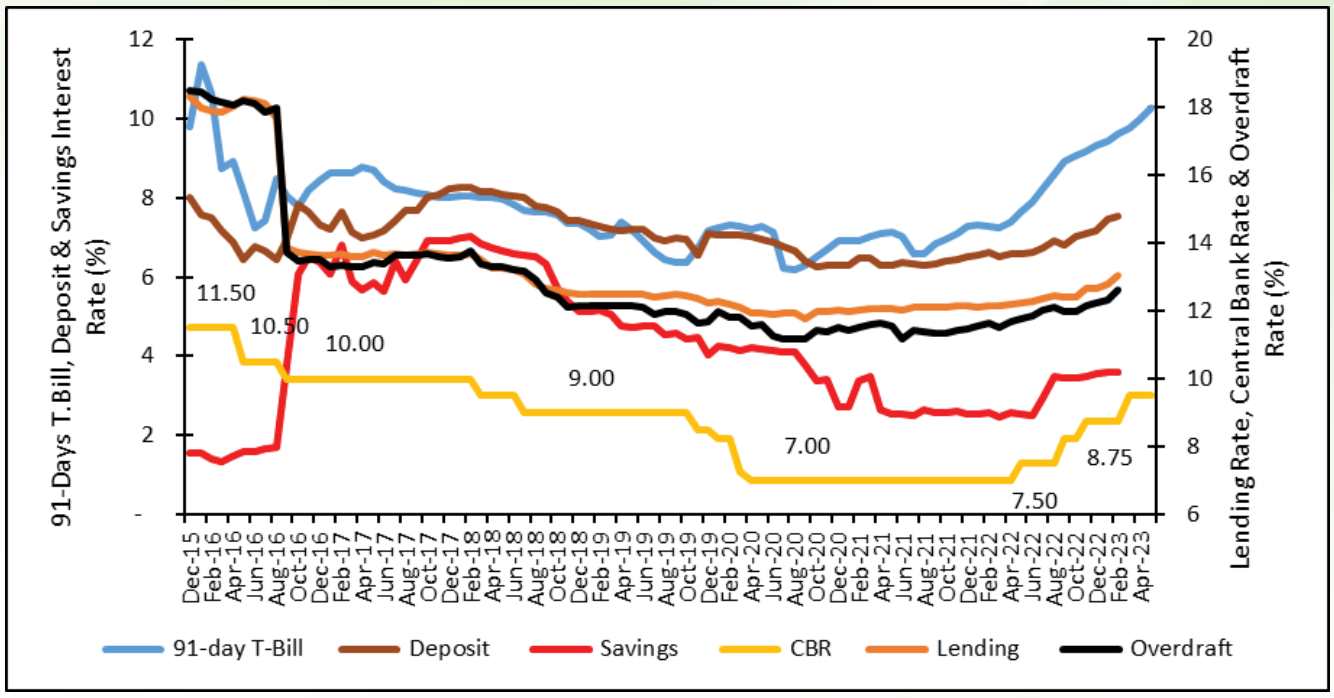
Data source: World Bank (May 2023), The Pink Sheet

2.5 Monetary and Financial Policies

2.5.1 Monetary policy stance and interest rates

The Central Bank of Kenya (CBK) tightened monetary policy stance in 2022 to rein in inflationary pressures. Tightening began in May 2022 following the hike in global commodity prices, disruptive economic effects of the Russia-Ukraine war and domestic food shortage due to prolonged dry weather. The Central Bank Rate (CBR) was raised from 7.0 per cent in April 2022 to 7.5 per cent in May and further increased to 8.25 per cent in September 2022 (Figure 2.9). In November 2022, the CBK further tightened the monetary policy stance, increasing the CBR to 8.75 per cent and maintaining it at that level thereafter. However, the CBK increased the CBR from 8.75 per cent in February 2023 to 9.5 per cent in March 2023 in response to sustained inflationary pressures and the elevated global risks.

Figure 2.9: Trends in interest rates



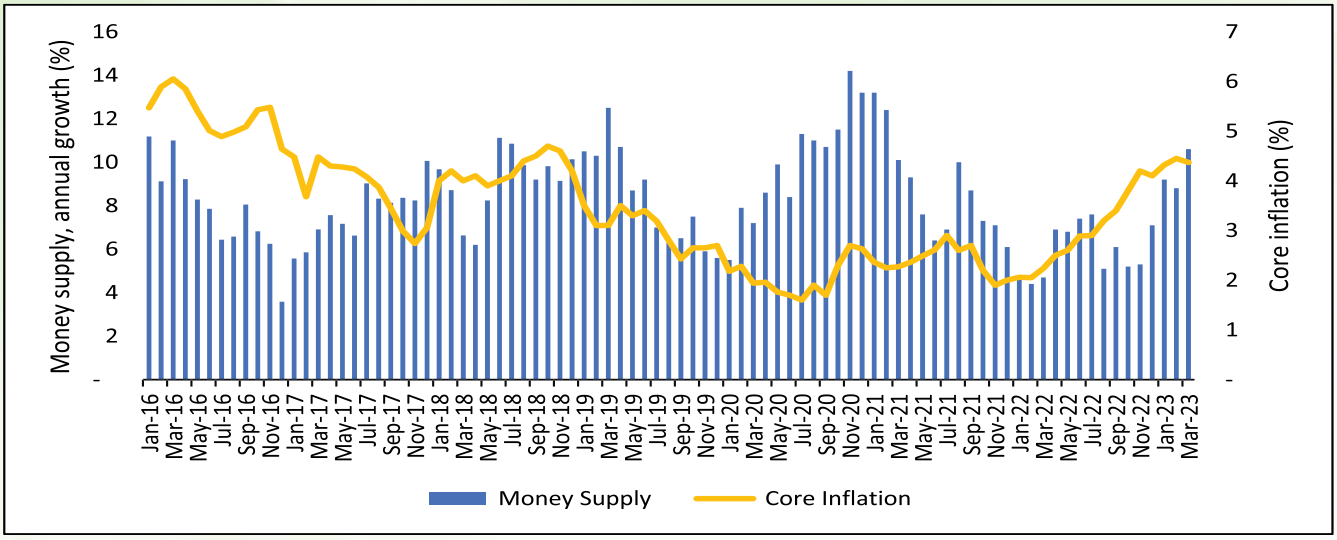
Data source: CBK (Various), Monthly Economic Indicators

Domestic interest rates, both in the short and long end of the market, edged upwards in 2022 compared to 2021. For instance, interbank rate averaged 4.7 per cent in 2021 compared to 4.9 per cent in 2022. Similarly, yields on 91-day Treasury Bills averaged 7.0 in 2021 compared to 8.2 per cent in 2022. Lending rates, deposit rates and savings rates averaged 12.3 per cent, 6.8 per cent and 3.0 per cent, respectively, in 2022 compared to 12.1 per cent, 6.4 per cent and 2.7 per cent, respectively, in 2021. Moreover, Figure 2.8 also shows that after the repealing of interest caps in November 2019, lending rates have remained low. For instance, before the capping between January and August 2016, lending rates averaged 18.0 per cent, and during the capping period (September 2016 to November 2019), lending rates fell and averaged 13.2 per cent. However, after the removal of the caps, lending rates have remained stable and averaged 12.1 per cent.

2.5.2 Money supply

Money supply expanded by 5.9 per cent in 2022 compared to 8.8 per cent in 2021, reflecting the change in monetary policy stance. In 2021, monetary policy was quite accommodative, with the Central Bank rate averaging 7.0 per cent, the lowest level in the past seven years. Monetary accommodation was geared towards supporting economic recovery after the slowdown in 2020 due to COVID-19. However, in 2022, the Central Bank of Kenya tightened monetary policy to curb inflationary pressures. The tightening explains the slowed pace of growth in money supply. Trend analysis of the core inflation and money supply indicates that core inflation responds to monetary policy with a lag effect, implying that after a period of prolonged accommodation, core inflation will rise afterwards even upon tightening. This indicates that core prices will continue to adjust slowly to the tightening.

Figure 2.10: Trends in money supply and core inflation



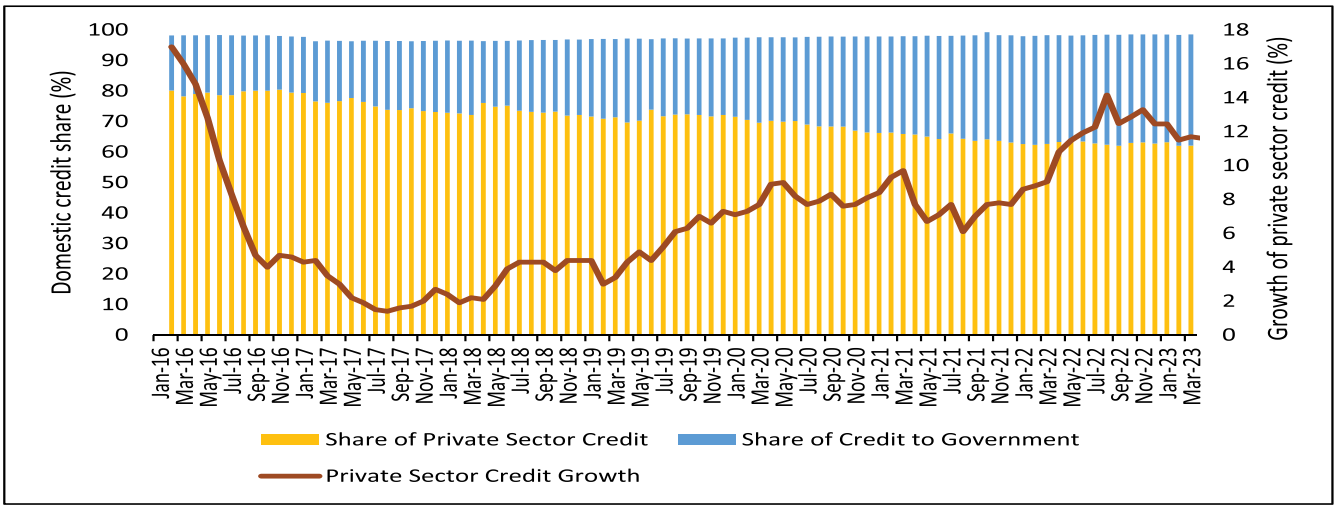
Data Source: CBK (Various), Monthly Economic Indicators

2.5.3 Private sector credit

Growth in the banking system credit to government remained strong, resulting in increased share of government credit to total banking system domestic credit. Figure 2.11 shows that the share of credit to government in total domestic credit has almost doubled over the review period and steadily increased from 18.9 per cent in 2016 to 35.4 per cent in 2022.

While the share of credit to private sector in total banking system has declined from 79.3 per cent in 2016 to 63.0 per cent in 2022, annual growth rate has remained strong in the post-COVID period. Increased growth of credit to the private sector signals increased demand amid slowed economic growth, and the widely accommodative monetary policy stance in play before June 2022. Credit to the private sector grew by 12.1 per cent in 2022 compared to 7.9 per cent in 2021. Growth in private sector was broad-based, with all sectors indicating increased credit compared to the previous year.

Figure 2.11: Trend in credit to private sector and government



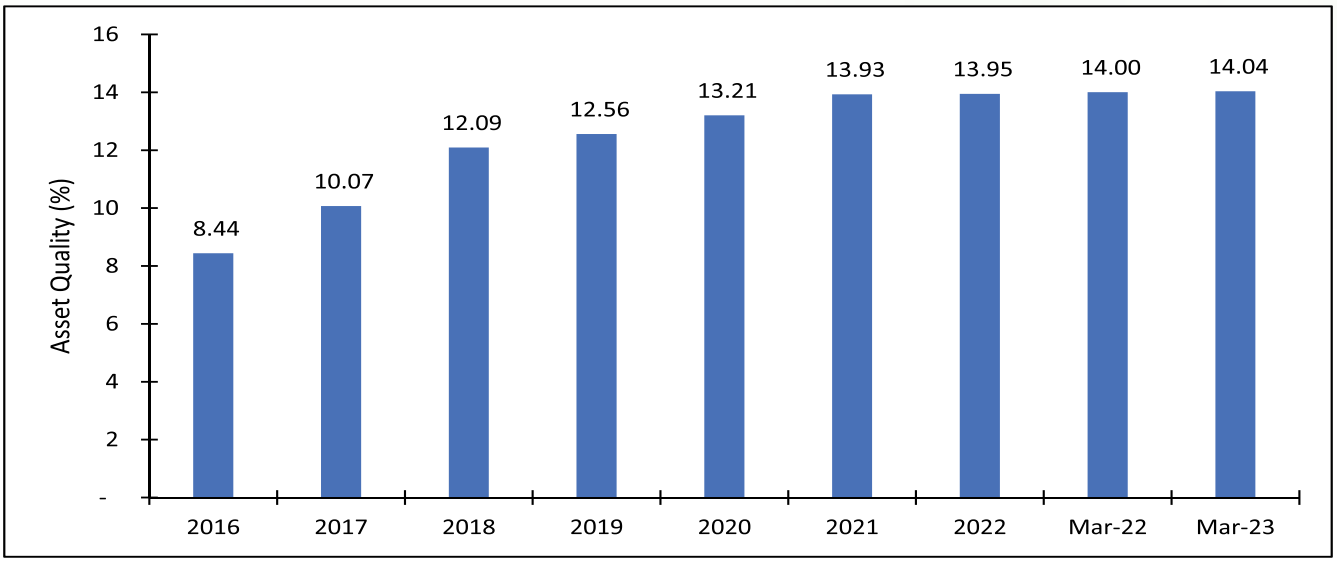
Data source: CBK (Various), Monthly Economic Indicators

2.5.4 Financial and banking sector performance

Amid the increasing economic challenges, Kenya's banking sector exhibited a solid footing in 2022. Capital adequacy and liquidity ratios were above the statutory requirements. Capital adequacy ratio, measured by the ratio of total banking sector capital to total risk weighted assets, stood at 19.0 per cent in December 2022, way above the minimum statutory limit of 14.5 per cent. Likewise, liquidity ratio, measured as the ratio of liquid assets to short-term liabilities, stood at 50.8 per cent in December 2022, above the minimum statutory ratio of 20 per cent. Kenya's financial sector is strong in weathering shocks and supporting the recovery process.

The quality of banking sector assets slightly worsened in 2022, with the ratio of non-performing loans (NPLs) to gross loans rising from 13.9 per cent in 2021 to 14.0 per cent in 2022, reflecting the slowed economic performance in 2022. The government through the Central Bank of Kenya in November 2022 initiated a Credit Repair Framework meant to improve the credit ratings of mobile phone digital borrowers whose loans had been listed by the Credit Reference Bureaus (CRBs). The Central Bank estimates that about 4.2 million mobile phone digital borrowers who carry about Ksh 30.0 billion of gross banking sector loans amounting to Ksh 3.6 trillion benefited from this facility.

Figure 2.12: Banking sector asset quality, 2016-2023



Data source: CBK (Various), Monthly Economic Indicators

Note: Asset quality = Gross non-performing loans divided by gross loans

2.6 Fiscal Performance

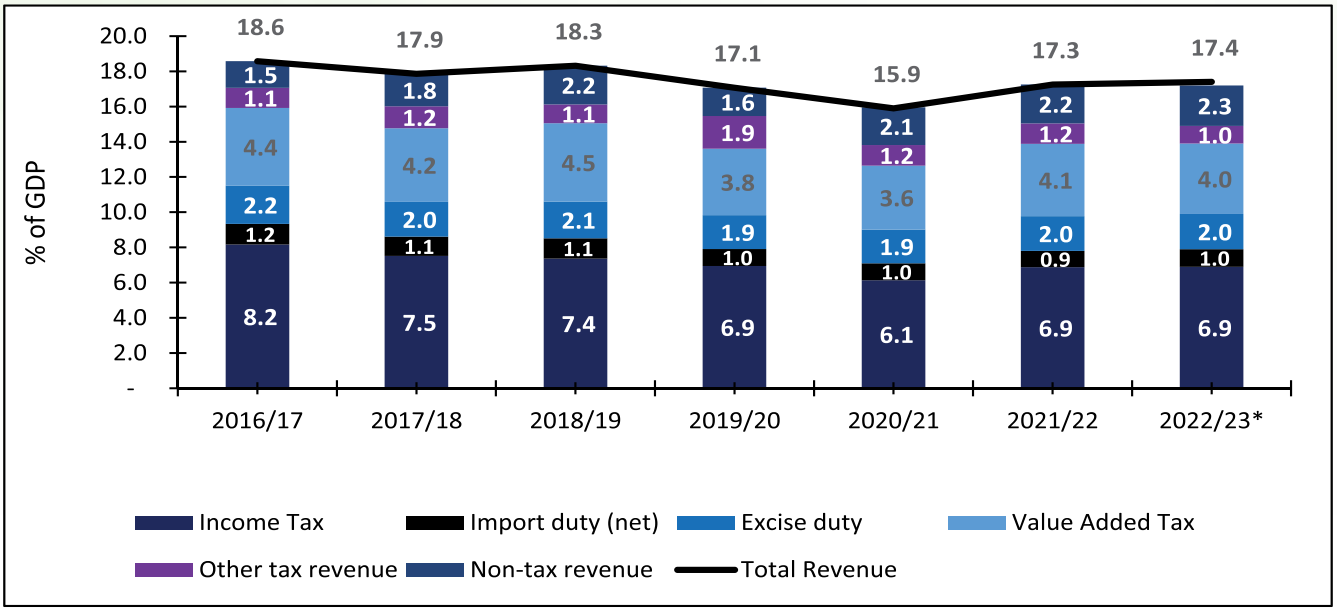
2.6.1 Revenue and expenditure

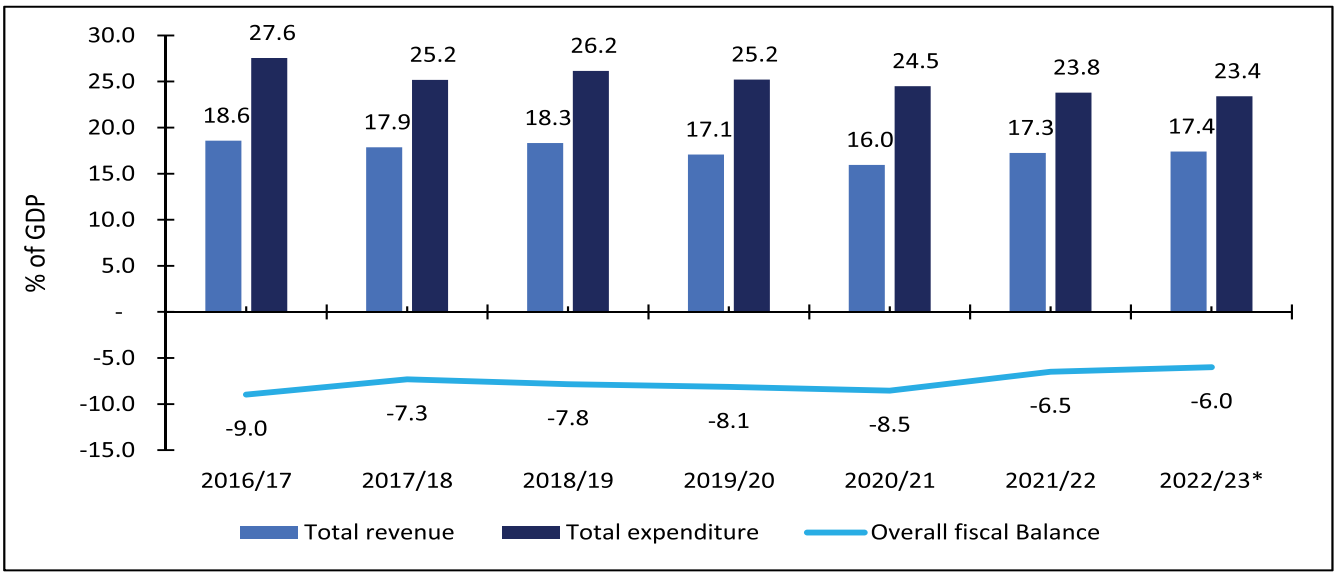
Even though revenue performance has not matched the pre-pandemic collections, post-COVID revenue growth continues even as government moves to enhance efficiency in public spending. Revenue performance in 2021/22 improved due to improved business environment following the recovery of the economy from the adverse impacts of COVID-19 pandemic. Total revenue rose from 16.0 per cent of GDP in 2020/21 to 17.3 per cent of GDP in 2021/22 on the backdrop of economic recovery and halting of COVID-19

related tax relief measures. The key drivers of revenue were income and consumption-based taxation. This notwithstanding, revenue collections were below the pre-pandemic levels of 18.3 per cent of GDP in 2018/19. Meanwhile, total expenditure oscillated from 24.5 per cent of GDP in 2020/21 to 23.7 per cent of GDP in 2021/22, reflecting a scaling back of the pandemic relief package and moderation of public spending. Projections for 2022/23 indicate that expenditure and revenues will be 23.4 per cent of GDP and 17.4 per cent of GDP, respectively.

As a result of the improved revenue performance and moderation in public expenditure, fiscal deficit narrowed to 6.5 per cent of GDP at the end of 2021/22 from 8.5 per cent of GDP at the end of 2020/21, and is expected to narrow further to 6.0 per cent at the end of 2022/23.

Figure 2.13: Revenue and expenditure performance, 2016/17-2021/22



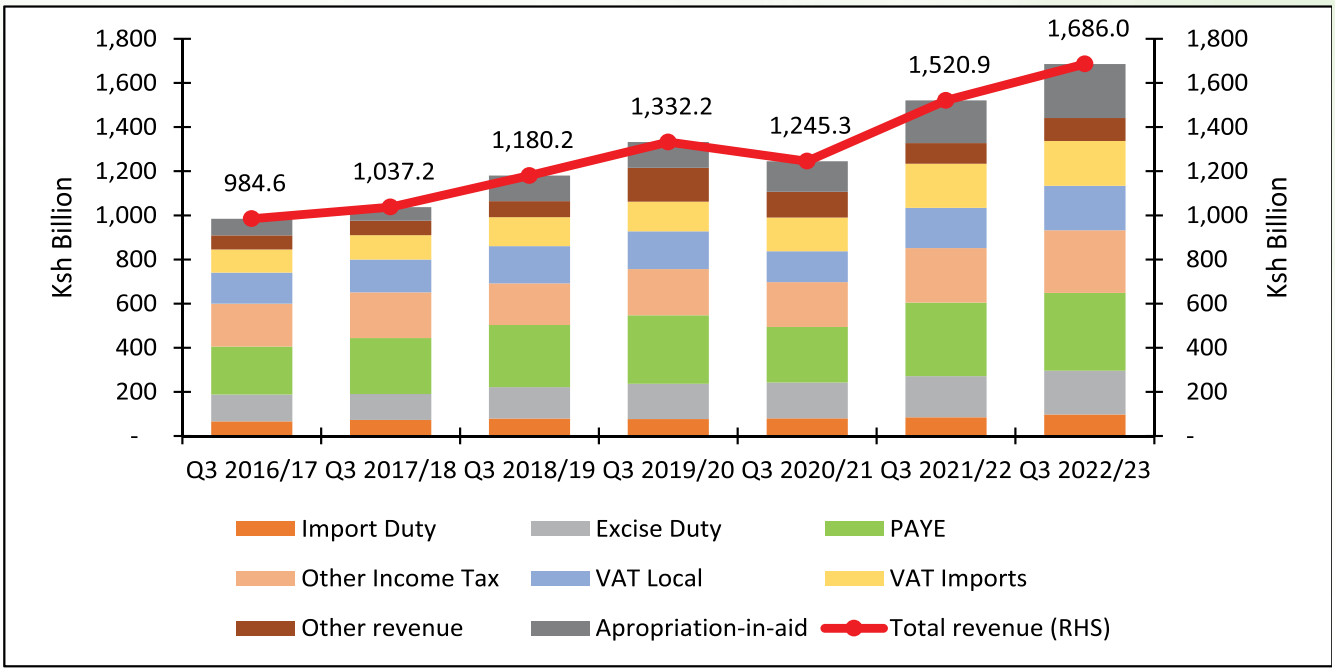


Data source: National Treasury and Economic Planning (Various), Budget Policy Statement (BPS) and BROP

** Projection*

At the end of the third quarter, total revenue collections including ministerial Appropriations-in-Aid (A-in-A) amounted to Ksh 1,686.0 billion, representing a 10.9 per cent growth compared to collections made at the end of second quarter of 2021/22. Growth in total revenue collections was boosted by improved ministerial A-in-A, which had a 26.6 per cent growth. Ministerial A-in-A has improved from 2016/17, revealing its potential of being a major revenue source.

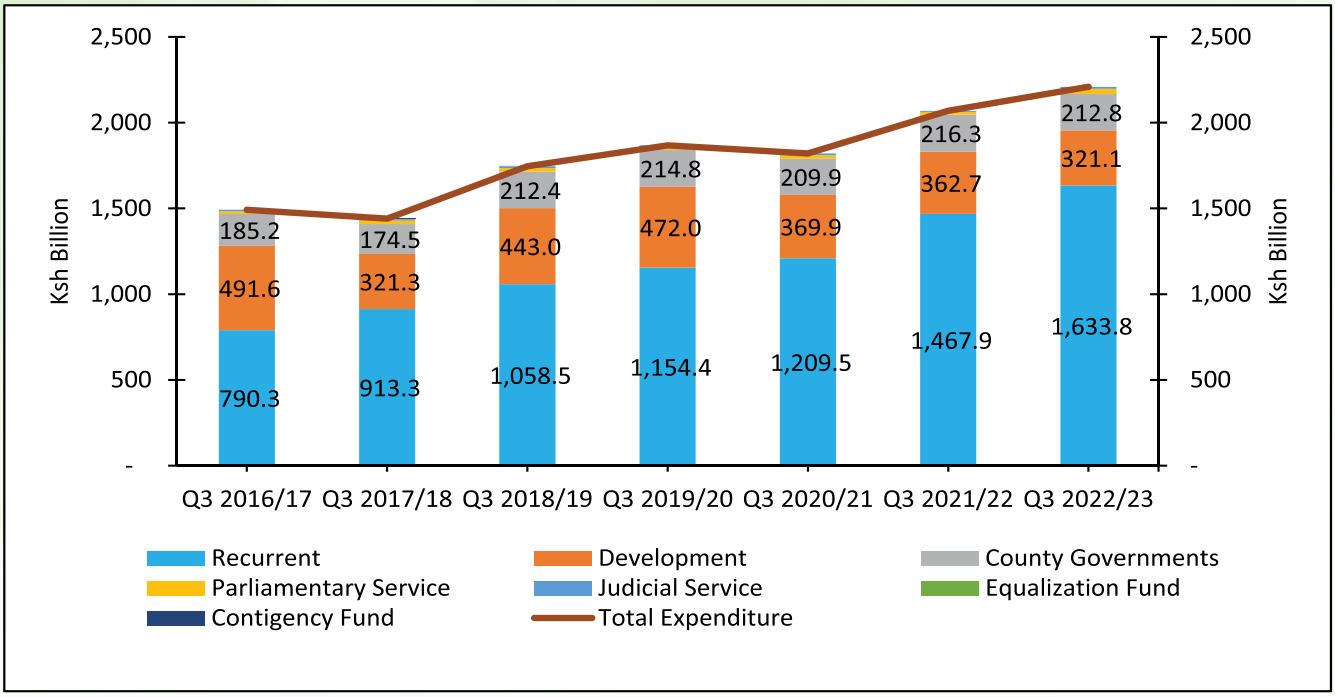
Figure 2.14: Quarterly revenue trends

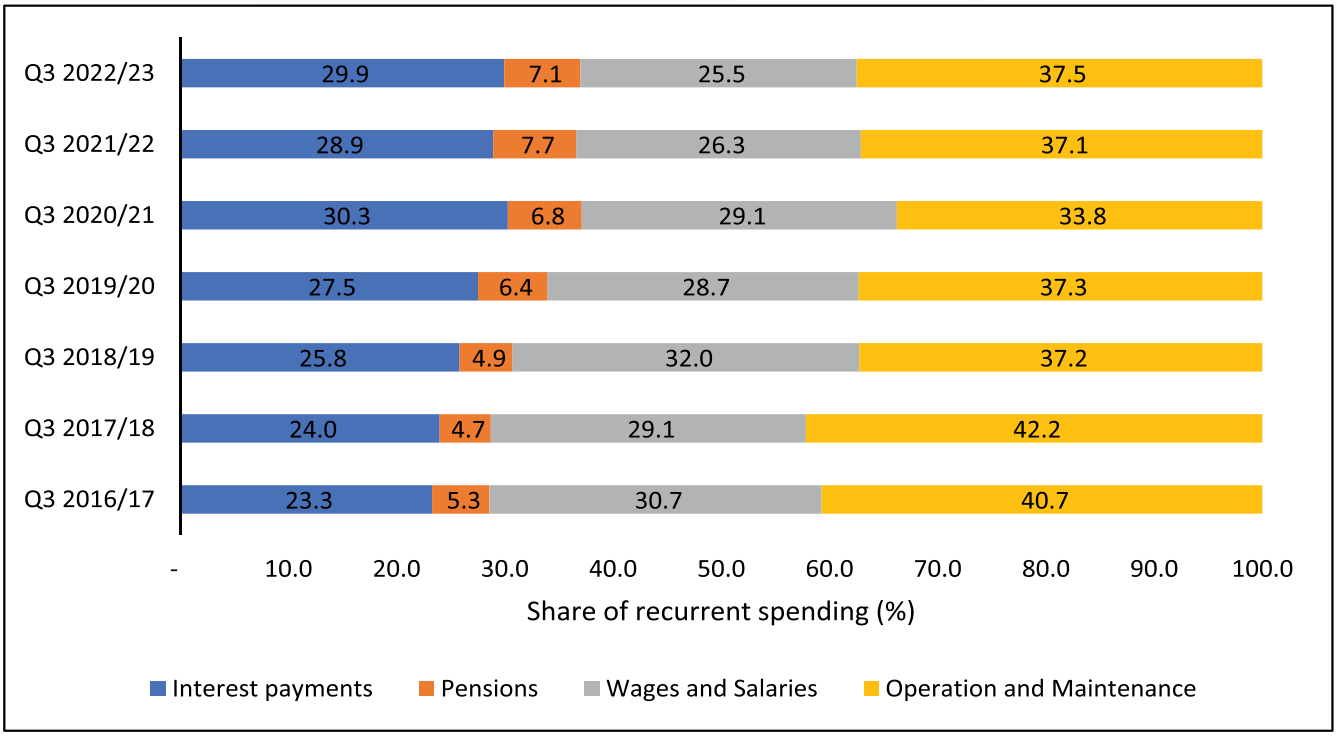


Data source: National Treasury and Economic Planning (Various), Quarterly Economic and Budgetary Reviews

Total expenditure at the end of the third quarter of 2022/23 amounted to Ksh 2,209.2 billion against a target of Ksh 2,339.9 billion. During the period, spending by County Governments was below target owing to below target transfers to County Governments by Ksh 66.7 billion. Historically, delayed disbursements to counties especially in the first quarter of each financial year has hampered provision of public service and, by extension, economic activity in the counties due to delayed payments of salaries and wages. It also emerges that while overall recurrent spending has steadily been on the rise since the third quarter of 2018/19, there has been a general decline in development spending. The burgeoning of recurrent spending has mainly been driven by growing expenditure on operations and maintenance, and interest payments on public debt. The largest category in governments recurrent budget is the operation and maintenance (O&M), which accounted for 37.5 per cent of total recurrent spending at the end of March 2023. Excessive O&M spending can crowd out other types of public spending, such as capital investment or social protection, which are essential for long-term development. In contrast, insufficient O&M spending can result in deterioration and obsolescence of public assets, which can undermine the future returns on past investments and limit the scope for future expansion. Therefore, there is need to strike a balance between existing resources and expenditure needs while at the same time enhancing public spending efficiency and avoiding wastages.

Figure 2.15: Quarterly expenditure trends





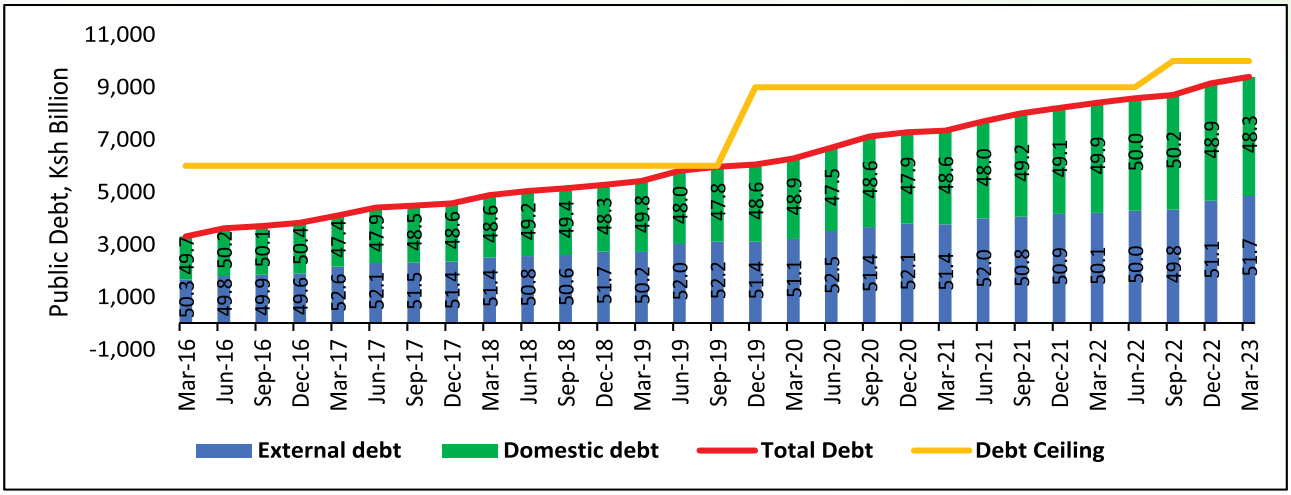
Data source: National Treasury and Economic Planning (Various), Quarterly Economic and Budgetary Review

At the end of the third quarter of 2022/23, government fiscal operations resulted into a fiscal deficit of Ksh 505.0 billion (or 3.5% of GDP) against a target of 555.1 billion (or 3.8% of GDP). The deficit was funded through Ksh 287.8 billion in net domestic financing and Ksh 80.1 billion in net foreign financing.

2.6.2 Public debt

Gross public and publicly guaranteed (PPG) debt at the end of the third quarter of 2022/23 was relatively high, nearly breaching the official debt limit. The gross PPG debt increased from Ksh 8.4 trillion at the end of March 2022 to Ksh 9.4 trillion at the end of March 2023. This implies that by the end of the third quarter of 2022/23, gross PPG debt stands at 93.9 per cent of the official debt ceiling set at Ksh 10.0 trillion as provided in the Public Finance Management Regulations 2015 amended in 2022. Further, at this level, gross PPG debt is way above the proposed 55.5 per cent of GDP provided for in the 2023 budget policy statement.

Figure 2.16: Composition of public debt in Kenya

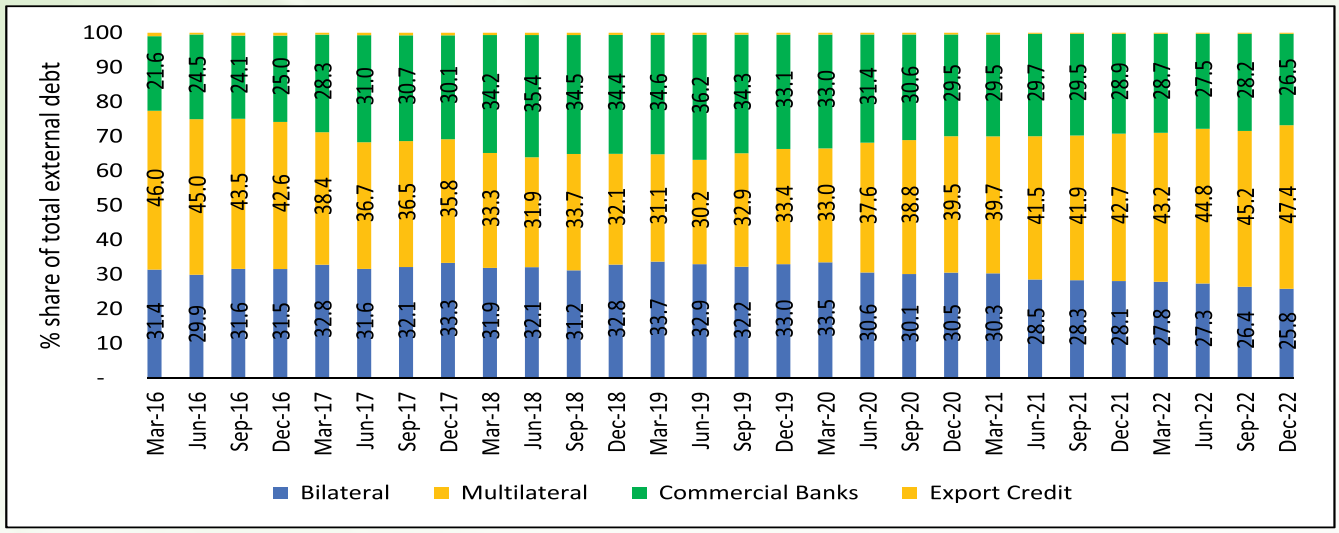


Data source: National Treasury and Economic Planning (Various), Quarterly Economic and Budgetary Review; CBK (Various), Monthly Economic Indicators

At the end of the third quarter of 2022/23, nominal PPG external debt was about 51.7 per cent of total PPG debt. Out of the total external debt portfolio, multilateral creditors accounted for 46.3 per cent while bilateral and commercial creditors accounted for 24.7 per cent and 25.5 per cent, respectively (Figure 2.17). Between March 2016 and June 2019, the concessional component of Kenya's external debt shrunk from 46.0 per cent of external debt to 30.2 per cent. Thereafter, the concessional component has been growing as government escalates its efforts towards lowering the cost of debt as per the medium-term debt strategy. At the end of March 2023, concessional loans accounted for 46.3 per cent of total external debt.

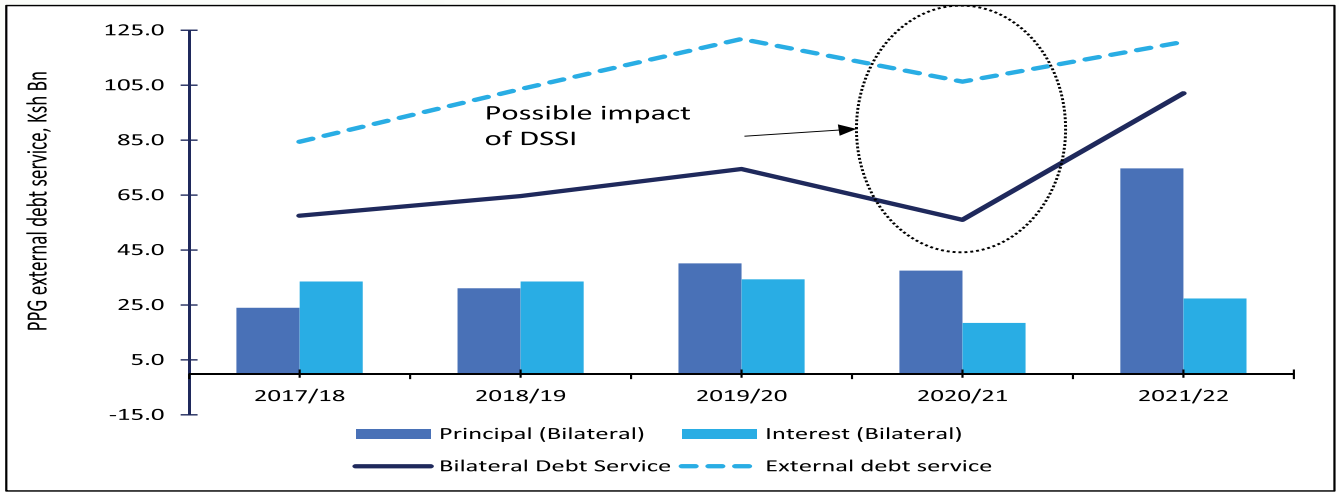
The COVID-19 pandemic saw Kenya apply for the Debt Suspension Service Initiative (DSSI) arrangement in November 2020. The DSSI suspended debt payment on bilateral public debt to G20 countries. In the arrangement, countries got a suspension on debt service payments. The first phase of DSSI covered January to June 2021, with Kenya benefiting with 6-months debt service suspension from the Paris Club worth Ksh 46.5 billion. During 2020/21, notable suspension seems to have emanated from the UK, Canada, Finland, and Denmark. Bilateral debt service declined from Ksh 74.5 billion in 2019/20 to Ksh 56.0 billion in 2020/21. At the end of 2021/22, bilateral debt service amounted to Ksh 102.1 billion while total external debt service amounted to Ksh 120.8 billion, representing 24.8 per cent and 12.7 per cent decline in bilateral service and total external debt service, respectively. At the close of 2021/22, bilateral debt service increased by 82.3 per cent while total external debt service increased by 13.6 per cent as the DSSI expired.

Figure 2.17: Composition of external debt



Data source: National Treasury and Economic Planning (Various), Quarterly Economic and Budgetary Review; CBK (Various), Monthly Economic Indicators

Figure 2.18: External public debt servicing



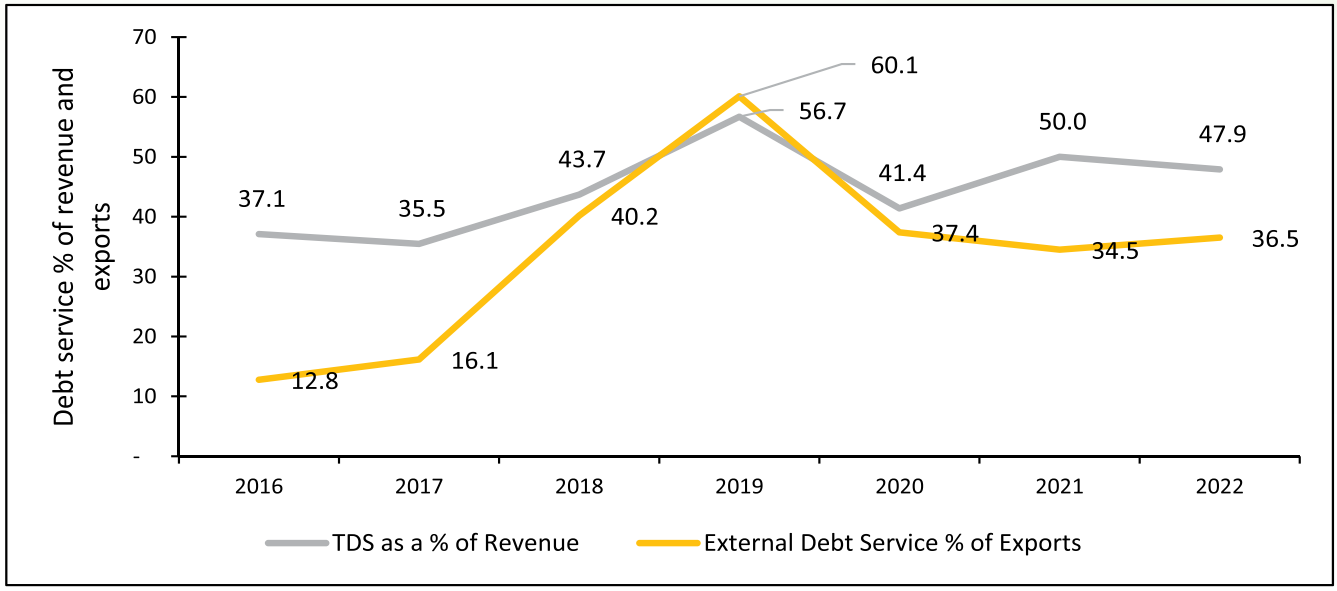
Data source: National Treasury and Economic Planning (Various), Quarterly Economic and Budgetary Reviews

While the DSSI moderated the burden of public debt, about 60 per cent of the countries that participated are still at high risk or in debt distress.[3] In addition to the DSSI, the Group of Twenty's Common Framework (CF) for Debt Treatment was established in 2021 to enhance progress towards orderly debt restructuring for countries most affected by the COVID-19 pandemic, and now by the cost of living crisis. These are countries that urgently need to avert a wave of sovereign debt crisis. In Africa, Zambia, Ethiopia, and Chad have entered the debt restructuring under the CF. Chabert, Cerisola and Hakura (2022),[4] however, note that the wheels of CF are slow, and efficiency can be enhanced by quickening formulation and improving transparency of negotiation, pausing debt service payments during the negotiation face, fair and speedy resolution of distress debt and broadening the coverage of countries.

[3] https://www.ispionline.it/en/pubblicazione/world-quagmire-view-africa-36687.
[4] https://www.imf.org/en/Blogs/Articles/2022/04/07/restructuring-debt-of-poorer-nations-requires-more-efficient-coordination.

With increasing debt over the years, debt service obligations have also gone up. Generally, a debt service to revenue ratio of 18 per cent is recommended for a country with debt carrying capacity classified as medium, such as Kenya's. Between 2015/16 and 2021/22, Kenya persistently breached this threshold. Total debt service (TDS) as share of revenue increased from 37.1 per cent in June 2016 to 47.9 per cent in June 2022. Additionally, external debt service as a proportion of exports rose from 12.8 per cent in June 2016 to 36.5 per cent in June 2022, reflecting the growing interest payments from external debt that emanated from increased uptake of commercial loans, weakening of the Kenyan shilling and overall increasing interest rates in the international financial markets. The persistent increases in debt service to revenue ratio above the recommended threshold is a worrying sign, and points to elevating public debt costs. The increasing debt to revenue ratio indicates that generated revenues are increasingly being used to repay public debt at the expense of productive expenditure needs.

Figure 2.19: Total debt service and external debt service



Data source: National Treasury and Economic Planning (Various), Annual Debt Management Reports

Another key indicator of public debt cost is the weighted average interest rate (WAIR). While the WAIR for domestic debt remains high at an average of 11.2 per cent over the analysis period, it has remained relatively stable. For instance, the WAIR for domestic debt was 6.9 per cent in June 2016, 7.8 per cent in June 2019 and 7.2 per cent at the end of June 2022. In contrast, the WAIR for external debt has been lower than that of domestic debt but has been on an increasing trend. In June 2016 it was 2.6 per cent rising steadily to 4.2 per cent in June 2019 before slowing to 2.9 per cent in June 2022.

The government strategy has over the years aimed at reducing public debt refinancing risk, which refers to the uncertainty that the government may be unable to raise funds for the debts maturing or may raise them at an unusually high interest cost. Kenya's debt refinancing risk in external debt have increased during the analysis period, as reflected by the fall in the average time to maturity (ATM) from 11.2 years in June 2016 to 10.4 in June 2022. However, on a positive note, debt refinancing risk has strongly improved in respect of both total debt and domestic debt as reflected by the rise in the

ATM from 7.8 years to 9.3 years and 4.3 years to 7.9 years, respectively, between June 2016 and June 2022. The rising ATM for domestic debt reflects the deliberate government strategy of implementing benchmark long-term securities (T-Bonds) for resource mobilization, while short-term securities (T-bills) are used for cash management purposes.

Analysis of interest rate risks shows that interest rates risk in respect of external debt have increased as reflected by the average time to re-fixing (ATR). ATR is a measure of the weighted average time until all principal payments in the debt portfolio become subject to a new interest rate. Generally, the low value of ATR suggests that the portfolio is, on average, facing a new interest rate frequently and therefore is exposed to re-fixing shocks; i.e., an increase in market rates. Available data shows that the ATR for external debt dropped from 10.9 years in June 2016 to 9.2 years in June 2022. The average time to re-fixing for total public debt and domestic debt increased from 7.6 years to 8.6 years and 4.3 years to 7.9 years, respectively, over the same period. Further, nearly 60.0 per cent of Kenya's external debt is US dollar-based, thereby elevating the exchange rate risks.

Kenya faces high risk of debt distress, although external debt sustainability indicators are projected to improve in the medium-term and remain sustainable. For quite some time, Kenya's debt carrying capacity (DCC) was strong. However, in 2020, the DCC was downgraded to medium. The risk rating rose from low in 2017 and has remained high since 2020. Kenya breached the external debt-to-exports ratio threshold, and this is expected to remain so until 2025, beyond which exports are projected to recover. Additionally, Kenya breached the threshold for external debt service to exports ratio, and projections show that this trend will remain above the threshold due to expected international sovereign bond maturing in 2024 and rollover of commercial external loans coming in 2025.

Table 2.2: Debt sustainability indicators (%)

	Threshold	Actual		Projections					
	Kenya	2020	2021	2022	2023	2024	2025	2026	2027
PV of ED/GDP	40	28.7	28.7	26.6	26.8	26.1	25.6	25.1	25.0
PV of ED/Exports	180	288.3	255.8	221.5	208.6	195.9	186.5	179.8	175.4
PPG ED Service/Exports	15	26.5	19.1	22.6	20.5	29.6	21.1	19.2	15.8
PPG ED Service/Revenue	18	15.5	13.0	15.7	15.2	22.3	16.5	15.2	12.6
PV of PD/GDP	55	62.4	63.0	61.7	60.0	57.8	55.9	54.0	52.5

Data source: National Treasury and Economic Planning (2023), Medium-Term Debt Management Strategy; and IMF (2022), Country Reports

NB: PV= Present Value; ED= External Debt; PPG= Public and Publicly Guaranteed; PD= Public Debt

2.7 External Sector

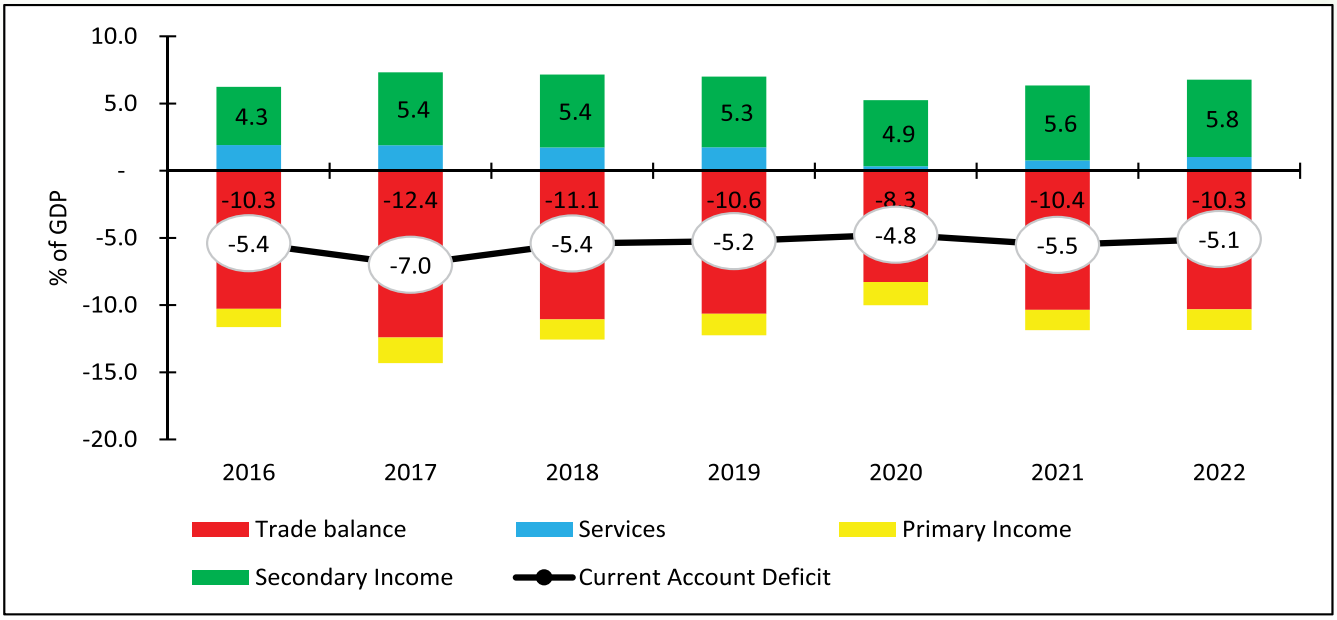
2.7.1 Current account

The current account deficit narrowed from 5.5 per cent of GDP in 2021 to 5.1 per cent of GDP in 2022. This was on account of improved secondary income of which 62.2 per cent is diaspora remittances, and also supported by improved merchandise trade balance that narrowed from a deficit of 10.4 per cent of GDP in 2021 to 10.3 per cent of GDP in 2022Over the years, the major drivers of current account are trade balance and secondary incomes. The deficit in merchandise trade was largely improved due to growth in exports and slowed rate of importation in 2022. Exports grew by 16.9

per cent in 2022 compared to 16.1 per cent in 2021 while imports expanded by 13.0 per cent compared to 30.2 per cent in 2021.

Receipts from international trade in services remained resilient, helping to moderate the widening of the current account deficit (CAD). Receipts from international trade services amounted to Ksh 758.5 billion while payments amounted to Ksh 622.2 billion, resulting into a net surplus of Ksh 136.4 billion at the end of the December 2022, which is Ksh 43.5 billion more than the net services surplus of Ksh 92.8 billion in 2021. Improvements in services account reflects strong performance in international travel account, which has continued to strengthen with the resumption of international travel in the post-COVID period. Primary income balance continued to drag the CAD at the end of December 2022. Primary income deficit widened from Ksh 181.5 billion or 1.5 per cent of GDP in 2021 to Ksh 205.2 billion or 1.5 per cent of GDP in 2022, reflecting deterioration in receipts from compensation of employees, investment income and rent.

Figure 2.20: Current account deficit and its drivers (% of GDP)

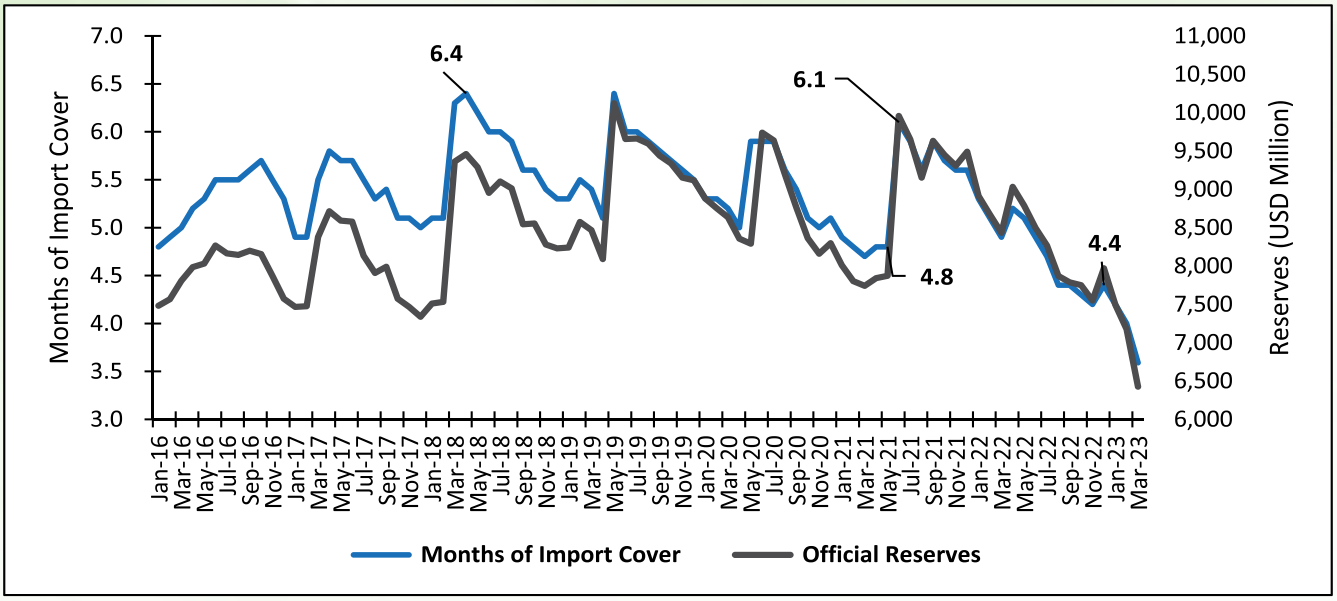


Data source: KNBS (Various), Quarterly Balance of Payment and International Trade Reports

2.7.2 Capital and financial account

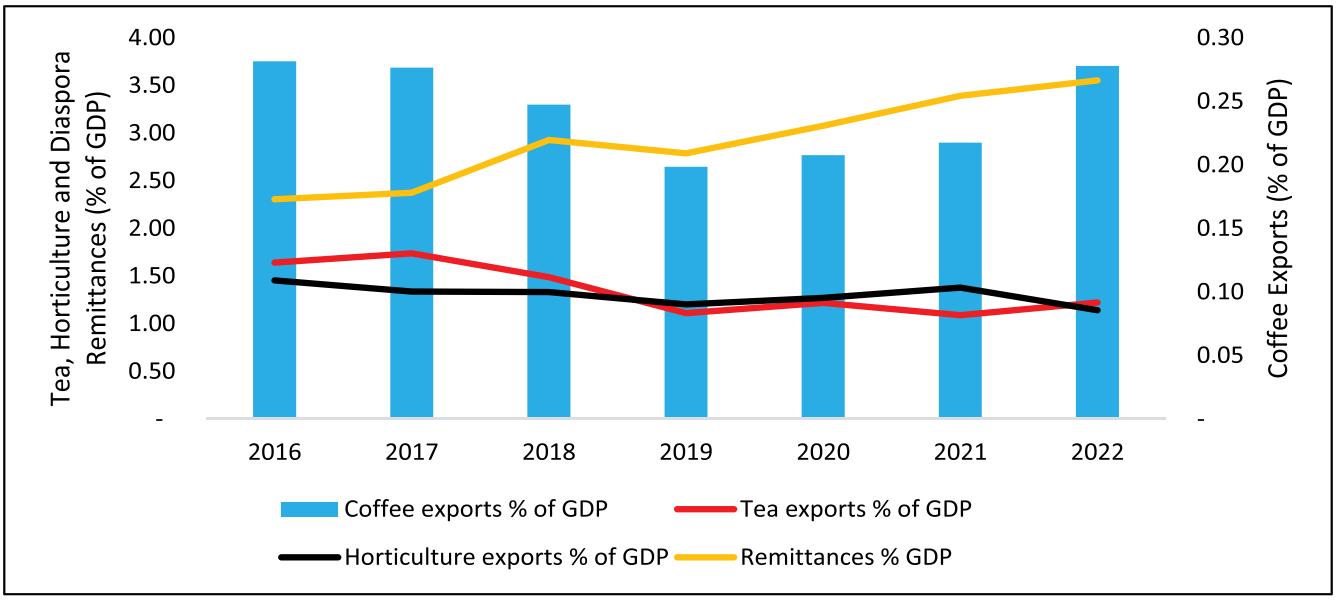
Capital inflows declined from Ksh 21.5 billion in 2021 to Ksh 16.5 billion in 2022, thereby dragging the financing of the current account deficit and foreign reserve accumulation. Regarding financing of the current account, inflows to the financial account decreased from Ksh 644.1 billion to Ksh 494.8 billion. The reduction in external financial inflows accompanied by the servicing of external debt resulted into a draw down in reserve assets which as of the end of December 2022 stood at 4.4 months of imports coverage. Rises and falls in imports coverage have always coincided with increased receipts of foreign reserves in terms of loans from the IMF. Concurrently, the main foreign earning activities have been on the decline, save for diaspora remittances which are resilient. With the exchange rate rapidly depreciating and government meeting its external sector obligations, pressure on international reserves will continue. At the end of March 2023 reserves stood at 3.9 months of import cover.

Figure 2.21: Performance in forex reserves



Data source: CBK (Various), Monthly Economic Indicators

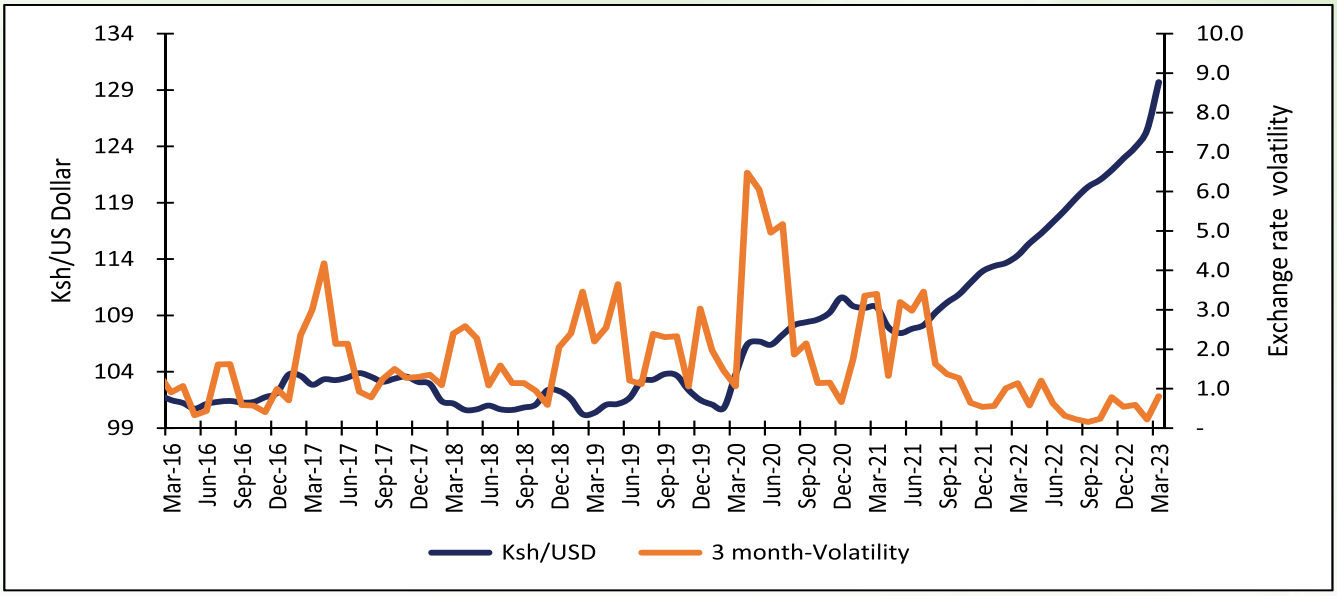
Figure 2.22: Trends in shares of horticulture, tea, coffee exports and remittances (% of GDP)



Data source: Central Bank of Kenya (Various), Monthly Economic Indicators

Kenyan shilling weakened against the dollar in 2022, trading at an average of Ksh 117.9 per US$ compared to Ksh 109.6 per US$ in 2021. This implies that in 2022, the Kenya shilling depreciated by 7.4 per cent compared to 3.1 per cent in 2021. More recently, between January-March 2023, the shilling traded at an average of Ksh 126.4 per US$ compared to Ksh 113.8 per US$ in the same period in 2022.

Figure 2.23: Kenya shilling performance against the US dollar



Data source: CBK (Various), Monthly Economic Indicators

The recent persistent weakening of the shilling has been attributed to several factors, including continued rise in prices of imported commodities such fuel. Increased demand for the dollar by importers and the tightening of US monetary policy has resulted into a stronger dollar. The implications of the continued depreciation of the shilling against the dollar include increased cost of imported goods; increased likelihood exchange rate pass-through to domestic prices; and increased cost of external debt, which accounts for about half of Kenya's PPG.

2.8 Key Messages

1. Kenya's economy recovered strongly in 2021 following a recession experienced in 2020, which was occasioned by the effects of the COVID-19 pandemic. The emergent economic recovery was disrupted in 2022 by prolonged drought conditions that stifled agricultural performance, which widened the output gap and resulted into increased food prices. Overall, the economy grew by 4.8 per cent in 2022 compared to a growth rate of 7.6 per cent in 2021. Agriculture contracted by 1.6 per cent while the services sector grew by 7.0 per cent and manufacturing by 2.7 per cent.

2. While the economy sustained macro stability, inflation pressures persisted in 2022, breaching the upper band for the first time since 2017. Monetary policy tightening began on time before inflation rate crossed the upper target band and was conducted successively, increasing the policy rate by 175 basic points in a span of six months. The banking sector was resilient, with most soundness indicators remaining consistent with the statutory thresholds. Nonetheless, in 2022, the ratio of non-performing loans to gross loans was 13.95 compared to 13.93 in 2021.

3. Fiscal results for the first three quarters of 2022/23 show that the fiscal position improve at the end of March 2023 as fiscal deficit amounted to 3.5 per cent of GDP compared to 4.1 per cent of GDP in the same period in 2021/22, reflecting commitment to the fiscal consolidation path. Total revenue and grants as a share

of GDP was 11.7 per cent compared to 12.1 per cent in March 2023 while expenditure and net lending amounted to 15.2 per cent of GDP compared to 16.2 per cent of GDP in March 2022.

4. Public debt stock was Ksh 9.4 trillion as of March 2023, against the Ksh 10 trillion ceiling. External debt accounted for 51.7 per cent of total public debt stock dominated by multilateral debt, which accounts for 46.3 per cent while commercial debt and bilateral debt components account for 25.8 per cent and 24.7 per cent, respectively. Moreover, Kenya faces high risk of debt distress, although external debt sustainability indicators are projected to improve in the medium-term and remain sustainable.

5. Noteworthy, the current account position has continually been bolstered by strong diaspora remittances, which accounted for 62.2 per cent of secondary income account in 2022. Further, the Kenya shilling yielded to the pressure on external account and experienced significant depreciation. In 2022, the Kenya shilling exchange rate against the US$ was 117.9 compared to 109.6 exchange rate in 2021.

2.9 Policy Recommendations

1. Accelerate investments in the agriculture sector by enhancing affordable inputs, upscaling irrigated agriculture and adopting climate smart practices. This will revamp the sector's resilience to weather-related shocks and provide fresh impetus for agriculture sector growth. Further, adequately budget for the services and manufacturing sector to sustain growth in these critical engines of growth and employment creation.

2. Timely tightening of monetary policy stance during inflation episode is necessary but to sufficiently contain inflationary pressures and anchor inflation expectations, adjustment of the policy rate needs to be adequate.

3. Continued adherence to established fiscal consolidation path is needed to build fiscal buffers and bring public debt towards more sustainable levels. This can be achieved through enhancing revenue mobilization by expanding the tax base, ensuring every eligible citizen pays their fair share of taxation, rationalizing public expenditures, and cutting back on vulnerabilities in state-owned enterprises, and contracting external public debt on concessional terms.

4. Re-focus debt management strategy. New debt management strategies should emphasize the acquisition of more concessional loans. Growth impacts should be assessed, and prudent utilization of new loans emphasized. Considering that Kenya's growth momentum slowed from 7.6 per cent in 2021 to 4.8 per cent in 2022, prudently utilizing newly acquired loans on concessional terms will be critical for driving the recovery process while ensuring that growth is broad-based and all-inclusive in line with the BETA.

5. Accelerate the diversification of export goods and services and expand export markets. This not only involves up-scaling production of major export commodities (horticulture, tea, and coffee) but also seeking new markets for exports. This will help narrow the merchandise trade deficit and ease pressure on the current account. Additionally, fostering a favourable environment to encourage Kenyans in the diaspora to remit more will strengthen the secondary income account. Overall, strengthening external position will help boost foreign exchange reserves and reduce the pressure on the shilling.

MEDIUM-TERM ECONOMIC PROSPECTS FOR KENYA

3

Economic activity globally was on a recovery path with the fading effects of the COVID-19 pandemic. However, with the outbreak of the Russia-Ukraine war, which started in February 2022, the recovery momentum was disrupted. Economic activity in Kenya, like many other countries, slowed down during the second quarter of 2022. Looking ahead, the country faces significant risks, including the surge in commodity prices exacerbated by the Russia-Ukraine war and depreciation of the Kenya Shilling against the US dollar. Other risks to the outlook emanate from uncertainty with the Russia-Ukraine war and weather conditions. Nevertheless, the country is leveraging on macroeconomic and political stability and implementation of the priority projects and programmes under the Bottom-Up Economic Transformation Agenda to achieve sustainable economic growth. In 2023, the economy is projected to grow at 5.7 per cent and average 6.1 per cent in the medium-term, with progressive implementation of the Bottom-Up Economic Transformation Agenda. The performance will be supported by growth in all sectors, indicating a broad-based growth. However, growth may soften to 5.5 per cent in 2023 and average 5.8 per cent in the medium-term in the event of the risks materializing. With uncertainty in weather conditions, farmers are encouraged to plant early maturing and drought resistant varieties of crops, fodder and pasture to take advantage of the rainy season. In addition, the Ministry of Agriculture and Livestock Development in collaboration with County Governments need to intensify farmers' sensitization and capacity building on appropriate technologies, innovations and implementation of climate smart agriculture to avert more losses and cushion the sector from further contraction. Fast-tracking the implementation of priority projects under the Bottom-Up Economic Transformation Agenda is similarly critical to sustain economic recovery in the medium-term.

3.1 Introduction

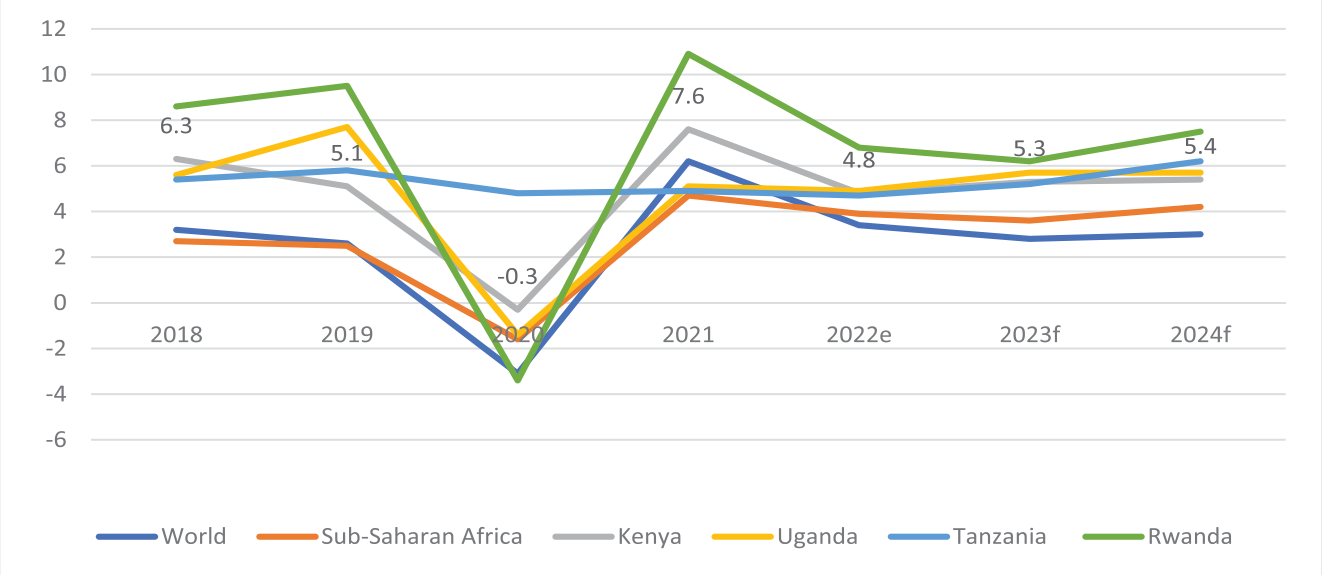
Economic activity globally experienced a slowdown in 2022 from a significant recovery in 2021 with the fading COVID-19 effects. While the global economic performance was robust in the first quarter of 2022, global economic growth is estimated to have contracted in the second quarter (International Monetary Fund, 2022a). Kenya was not exempt as economic growth slowed from 7.6 per cent in 2021 to 4.8 per cent in 2022. The slow down was mainly attributed to the 1.6 per cent contraction in the agriculture sector. This chapter details the medium-term prospects based on potential upside and downside risk factors, and the need to build a resilient economic recovery. The forecasts apply the demand-side model (KIPPRA-Treasury Macro Model) to attain the aggregate demand outlook.

Global growth rebounded to 6.2 per cent in 2021 compared to a contraction of 3.1 per cent in 2020. This was supported by COVID-19 vaccination drive, easing of mobility restrictions and roll-out of fiscal support in various economies. However, global growth was estimated at 3.4 per cent in 2022 and projected to fall to 2.8 per cent in 2023 (IMF, 2023). The projected decline in global growth is mainly attributed to several shocks adversely affecting the economic activity. These include the higher-than-expected world-wide inflation, tightening of monetary policy in advanced economies, a severe

tightening in global financial conditions and a worse than anticipated growth slowdown in China and Russia.

Sub-Saharan Africa (SSA) economic growth similarly rebounded to 4.7 per cent in 2021 from a contraction of 1.6 per cent in 2020. However, SSA growth declined to 3.9 per cent in 2022 and is projected to slow down to 3.6 per cent in 2023 owing to domestic price pressures and surging fuel prices across the region (IMF, 2023). In addition, growth in the medium-term might be hampered by rapid increase in the cost of living and acceleration in the pace of monetary tightening in advanced economies, which is tightening financial conditions. Growth in Kenya's economy like that of Rwanda, Uganda and Tanzania weakened in 2022 with the prolonged drought condition and the effects of the Russia-Ukraine war. However, the economies are envisaged to improve in 2023 compared to 2022, premised on anticipated government interventions to stabilize the economies amid the external shocks (Figure 3.1). The projected growth of the Kenyan economy by the National Treasury, African Development Bank (AfDB), International Monetary Fund (IMF) and the World Bank are presented in Table 3.1.

Figure 3.1: Selected GDP growth rates in per cent (2018-2024)



Data source: IMF (2023), World Economic Outlook, April; e is estimated, f is the forecasts

Table 3.1: GDP growth rates for Kenya (%)

	2021	2022e	2023f	2024f
National Treasury	6.5	5.8	6.1	6.1
Africa Development Bank (AfDB)	7.5	4.8	5.2	5.7
World Bank	7.5	4.8	5.0	5.3
International Monetary Fund (IMF)	7.5	4.8	5.3	5.4

Data Source: National Treasury (2022), BROP, September; AfDB (2023), Africa's Macroeconomic Performance and Outlook, January; World Bank (2022), Kenya Economic Outlook); IMF (2023), World Economic Outlook, April); f is forecasts

3.2 Medium-Term Prospects for Kenya

As the Russia-Ukraine war continues, the economic outlook globally and in Kenya is highly uncertain as it depends on various parameters such as duration of the war, normalizing of global supply chains, and easing of commodity prices that are difficult to predict. The forecast scenario, under the baseline, was based on stable political and macroeconomic conditions and the proposed interventions in the Bottom-Up Economic Transformation Agenda, factoring in the elevated inflation. The scenario assumed that commodity prices will moderate by the first quarter of 2023 and inflation would ease to remain within the government target band in the medium-term. The key assumptions based on the Bottom-Up Economic Transformation Agenda include reduced imports of basic foods achieved through enhanced agricultural productivity; increased exports emanating from revamped under-performing export crops such as coffee, tea, cashew nuts, avocado, macadamia nuts, and pyrethrum; taking advantage of Kenya's membership in regional integration to expand the market for goods and services; fiscal consolidation plan (reduction of budget by Ksh 300 billion); and enhanced government investments through proposed infrastructure projects on housing, transport, digitalization and establishment of Micro Small and Medium Enterprises (MSMES) business development centres. Table 3.2 gives forecast for the baseline in the medium-term (2023-2025), where it assumes the "business as usual" scenario and no major risks materializing.

Under the baseline scenario, Kenya's economy is projected to improve and grow by 5.7 per cent in 2023 from a slowed growth of 4.8 per cent in 2022, premised on the envisaged growth in the agriculture sector as the country experiences long rains. In the medium-term, the economy is expected to stabilize and grow at 6.5 per cent by 2025, supported by implementation of the priority projects under the Bottom-Up Economic Transformation Agenda and envisioned recovery of the global and Sub-Saharan African economic activities. Further, inflation rate is expected to remain within the government's policy target range of 5per cent plus/minus 2.5 per cent in the medium-term, with a projected rate of 6.3 per cent in 2023. The elevated inflation is attributed to the rise in commodity prices, especially food and domestic fuel. Nevertheless, as the government puts in place measures to stabilize prices, such as tightening of the monetary policy and introduction of fertilizer subsidies to boost agricultural production, inflation is expected to ease in the medium-term to an average of 5.1 per cent in 2025.

The lifting of the COVID-19 pandemic containment measures and recovery of economic activity boosted households' income in 2021 and 2022. Private consumption is expected to continue, with a recovery trajectory in the medium-term averaging 5.9 per cent indicating recovery of economic activity from the 2020 slump. The conducive environment created by stable political and macroeconomic conditions and investment in infrastructure and other enablers such as ICT (digitization) is expected to support sustained private consumption and investment through increased earnings in 2023 and beyond.

The Kenya shilling weakened, averaging Ksh 117.8, against the dollar in 2022. In 2023, the Kenya shilling is projected to depreciate further to average Ksh 128.7 against the dollar before appreciating marginally to Ksh 122.7 by 2025. The current account balance is envisaged to remain stable in the medium-term, supported by increased exports and inflow of diaspora remittances. In 2023, the current account balance is expected to remain at the 5.1 per cent attained in 2022. This is premised on the government initiatives to boost Kenyan exports through revamping under-performing export crops, boosting tea and coffee value chains and expanding the market for Kenyan goods and services. Notably, the proposed measures by the government to enhance agricultural productivity are expected to reduce food imports and increase exports, improving the current account balance further.

Table 3.2: Economic outlook baseline scenario for 2023-2025

	2019	2020	2021	2022	2023*	2024*	2025*
Rates (%)							
GDP Growth	5.1	-0.3	7.6	4.8	5.7	6.0	6.5
Inflation	5.2	5.4	6.1	7.7	6.3	5.5	5.1
Interest Rate	6.9	6.9	7	8.2	9.8	9.0	8.6
Volume Growth (%)							
Private Consumption	5	-1.6	6.4	3.3	5.6	5.9	6.2
Government Consumption	5.6	3.1	6	7.4	5.8	6	6.3
Private Investments	8.5	6.5	3.9	5.3	6.8	7.5	9.3
Government Investments	18.1	8.7	4.2	7.2	8.3	9.2	10.1
Export Goods and Services	-3.2	-14.9	15.3	10.7	7.9	10.6	12.4
Import Goods and Services	1.8	-9.4	22.2	4.5	5.5	5.8	6
% of GDP							
Current Account Balance	-5.2	-4.8	-5.2	-5.1	-5.1	-4.9	-4.8
Index							
Ksh per Dollar	102.1	106.5	109.6	117.8	128.7	124.6	122.7

*Source: KIPPRA (May 2023), where * is forecast and e is estimated*

3.3 Medium-term Risks, Opportunities and Outlook

3.3.1 Risk factors

The medium-term prospects are susceptible to downside and upside risks. On the downside risks, uncertainty emanating from the Russia-Ukraine war that affected global and regional economic activity due to disruptions of the supply chains continue to affect economic performance. Though the baseline projections considered the downside effects of the war through increased commodity prices, a prolonged war and associated sanctions could raise commodity prices further. Disruption of the global supplies may lead to higher food prices and farm input prices such as fertilizer and fuel prolonging the elevated food prices in the country. On average, Russia supplied 18.9 per cent of the country's fertilizer between 2016 and 2020, being the second largest after Saudi Arabia (36.5%). Prolonged war could result in higher domestic inflationary pressures, generation of more fiscal costs such as fertilizer subsidies, and the need for increased social protection costs.

Persistent inflationary pressure is expected to adversely affect household livelihoods through reduced purchasing power. Inflation rate surpassed the upper bound of 7.5 per cent in June 2022 to April 2023 due to rising cost of food prices and fuel. With removal of fuel subsidy in September 2022 and depressed rainfall, inflation remained elevated in the first quarter of 2023. The persistent rise in inflation also resulted to tightening of the monetary policy by the Central Bank of Kenya (CBK) to anchor inflationary pressures. In September 2022, the CBK raised the Central Bank Rate to 8.25 per cent from 7.5 per cent. The Monetary Policy Committee further raised the rate in November 2022 to 8.75 per cent and maintained it in January 2023. This increases the cost of borrowing, which is likely to increase the cost of living and worsen the living standards of households.

Depreciation of the Kenya shilling against the US dollar may further exacerbate high inflation, increase borrowing costs and debt servicing. The weakening of the Kenya Shilling against the US dollar increases the importation cost for the country, especially fuel and food imports. Further, it increases

the cost of servicing public debt, worsening the constrained fiscal space further. The country is also vulnerable to tightening of monetary policy in advanced economies through higher borrowing costs.

On the external front, the risks to the outlook include the sustained increases in commodity prices due to prolonged supply disruptions, increased monetary tightening in major economies and the recession fears in the US and Europe. The Federal Open Market Committee raised the target range for the Federal funds rate, which affects many consumer and business loans by 75 basis points to 3.00 to 3.25 per cent in September 2022, a third succession hike in bid to control inflation. By raising the interest rates, the Fed makes it more costly to take mortgage, car or business loans. Consumers and businesses then presumably borrow and spend less, slowing down inflation and the economy. These risks may further suppress global growth resulting to spillover effects to the domestic economy.

3.3.2 Opportunities

There are also upside risks in the medium-term that Kenya could leverage on to sustain economic recovery. The outlook will be supported by implementation of the strategic priority projects and programmes under the Bottom-Up Economic Transformation Agenda aimed at lowering the cost of living, creating job opportunities, expanding the tax base, eradicating hunger and improving the foreign exchange balance. This is expected to be achieved through increase in investments and funding of five sectors that include Agriculture; Micro, Small and Medium Enterprises (MSMEs); Housing and Settlement; Healthcare; and Digital Superhighway and Creative Industry. These sectors are envisaged to have the biggest impact on the economy and on household welfare. Specifically, investments in the agriculture sector are crucial to cushion the sector from further contraction in 2023 and beyond. The implementation of the proposed interventions in the agriculture sector is envisaged to spur growth for all food crops and livestock to 5.0 and 7.1 per cent from a base of 3.1 and 4.4 per cent, respectively, between 2023 and 2027 (Breisinger, et al., 2022). The performance of crops will be supported by projected strong growth of maize, rice, pulses, Irish potatoes, cassava and vegetables whereas livestock performance will be anchored on growth of cattle, poultry, small ruminants and milk. Implementing the Bottom-Up Economic Transformation Agenda is envisaged to create 5 million jobs, move 5.5 million people out of poverty, lift 2.9 million people out of hunger by 2027 and result in an overall growth of 7.4 per cent between 2023 and 2027 (Breisinger, et al., 2022).

The start of the long rains in March 2023 marked the beginning of a promising outlook for the agriculture sector. Most parts of the country experienced rainfall during the month of April, signifying the peak of the long rains. The weather outlook for May 2023 indicates that several parts of the country are likely to experience near average rainfall, with some regions receiving more than average (Kenya Meteorological Department, 2023). The expected rainfall is conducive for agricultural production, especially in the high-potential agricultural counties where rainfall is expected to continue in the June to August rainy season. As a result, the agriculture sector is expected to grow and boost the overall economy, as it is a major contributor to economic growth.

Macroeconomic and political stability is key in supporting a resilient and vibrant economic outlook. Concerted efforts have been put in place by the Central Bank of Kenya (CBK) and the government to stabilize prices in the country. For instance, the government has tightened monetary policy and issuance of subsidy programmes such as fuel and fertilizer to cushion households. In addition, the decrease in international oil prices is a relieve as domestic prices will be expected to decline in the near term. As of 11th May 2023, the Murban oil prices had dropped to US$ 76.45 per barrel, having increased to a high of US$ 120.12 in March 2022.

Information and Communication Technology (ICT) is a key enabler in the country's economic development. Notably, digital connectivity accelerated during the COVID-19 pandemic as markets and firms sought alternative means of transacting, communicating and conducting business. The Internet's contribution to GDP (iGDP) has been strong, with great potential for growth. In 2020, it contributed 7.7 per cent to the country's economic growth and is projected to contribute 9.24 per cent by 2025 (International Finance Corporation, 2020). The government in the Bottom-Up Economic Transformational Agenda prioritized investments in the digital space to enhance productivity and overall competitiveness. This is also supported by implementation of the ten-year Kenya National Digital Master Plan (2022-2032), which aims to harness access to government services, businesses and investors through the use of emerging technologies such as block chain, Internet of Things, Artificial Intelligence, Big Data and Quantum Computing, among others. Therefore, in the medium-term, the country could leverage on investments under the digital superhighway to spur growth while improving people's living standards.

The implementation of the post-COVID-19 Economic Recovery Strategy is instrumental in economic recovery across various sectors. Reopening of the global and domestic economy has supported recovery of most sectors, especially the services sector. China's reopening after three years of zero COVID-19 policy could bolster domestic economy as it eases on restrictive movements instituted during the pandemic. Further, Kenya is benefiting from returning international visitors, though war-related disruptions to global travel are holding back the pace of recovery. The country had received 1,198,757 international visitor arrivals from January to December 2022, an increase of 73 per cent from 692,938 received during the same months of 2021. Looking ahead, increase in the number of tourists will boost activities in accommodation and food services, thus spurring growth in the services sector.

3.3.3 Medium-term outlook

Kenya's economic recovery is expected to continue in 2023 and beyond, with progressive implementation of the Bottom-Up Economic Transformation Agenda. Table 3.3 presents sectorial forecasts for Kenya. The forecasts indicate that sectoral output is expected to recover gradually in the medium-term. The agricultural output will maintain an increasing trend in the medium-term, although with low growth rates premised on erratic weather patterns. The sector is envisaged to recover and grow by 2.1 per cent in 2023, with an average of 2.6 per cent in the medium-term compared to a contraction of 1.6 per cent registered in 2022 premised on the expected rainfall during the rainy season. The performance indicates that the sector is highly susceptible to weather changes and, therefore, the need to devise means to build resilience for sustained growth.

The performance of the services sector remained robust and resilient in 2022. In the medium-term, the activities are expected to maintain the growth trajectory, with a little slow down experienced in 2022, reflecting the base effect following the rebound experienced in 2021 (Table 3.3). The accommodation and food services sector is projected to grow at 20.1 per cent in 2023 and an average of 19.2 per cent in the medium-term from the worst contraction of 47.7 per cent in 2020. In 2022, the transport sector is estimated to have grown by 5.6 per cent, a slight decline from a growth of 7.4 per cent in 2021. The sector performance was affected by increase in fuel prices occasioned by the general rise in global oil prices. Nevertheless, the performance of the sector is envisioned to be robust and grow by 6.5 per cent in 2023 and, on average, 7.1 per cent in the medium-term. With the re-opening of schools after closure during the COVID-19 pandemic, the education sector rebounded strongly in 2021 and is expected to grow by 6.5 per cent in 2023. In the medium-term, the sector is expected to stabilize and grow by 7.5 per cent in 2025 following government initiatives to ensure

recovery of the lost learning period and successful implementation of Competence-Based Curriculum (CBC). This resulted in resumption of the normal school calendar in January 2023 and admission of the first cohort of Grade Six (6) primary education to junior secondary school in February 2023.

The Information and Communication Technology sector was vibrant from 2020, thus cushioning the economy from the adverse effects of the COVID-19 pandemic. The sector facilitated economic resilience and is still a key enabler as it supports activities in the various sectors. In the medium-term, the sector is projected to grow at 7.2 per cent in 2023 and average 8.4 per cent by 2025. This will be realized through the various initiatives, including laying an additional 100,000 km of the national fibre-optic network in the next five years to ensure broadband availability. This is expected to support the government plan to digitize and automate up to 80 per cent of government processes throughout the country as envisioned in the Bottom-Up Economic Transformation Agenda.

The manufacturing sector remained resilient in 2021 and 2022 as the Government focus on improving the sector's productivity. In the medium-term, the sector performance is envisaged to persistently grow and average 5.8 per cent by 2025. This will be driven by value chain approach that seeks to address the bottlenecks that impede the growth of the sector and enhance the country's competitiveness. A key focus will be on the leather industry, building products, garments and textiles.

Table 3.3: Sectorial forecasts in per cent for 2023 to 2025

	2019	2020	2021	2022	2023*	2024*	2025*
Agriculture	2.7	4.6	-0.4	-1.6	2.1	2.5	3.2
Industry							
Mining and quarrying	4.3	5.5	18	9.3	9.5	8.4	9.1
Manufacturing	2.6	-0.3	7.3	2.7	4.3	4.9	5.8
Electricity and water supply	1.7	0.6	5.6	4.9	4.4	4.7	5.2
Construction	7.2	10.1	6.7	4.1	4.9	5.3	6.4
Services							
Wholesale and retail trade; repairs	5.3	-0.4	8	3.8	5.2	6.8	7.4
Accommodation and food services	14.3	-47.7	52.6	26.2	20.1	18.4	19.1
Transport and storage	6.3	-8	7.4	5.6	6.5	7.2	7.6
Information and communication	7	6	6.1	9.9	7.2	8.0	10.1
Financial and insurance activities	8.1	5.9	11.5	12.8	7.6	8.2	9.3
Public administration	8.4	7	6	4.5	5.5	6.3	7.8
Professional, admin and support services	6.8	-13.7	7.1	9.4	8.2	6.2	6.4
Real estate	6.7	4.1	6.7	4.5	6.0	6.6	7.3
Education	5.7	-9.2	22.8	4.8	6.5	7.2	7.5
Health	5.5	5.7	8.9	4.5	5.6	6.1	6.7
Other service activities	4.3	-14.6	12.5	5.7	5.4	4.2	5.0
Taxes on products	3.9	-8	11.9	7	6.5	6.9	7.5
GDP at market prices	5.1	-0.3	7.6	4.8	5.5	5.8	6.1

*Source: KIPPRA (May, 2023), where * is forecast*

Table 3.4 presents medium-term forecasts for the aggregate demand, taking into account the downside and upside risks discussed. Kenya's economy is estimated to grow by 5.5 per cent in 2023, with an average projected growth of 5.8 per cent in the medium-term. The slow down performance compared to the baseline is premised on the uncertainity associated with Russia-Ukraine war affecting commodity prices, and the depreciation of the Kenya Shilling against the dollar. The economy is expected to remain resilient in the medium-term, supported by implementation of the ongoing and additional government priority programmes and projects aimed at economic recovery and empowering citizens through job creation and eradication of hunger and poverty, among others. The key focus of the programmes will be to increase investment in the sectors envisaged to have the biggest impact on the economy, and on household welfare. Envisaged growth of the agriculture sector is expected to cushion the economy from further decline.

Inflation rate is expected to remain within the government's target range of 532.5 per cent in the medium-term, though elevated in 2023. The overall inflation rate for 2022 averaged 7.6 per cent owing to unfavourable weather conditions, supply constraints emanating from the Ukraine-Russia war, and elevated fuel prices. However, it is expected to ease in the medium-term to an average of 6.5 per cent in 2023 as the government implements measures to stabilize fuel prices, lower electricity tariffs and reduce Value Added Tax on liquidified petroleum gas to cushion citizens from increasing prices. Subsidizing agricultural production is similarly expected to increase agricultural produce and therefore lower food prices.

Private consumption growth is estimated to have declined slightly to 3.3 per cent in 2022, partly due to the base effect and high cost of living that reduced the purchasing power of households. However, in the medium-term, as commodity prices stabilize and more jobs are created, private consumption is expected to increase to 5.8 per cent by 2025. This will be supported by implementation of the ongoing and additional government priority programmes and projects, specifically those that target to support agriculture and MSMEs. The projects are expected to create job opportunities, raise households' incomes and increase their purchasing power.

Table 3.4: Economic outlook for 2023-2025

	2019	2020	2021	2022	2023*	2024*	2025*
Rates (%)							
GDP Growth	5.1	-0.3	7.6	4.8	5.5	5.8	6.1
Inflation	5.2	5.4	6.1	7.7	6.5	5.6	5.2
Interest Rate	6.9	6.9	7	8.2	9.8	9.2	8.6
Volume Growth							
Private Consumption	5	-2.6	6.4	3.3	4.6	5.3	5.8
Government Consumption	5.6	3	5.7	7.4	4.7	5.3	5.9
Private Investments	8.5	6.5	3.9	5.3	5.7	6.4	7.3
Government Investments	18.1	8.7	4.2	7.2	7.5	7.9	8.5
Export Goods and Service	-3.2	-8.8	12.9	10.7	6.5	7.8	9.5
Import Goods and Service	1.8	-9.2	18.9	4.5	8.3	8	7.9
Percentage of GDP							
Current Account Balance	-5.2	-4.8	-5.5	-5.1	-5.4	-5.3	-5.2
Index							
Ksh per Dollar	102.1	106.5	109.6	117.8	130.5	127.4	125.7

*Source: KIPPRA (May 2023), where * is forecast*

The Kenya shilling is projected to depreciate against the dollar in 2023 to Ksh 130.5 if the geopolitical war persists. However, in the near term, the Kenya shilling is expected to appreciate and exchange at Ksh 125.7 against the dollar by 2025. Similarly, the current account balance is expected to widen slightly in 2023 to 5.4 per cent, amid the depreciation of the Kenya shilling and the effects of the Russia-Ukraine war. Imports are expected to increase due to recovering domestic demand, though the higher import bill expected in 2022 will be largely attributed to commodity price surge. However, exports growth with reduced imports targeted to support economic growth are envisaged to narrow down the current account balance in the medium-term to 5.2 per cent by 2025.

3.4 Key Messages and Recommendations

3.4.1 Key messages

1. The major risk to outlook is the inflationary pressures and depreciation of the Kenya shilling against the US dollar. The other risks to the outlook include the uncertainty of the Russia-Ukraine war that has caused disruptions of the supply chains and tightening of monetary policy in advanced economies. Uncertainty in the weather condition remains a risk, though expected rainfall during the months of June to August 2023 is envisaged to improve agricultural productivity.

2. Recovery of the services sector has been key in supporting economic growth. Specifically, increase in the number of international visitor arrivals in 2022 boosted growth in the services sector and is expected to continue supporting growth in 2023 and beyond. This is also expected to cushion the economy from detrimental effects of the Russia-Ukraine war.

3. Looking forward, the country will leverage on macroeconomic and political stability, and implementation of priority projects under the Bottom-Up Economic Transformation Agenda as key opportunities for sustained economic growth in 2023 and beyond. Successful implementation of the government agenda is envisaged to spur growth, create employment and eradicate hunger and poverty. In addition, the information and communication technology sector remained vibrant from 2020, cushioning the economy from the adverse effects of the COVID-19 pandemic. The sector is a key enabler as it supports the activities in the various sectors and presents a great opportunity for the country to leverage on.

4. Sectoral forecasts indicate broad-based growth following the improved performance in all sectors. The overall growth will be supported by activities in the services sector and envisaged growth in the agriculture sector. Activities in the accommodation and food services, transportation and storage, information and communication, education, real estate and financial and insurance are expected to grow by more than 6.0 per cent in 2023 and beyond and will support growth of the services sector. In addition, it is expected that the agriculture sector will grow by at least 2.1 per cent from 2023, following the government's commitment to boost agricultural productivity in the medium-term and the received long rains across the country. This will also sustain the country's growth above the average pre-COVID-19 growth of 5.5 per cent.

5. The economy is envisaged to grow by 5.7 per cent in 2023, and average 6.1 per cent by 2025, supported by broad-based growth. The growth will also be driven by investments and exports growth, anchored on investments in the Bottom-up Economic Transformation Agenda.

Cognizant of the downside risks, economic growth may slow down to 5.5 per cent in 2023 and average 5.8 per cent by 2025 in the event of the risks materializing.

3.4.2 Policy recommendations

1. The Ministry of Agriculture and Livestock Development needs to support farmers to plant early maturing and drought resistant varieties of crops, fodder and pasture, such as short season maize (3-4 months), sorghum, cassava, and beans, among others. The near average rainfall expected over the ASALs is expected to improve pasture and browse in these areas. Therefore, pastoralists with support of County Governments need to conserve pasture as the season comes to an end to ensure their livestock have adequate feed beyond the season.

2. The Ministry of Agriculture and Livestock Development in collaboration with County Governments through agricultural extension officers should intensify farmers' sensitization and capacity building on appropriate technologies, innovations and implementation of smart agriculture to cushion the agriculture sector from further contraction. The farmers need to diversify the types of fertilizer, to include the use of organic fertilizer where they experience shortage of the imported fertilizer or have low incomes to afford the non-organic fertilizer.

3. With the uncertainties in the developed economies, policy makers need to be vigilant and monitor fiscal and monetary policy developments in the global markets to inform appropriate policy formulation for the domestic economy.

4. Finally, there is need to fast-track implementation of priority projects and programmes to ensure sustained economic growth and improved welfare in 2023 and beyond. This may be achieved through continued subsidy on agricultural inputs, enhanced exports through expanding the market for Kenyan products by taking advantage of the country's membership in regional organizations, enhanced credit to micro, small and medium enterprises and implementation of the Kenya National Digital Master Plan (2022-2032), among others.

INFLATION DYNAMICS IN KENYA

4

The cost of living increased in Kenya during 2022. The annual rate of inflation peaked at 9.6 per cent in October 2022, a 5-year high, before easing in subsequent months to 9.2 per cent in February 2023. Overall, inflation rate averaged 7.7 per cent in 2022, crossing the government upper limit of 7.5 per cent. Noteworthy, inflation rates have previously crossed this limit; for instance, average inflation rate was 14.0 per cent in 2011 and 8.0 per cent in 2017. High inflation affects the affordability of goods and services for households and enterprises by eroding their purchasing power. Inflation episodes in Kenya are driven by supply-side shocks and demand-pull factors. Supply-side factors include droughts and erratic weather conditions and external shocks that adversely affect exchange rate movements, and international oil and commodity prices. On the demand-side, increases in money supply positively influences inflation. Second round effects of inflation and wage-price spiral effects are also detected in Kenya's inflation dynamics; meaning that whenever oil and food prices increases, core inflation - which measures increases in non-fuel and non-food prices - also increases. Additionally, labour markets exhibit increased agitation for wage increases, which could potentially lead to a wage-price spiral effect. It is also established that upon a shock, inflationary pressures in Kenya could last for about six quarters before reverting to the government target band. To bring down inflationary pressures, the key priority is enhancing food systems, expanding food supply and sustaining affordability to contain food inflation. Further, monetary policy response should be done early enough and adequately to anchor inflation expectations, reduce second round effects and wage-price spiral effects. Furthermore, continuously monitoring external sector developments is important as they have a potential to adversely affect domestic prices.

4.1 Introduction

The Consumer Price Index (CPI) inflation refers to the weighted average rate of change in the retail prices paid by households for a given basket of goods and services over a given period (KNBS, 2010). Price changes are measured by re-pricing the same basket of goods and services at regular intervals and comparing aggregate costs with the costs of the same basket in a selected base period. It is calculated by taking the weighted average of the prices of these goods and services, where the weights represent the proportion of expenditure that households typically allocate to each item in the basket. The CPI basket contains goods and services that are commonly purchased by households. Kenya's CPI basket currently contains 330 goods and services clustered into various components to calculate the sub-indices.

Table 4.1: Household expenditure shares (%) for Nairobi income groups, regional and national baskets

Division	Name	Nairobi Lower Expenditure	Nairobi Middle Expenditure	Nairobi Upper Expenditure	% shares Nairobi Combined	% shares (Areas outside Nairobi)	% shares Kenya
1	Food and Non-Alcoholic Beverages	36.32	21.65	16.81	29.3	35.48	32.91
2	Alcoholic Beverages, Tobacco and Narcotics	2.37	4.74	1.81	3.07	3.51	3.33
3	Clothing and Footwear	3.39	2.05	1.63	2.75	3.17	2.99
4	Housing, Water, Electricity, Gas and Other Fuels	16.95	15.4	13.02	15.99	13.63	14.61
5	Furnishings, Household Equipment and Routine Household Maintenance	3.11	3.48	5.12	3.47	3.93	3.74
6	Health	1.9	2.88	8.21	2.96	2.88	2.91
7	Transport	9.25	14.14	17.63	11.81	8.11	9.65
8	Information and Communication	8.57	8.32	7.61	8.37	7.36	7.78
9	Recreation, Sports and Culture	1.7	0.87	1.35	1.39	1.96	1.72
10	Education Services	4.92	7.61	3.25	5.59	5.54	5.56
11	Restaurants and Accommodation Services	4.62	11.62	14.54	8.04	8.14	8.1
12	Insurance and Financial Services	1.9	3.69	5.09	2.85	1.81	2.24
13	Personal Care, Social Protection and Miscellaneous Goods and Services	4.99	3.56	3.94	4.41	4.48	4.45
Grand Total		**100**	**100**	**100**	**100**	**100**	**100**

Source: KNBS (2020), Consumer Price Rebasing Report

Table 4.1 shows the components of the CPI basket of goods and services that typically include food, housing, transportation, clothing, medical care, recreation, education, and communication. Each component is assigned a weight based on the proportion of household expenditures that is typically allocated to that component. For example, food and non-alcoholic beverages has the highest weight of 32.91, implying that households tend to spend a larger proportion of their income on food relative to other goods and services. Moreover, lower income households experience larger cost of living increases from higher inflation compared to other income levels because 36.32 per cent of their overall expenditure is on food and non-alcoholic beverages compared to

middle- and upper-income households who spend 21.65 and 16.81 per cent, respectively, on food and non-alcoholic beverages.

Therefore, analyzing inflation in the context of the cost of living is important because it helps us understand how changes in the price level of goods and services have evolved historically, and the factors at play during those episodes. Economic research has revealed that in an inflationary environment, rising prices inevitably reduce the purchasing power of consumers, and this erosion of real income is the single biggest cost of inflation (Beckerman, 1992; Mankiw, 2010; Öner, 2012). As prices rise, consumers are forced to spend more money on the same goods and services, thus reducing their purchasing power and potentially lowering their overall standard of living.

This chapter reviews the historical episodes of persistent inflationary pressures in Kenya over the period 2010–2022. The period was chosen based on, among other factors, availability of data and the major inflationary episodes in 2011 and 2017, which could provide insights into the 2022 inflation episode. The chapter also investigates the pass-through of global oil prices, global food prices and exchange rates to domestic consumer prices. Econometric estimations using autoregressive distributed lag models and vector-auto-regressive models are applied to have deeper understanding of the drivers of consumer price inflation in Kenya and how various shocks affect the consumer price inflation and detection of second-round effects.

4.2 Inflationary Episodes in Kenya 2010-2022

Kenya's overall monetary policy objective is maintenance of price stability in the economy. This is achieved by maintaining the inflation rate within a target band of 5 per cent plus/minus 2.5 per cent. Over the period 2010-2022, inflation trends have exhibited episodes when inflation breached this target band and periods when inflation was moderate and within the target band. Three major periods of inflation pressures emerge during the analysis period, namely 2011-2012, 2017 and 2022. In this chapter, an inflation episode is considered to start when inflation rates cross the 7.5 per cent mark until it returns to the desired level. The three inflation episodes are depicted in Figure 4.1.

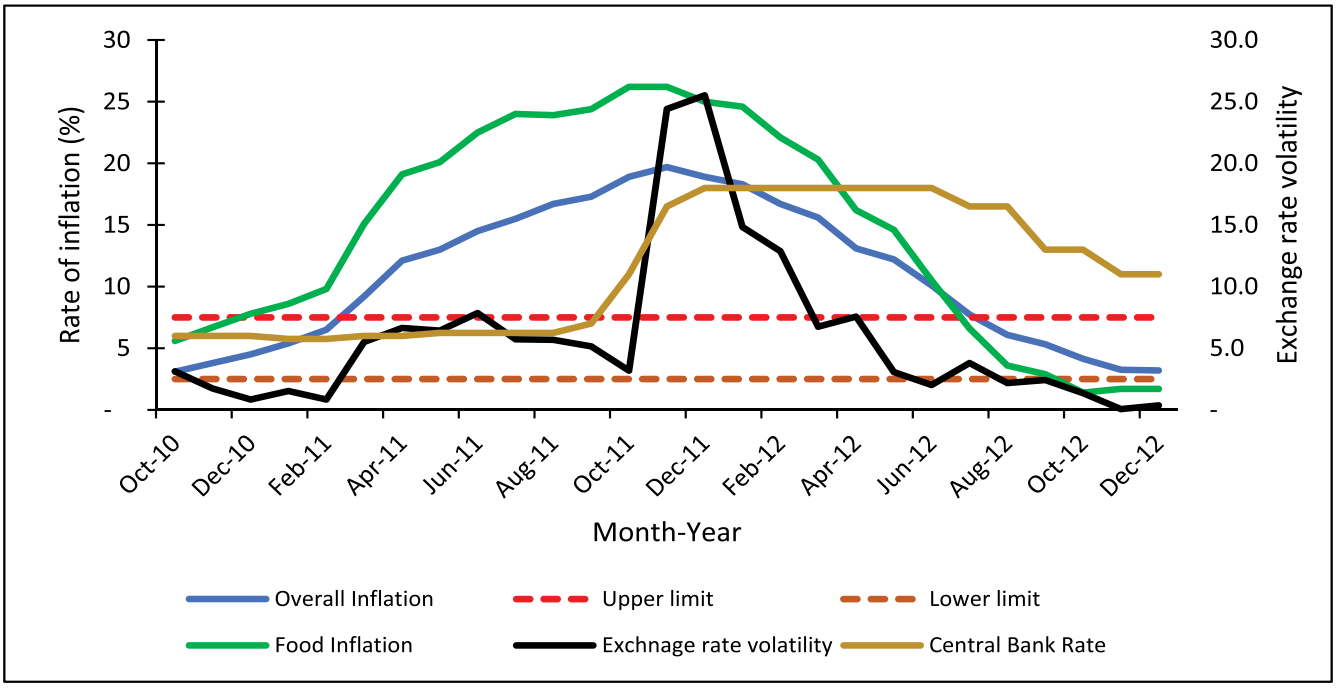
In 2011, CPI inflation averaged 14.0 per cent. The higher prices in 2011 spilled over to 2012 when inflation averaged 9.7 per cent. The high inflation cycle in the 2011-2012 window started in March 2011 when inflation rate reached 9.2 per cent from 6.5 per cent in February 2011. Inflation rates steadily rose, peaking at 19.7 per cent in November 2011 (after nine months), implying that at its peak, inflation rate had surpassed the upper target band by 12.2 percentage points. Inflation rates then eased in the subsequent months to 7.7 per cent and 6.1 per cent in July and August 2012, respectively. Overall, inflation rates stayed above the upper limit for a total of seventeen (17) months or six (6) quarters. The 2017 inflation episode started in February when inflation rate stood at 9.0 per cent, rising steadily to 11.7 per cent in May before trending downwards to 8.0 per cent in August 2017 and entering the desired target band at 7.1 per cent in September of the same year. In 2017, it took the inflation rates about four (4) months for inflation rates to reach the inflexion point where it was 4.2 percentage points above the official upper target limit. Overall, the inflationary episode lasted for seven (7) months. In 2022, inflation rates crossed the upper target band in June after reaching 7.9 per cent. The 2022 inflation rates took about four (4) months to peak at 9.6 per cent in October 2022 and then edged downwards to 9.2 per cent in February 2023. While the inflation pressures of 2022 have spilled over to 2023 and are still evolving, the highest currently is 9.6 per cent, which is 1.7 percentage points way above the desired target band.

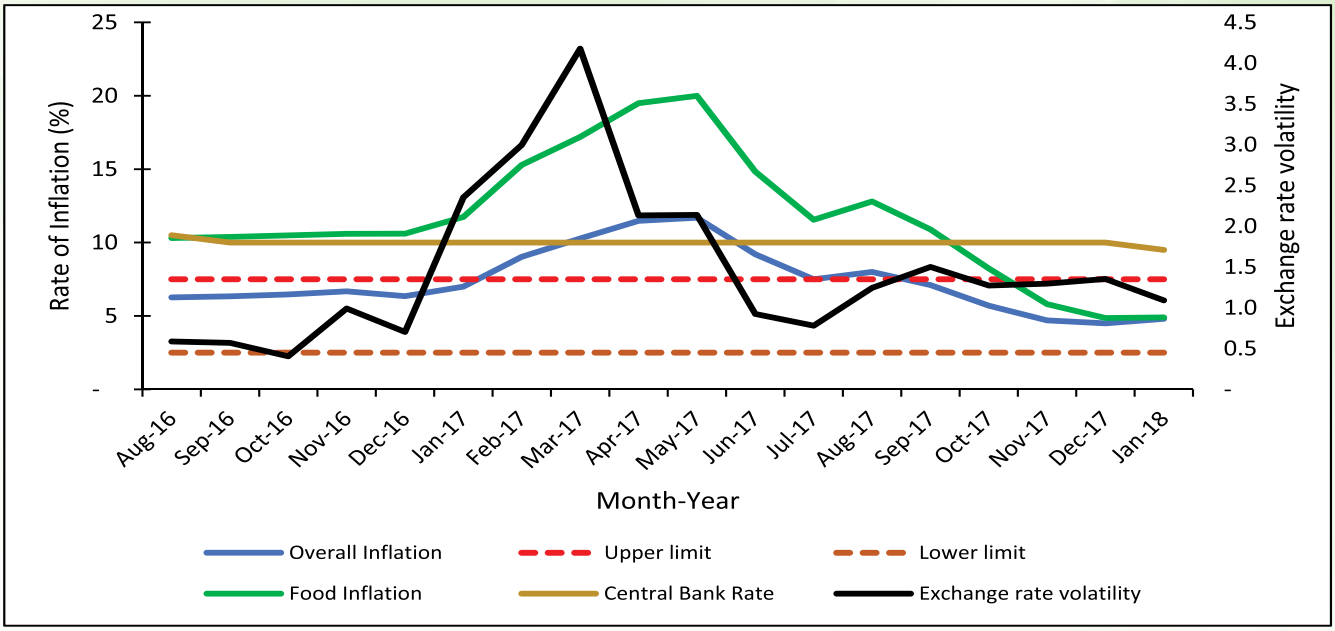
One common factor that fuels inflation pressures across the three identified periods is drought. In 2011, 2017 and 2022, drought conditions affected most parts of the country, forcing the government to declare

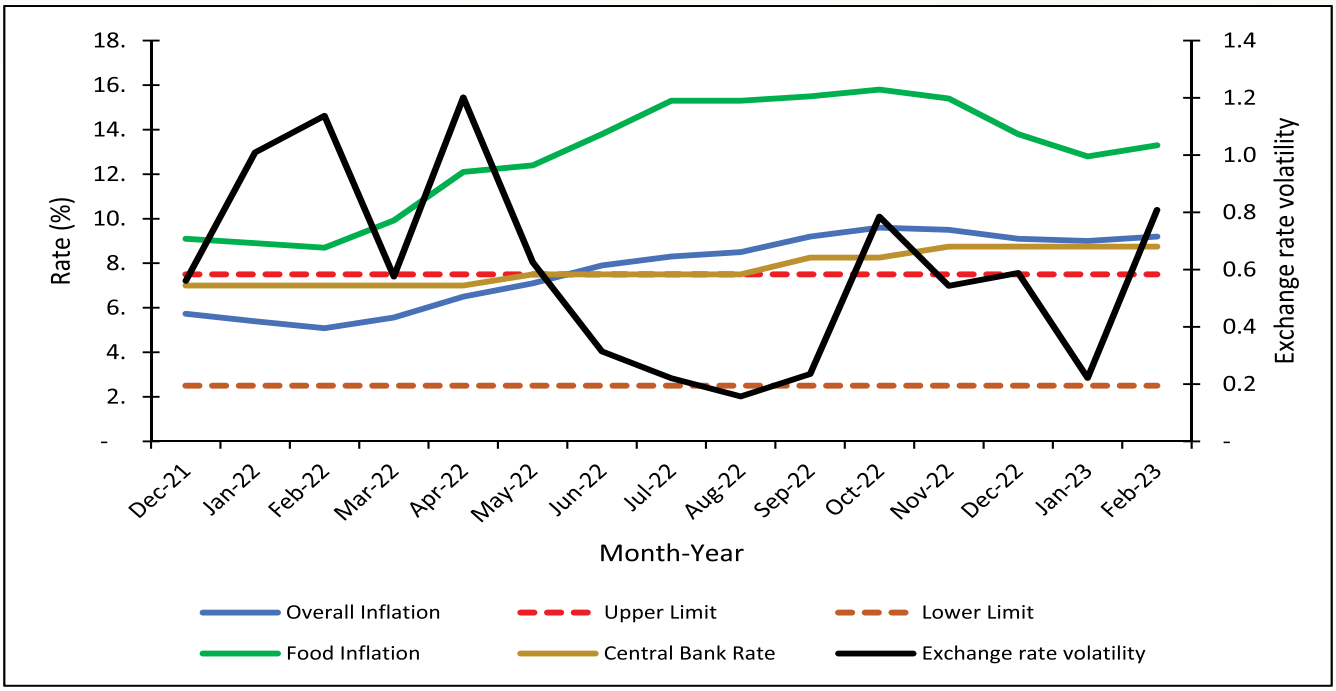
drought a national disaster. Across these different time periods, cases of delayed rains which are short-lived were reported by the Kenya Meteorological Department. Drought conditions constrained agricultural production, thereby resulting into food supply shortages. As a result, food inflation in 2011 rose from 15.1 per cent at the time that overall inflation crossed the official desired target band and peaked at 26.2 per cent in November 2011, an average of 20,9 per cent during the entire period of inflation episode. In 2017, food inflation was 15.3 per cent at the start of the inflation episode and increased steadily, peaking at 19.9 per cent and registering an average of 15.9 per cent during the whole inflation episode. Inflation in 2022 is still evolving and has spilled over to 2023. When the 2022 inflation episode began, food inflation was 13.8 per cent and peaked at 15.8 per cent in October 2022. For the period June 2022 to February 2023, average food inflation is 14.6 per cent. Figure 4.1 shows that whenever food inflation takes two digits, overall inflation and cost of living increases sharply while in periods of low food inflation, overall inflation remains lower. Thus, containing food inflation is the key to lowering the cost of living.

Exchange rate movements is another potentially important source of inflation pressures in Kenya. As in Figure 4.1, it appears that during inflationary episodes, the shilling was depreciating against the US dollar and when the shilling strengthened, inflation pressures moderated. Revelli (2020) and Kiptui (2011) have found that the degree of exchange rate pass-through to domestic prices in Kenya varies between 0.18 and 0.58. This implies that a one per cent depreciation of the shilling against the dollar could lead to about 0.58 per cent increase in inflation. The linkage between exchange rate and inflation is importation of goods and services. Depreciation of the shilling against the dollar potentially leads to inflation as cost of imported goods and services become expensive. Other factors that drive domestic prices include the impact of the global economic crisis, such as the European debt crisis of 2011, which affected output of the global economy and indirectly affecting Kenya's exports, tourisms sector and foreign direct investments from European countries (World Bank, 2011; KNBS, 2012), the Russia-Ukraine war in 2022, or war among petroleum producing countries.

Figure 4.1: Episodes of inflation in Kenya 2010-2022







Data source: KNBS (Various), CPI Report and CBK (Various), Monthly Economic Indicators

Normally, the Central Bank of Kenya (CBK) tightens monetary policy to anchor inflationary expectations and stabilize prices. In 2011, at the time that overall inflation crossed the official upper target band, the CBR was 6.0 per cent and was retained so until after two months when CBK increased the rate by twenty-five (25) basis points in May and was retained at that rate until August 2011. Before overall inflation rate peaked, the CBK raised the CBR by 1,025 basis points when the CBR stood at 16.5 per cent. Although inflation rate in 2017 breached the upper limit, CBK did not raise the CBR and was retained at 10 per cent, noting that this was also the period when interest rate capping was under implementation. In 2022, however, the CBR was increased in May, two (2) months before the inflation rate crossed the official upper target band. By the time the inflation rate peaked in October 2022, the CBR had been increased by 125 basis

points. By February 2o23, the CBR had been increased by 175 basis points and it was 8.75 per cent in March 2023.

From the fiscal front, the government also responded to inflation episodes using fiscal measures such as subsidies on fertilizer to support agricultural production during rainy seasons, food relief and social protection in marginalized areas, and enhanced importation of main food commodities especially raw maize. This was done through removal of importation quotas or removal of duties on importation of maize.

Table 4.2: Quantities of imported maize 2010 to 2022

	Maize (tons)	Annual % growth (Maize)
2010	229,611.0	
2011	359,232.0	56.5
2012	324,622.0	-67.6
2013	93,473.0	-71.2
2014	458,940.0	391.0
2015	490,024.0	6.8
2016	148,558.1	-69.7
2017	1,327,971.7	793.9
2018	529,558.3	-60.1
2019	228,723.5	-56.8
2020	273,472.2	19.6
2021	486,525.0	77.9
2022*	707,718.4	45.5

Source: KNBS (Various), Economic Survey and KNBS (Various), Quarterly Balance of Payments Reports

Note- * data available up to September 2022

Table 4.2 shows trends in importation of maize. During periods of food shortages and high cost of living (represented by the inflation episodes 2011, 2017 and 2022) maize imports rose substantially to compliment local production and stabilize maize prices. For instance, in 2011, importation of maize grew by 56.5 per cent, and 793.9 per cent in 2017.

4.3 Drivers of Inflation in Kenya

Based on the monetarist and structuralist theories of inflation, drivers of inflation in Kenya are studied. These drivers are domestic supply shocks (proxied by agricultural output gap), global supply shocks (proxied by international oil prices) and exchange rate and monetary policy variable (money supply). Table 4.3 presents results of the estimations.

Table 4.3: Short- and long-term semi-elasticity of CPI inflation with respect to its drivers

Short run		Long-run	
Variable	Coefficient	Variable	Coefficient
Lagged CPI	0.444	Lagged CPI	0.791
Oil price	0.028	Oil price	0.022
Exchange rate	0.106	Exchange rate	0.180
Money supply	0.162	Money supply	0.078
Lagged Output gap	0.001	Lagged Output gap	0.021
Lagged Error Correction Term	-0.166		

Note: These values indicate that a 1% increase in Exchange rate would lead to a 0.180% increase in CPI, while a 1% increase in Oil price would lead to a 0.022% increase in CPI, and so on.

Source: Author's computation based on EViews 11, 2023

From Table 4.3, agricultural output gap positively and significantly influences consumer price inflation in Kenya. The output gap enters the models with a dynamic lag structure with one lag and a positive sign and a larger magnitude in the long-run. The results show that changes in output gap are key drivers of price fluctuations domestically. These findings highlight the role of domestic supply shocks on inflation. These findings speak to the role of food affordability and availability in stabilizing domestic prices

and lowering the cost of living. From the foregoing results, inference is made that bumper harvest reduces inflation through its impact on domestic food prices. Similarly, poor harvest due to climatic shocks increases inflationary pressures due to reduced food supply and demand-pull pressures.

The second important observation from Table 4.3 is the coefficient for the error correction term, which is negative and statistically significant. The findings suggest that the short-run disequilibrium of the CPI is adjusted towards the steady state. Specifically, the results suggest that 16.6 per cent of the short-run disequilibrium of the CPI are corrected towards the long-run equilibrium in one quarter. Consequently, it takes approximately one and half years to completely converge to the steady state long-run equilibrium. This finding is important for timely policy action especially in the face of rising cost of living. Coupled with the fact that households in lower income groups face high inflation rates than their counterparts in middle- and higher-income groups, the implication of prolonged inflation adjustment means that fiscal action, including importation of essential commodities, should be timely, and adequate social protection actions should be strictly targeted to vulnerable households.

The results also provide evidence of other drivers of inflation in Kenya. Lagged inflation enters both short-run and long-run models. This provides evidence of presence of inflation inertia. It shows that inflation rate in the previous period significantly affects the rate of current. The degree of inertia is 0.44 in the short-run and 0.79 in the long-run. It implies that reduction in inflation is relatively slow in the short-run unless changes in expectations affect the degree of inertia.

Exchange rate fluctuation positively drives inflation pressures in Kenya. The results find that a 1 per cent increase in the exchange rate results into 0.1 per cent and 0.18 per cent increase in inflation in the short- and long-run, respectively. With Kenya operating a floating exchange rate regime, domestic and foreign prices are allowed to align. As a result, the fluctuations in the exchange rate transmits the pass-through of external market developments into the domestic economy. Recently, the Kenya shilling weakened against the dollar, depreciating by 19.9 per cent from Ksh 101.8 per US dollar in Q1 2020 to Ksh 122.1 per US dollar in Q4 2022.

Monetary expansion is a key driver of inflation in the short-run, with a percentage increase in monetary expansion resulting to 0.16 per cent increase in inflation. However, in the long-run, monetary expansion is significant in explaining inflation but the coefficient was smaller.

The estimates in Table 4.3 also show that higher oil prices positively result into high inflation episodes. The transmission of high international oil prices into domestic inflation is well documented, with higher energy and transport costs the most important factors. Recently, on account of surging oil prices, the transport sub-index increased by 11.6 per cent year-on-year in October 2022 against 8.2 per cent in October 2021. This provides evidence of the significance of world oil prices as a contributor to the high rate of inflation.

It is evident from the estimates of drivers of inflation that domestic price inflation rises following higher global oil prices. Before the outbreak of war in Ukraine, global commodity and oil prices were rising, with shipping costs upsurging. Because of global economic integration, these developments transmitted into local prices and have since pushed up inflation domestically. As a result, the relevant question to ask is what is the magnitude of pass-through from international to domestic prices?

4.4 Pass-through from Global Prices to Domestic Prices

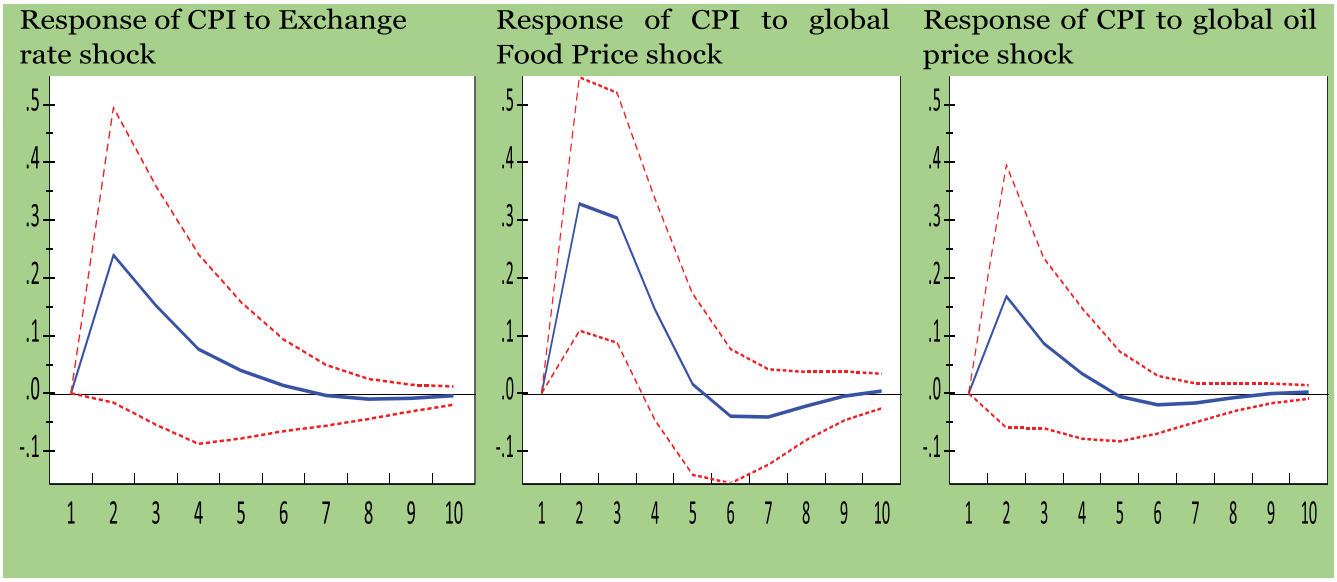
Inflation pass-through analysis is an important policy analysis tool that enables policy makers understand the extent to which prices of inputs are transmitted to the price of final goods and services. The

relevance of this analysis is informed by the high global commodity prices and oil prices in 2022, which necessitated an understanding of the potential impacts of such price developments on inflation and cost of living. The pass-through of global oil price increases to inflation is 0.05 in the short-run while the long-run pass-through is estimated at 0.11, implying that if international oil prices increase by 10 per cent, domestic inflation will rise by 0.5 percentage points in the short-run and 1.1 percentage point in the long-run. These findings are consistent with Kiptui (2011). The low oil pass-through is attributable to the high content of food in the consumer basket. Moreover, the exchange rate pass-through is 0.2 in the short-run and 0.9 in the long-run. This provides another proof of incomplete pass-through. However, the exchange rate pass-through is higher compared to the oil price pass-through to inflation. These findings provide useful information on the role played by external sectors, proxied by oil prices and exchange rates, on macroeconomic stability. Both international oil prices and exchange rates positively pass through into domestic markets and, therefore, have implications for monetary and fiscal policy.

4.5 Impulse Response to Exchange Rate, Food Price, and Oil Price Shocks

Impulse response functions derived from Vector Auto-Regressive coefficients were used to determine how CPI inflation responds to an impulse in various drivers of inflation. They were also used to determine the sign and direction of how CPI inflation responds to external changes in exchange rate, international food prices and global oil prices.

Figure 4.2: Impulse response functions of CPI inflation to various shocks



Source: Author's computation based on EViews 11, 2023

From Figure 4.2, the response of CPI inflation due to changes in exchange rate, global food prices and oil prices are immediate but with varying magnitudes and durations. Response to global food prices have the largest magnitude and last for approximately six quarters before normalizing. The results shows that a one standard deviation shock in global food prices results into 0.3 percentage point rise in domestic CPI inflation, peaking after 3 quarters before taking a downward trend and wearing out after about five quarters and then swinging to the negative territory and decreasing further, potentially due to government efforts to rein in inflation and stabilize inflation in the ninth quarter. Also, one standard deviation shock to exchange rate results into 0.25 percentage

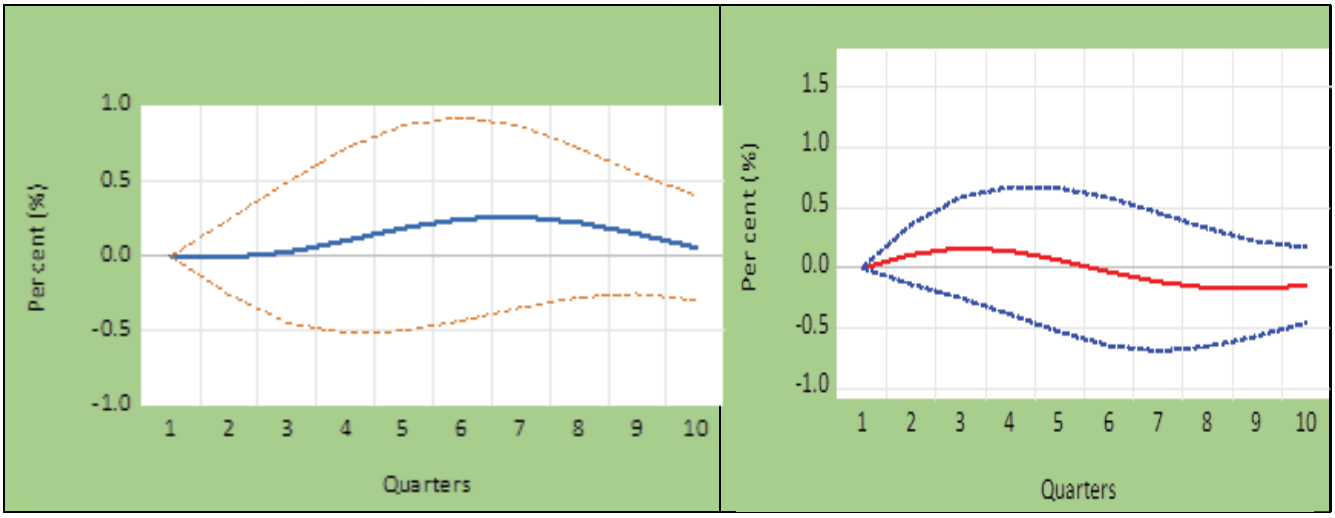
point rise in CPI inflation by the second quarter, then declines steadily and wears off completely after seven quarters. Similarly, a one standard deviation shock on international oil prices results into a 0.2 percentage point rise in CPI inflation by the second quarter, lasts for four quarters in the positive territory before wearing of in quarters 6 and 7.

4.6 Second Round Effects of Inflation on Core Inflation and Wage-Price Spiral

A general increase in prices paid by households for their energy needs, such as liquefied petroleum gas (LPG), kerosene or petrol, usually connotes an increase in the cost of living and in price inflation. Baba and Lee (2022) note that the direct effect of higher energy prices on cost of living constitute the first-round effects on inflation. In some instances, the higher energy costs indirectly influence inflation. For example, producers may pass on their increased cost of production to consumer prices for non-energy goods or services, or sometimes workers respond to the increasing cost of living by demanding higher nominal wages (as is the case when the degrees of unionization and centralized bargaining is higher). These indirect effects of higher energy and food prices on the overall inflation are called second round effects.

Core inflation is used as the indicator for perceived inflation tendency in the long-term. Therefore, shocks to food prices and fuel prices on international markets will not only affect food and fuel prices in CPI, but also the core inflation. These developments will then trigger the reaction of monetary policy tightening to reduce inflationary expectations, even when aggregate demand pressure is low or absent.

Figure 4.3: Response of core CPI to food and oil price shock



Source: Author's computation based on EViews 11

Figure 4.3 confirms the existence of second round effects on core inflation due to changes in fuel and food prices. After an oil price shock, core inflation rises and peaks after 3 quarters, then starts declining slowly until it diminishes and enters a negative territory. In total, core price inflation increases about 0.17 percentage point in response to a 1 standard deviation shock on oil prices after about 3 quarters. Food prices, in contrast, have a delayed but important effect. A 1 standard deviation shock in food prices (due to food supply shock) has no immediate effects but leads to a 0.26 percentage point rise in core prices after seven (7) quarters.

The inflation episodes discussed in section 4.2 reveal heightened activities within labour unions, with workers agitating for higher wages. Table 4.4, for instance, shows that

during the inflationary period of 2011-2012, minimum wages were raised by 12.5 and 13.1 per cent while in 2017, minimum wages were raised by 18.0 per cent for agricultural industry 15.3 per cent for urban cities, 9.0 per cent for municipalities and 18.o per cent in other towns. The inflationary pressures in 2022 saw the minimum wages for cities, municipalities and other urban towns rise by 12.0 per cent. This reflects how inflation increases the burden of cost of living to workers, thus pushing them to seek higher wages. The increased activities of labour unions and rising wages reflects presence of second round effects of inflation, which can potentially result into a wage-price spiral or cost-push inflation.

Table 4.4: Gazetted monthly basic minimum wages in agricultural industry and urban areas 2010 t0 2022

	Average monthly minimum wage				% growth in minimum wage			
	Agriculture industry	City areas	Municipalities	Other towns	Agriculture industry	City areas	Municipalities	Other towns
2010	4,483.0	10,606.0	9,836.0	8,368.0				
2011	5,044.0	11,911.0	11,066.0	9,413.0	12.51	12.30	12.51	12.49
2012	5,704.0	13,471.0	12,515.0	10,646.0	13.08	13.10	13.09	13.10
2013	6,503.0	15,357.0	14,267.0	12,136.0	14.01	14.00	14.00	14.00
2014	6,503.0	15,357.0	14,267.0	12,136.0	-	-	-	-
2015	7,284.0	17,200.3	15,979.5	13,592.7	12.01	12.00	12.00	12.00
2016	7,284.0	17,200.3	15,979.5	13,592.7	-	-	-	-
2017	8,595.0	19,830.9	17,422.9	16,039.4	18.00	15.29	9.03	18.00
2018	9,014.0	21,310.9	19,798.6	16,841.4	4.87	7.46	13.64	5.00
2019	9,014.0	21,310.9	19,798.6	16,841.4	-	-	-	-
2020	9,014.0	21,310.9	19,798.6	16,841.4	-	-	-	-
2021	9,014.0	21,310.9	19,798.6	16,841.4	-	-	-	-
2022	9,014.0	23,868.1	22,174.5	18,862.4	-	12.00	12.00	12.00

Data Source: KNBS (Various), Economic Surveys

Wage-price spiral is an economic phenomenon where an increase in wages leads to an increase in prices, which in turn leads to demand for higher wages. The wage-price spiral typically begins when workers demand for higher wages either through collective bargaining or individual negotiation. If the demands of workers are met, employers may pass on the increased labour costs to consumers by increasing the prices of goods and services. As prices increase, workers may feel that their purchasing power has declined and further demand for wage increases that may further lead to increase in consumer prices. This cycle may continue until an equilibrium is reached or government intervenes. The wage-price cycle can be harmful to the economy as the cost of goods and services may be too high for consumers, resulting into reduced demand and potentially lead to unemployment as producers cut costs of production.

4.7 Key Messages

1. Inflation in Kenya is a food phenomenon, and prolonged dry weather interferes with agricultural production and food supply. Considering that food and non-alcoholic beverages account for 32.9 per cent of the consumer basket, disruptions in food supply results in increased food prices, which in turn pushes overall inflation.

2. When inflation crosses the government target band, it will take a while to return to desired levels. Short-run disequilibrium in inflation is adjusted to steady state but it takes about 1.5 years to fully return to steady state long-run equilibrium after a shock. This has implications on the timing and magnitude of monetary and fiscal policy actions.

3. Besides domestic supply shocks, overall inflation is influenced by exchange rate movements and international commodity and oil prices. In addition, domestic money supply intensifies inflationary pressures, meaning that in fighting inflation, demand pull factors cannot be ignored.

4. Second round effects of oil and food prices on core inflation are detected with magnitude and timings differing. Oil price second round effects are immediate and peak after three quarters while food prices second round effects delay and begin after about 2.5 quarters and peak after six quarters.

5. During an inflation episode, potential wage-price spiral is detected as labour unions push for higher wages to cope with the rising cost of living.

4.8 Policy Recommendations

1. Enhancing food availability is priority for provision of affordable food and lowering the cost of living. It is important to recentre national policy towards scaling up investments in domestic food production and agricultural productivity enhancement while providing incentives for improving food supply. Food occupies more than a third of a typical consumer basket, and adverse effects of extreme weather conditions push several families at the edge of poverty due to high food prices.

2. The longer adjustment period to steady state inflation rate and the different timings of second round effects of food prices and oil prices on core inflation shows that monetary policy response to inflation pressures needs to be timely and adequate to ensure price stabilization and avoidance of a wage-price spiral. Furthermore, removal of price-related incentives such as subsidies needs to be done in a phase-out fashion to eliminate adverse impacts on consumers.

3. Continued vigilance in assessing and monitoring global developments is important for timely policy action in addressing vulnerabilities that may arise from international markets.

FOOD INFLATION AND COST OF LIVING

5

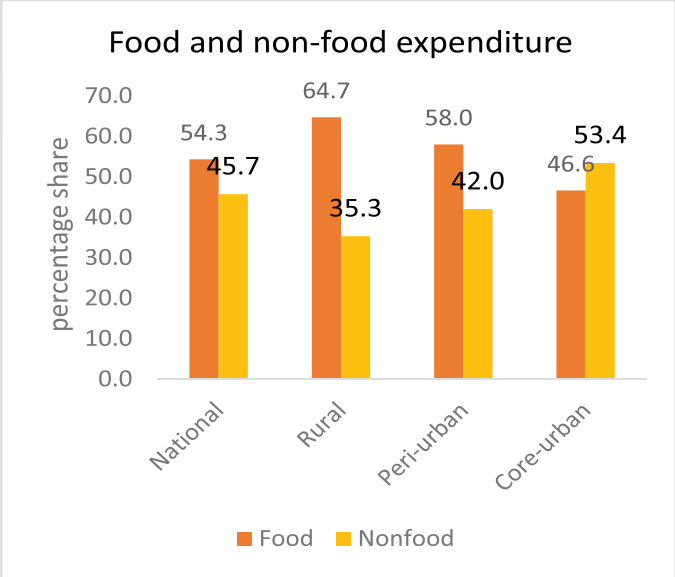
Food and non-alcoholic commodities account for 32.9 per cent of the CPI consumption basket. High food prices have major implications on the cost of living, especially for low-income groups who spend about 60.0 per cent of their income on food. The government has over time implemented various measures to shield consumers from high food prices, including consumer side subsidies on the demand side, and on the supply side, strategic grain reserves, fertilizer subsidies, irrigation strategies, agricultural extension services and tax exemptions on food importation and some agricultural commodities. That said, food price increases are experienced during drought periods. This is further exacerbated by the effects of global food inflation, high energy prices that increase the cost of production, high international fertilizer prices that increase cost of food production through imported fertilizer and depreciation of the exchange rate that makes food imports more expensive. In addition, poor market infrastructure constrains access to markets, which results in situations where market glut coexists with food shortages across the counties. To stabilize food prices, it is important to enhance agriculture productivity by adopting drought resistant crops, water management, and promoting kitchen gardening for food supply. Boosting local production of fertilizer will reduce the cost of production. In addition, investing in adequate and appropriate market infrastructure, including local cooperatives, cold storage facilities, rehabilitation of rural roads/feeder roads and promoting market information flows through modern information technologies will enhance market access. Moreover, effectively targeted social safety net programmes during weather shocks are crucial in protecting vulnerable groups.

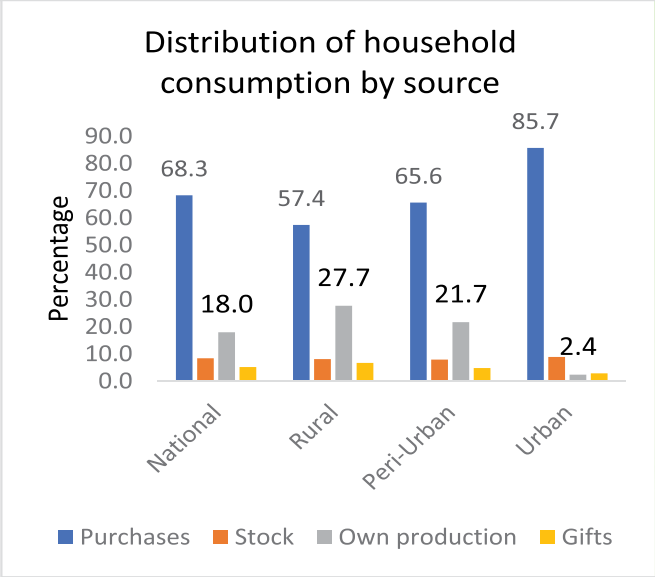
5.1 Introduction

Food inflation plays a crucial role in determining the cost of living. When food prices rise, the cost of living also rises as people end up using more money to meet their basic needs. The effect is particularly higher for low-income households who spend most of their incomes on food, as it reduces their purchasing power. The national average for food expenditure is 54.3 per cent. Rural households in Kenya spend a higher proportion (64.7%) of their income on food compared to peri-urban and core urban households who spend 58.0 per cent and 46.6 per cent, respectively. The major source of food consumed by households in Kenya is from purchases. Nationally, 68.3 per cent of the food consumed is purchased while only 18 per cent is from own production. The rural and urban areas obtain 57.4 per cent and 85.7 per cent of food from purchases, respectively (Figure 5.1).

For households that are net purchasers of food, surges in food prices cause a strain on household budgets. This results in food insecurity and malnutrition as some households cut back on quantity or quality of food consumed to afford other necessities. The budget constraints also force poor families to sell off their assets or forego other basic needs such as health and education, resulting in detrimental consequences on health and well-being for vulnerable populations. Stability of food prices is thus a policy priority in Kenya, not only from a welfare perspective but also for planning purposes.

Figure 5.1: Mean monthly food and non-food expenditure and distribution of household consumption by source



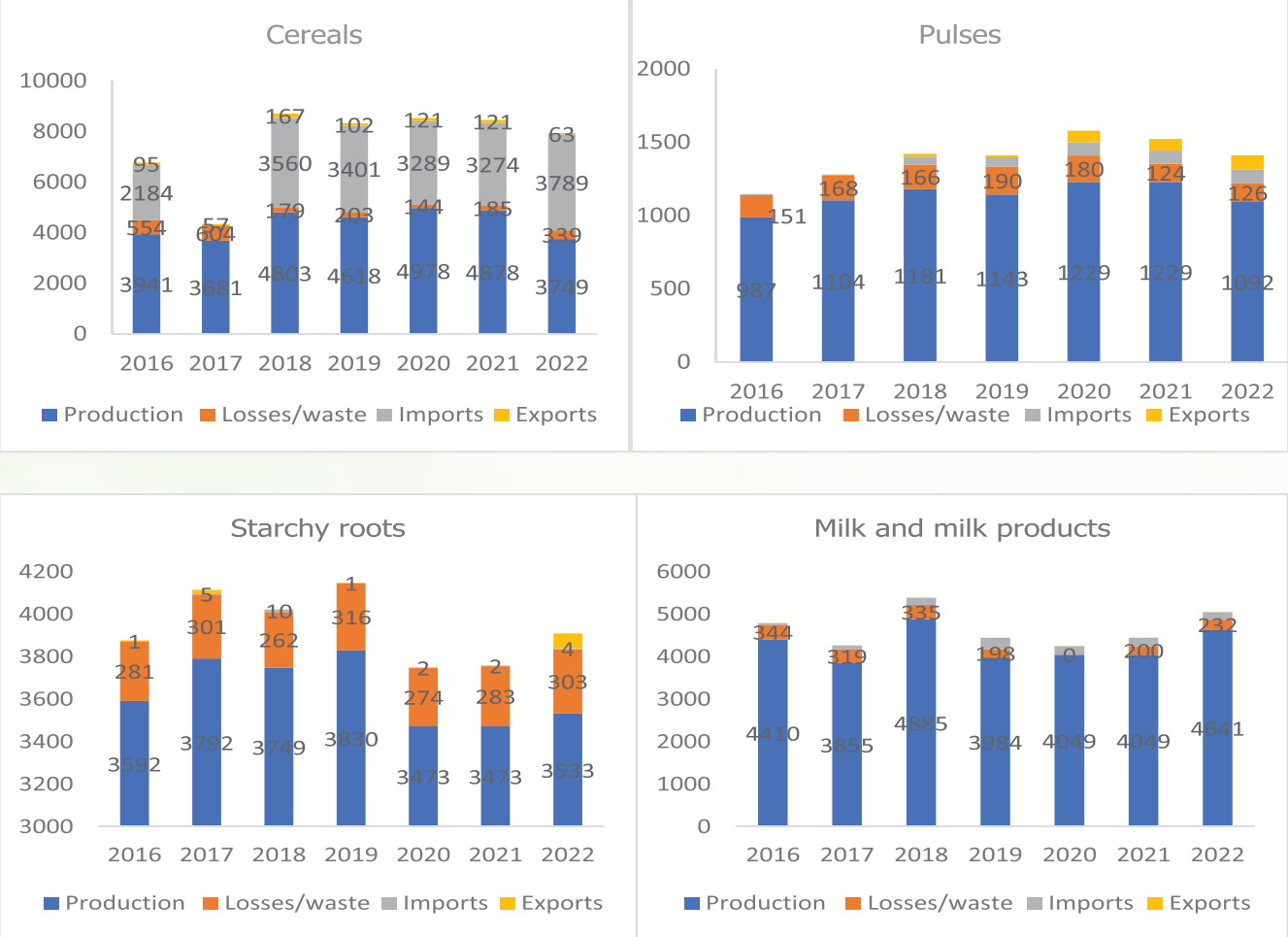


Source: KNBS (2016), KIHBS 2015/16

The price of food is affected by various factors, including supply factors, demand factors and government policies. On the supply side, weather conditions affect food supply, which can cause food shortage and increased prices. Production costs such as fertilizer and energy costs increase the cost of production, which directly affects food prices. Exchange rates impact on the cost of importing food, where depreciation of the Kenya shilling increases the cost of food imports. Global events such as war contribute to food shortages and higher global food prices, which are transmitted to domestic food prices. On the demand-side, increase in demand for food increases food prices due to competition for limited supplies. Government policies such as lifting import tariffs and tax exemptions reduce food prices. In addition, market infrastructure affects food distribution by contributing to food supply from food surplus regions to areas with shortages.

Gaps in agriculture and food supply chain have contributed to imports dependency and/or losses in some food commodities. In 2021, maize imports accounted for 41 per cent of total maize demand in the country while maize post-harvest losses amounted to 185,000 metric tons. Figure 5.2 shows that the country is a net importer of cereals, the main ones being wheat, rice and maize. There are also significant post-harvest losses for cereals, pulses, starchy roots and milk and milk products. Starchy roots (potatoes and cassava) have higher losses and wastage that erodes production. Milk production has been on a declining trend since 2018, due to relatively higher vulnerability to droughts.

Figure 5.2: Domestic production, losses, imports and exports of food commodities ('000 metric tonnes)



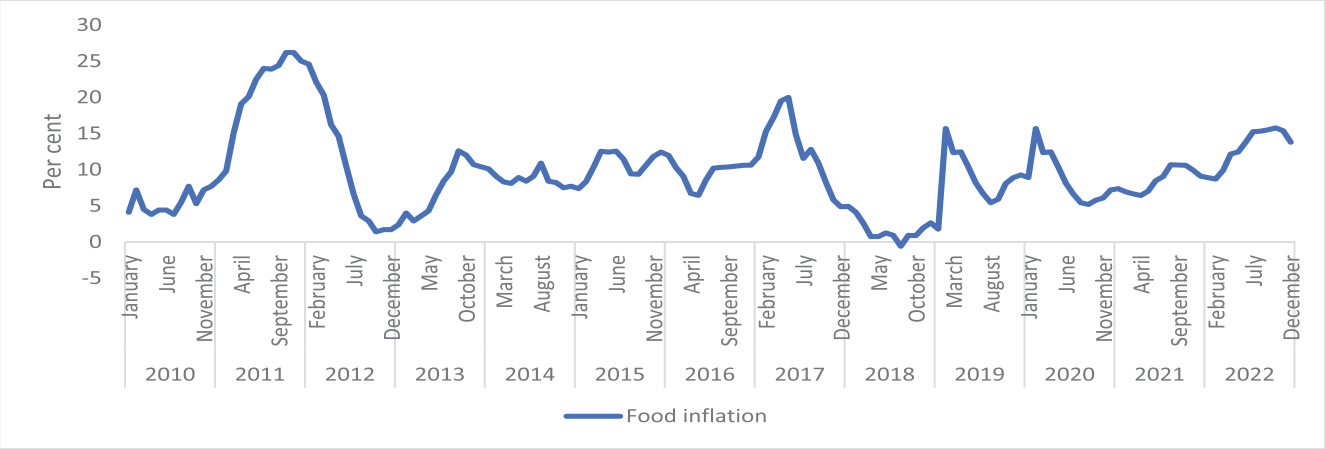
Data source: KNBS (Various), Economic Survey

5.2 Food and Non-Alcoholic Beverages Inflation

The rate of inflation, as measured using the consumer price index (CPI), is given by the percentage change of the CPI over a one-year period (KNBS, 2010). Food inflation is a major contributor to the overall inflation index in Kenya. Food and non-alcoholic items take up 32.91 per cent share of the CPI consumption basket (KNBS, 2020). Figure 5.3 shows trends in food inflation in Kenya. The highest peak in food inflation was experienced in October and November 2011 at 26.2 per cent for each of the months. This was due to drought, high fuel prices, high international food prices and depreciating exchange rate. In 2017, food inflation reached its highest at 19.99 per cent. This was driven by poor weather conditions, global oil prices, delayed imports to cater for reduced supply and weakening of the shilling. The year-on-year food inflation rose from -0.6 per cent in August 2018 to 15.67 per cent in February 2019, reflecting a 103.8 per cent rise in the cost of purchasing a basket of the same food and non-alcoholic beverages for household use over a period of about 6 months. The lower food prices in 2018 were attributed to improved local food production because of the historically above-average long rains from March to May throughout the country. Consistent cross-border imports from Uganda and Tanzania also ensured food availability, hence lowering food prices. Further, the under-performance of the short rain season led to increased food inflation witnessed in 2019.

In 2022, the food inflation rate had been on an upward trend since February 2022, with an inflation rate of 15.38 per cent in November 2022 compared to 9.92 in November 2021. Food prices began rising in February 2022 because of global supply chain disruptions, poor weather, high energy prices, high international food prices and the depreciation of the Kenya shilling.

Figure 5.3: Food inflation rates



Data source: KNBS (2022), Inflation rates

The weights of some of the components of food products within the CPI consumption basket are shown in Table 5.1. Meat carries the highest weight of 4.3518 followed by flour of cereals and cereals, whose combined weight is 5.9035. This shows the high significance that cereals have on the Kenyan diet and consumption expenditure. Other foods at the top of the list include bread and bakery products, milk, vegetables, cane and beet sugars, tubers and pulses.

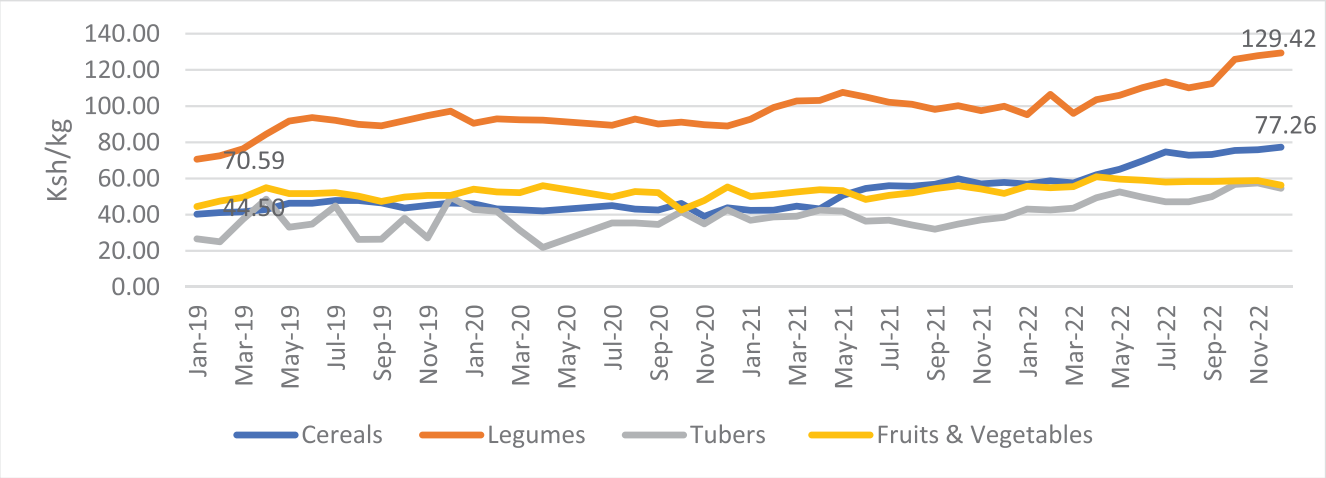
Table 5.1: Food and non-alcoholic beverages CPI weights

Food Commodity	CPI Weight
Meat, fresh, chilled or frozen	4.3518
Flour of cereals	3.0326
Cereals	2.8709
Bread and bakery products	2.6860
Skimmed milk	2.0897
Raw and whole milk	1.7404
Leafy or stem vegetables, fresh or chilled	1.5965
Vegetable oils	1.4955
Cane and beet sugar	1.4348
Fruit bearing vegetables, fresh or chilled	1.3381
Tubers, plantains and cooking bananas	1.1661
Pulses	1.1611
Dates, figs and tropical fruits	1.0002
Other vegetables, fresh or chilled	0.8163
Fish, live, fresh, chilled or frozen	0.7309
Fish, dried, salted, in brine or smoked	0.5854
Eggs	0.5786
Soft drinks	0.4949
Yogurt and similar products	0.4546
Citrus fruits, fresh	0.3494
Others	2.9362
Total	**32.91**

Data Source: KNBS (2020), Rebased Consumer Price Index Report

Although the rate of food inflation fell slightly from 15.78 per cent in October 2022 to 13.8 per cent in December 2022, the price of basic commodities that carry high weight in the CPI basket, such as cereals and pulses, have been rising, indicating a substantial implication for the cost of living. Notably, the wholesale price of cereals rose by 42.4 per cent from Ksh 44.50 in January 2019 to Ksh 77.26 in December 2022. The wholesale price of legumes increased by about 30 per cent from Ksh 90.55 in January 2020 to Ksh 129 in December 2022 as shown in Figure 5.4.

Figure 5.4: Average wholesale prices of selected agricultural commodities

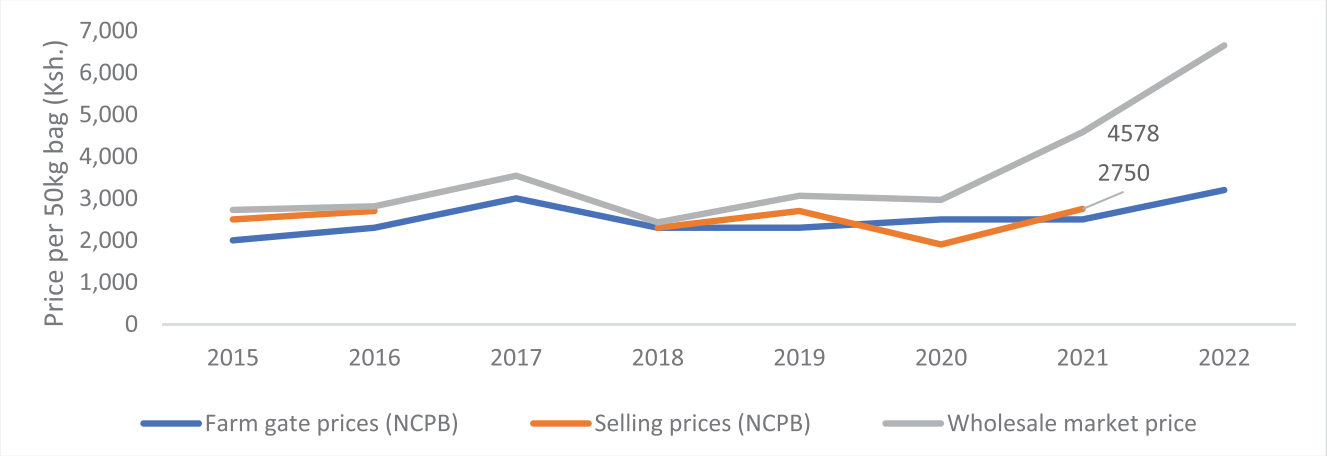


Data Source: Ministry of Agriculture and Livestock Development (2022)

5.3 Government Interventions in Stabilizing Food Prices

Among the short-term policy responses by governments to agri-food price volatility is the establishment of public-owned food reserves (Global Panel, 2016). Kenya is no exception, with the National Cereals and Produce Board (NCPB) conducting market interventions for grains and farm inputs. NCPB manages the National Food Reserve (NFR) where it procures, stores, distributes, and sells strategic food reserves. It also offers grain post-harvest services such as drying, cleaning, storage under the Warehouse Receipt System (WRS), warehousing, fumigation, weighing, bagging and other related services to farmers and other interested parties at affordable rates. These roles, if well utilized, can help reduce post-harvest losses and smoothen supply throughout the year, including in drought years. One of the ways in which NCPB manages food prices is using price stabilization mechanisms. This involves buying grains from farmers at a guaranteed price, and then selling the grains to consumers at a subsidized price. By doing this, NCPB helps to stabilize food prices and ensure that consumers have access to affordable food, while also providing a fair income for farmers. As evident from Figure 5.5, NCPB's selling prices of maize are lower than the average wholesale market prices, which is vital in stabilization of the market prices during periods of high inflation.

Figure 5.5: NCPB intervention in the grain (maize) market



Data source: NCPB and SDCDAR (2022)

However, the main limitation faced by NCPB is that the NCPB procurement prices (farm gate prices) are low (Figure 5.5) compared to wholesale market prices. This contributes to farmers hoarding maize in anticipation of better prices, which may lead to food losses. The farmers also prefer to sell to millers and wholesalers who offer better prices at farm gate. Inadequate maize supply to NCPB means that consumers are exposed to high market prices especially during periods of low supply due to drought. For instance, poor weather in the year 2022 led to low supply of maize in the market, leading to high maize market prices. The average wholesale market price of a 90kg bag of maize in 2022 was a historic high of Ksh 6,648 compared to Ksh 4,578 average wholesale market price and Ksh 2,075 NCPB selling price in year 2021. NCPB could not intervene in the market in 2022 as there was no maize to sell (Annex 1).

To complement NCPB's role in enhancing food security, the government has positioned the Kenya National Trading Corporation (KNTC) to help stabilize prices of essential food items and inputs. KNTC's main functions include promoting wholesale, retail and e-trade through partnerships with sector stakeholders, undertaking procurement agency services for the government and general public at a minimum fee, improving and strengthening supply chain and distribution systems for both formal and informal sector, and stabilizing consumer commodity prices by ensuring balance in supply and demand through availability of products in the country. As a trading company, KNTC can help integrate various regions within the country through marketing, to stabilize and diversify supply of agricultural products through all seasons. Attention to fresh agricultural products is required to help supply meet demand and stabilize prices in all parts of the country and minimize post-harvest losses.

The government through the Bottom-up Economic Transformation Agenda (BETA) has made commitments to eradicate hunger and lower the cost of living by increasing agricultural productivity. Some of the interventions to improve productivity include fertilizer subsidies, and support for irrigation and agricultural extension services. The government has also identified key value chain priorities in the implementation of the BETA, with the aim of increasing production efficiency. The value chain priorities include dairy, tea, rice, and edible oils, among others. Investing in the growth of the agricultural sector is more effective at reducing poverty compared to other sectors. Effective implementation of the BETA could move 5.5 million people out of poverty, lift 2.9 million people out of hunger and create 5 million jobs by 2027 (IFPRI and KIPPRA, 2022). In addition, tax exemptions on agricultural commodities and agricultural inputs have been crucial in reducing food market prices.

5.4 Factors Influencing Food Prices and Prospects

Food prices are determined by demand and supply factors in the market but can also be influenced by government policies. Changes in food prices thus reflect responsiveness to supplying conditions and consumer demands, such that lack of food price changes would reflect a non-functioning food system (Global Panel, 2016). The surges in food prices reflect a confluence of factors discussed below:

Table 5.2: Factors affecting food inflation in Kenya

Variable	Coefficient
Dependent Variable: Local Food Inflation	
Global food inflation	0.372**
International fertilizer prices	0.028***
Crude oil prices	0.132***
Energy price	0.203**
Exchange rate depreciation	0.004***
Precipitation	-0.025*
Lag 2: Precipitation	-0.034**
Lag 4: Precipitation	-0.034**

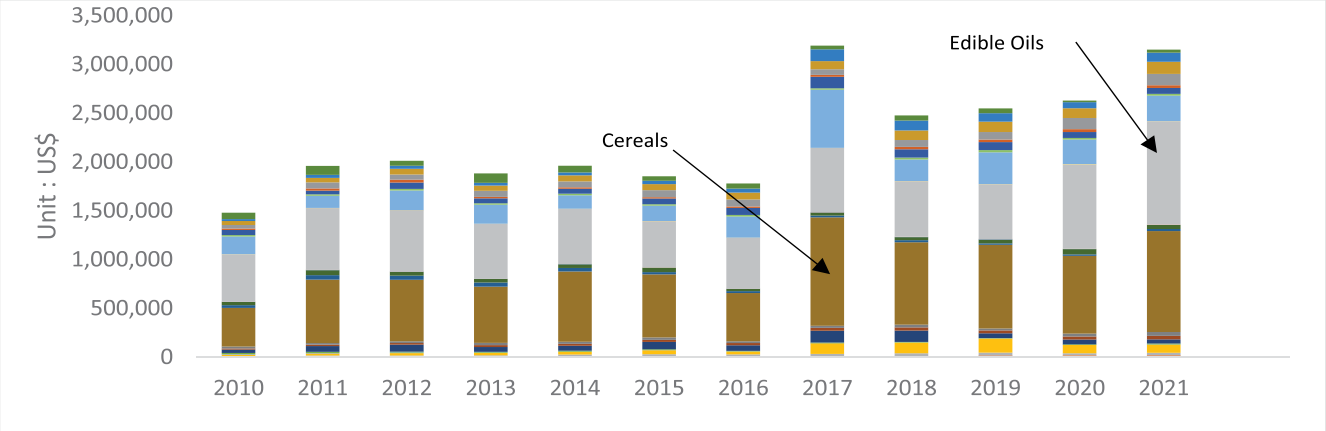
Notes: *** represents significance level at 1 per cent; ** significance level at 5 per cent and * significance level at 10 per cent

(i) Global Food Inflation

The analysis presented in Table 5.2 shows that a one unit increase in global food inflation resulted in 0.372 increase in food inflation in Kenya. Price transmission to domestic food prices happens through international trade mechanisms. For a country such as Kenya that is a net importer of agricultural commodities, global food price increases lead to higher prices for imported goods, which results to higher domestic food prices. This is because higher global prices increase the cost of importing foods, which is then passed on to consumers through higher market prices. Kenya is heavily dependent on imports for sugars and sweeteners, vegetable oils (especially palm oil), and cereals including rice, wheat and maize, with the country spending about US$ 1,056,015 in 2021 on edible oils (Figure 5.6).

Global shocks that have contributed to increase in international food prices include COVID-19 and the Russia-Ukraine war. The Russia-Ukraine conflict that started in February 2022 led to disruptions in the commodity markets, particularly food, energy and inputs markets from Ukraine, Russia, and the neighbouring countries (Nhemachena et al., 2022). In particular, the conflict affected wheat prices, as Kenya sources about 44 per cent of its wheat from Russia. The sanctions imposed by Russia led to an increase in cost of imported wheat. Ukraine is a top global supplier of sunflower oil, accounting for more than half of the global production (Ruta, 2022). Therefore, the supply disruptions from these two countries due to the conflict has contributed to a surge in cooking oil prices, which is transmitted to local prices through imports.

Figure 5.6: Kenya's imports of agri-food commodities

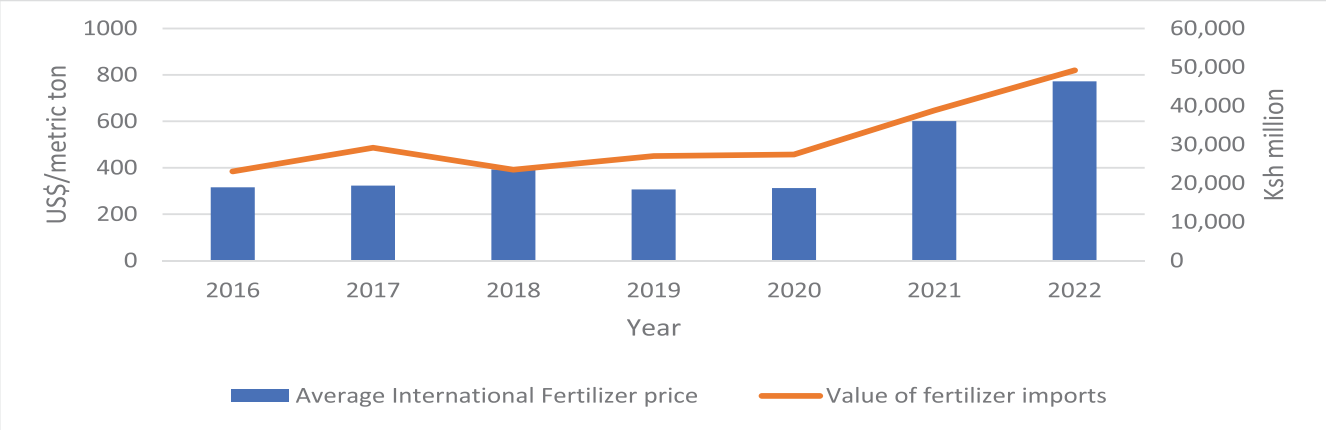


Data Source: ITC (2022)

(ii) The input market

The analysis in Table 5.2 shows that a one unit rise in international fertilizer price increases food inflation by 0.028. The price of fertilizer in the global market has been rising as shown in Figure 5.7. The price of one metric tonne of DAP fertilizer more than doubled from an average of US$ 318.8 in 2016 to US$ 772.2 in December 2022. Kenya imports fertilizer and is thus susceptible to international price increases experienced in global fertilizer prices. The value of chemical fertilizer imports to Kenya increased from Ksh 23,064 million in 2016 to Ksh 49,179 million in 2022 (Figure 5.7). The high cost of fertilizer raises the cost of production, which translates to high food prices. At the same time, high fertilizer prices reduce its use, which in turn contributes to low farm yield. This leads to low food supply in the markets, resulting in higher food prices.

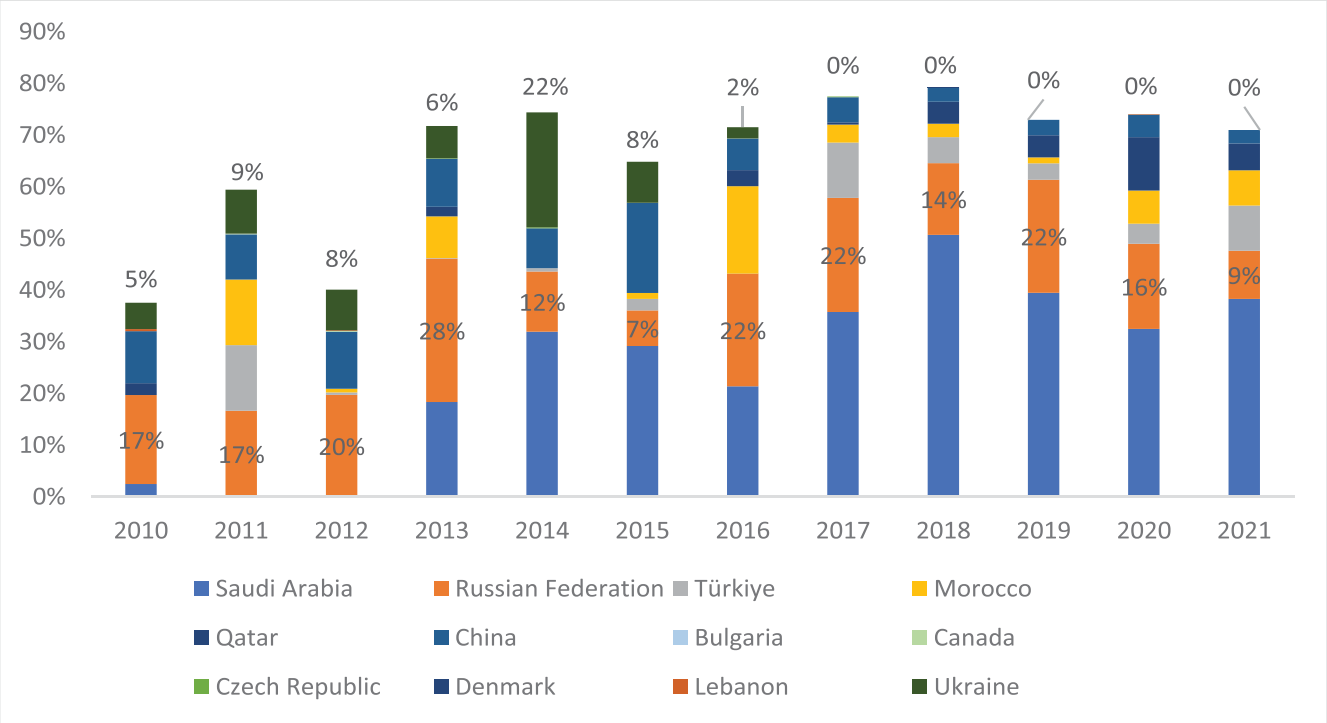
Figure 5.7: Average international fertilizer (DAP) price and value of fertilizer imports to Kenya



Data source: Index Mundi (2022); KNBS (2021, 2022 and 2023), Economic Surveys

The situation was worsened by the Russia-Ukraine conflict that disrupted connectivity between the two countries. This constrained trade routes, resulting to agri-food input shortages. The result is price hikes in commodities such as transport equipment, machinery, and agribusiness imports including chemicals and fertilizers (Ruta, 2022; Nhemachena et al., 2022). Although most of the fertilizer imports to the country come from Saudi Arabia, a significant share (9.3% in 2021) is imported from Russia (Figure 5.8).

Figure 5.8: Supplying markets for fertilizers imported by Kenya



Data Source: ITC (2022)

(iii) Depreciation of the Kenyan currency

Table 5.2 shows that weakening of the Kenya shilling resulted in a 0.004 unit increase in food inflation. The Kenya shilling depreciated by 8 per cent in the period between 2020 and 2021. The depreciation of the shilling against world major currencies has played a key role in food price inflation by influencing imported food prices. If the shilling depreciates against global currencies, food imports become more expensive, thereby increasing domestic food prices. The depreciation also leads to increase in cost of importing fertilizer, energy products and other agricultural inputs, leading to increased cost of production and subsequently high local food prices.

(iv) Climate change

Extreme weather conditions have negative implications on food production in the country, adding to food price inflationary pressures. The analysis found that a unit increase in precipitation leads to a 0.025 unit decrease in food inflation. A unit increase in second- and fourth-lagged precipitation leads to 0.034 decrease in food inflation. The high dependence on rain-fed farming makes the agriculture sector more vulnerable to climate change. The country experienced spikes in food prices and associated food inflation during the drought seasons presented in Table 5.3. Drought episodes in Kenya are not new, but their occurrence is more frequent, and droughts are more severe than they used to be. Prolonged drought episodes cause widespread crop and livestock production failure. The result is limited food supply, which pushes basic food commodities such as cereals to unusually high prices. This poses a substantial burden to vulnerable households, especially in Arid and Semi-Arid Lands (ASALs).

Table 5.3: Maize market prices versus recent drought occurrences in Kenya

Year	Average Maize Wholesale Prices	Drought Occurrences	
		Start Year	End Year
2011		2011	
2012	3,108		2012
2013	2,855		
2014	2,819	2014	
2015	2,726		2015
2016	2,814	2016	
2017	3,541		
2018	2,427		2018
2019	3,063	2019	2019
2020	2,966		
2021	4,578	2021	
2022	6,648		2022

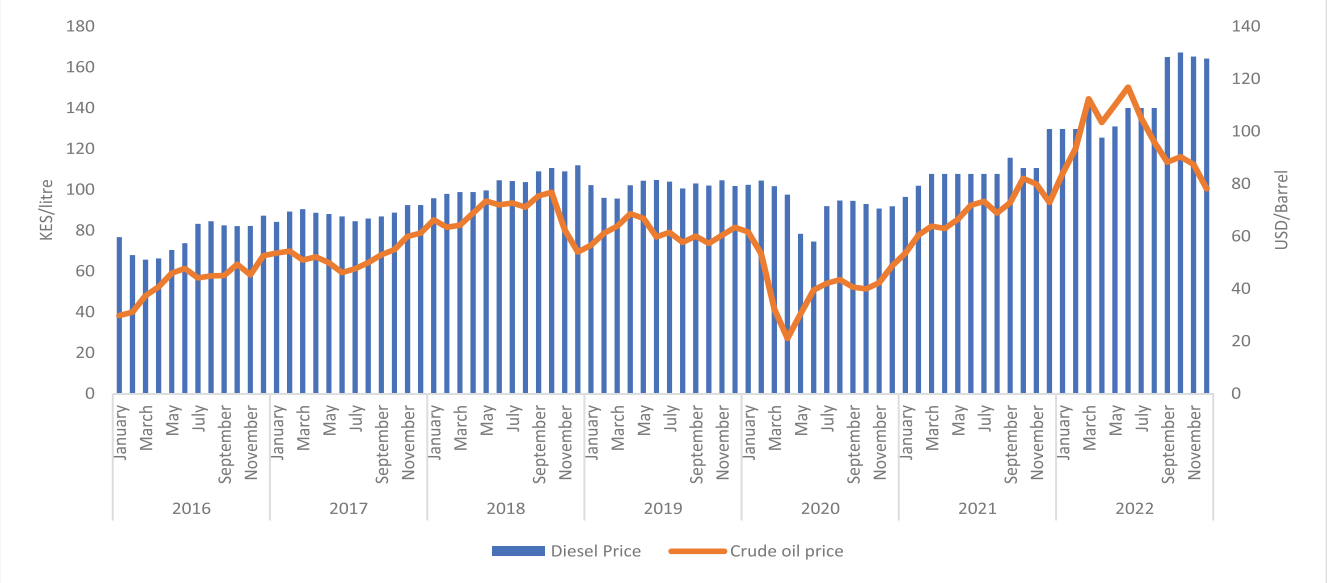
Data source: Emergency Events Database (2022)

(v) The energy market

From the analysis, a one unit rise in diesel price in Kenya led to a 0.203 rise in food inflation while one unit rise in international crude oil prices led to 0.028 increase in local food inflation. Energy is crucial for transportation and powering mechanical machinery used in food production and production of fertilizer. Therefore, increase in fuel prices increases the price of inputs and transport, which directly affects food prices. The effects are largest on net energy and importers of agricultural inputs (Ruta, 2022). The price of diesel reached a historic high of Ksh 165 per litre in September 2022 (Figure 5.9). This was after the government removed the fuel subsidy that was meant to reverse the effects of global price increase.

The cost of transporting food from the farm to the consumer accounts for a significant proportion of the total cost of production, especially for products that are produced in one region and consumed in another. With the rising fuel prices, production costs and transport prices increase, which is then passed on to the consumer through food prices.

Figure 5.9: Diesel and crude oil prices



Data source: EPRA (2022)

(vi) The role of market infrastructure in managing food prices

Market infrastructure in the agri-food system includes both agri-food institutional and physical infrastructure that link farmers to consumers. The market infrastructure encompasses infrastructure that contractually or physically brings supply and demand together (Balineau et al., 2021). The institutional market infrastructure includes county, national, regional and international regulations, ICT, quality standards, price information systems, competition rules, purchasing processes, and contracts. Physical market infrastructure includes urban and rural markets, consolidation areas, storage units, retailers, wholesale markets and supermarkets, transport and shippers.

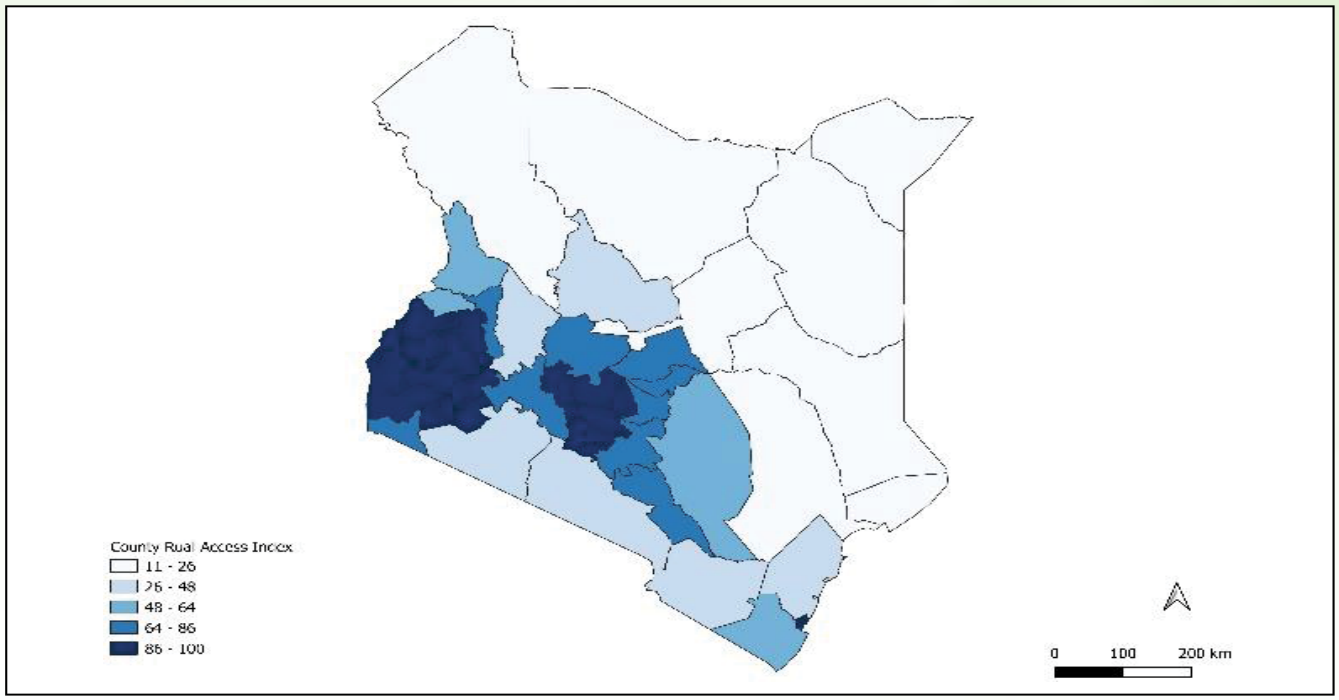
Well-functioning market infrastructure is a necessary condition for stabilization of food prices. Market infrastructure, including transportation networks, storage facilities, cold rooms and distribution systems can help reduce transaction costs and improve the speed and reliability of food delivery. This can help prevent food shortages or surpluses that can lead to price volatility.

Transport is a crucial part of food policy. Transport infrastructure makes trade possible by linking food supply to demand. Improved transport infrastructure affects both consumer and producer agri-food prices by improving logistics; that is, the process of acquiring, storing and transporting agri-food resources to the relevant destinations. Improved transport infrastructure also influences food prices by reducing transport costs, in turn increasing market access and increasing competition. In addition, transport infrastructure helps achieve economies of scale and regulate monopolies (Balineau et al., 2021).

In Kenya, Rural Access Index (RAI) is an important indicator of the country's progress in expanding and improving its transportation infrastructure to connect rural communities to markets. Despite the crucial role of transport infrastructure, RAI is clustered in some areas and low in most of the other areas (Figure 5.9). In 2018, Kenya's RAI was 46.6 per cent, which means that less than half of the rural population had access to all-season roads within 2 kilometres of

their homes.

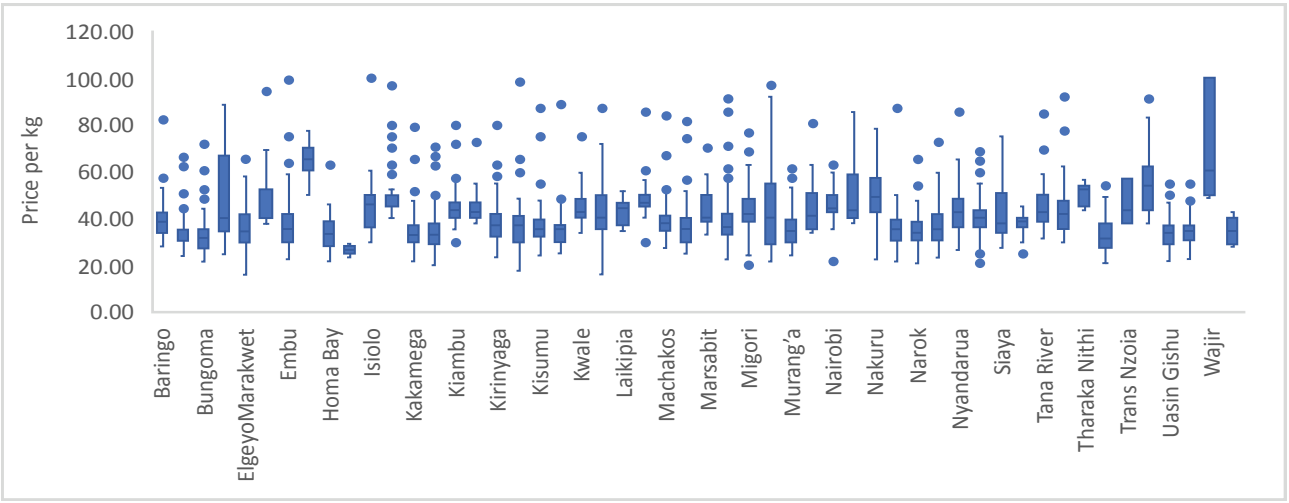
Figure 5.10: Spatial mapping of rural access index in Kenya



Source: Kenya Roads Board (2019)

The unbalanced development of transport infrastructure contributes to county disparities in retail food prices (Government of Kenya, 2022). Transport challenges are higher among the vulnerable populations who remain under-served in many ways, including access to markets (IFPRI, 2022). Counties with low RAI, such as Wajir, Garissa and Isiolo, have higher average maize prices compared to counties with high RAI, such as Homa Bay, Murang'a, Kisumu and Uasin Gishu as shown in Figure 5.10.

Figure 5.11: Disparities in average dry maize prices across various markets in counties



Data source: KNBS (2014-2022), Leading Economic Indicators

Market information systems have the capacity to revolutionize markets, and delivery across the country thereby improving food availability (IFPRI, 2022). Lack of market information can lead to poor price signals and harm confidence among market players. The private sector plays a critical role in enhancing the efficiency of food marketing systems but for them to play their role effectively, information on market prices and transactions should be transparent and readily available (Global Panel, 2016). Despite efforts within the Ministry of Agriculture and Livestock Development to have in place agri-food market information systems, accessibility and transparency of agri-food market transactions is an urgent priority towards enhancing coherent and coordinated policy action. Lack of market information prevents efficient distribution systems, and makes it difficult for traders to supply food to certain localities. This leads to some areas being under-supplied with food, which results in higher prices. Price information systems may help consumers benefit from a variety of agri-food commodities at affordable prices where market access exists. Producers would also be able to participate in various markets with improved information flows, minimizing risks associated with glut supplies in one locality and reducing market power with increased competition.

Storage and cold chain facilities significantly affect prices in the medium-term. Storage and cooling facilities minimize food losses and ensure adherence to quality regulations and standards, thereby reducing agri-food costs to consumers and loss of income to producers. The facilities are especially crucial with strong seasonal variations and extreme weather conditions experienced in the country leading to price volatility and lower food quality. Food supply and, in turn, prices in urban areas, are constrained by perishability and transport constraints. Storage and cooling facilities would play a key role in extending supply, thus giving producers extended access to markets.

5.5 Key Messages and Policy Recommendations

5.5.1 Key messages

1. Food inflation is the major driver of overall inflation in Kenya. Food and non-alcoholic items constitute more than one-third of the CPI consumption basket. Therefore, increases in food prices keep overall inflation elevated.

2. Households spend a sizeable portion of their income on food (54.3%). Thus, high food prices exert significant pressure on the cost of living, especially among the poor households who spend more than 60 per cent of their income on food. With an increase in food prices, poor households may be forced to reduce food intake and forego other basic needs such as health, sanitation, clean water and education. This pushes them to poverty and increases their risk of poor health and malnutrition.

3. The drivers of food inflation are complex and inter-related. Low rainfall and high fertilizer prices constrain food production, reducing food supply and hence contribute to high food prices. High energy prices contribute to increase in the cost of production, directly influencing food prices. In addition, global food inflation and depreciation of the Kenya shilling expose the country to the high cost of imported foods, which is transmitted to domestic food prices.

4. Despite the investments made in enhancing agricultural productivity, gaps in the food supply chain have contributed to import dependency and post-harvest losses for some food items. In addition,

poor market infrastructure including inadequate rural roads and information asymmetry constrain food distribution, which contributes to food surplus in some parts of the country while other parts experience food shortages.

5.5.2 Policy recommendations

To improve agricultural production, the Ministry of Agriculture and Livestock Development could:

1. Promote crop diversification and improved crop variety including adoption of local indigenous food crops that are less affected by extreme weather conditions. Further, more research is imperative to ensure that drought-resilient crops are supported depending on the regional climatic conditions and soil types.

2. Promote irrigation systems such as drip irrigation, utilization of underground water in the ASALs and improve water harvesting to help reduce over-reliance on rain-fed agriculture.

3. Strengthen kitchen garden technologies, including urban farming, farms in schools and other learning institutions. This would contribute to households' access to fresh food, especially vegetables and fruits for healthy diets. The produce could also add to household income as they sell the surplus while supporting home grown feeding programmes.

4. Promote post-harvest management of fresh produce to minimize post-harvest losses through agri-food processing and adequate storage facilities to help mitigate the effect of seasonal supply disturbances, thereby stabilizing prices at all seasons.

5. Fast-track the establishment of local fertilizer production plant in Nakuru to help reduce the country's over-reliance on high global fertilizer prices. Supporting the farmers to diversify the types of fertilizer to include the use of organic fertilizer, which is cheaper, is important to help in reducing the cost of food production.

To improve market infrastructure

6. Rehabilitate rural roads and feeder roads to help boost marketing activities and connect food markets. Balanced development of transport infrastructure could minimize price disparities in retail food markets and improve distribution logistics.

7. Counties could adopt and implement agriculture information and communications technology to improve market information flows. The use of modern information technologies such as mobile phones, Internet, and social media can help farmers access information about market prices, weather patterns, and other critical market information. Promoting establishment of sustainable market information systems would help disseminate market information to farmers and other stakeholders, thereby reducing transactional costs or market power by some actors.

Social protection interventions

8. Enhance targeted social safety net programmes to protect the poor and vulnerable groups from food inflation shocks. Early weather warning systems to be effectively utilized to ensure that social safety nets are in place before a crisis occurs.

MINIMUM WAGE AND COST OF LIVING

6

The minimum wage is used as a policy instrument to protect workers from low pay, high cost of living and lift them from poverty. Kenya has a statutory minimum wage that is enshrined in law and is applicable to all workers. Employers are required to adhere to the set minimum wage. Minimum wage rate is recommended by the Wage Councils (WC) through a consultative and inclusive process. The framework provides for participation by different stakeholders, including employers, employees, and government representatives in the WC. This framework requires the WC to conduct an annual review of the minimum wage to ensure that it remains relevant and reflects changes in the cost of living and economic conditions. However, implementation of minimum wage in Kenya has faced limitations in compliance and enforcement, leading to workers missing out on the benefits of minimum wage. The limitation of coverage and enforcement is in part due to limited capacity among enforcement agencies in terms of staffing and resources, high incidence of informality in the informal sector and limited awareness among workers and employers. Further, the minimum wage structure varies by sector, location, and level of skill. Increase in statutory minimum wage has been outpaced by increase in cost of living. While minimum wage increased by 12 per cent in 2022, the cost of the minimum basket increased by an average of 22 per cent, thus eroding the purchasing power of low-income earners. In addition, the minimum wage rate allocated only covers around half of the necessary expenses for a decent living. The key intervention to enhance minimum wage for managing the cost of living include building capacity of enforcement agencies in terms of resources and staffing, and aligning the minimum wage with the prevailing minimum living standard wage to ensure that workers can afford a decent standard of living. There is a need to provide a comprehensive social protection system to compensate workers to get to the living wage level. This can be done through provision of reliable and affordable public transport for workers, housing, universal health care and universal education to cushion the minimum wage earners against the high cost of living.

6.1 Overview of Minimum Wage in Kenya

Globally, minimum wages are used as a measure to cushion workers against overly low pay, enable workers to meet their basic needs, ensure equitable wage distribution and support policies to address poverty and income inequalities. Minimum wage may be fixed in such a way to cover the minimum needs of workers based on a country's prevailing economic conditions. Understanding the extent to which minimum wage covers the cost of living will help inform policy makers to effectively address the challenges and opportunities in the labour market in Kenya. There has been a steep rise in the cost of living in the country. This has been exacerbated by rise in global prices of oil and other commodities, inflation, impact of COVID-19 pandemic and the prevailing drought in the Eastern and Horn of Africa. The increase in prices of commodities has escalated the cost of living, especially for poor households with low incomes. As a measure to cushion low-income earners against the high cost of living, the government has been implementing minimum wage.

Minimum wage refers to the base-level amount employees must receive for full or part-time work performed during a given period, which cannot be reduced by collective agreement or an individual contract (ILO, 1928). The purpose of minimum wages is to ensure that wages can cover the basic needs of workers and their families. Another benefit of minimum wages is linked to efficiency wages and increased worker productivity. This can result in better quality work and higher levels of output, ultimately benefiting both the workers and the employers. This is because workers are motivated to put forth greater effort when they are paid better (Blanchard, 2002). However, the effectiveness of this policy has been a subject of policy debate. While minimum wages are thought to introduce externalities in the labour market, minimum wages especially in low developing countries are considered not adequate to cover the actual cost of living often referred to as the living wage. This is attributed to low productivity in the employment sector.

As a member of the International Labour Organization (ILO), Kenya has put in place minimum wage regulations in line with ILO conventions on minimum wages and decent living. This is also in line with Target 8.5 of Sustainable Development Goal 8, which aims to achieve decent work and promote inclusive economic growth. Minimum wage is legislated by the Labour Institutions Act, of 2007: Employment Act, Cap 229, and the minimum Wages Order. Minimum wage is statutory and is set through a Wage Council (WC) constituted in accordance with Labour Institutions Act, 2007. The WC is made up of representatives from Federation of Kenya Employers (FKE), Central Organization of Trade Unions (COTU), and the Government represented by the Ministry of Labour and Social Protection, and the National Treasury and Economic Planning.

Wage Councils are responsible for investigating remuneration and conditions of employment, considering input from interested parties, and making recommendations to the Cabinet Secretary in charge of labour on minimum wage rates for different sectors of the economy. The WC reviews the input received from stakeholders to identify any trends or common issues that may need to be addressed and factoring in the economic conditions and trends in cost of living as provided for under Section 44(5) of the Labour Institutions Act, 2007. For instance, in 2018, the WC received written proposals on minimum wage review from the Salaries and Remuneration Commission (SRC). SRC recommended a minimum wage increase of 5.3 per cent based on their research and analysis of economic conditions in the country. The reviewed minimum wage is published in the Kenya Gazette through legal notices on Wages Orders as provided for in Section 46 of the Labour Institutions Act, 2007. The Minimum Wage Order is reviewed every year, and any revisions are announced on 1st May annually. Generally, the adjustment of the minimum wage aims to compensate workers for the erosion of their purchasing power since the last revision of the wage.

Out of the 17 Wage Councils in Kenya, only two Wage Councils were active as at the year 2022, namely: WC for the General Services and WC for Agriculture. The inactive WCs could have unfavourable implications on the economy, workers, and businesses. Without a minimum wage, employers may be tempted to pay their workers very low wages, which could result in exploitation of workers. Further, without adequate income, workers may fall into poverty. The fact that the occupations covered by the Wage Orders are not comprehensive means that many workers are not protected by minimum wage regulations. This is particularly problematic given the rapidly changing nature of the labour market, with new professions and sectors emerging all the time, such as the gig economy. The classification of occupations covered in the Wages Orders ensures the wage orders remain relevant and up to date with the changing nature of the labour market. Further, there have been various policy changes since review of the Labour Act in 2007; for example, the country has seen an increase in access to education and

skilling and in the years of schooling to 11 years. This calls for the need to review the criteria of allocating the minimum wage.

Minimum wage is set based on the location, occupation, and the economic sector. The locations are classified into three categories: Cities (Nairobi, Nakuru and Mombasa); Former municipalities (Limuru, Mavoko and Ruiru); and other towns. Occupations are classified as skilled and unskilled. Differentiation of minimum wages based on location brings into question issues of equity and fairness in minimum wage setting. Within occupation and skills, minimum wages increase with the skill level and vary widely by occupation. For example, clerical jobs have at least four different minimum wage schedules for junior clerks, typists, cashiers and general clerks.

Whereas implementation of minimum wage is legislated, enforcement is still low. The low enforcement is due to limited capacity in terms of resources and staffing to effectively monitor and enforce compliance on the implementation of the minimum wage in the formal and informal employment sectors. In addition, many employers and employees may not be aware of the minimum wage laws or may not understand their rights and responsibilities under the law. As a result, workers may accept wages that are below the minimum wage without realizing that they are being exploited. Finally, high incidence of informality in the informal sector makes it challenging for the government to enforce and monitor compliance with minimum wage laws in this sector. A large portion of the Kenyan economy (83%) operates in the informal sector, where wages and working conditions are often not regulated by the government. Low coverage and low enforcement of the minimum wage may have a larger impact in terms of examination of wage distributions in both the formal and informal sectors, and social convention of fairness by workers and employers, and possibly a spillover from hyperinflationary periods when an often-adjusted benchmark is required for wage setting.

Non-compliance with the Employment Act is an offence punishable by a fine of maximum Ksh 100,000 and or imprisonment for 2 years. A Labour Inspector is authorized to monitor and enforce compliance with the Labour Law.

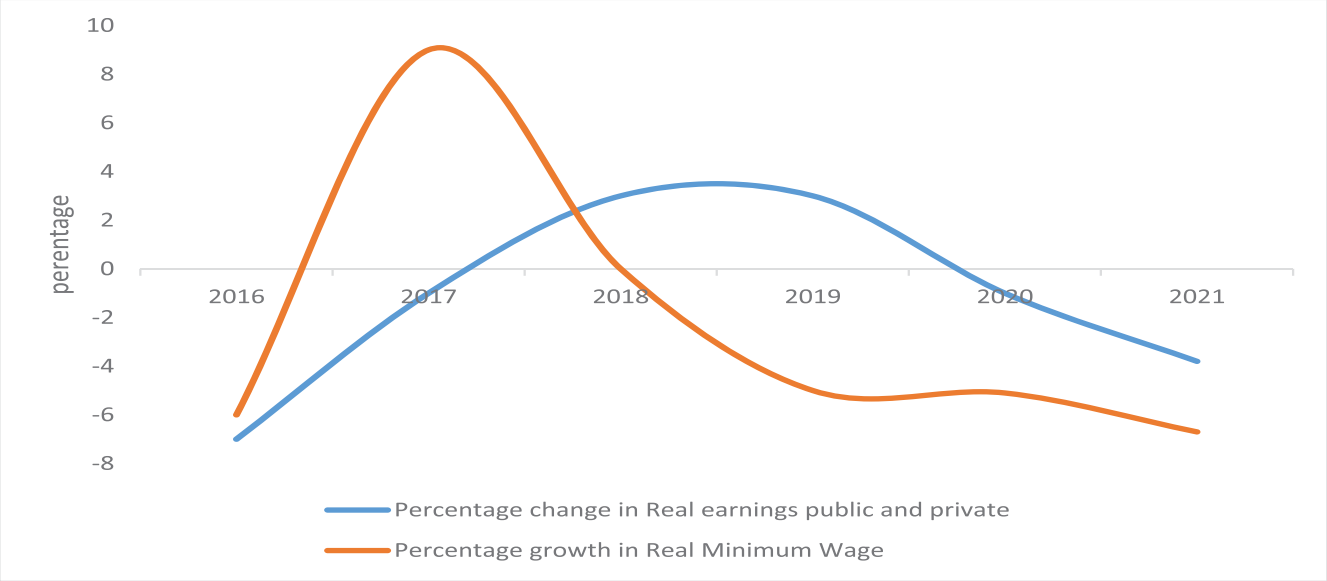
6.2 Trends in Minimum Real Wage in Kenya

Figure 6.1 represents trends in real minimum wage and real average wage in public and private sector for the years 2016 to 2021. Real earnings in public and private sector increased in 2019. This increase could be attributed to the strong economic growth in 2018 and 2019 of 5.6 per cent and 5.1 per cent, respectively. The steady economic growth could have created more job opportunities, which in turn could have driven up wages. In addition, the inflation rate was low in the same years with a rate of 4.7 per cent and 5.3 per cent in 2018 and 2019, respectively. This means that the purchasing power of Kenyan workers' wages may have increased, leading to an increase in real earnings. On the contrary, real earnings in public and private sector decreased in the years 2020 and 2021 by 1 per cent and 4 per cent, respectively. This could be attributed to the effects of COVID-19 pandemic and the increase in inflation of 5.4 per cent in 2020 and 6.1 per cent in 2021. When inflation rises faster than real earnings, the result is a decrease in the purchasing power of an individual's income.

The minimum wage fell in real terms to 5 per cent in 2019 compared to 2018. Real minimum wages declined further by 5 per cent and 7 per cent in 2020 and 2021, respectively. Though generally there has been a decline in real average wage, the real minimum wages have worsened. In 2019, real earnings grew by 3 per cent, while real minimum wage declined by 5 per cent. In 2021, real earnings dropped by 3.8 per cent, and real minimum wage declined by 6.7 per cent. This suggests that the impact of inflation is higher on minimum wage earners compared to higher income earners. This may lead to an increase in income inequality and poverty if the purchasing power of the low minimum wage

earners is not maintained. Additionally, the cost-of-living crisis exacerbated the situation, therefore reducing the purchasing power of low wage earners. This is because low wage earners spend most of their disposable income on essential goods and services, which generally experience greater price increases than non-essential items.

Figure 6.1: Percentage change in real minimum wage and real average wage (%)



Average earnings adjusted for the rise in consumer prices (Base year 2019).

Data Source: KNBS (Various), Economic Survey

Table 6.1 provides trends in gazetted average minimum wages for major sectors in Kenya since 2010. The monthly basic minimum wages in Mombasa, Nairobi and Kisumu were higher than those in former municipalities, town councils and other areas. There was no increment in the years 2014, 2016, 2019, 2020 and 2021, implying that minimum wage workers' purchasing power remained stagnant, reducing their ability to afford basic needs. This can increase income inequality as workers at the lower end of the income scale may struggle to keep pace with rising costs of living. In the formal sector, employees within a certain salary band typically receive an annual increment to cater for inflation as part of their employment contract or collective bargaining agreement. This is usually negotiated by the union representing the employees and the government or public institution.

Table 6.1: Gazetted monthly basic minimum wages (Ksh)

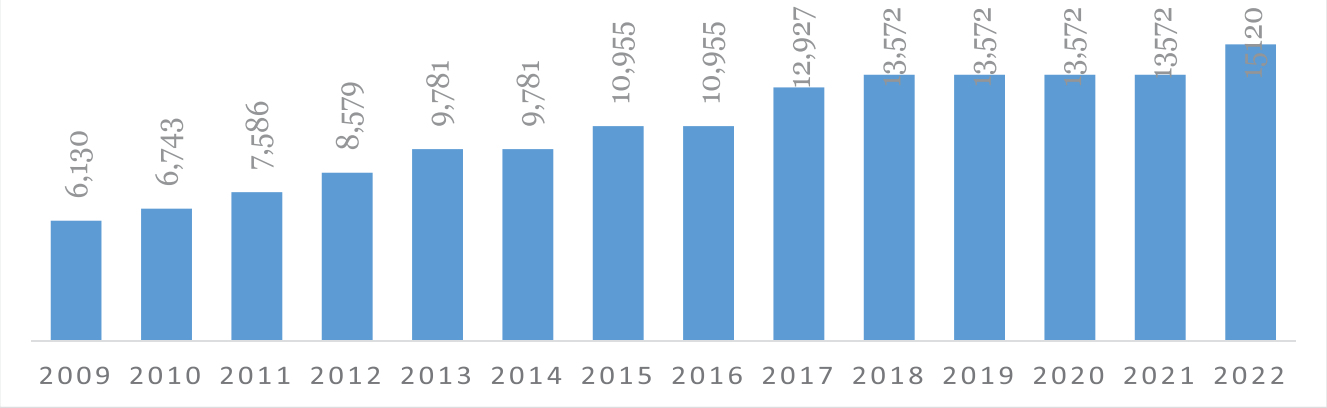
Year	Average Minimum Wage Cities	Average Minimum wages in former Municipalities and Town Councils of Mavoko, Ruiru and Limuru	Average minimum wage in other towns
2010	10,606	9,836	8,368
2012	13,471	12,515	10,646
2013	15,357	14,267	12,136
2014	15,357	14,267	12,136
2015	17,200	15,980	13,593
2016	17,200	15,980	13,593

2017	20,296	18,856	16,040
2018	21,311	19,799	16,841
2019	21,311	19,799	16,841
2020	21,311	19,799	16,841
2021	21,311	19,799	16,841
2022	23,868	22,174	18,862

Data source: KNBS (Various), Economic Survey

Minimum wages were set at Ksh 6,130 per month in 2009 and rose to a high of Ksh 15,120 per month in 2022 for the general occupations, which includes cleaner, sweeper, gardener, children's ayah, house servant, day watchman and messenger (Figure 6.2). Increase in gazetted minimum wages has not been consistent over the years, particularly in the last five years ending 2020 where there was no increase since there were no reviews since 2018. However, this amount was increased by 12 per cent in the minimum wage bill effective May 2022. Over the same period, there was erosion in real wages in both public and private sector, leaving workers worse off (Table 6.2).

Figure 6.2: Gazetted monthly minimum wages (Ksh)



Data Source: KNBS (Various), Economic Survey and Kenya Legal Notices on Minimum Wage (Various)

Trends in gazetted minimum wages for the general industry and for agricultural industry as from 2016 to 2022 have high variability. The two industries have received similar minimum wage increments over the years, therefore displaying an overlapping wage increment trajectory. The huge variation of the gazetted minimum wage increments over the years to the year 2022 are partly attributable to lack of generally agreeable parameters of implementing minimum wage increments to cushion workers against the erosion of wages.

Considering the case of changes in the combined public and private sector wages, analysis shows that public and private sector aggregate purchasing power was eroded by 6.3 per cent in 2016, 8.9 per cent in 2017 and 6.1 per cent in 2021. It is evident that the extent of erosion of wages for 2019 and 2020 are lower than the national inflation rates for each of the years. The inflation rates were 5.3 per cent in 2019 and 5.4 per cent in 2020. The effect of inflation on wages was much higher in 2017 and 2020 than in 2018 and 2019 as depicted by the contraction of real wages in the two years.

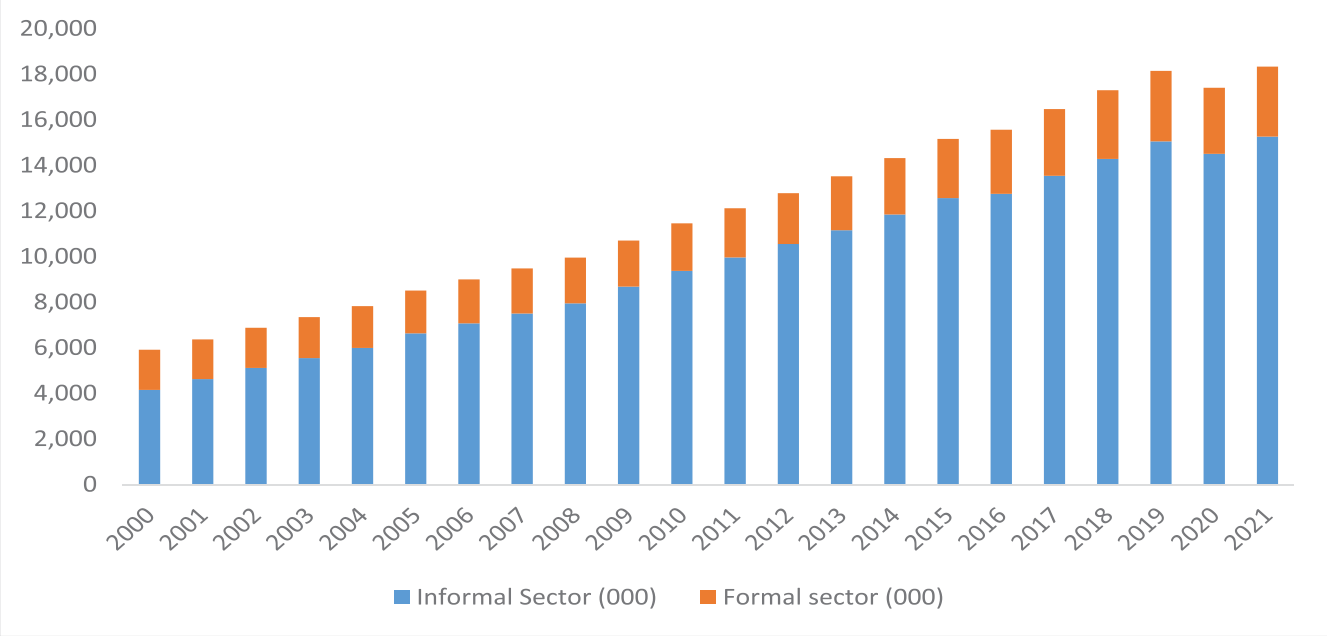
Table 6.2: Gazetted minimum wage and public and private sector wage changes (%)[5]

	2016	2017	2018	2019	2020	2021	2022
Annual inflation	6.3	8	4.7	5.3	5.4	6.1	7.6
Gazetted minimum wage increase (General Industry)	0	18	5	0	0	0	12
Gazetted minimum wage increase (Agricultural Industry)	0	18	5	0	0	0	12
Public sector nominal and real wage variation (Erosion)	-5.8	-8.6	-4.4	-4.9	-4.5	-6.1	
Private sector nominal and real wage variation (Erosion)	-5.7	-9.1	-4.4	-5	-4.7	-6	
Public and Private sector nominal and real wage variation (Erosion)	-6.3	-8.9	-4.4	-5.0	-4.6	-6.1	

Data source: KNBS (2022), Economic Survey

Figure 6.3 shows that wage employment in the modern sector has been low and, comparatively, employment was created more in the informal economy, whose share has been averaging three quarters of total employment over a decade. Kenya has a large and dynamic informal economy, which plays a key role in employment creation. Majority of Kenyans employed in the informal economy do not benefit directly from minimum wage because of the low coverage and low enforcement of minimum wage policy in the informal sector. The distinction between these two sectors of the economy arises from terms of employment, such as contractual arrangements, their enforcement and the resulting informality, skills required, difference in earnings and work conditions, among others. High incidence of informality poses a major challenge in terms of compliance for the rights of workers and enforcement. Despite the importance of informal sector in Kenya, the sector exposes workers to a myriad of challenges that compromise decent work for workers.

Figure 6.3: Employment distribution in Kenya by sector



Data source: KNBS (Various), Economic Survey

[5] Note: the erosion of purchasing power of wages in the formal sector, measured by the difference between nominal and real wages.

Most of the population are working in the rural areas, yet only 28 per cent earn above minimum wage. This is because most employees are in the informal sector and agriculture-based employment where minimum wage is not enforceable. Non-compliance compromises a worker's living wage. In urban areas, minimum wages were associated with those who work in non-agricultural activities. However, most of these workers are paid below minimum wage (82%). This calls for more focus on rural population and the informal sector sub-populations in enforcing and monitoring compliance of minimum wage laws. The government agencies responsible for enforcing minimum wage include the Ministry of Labour and Social Protection, the National Employment Authority, and the Labour Court.

Table 6.3: Categorization of minimum wage earners by location and sector (%)

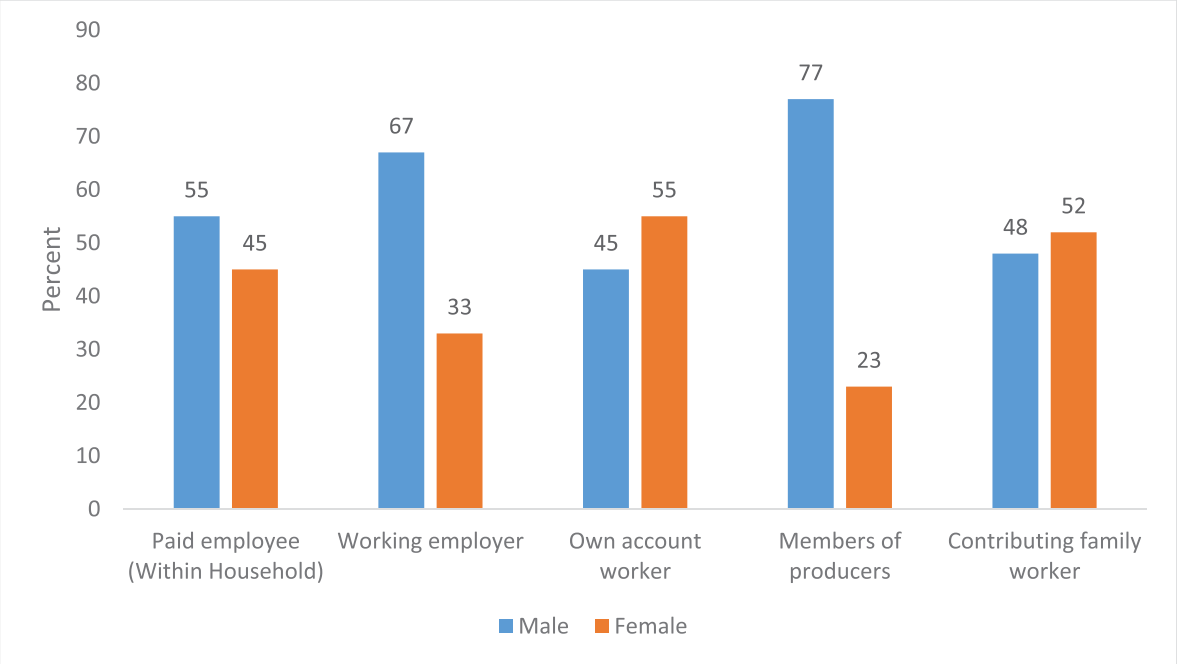
Location	Rural	Urban
Below Minimum Wage	72	48
Above Minimum Wage	28	52

Sector	Formal	Informal
Below Minimum Wage	65	82
Above Minimum Wage	35	18

Data source: KNBS (2016), KIHBS data 2015/16

Women are very active in the informal sector, and they represent more than half of the total informal economy. As seen, women in informal employment are over-represented in the most vulnerable employment category of contributing family workers and under-represented among employers and to employees (Figure 6.4). From the analysis, unpaid household work typically falls disproportionally on women, which affects the type of remunerated jobs they can take on and often leads to participation in informal employment. The consequence of this outcome is that opportunities for women to access better jobs and social security coverage are inadequate.

Figure 6.4: Distribution of informal employment by gender and status (%)



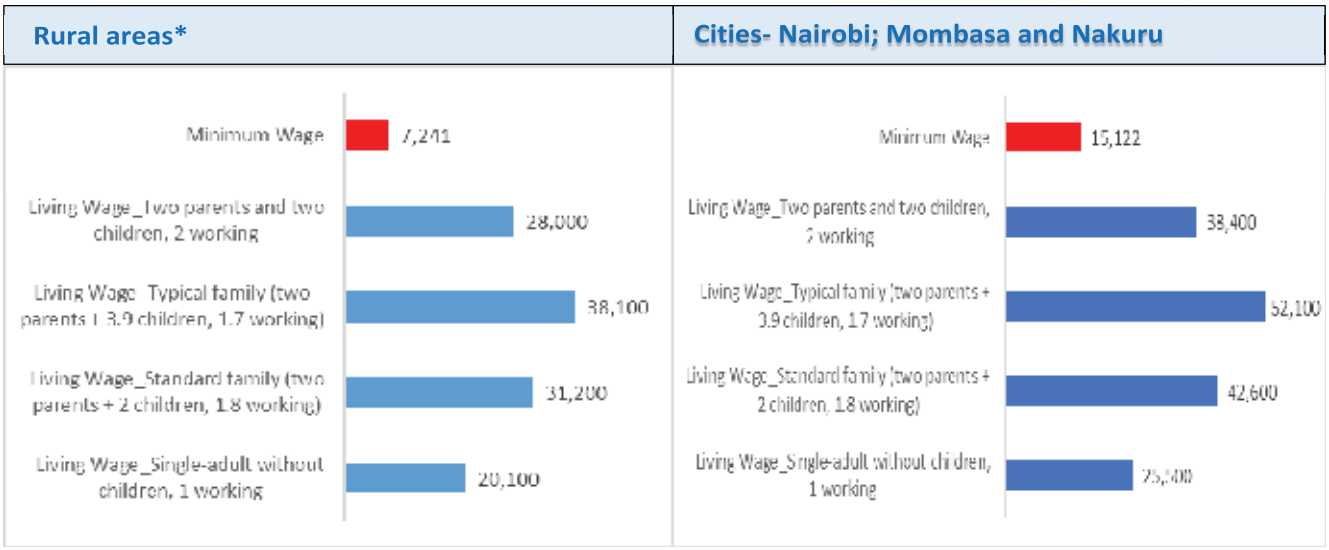
Data source: KNBS (2016), KIHBS data 2015/16

6.3 Linkage between Minimum Wage and Cost of Living

The rising cost of living has elicited concerns over the minimum wage versus the living wage needed to maintain an adequate cost of living. Living wage[6] is the amount of income required by a worker and his/her family to cover the cost of their minimum basic needs. Most studies have defined the minimum basic needs to encompass food, housing, clothing, healthcare, education, water and sanitation, transport, and communication (Army, 2022; ILO, 1928). The living wage draws on these cost elements and the rough effects of income and payroll taxes to determine the minimum employment earnings necessary to meet a family's basic needs while also maintaining self-sufficiency.

From Figure 6.5, the minimum wage only covers about half of the costs of living wage. This amount still falls short of the workers' amount to cover their basic expenses. A large proportion of the working population still earn a low income, despite the rising cost of living, hence constitute the working poor. As of 2021, Kenya had a total of 2,907,341 formal wage employees, out of which 1,227,104 earned less than Ksh 50,000, an equivalent of 42.2 per cent (KNBS, 2022). In addition, most of the employed population do not benefit directly from minimum wage. This is because minimum wage laws only cover employees who work in the formal sector, which amounts to only 17 per cent of workers. This implies the existence of minimum wage gaps, which could be attributed to disparities in statutory minimum wages allocation based on occupations, sectors, and regions.

Figure 6.5: Variation in living wage by family size (Ksh)



Data source: Ministry of Labour and Social Protection Kenya, and Wage Indicators data

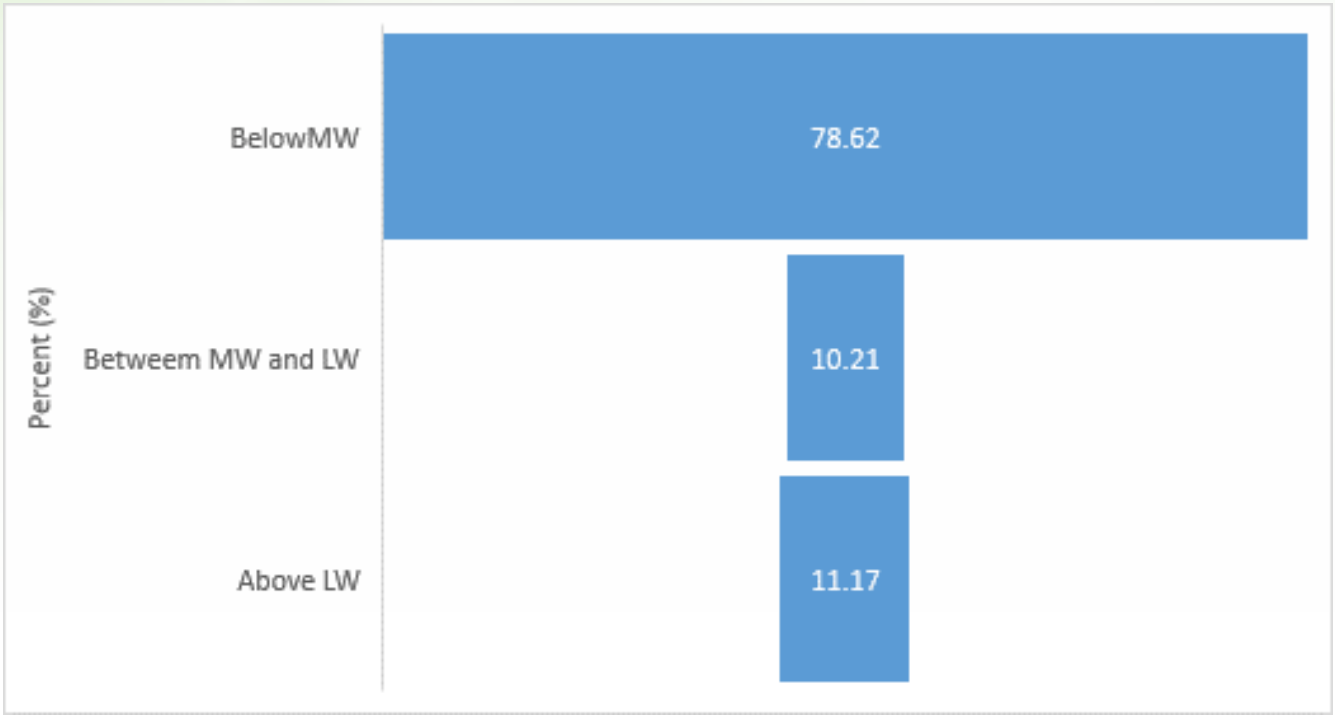
6.4 Minimum Wages and Poverty

One of the objectives of the minimum wages policy is to help low-income earners to overcome poverty. An increase in minimum wages could enhance the ability of workers to meet expenses that address key poverty indicators that constitute the Multidimensional Poverty Index (MPI). These include expenditures related to health, education, and access to decent housing, improved sanitation, and clean sources of energy and household assets. MPI provides a more comprehensive measure of poverty, considering a range of deprivations that people experience.

[6] Living wage is a summation of basic needs budget + (basic needs budget*tax rate). The computation varies by family composition and geographical. It is a market-based approach that draws upon geographically specific expenditure data related to a family

Analysis of the 2015/16 KIBHS data shows that 78.62 per cent of workers who are deprived earn below minimum wage (Figure 6.6). This shows that a considerable proportion of the workforce is struggling to make ends meet despite being employed. This could be due to a range of factors, including low wages, inadequate social protection benefits, and limited access to education and training opportunities. Raising the minimum wage would enable them to cover their basic needs, such as housing, education, and healthcare and therefore reduce deprivation.

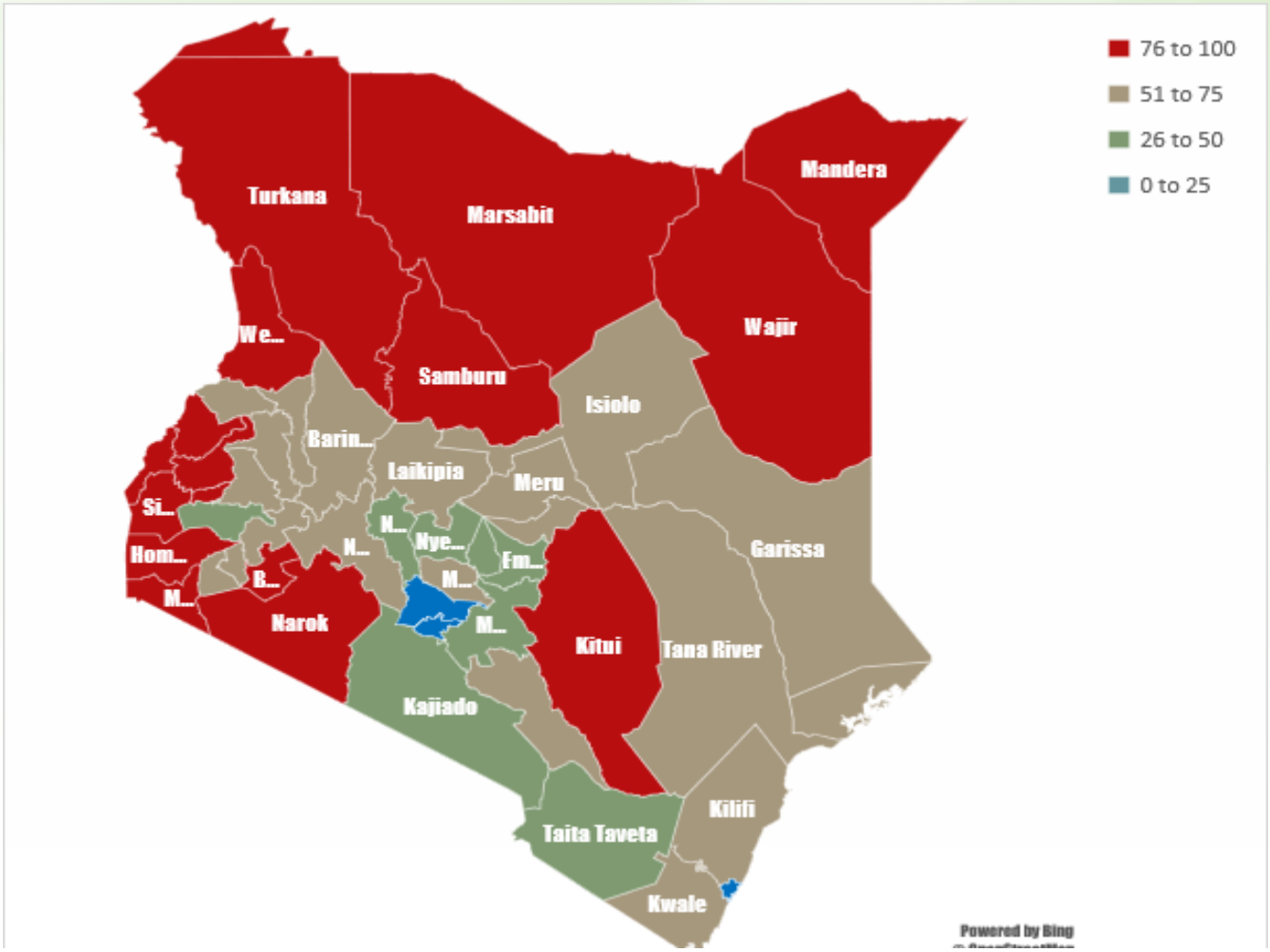
Figure 6.6: Proportion of deprivation across earning categories



Data source: Computation from KNBS (2016), KIHBS 2015/16

Multidimensional poverty is more severe in rural areas and especially in ASAL counties. These counties are characterized by poor access to infrastructure and social amenities, poor quality of work, insecurity, poor access to quality health care and education. Workers in ASAL counties are predominantly engaged in agricultural activities. They are low skilled and more likely to earn wages below minimum wage. Most workers in these counties are engaged in informal activities, which limits compliance of minimum wages and availability of data to support enforcement. Low compliance and enforcement of minimum wages implies that the intended objective of minimum wage on poverty reduction are not realized. Low wage earners have limited access to education and health services. This situation perpetuates the multidimensional poverty and inequalities between rural and urban areas. Raising minimum wages in the agriculture sector will not only raise incomes for workers but also make the jobs attractive. Figure 6.7 shows multidimensional poverty for counties in Kenya. The ASAL counties bore the greatest brunt of poverty, with over 75 per cent of the inhabitants being poor compared to Nairobi, Kiambu and Mombasa counties with poverty index between 15 and 22 per cent.

Figure 6.7: Multidimensional poverty per county



Data source: KNBS (2016), KIHBS 2015/16

6.5 Income Shocks to Minimum Wage

The cost of living has been on the rise, and this is intensified by rise in global prices of commodities, inflation, impact of COVID-19 and the prevailing drought in the Eastern and Horn of Africa. The high cost of living is driven by increase in food prices and the cost of housing and amenities that are necessities in the living wage. The mean monthly expenditure on food per adult equivalent is 54.3 per cent and non-food items is 45.7 per cent. The key components of the living wage include food, shelter, clothing, education, and healthcare. Food prices increased by 35 per cent between 2019 and 2022 (KNBS, 2022). Increases in cost of housing as measured by expenditures on rent and amenities are the second most significant driver of cost of living, having increased by 12 per cent since 2019. The cost of clothing, health and education services increased by 8 per cent, 5 per cent and 4 per cent, respectively, over the same period (KNBS, 2022).

Food prices account for over half of total spending in the country, rising to over 60 per cent in arid and semi-arid lands (ASALs). Interestingly, the value of food expenditure in rural areas was much more than their counterparts in urban areas as presented in Table 6.4. Households in rural areas spend more than 60 per cent of their income on food, which is much higher than the 48.8 per cent spent on food by households in core-urban areas. This implies that households

in core urban areas could be having access to higher disposable income, cheaper food and they might be having other competing expenses. Minimum wage for rural areas is lower when compared to monthly basic minimum wages for Nairobi, Mombasa and Kisumu cities, which are higher than in all other towns. Therefore, households in rural settings suffer greater impact when the cost of living goes up.

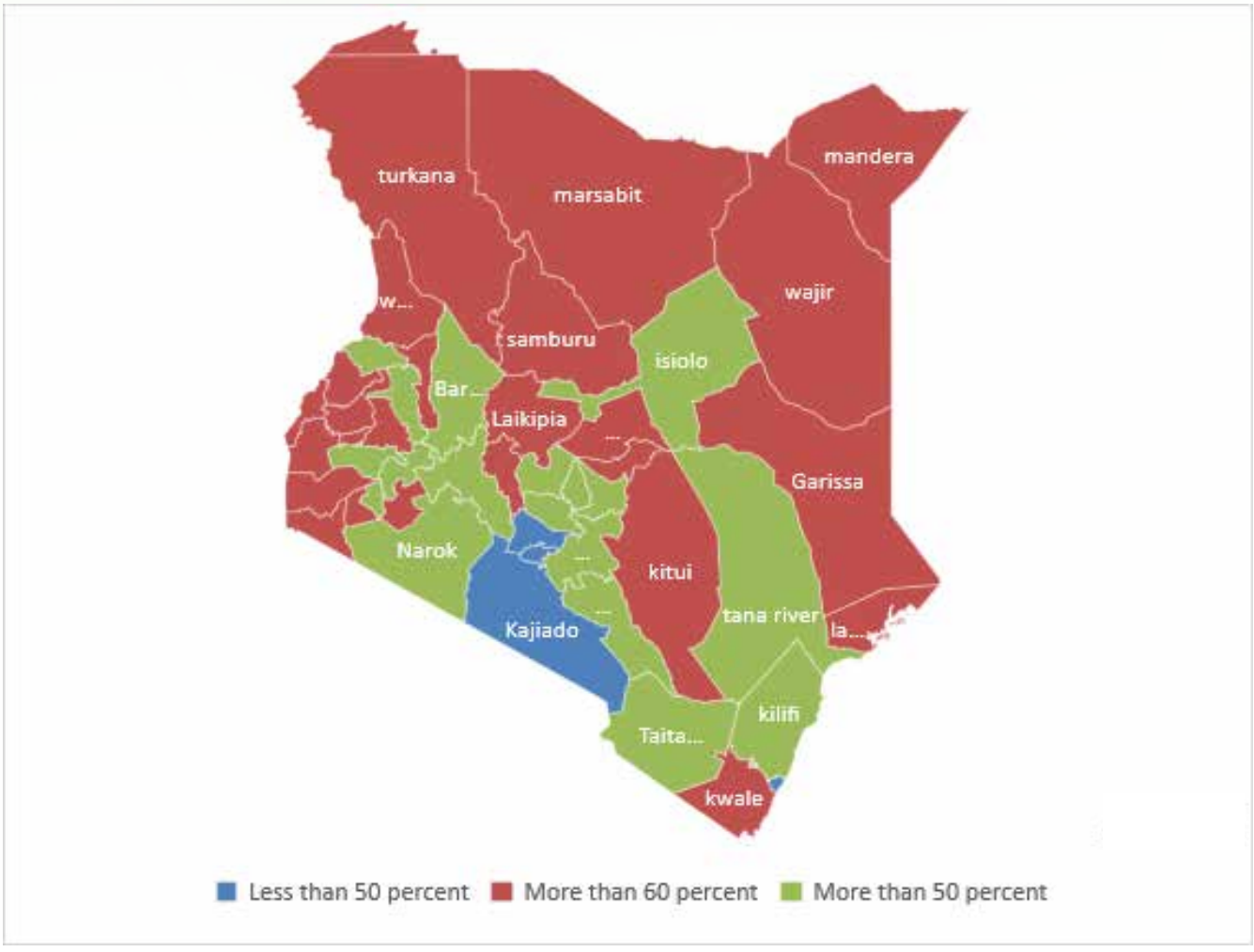
Table 6.4: Proportion on food expenditure (%)

	Food	Non-Food
National	54.3	45.7
Rural	64.7	35.3
Peri-urban	58.0	42.0
Core-urban	46.6	53.4

Data Source: KNBS (2018), Basic Report on Well-Being in Kenya

Among the counties (Figure 6.8), only four counties spend less than half of their income on food, namely: Nairobi, Mombasa, Kiambu and Kajiado, which could be attributed to food distribution. Surprisingly, counties in Western and Nyanza regions that are expected to have food spend about two thirds of their income on food. The highest food expenditure was in Turkana (76.2%) and Wajir (71.0%). The high cost of food is attributed to the cost of transport, drought and increase in farm inputs. This calls for putting in place drought response mechanisms, climate change mitigation, provision of farm inputs, support for small holder farming, equitable food distribution and national food reserves.

Figure 6.8: Proportion on food expenditure by county



Data source: KNBS (2018), Basic Report on Well-Being in Kenya

6.6 Comparison of Minimum Wage with Other Countries

Minimum wage laws vary across countries and are often determined by factors such as the cost of living, labour market conditions, political and social economic factors. For example, in 2021, Australia had the highest minimum wage in the world, where the national minimum wage was AUD 19.84 per hour (approximately US$ 15.11). This was followed by Luxembourg (EUR 2,202 per month, approximately US$ 2,622) and New Zealand (NZD 20 per hour, approximately US$ 13.84) (ILO, 2021). However, it is important to consider the purchasing power of the wage in each country. For example, a minimum wage of US$ 10 per hour in the United States may seem high when compared to other countries, but when adjusted for purchasing power parity, it may be lower than the minimum wage in other countries.

There are countries with much lower minimum wages. For example, in Mexico, the minimum wage is 141.7 MXN per day (approximately US$ 7.01), while in Indonesia, it is IDR 1,391,874 per month (approximately US$ 98) (ILO, 2021). In terms of minimum wage relative to the cost of living, some countries have higher minimum wages than others. For example, in Denmark, the minimum wage is high at DKK 110 per hour (approximately US$ 17.72), but this is also offset by a higher cost of living in the country. In contrast, countries like Indonesia and India have lower minimum wages but also lower costs of living.

Ideally, minimum wage should be enough to cover basic needs such as food, clothing, health care, education and housing, but this is not always a guarantee. Kenya can learn from other countries that have implemented minimum wage laws and policies to improve the implementation of its own minimum wage. Some potential lessons include:

1. Setting the minimum wage to align with the living wage: Countries such as Australia and New Zealand have set their minimum wage rates based on the living wage, which helps to ensure that workers can afford necessities. In addition, in Canada, some cities namely Vancouver and Toronto have implemented policies to align their minimum wage with a living wage. Kenya could consider similar approaches to ensure that its minimum wage is sufficient for workers to live on.

2. Regularly reviewing and adjusting the minimum wage: In the United Kingdom (UK), minimum wage rates are regularly reviewed and adjusted to reflect changes in the economy and cost of living.

3. Providing for effective enforcement mechanisms: Countries such as the United States and Canada have established strong enforcement mechanisms to ensure that employers comply with minimum wage laws. Kenya could consider strengthening its enforcement mechanisms to prevent employers from paying workers below the minimum wage.

4. Supporting collective bargaining: In countries such as Sweden and Norway, collective bargaining agreements between employers and workers help to ensure that wages are fair and that workers have a voice in setting their wages. Norway and Sweden have a high minimum wage, which is set through collective bargaining agreements and considers the high cost of living in the country. Kenya could encourage collective bargaining between employers and workers to help ensure fair wages and improve working conditions, especially in the informal sector.

6.7 Key Messages and Recommendations

6.7.1 Key messages

1. Kenya has, since independence implemented the minimum wage

policy, which is anchored in the Labour Institutions Act, 2007. Minimum wage is applicable to all workers in Kenya. All employers in Kenya are legally bound to implement the minimum wage provisions that set the lowest wage payable to workers. The minimum wage is recommended by Wage Councils based on trends in cost of living and prevailing economic conditions. The Wage Council comprises of representatives from COTU, FKE, and the government (represented by the Ministry of Labour and Social Protection, and the National Treasury and Economic Planning).

2. The minimum wage is revised annually and announced on 1st May. The review of minimum wage is aimed at improving the standard of living for workers. However, the review of minimum wage has not been consistent to align with the cost of living. Between 2018 and 2022, review of minimum wage was only done twice by 5 per cent in 2018 and 12 per cent in 2022, yet the revision is provided for on an annual basis. Therefore, minimum wage earners may struggle to afford necessities such as food, housing, clothing, education, and healthcare. Further, there has been a decline in average real wages and real minimum wage, and this was attributed to high inflation and the effects of COVID-19 pandemic. For example, in 2021, while average real wages dropped by 3.8 per cent, real minimum wage declined by 6.7 per cent in the same year.

3. Despite the existence of minimum wage regulations in Kenya, implementation has been constrained by limited compliance and enforcement. The limited enforcement of minimum wage can be attributed to limited resources and staff capacity and inadequate information and awareness among employees and employers. The Ministry of Labour and Social Protection, the National Employment Authority, and the Labour Court are responsible for enforcing minimum wage, but their ability to do so effectively is hindered by these challenges.

4. Most workers still earn below minimum wage, accounting for 77 per cent of total workers, out of which 29 and 71 per cent are in the formal and informal sectors, respectively. About 22 per cent of the workers in the formal sector earn below minimum wage and account for 29 per cent of minimum wage earners in the labour market. Most minimum wage earners are in the informal sector.

5. While minimum wage increased by 12 per cent in 2022, the cost of the minimum basket rose by an average of 22 per cent. In addition, the minimum wage in Kenya only covers about half of the living wage. This amount is inadequate for a worker to afford a decent living.

6.7.2 Policy Recommendations

1. The main objective of minimum wage is to ensure workers are paid income that at the bare minimum they can afford basic needs, which is ideally the concept of living wage. Presently, the allocated minimum wage is inadequate to afford a decent living. The Wage Councils, represented by COTU, FKE, and the government (Ministry of Labour and Social Protection and the National Treasury and Economic Planning) need to review and recommend minimum wage that is aligned with the prevailing living wages based on trends in the cost of living and economic conditions. This is in line with the Bottom-Up Economic Transformation Agenda of the government that aims to enhance the productivity of workers in the informal sector, thereby enabling the industries to pay workers a living wage.

2. The Ministry of Labour and Social Protection needs to strengthen enforcement of minimum wage policy in the informal sectors to ensure that all workers are paid at least the minimum living wage. This can be done through building capacities of enforcement agencies, namely the Ministry, NEA, and labour courts to oversee compliance of the minimum wage policy. Employers and employees need to be made aware of the rights under minimum wage laws. Campaigns could be conducted through various channels such as radio, television, and social media.

3. Every worker eligible for minimum wage should be paid as stipulated in the law. This will promote social justice and reduce poverty. The key strategies include strengthening enforcement by providing resources for enforcement agencies, ensuring that employers who violate these laws are held accountable by increasing the penalties for non-compliance.

4. Provision of a comprehensive social protection system (other than minimum wage) targeted for the poor and vulnerable to improve and sustain their livelihoods and welfare. This can be done through provision of reliable and affordable public transport for workers, housing, universal health care and universal education to cushion the minimum wage earners against the high cost of living. The social protection system will compensate the household budget by meeting their basic needs, allowing them to move to a higher satisfaction level.

7 ROLE OF CREDIT MARKET IN MANAGING COST OF LIVING

The credit market is one of the channels that households can use to cope with high cost of living and other income shocks. From the FinAccess 2021 Household Survey, high cost of living was cited as a dominant income shock faced by households, with more than half of households reporting having experienced high cost of living. Health-related incidents and job losses were other dominant shocks experienced by households. However, health-related incidents seem to recur, pointing to the existence of catastrophic health expenditure among Kenyans. Households tend to adopt multiple strategies in the event of shocks, including adjusting consumption, using savings and disposing assets, borrowing from formal and informal channels, seeking assistance from family and friends, and insurance coverage. For most households, cutting down on spending and getting assistance from family and friends are the most popular strategies employed. Reliance on formal insurance and accessing formal credit is largely limited. Majority of households particularly in rural areas access credit outside the formal channels. For those borrowing, the choices are usually driven by availability and convenience. Other than consumption adjustment and getting assistance from family and friends, asset disposal, particularly sale of livestock, is a key coping strategy adopted by rural households. Across gender, both males and females are equally likely to adjust their consumption expenditure. However, females are more likely to rely on social networks compared to men when faced with a shock, while men are more likely to access both formal and informal credit, dispose assets and use insurance compared to females. Analysis based on the age categories reveals that the youth are less able to use savings, formal credit and insurance. To enhance households' coping strategies, deepening the credit market to offer products that can be used to cope with various shocks and enhancing social protection programmes for the vulnerable households is critical. Further, expansion of formal insurance programmes to address repetitive shocks such as health is a priority.

7.1 Introduction

Credit markets range from well-developed commercial banks, microfinance institutions, Savings and Credit Co-Operative Societies (SACCOs), and informal channels. In this chapter, the coverage of credit markets includes commercial and microfinance banks, SACCOs, insurance companies, digital lenders, and informal borrowing channels. Credit markets play an important role in an economy. On a macro scale, growth of credit facilities creates new opportunities for citizens in a country. At a micro level, strong credit markets can improve the well-being of families by helping them smoothen incomes and expenditures, increase and diversify earnings, and accumulate assets even in the face of economic fluctuations that tend to impact upon them, and the classes below them, disproportionately (FSD Africa, 2016). For firms, credit availability may have positive effects on firm productivity, as it might support productivity-enhancing strategies. Financing is important for firms because it helps in expansion of operations, innovation, and investing in production facilities and new staff. Firms facing tighter credit constraints may invest less in research and development because of liquidity risk.

Access to credit can enable growth of existing micro-enterprises managed by households, and start-up of new ones. This results in improved incomes, which enables investment in health and education. Access to credit by households also enhances consumption-smoothing and bolsters resilience to shocks such as job loss, diseases and poor harvest. Household debt can be, if used correctly, the grease for economic mobility. By borrowing, many more families can afford to buy a home, car, or college education than would otherwise be the case. Debt allows families to smoothen out income fluctuations due to short-term spells of unemployment, a medical emergency, among others (Weller, 2008).

For consumers in any country, the decision to enter the debt market depends on both demand and supply factors. On the demand side, consumers' desire to borrow will determine their probability of participating in the credit market. On the supply side, lenders will decide whether and how much to lend, considering the capacity of their potential borrowers to repay. Actual debt observed is the result of both demand and supply factors. It will be lower than desired if consumers are not able to obtain the credit they want, due either to quantity rationing or the high price of credits. Consumers who are not able to obtain as much credit as they want are credit constrained (IMF, 2008). Apart from encouraging economic growth, consumer credit can cushion individual families from downturns, particularly by smoothing consumption and enabling better job searches after retrenchment. In Africa, credit can help enable livelihood shifts, especially from agriculture to small enterprises. It can also help finance education spending, important for the upward mobility of the next generation. Both choices shift away from agriculture and increase education spending, which are characteristics of movements towards a middle class.

7.2 Credit Market in Kenya

In Kenya, the most common options for credit include commercial banks, mobile money, informal groups, insurance, digital apps and microfinance institutions. From the 2021 FinAccess Report, mobile money was the most used financial platform as of 2021, accounting for 81.4 per cent of users, followed by banking institutions at 44.1 per cent, then informal groups at 28.7 per cent. The usage of digital loan apps declined to 2.1 per cent in 2021, from 8.3 per cent in 2019 mainly due to increased competition from bank-based product innovations, unfair debt collection practices by the Digital Loan Apps, non-listing of borrowers to the Credit Reference Bureaus (CRBs), and anticipated regulation of the Apps by the Central Bank of Kenya. The credit market in Kenya offers a number of products to customers, some of which can be used in periods of emergencies or high cost of living (Table 7.1).

Table 7.1: Products offered by selected players in credit market

Credit Market	Products
Commercial Banks	• Secured loans • Unsecured loans • Mobile loans • Investment loans • Home loan/Mortgage • Savings and deposits
Microfinance Banks	• Check-off loans • Business loans • Investment loans • Savings and deposits

SACCOs	• Emergency loans • Education loans • Business loans • Development loans • Savings and deposits
Digital Lenders	• Emergency loans • Salary advance (for employed people) • Business loans
Chamas	• Emergency loans • Business loans • Education loans • Asset financing loans
Government Funds (Youth Enterprise Fund, Women Enterprise Fund, Uwezo Fund and Financial Inclusion Fund)	• General business loans • Bid bond and local purchase order / local service order loans • Agriculture loans

Data source: Various Banks and Microfinance Institutions

However, one of the main criticisms of the credit market in Kenya is that the cost of credit and the interest rate spread by the banking sector is high. On average, annual interest rate for the Kenyan banking sector is within a range of 12 per cent to 14 per cent for various categories of loans offered. This is approximately 8.0 percentage points higher than South Africa's average annual rate, which stands at around 4 per cent. This has raised concerns from government, regulators and Parliament. Consequently, in September 2016, Parliament introduced a legislation to control interest rates. The cap had set the maximum interest rate charged for any credit facility to be no more than 4 per cent of the Central Bank Rate. High cost of credit has been one of the major challenges hindering the growth of the private sector.

Digital lending apps charge high interest rates, and this partly contributes to a rise in defaults. Putman et al. (2021) conducted a study on digital credit market inquiry in Kenya, which revealed the expensive nature of digital credit in Kenya. They used a sample of four digital credit providers in Kenya to measure the effective price of credit. The study found that digital credit in Kenya is expensive, with a mean effective Annual Percentage Rate (APR) of 280.5 per cent and median effective APR of 96.5 per cent. This is higher than the banking sector average APR for unsecured loans, which is around 24 per cent.

There has been a significant rise in bank credit to the public sector relative to private sector credit, particularly since 2017 during the interest rate capping period. For example, in January 2015, before the interest rate capping was implemented, the public sector accounted for 9.6 per cent of total credit while the private sector accounted for 88.4 per cent. In January 2017, the share of public sector credit in domestic credit increased to 19.7 per cent while private sector credit declined to 76.6 per cent. A further decomposition of domestic credit in December 2022 (post-interest cap period) reveals that the share of public sector credit increased to 35.3 per cent while private sector credit declined to 63.2 per cent.

Other than the existing financial institutions, government agencies also provide public funds. Over the years, the government has made significant progress in addressing issues of inequality and unemployment through establishment of economic empowerment programmes. This has been partly through the establishment of various affirmative action funds such as the Youth Enterprise Development Fund (YEDF), Women Enterprise Fund (WEF) and *Uwezo* Fund. These funds have been established to ensure access to affordable credit by the targeted groups.

The funds that are operational are shown in Box 7.1.

Box 7.1: Government funds

(i) **Youth Enterprise Development Fund**
The Youth Enterprise Development Fund (YEDF) was established through Legal Notice No. 167 of 2006 to address the challenge of youth unemployment. The fund was transformed into a State corporation in 2007 through Legal Order No. 63. The fund aims to economically empower and create job opportunities for the youth by enhancing access to affordable credit to promote enterprise development. The loan attracts some interest, depending on the nature of financing. For example, for Local Purchase Order (LPO) financing, the loan attracts an interest of 1.5 per cent after 90 days and a commission of 6.5 per cent on the amount borrowed.

(ii) **Women Enterprise Fund**
The Women Enterprise Fund (WEF) was established through Legal Notice No. 147 of 2007 to provide credit to women to start income-generating activities. The fund aims to provide access to affordable housing credit and business support to women entrepreneurs to start or expand their businesses to create more employment opportunities. The fund is meant for women above 18 years and can be accessed either as an individual or a group. Loans from WEF are interest free but attract an administrative fee of 5 per cent. They are repayable within a year with a 3-month grace period before the first repayment.

(iii) **Uwezo Fund**
Uwezo Fund was established under the Public Finance Management Act, 2014 through Legal Notice No. 21. The objective of the fund is to provide credit to women, youth and persons living with disabilities to promote businesses and enterprises at the constituency level. The fund gives a grace period of six months from when the loan is disbursed, and the loan does not attract any interest. However, the loan attracts 5 per cent administrative fee repayable within a year. One also undergoes training before being granted a loan, and this is linked to 30 per cent Access to Governmental Procurement Opportunities (AGPO).

(iv) **Financial Inclusion Fund**
The Financial Inclusion Fund (*Hustler Fund*) is an initiative by the government to deploy bottom of the pyramid financial services and products that are affordable, accessible and appropriate for the unserved and under-served persons. In November 2022, the National Treasury and Economic Planning developed regulations to access the Ksh 50 billion fund. Depending on a borrower's credit score, the loan limit ranges between Ksh 500 to Ksh 50,000. The financial inclusion fund was officially launched on 30th November 2022. Borrowers of the fund are expected to pay an interest rate of 8 per cent per year.

Some of the challenges that have been linked to affirmative action and other publicly funded credit schemes include cumbersome application procedures, political interference, duplication of objectives of these funds, low levels of awareness, non-repayment of loans due to lack of legal framework on recovery of funds, high administration fees and inadequate monitoring and evaluation.

7.3 Policy Response to Ease Access to Credit

The government recognizes the challenges faced by small borrowers in accessing credit in the financial market. As a result, the government aims to improve access to financial services, particularly to Micro, Small and Medium Enterprises (MSMEs) and ensure greater efficiency in the delivery of financial services. Some of the policy measures that the government has adopted in the past to promote financial inclusion to improve access to credit are shown in Table 7.2.

Table 7.2: Policy developments/reforms in Kenya's credit market

Policy	Focus Areas (Goals)
Credit Reference Bureaus -2008	• Credit Reference Bureaus offer the financial sector with credit information, hence reducing risks lenders are exposed to. • They collect data on loans issued by financial institutions and generates reports on borrowers' credit history. The aim is to ascertain credit worthiness of borrowers, hence reducing incidences of non-performing loans.
Interest Rate Cap - 2016	• The interest rate cap was imposed in September 2016 to ensure affordable mainstream bank credit by workers and small enterprises. • The interest rate cap was however repealed in November 2019.
Movable Property Security Rights Act-2017	• This is a framework introduced in 2017 to govern the use of movable property as collateral for credit facilities. • It allows borrowers to use tangible movable assets such as livestock, cars, crops, machinery, electronics and furniture and intangible assets including savings accounts or deposits, unpaid invoices, shares and intellectual property as collateral for loans.
Credit Guarantee Scheme (CGS) - 2020	• Banks are always reluctant to extend uncollateralized credit to MSMEs even for economically and financially viable projects. Therefore, CGS was established to: De-risk lending to Micro, Small and Medium Enterprises (MSMEs) through public credit guarantee scheme. It is meant to enhance banks' risk-taking capacity through risk sharing. Enhance access to quality and affordable credit from formal lending institutions by MSMEs. • In 2020/21, the government allocated Ksh 3.0 billion towards CGS. As of December 2021, 1,291 credit facilities amounting to Ksh 2.11 billion had been advanced to MSMEs across 45 counties.
Financial Inclusion Fund (Hustler Fund) - 2022	• Financial Inclusion Fund is an initiative of the National Government aimed at increasing access to credit by persons, MSMEs, organized groups such as *Chamas* and SACCOs. • The fund provides affordable credit facilities to those at the bottom of pyramid and improves a culture of savings and investment.

7.4 Income Shocks and Households Behaviour

7.4.1 Shocks to household income/budget

In the Financial Access (FinAccess) survey in 2021, households were asked to mention an event that had the greatest shock on their incomes in the 12 months to the survey. The list of shocks indicated in the survey ranged from social, economic and natural disasters. High cost of living was the main income shock to majority of households (Table 7.3). In the last 12 months, 55.5 per cent of households who suffered income shocks attributed this to high cost of living. Other major income shocks that households faced include health-related issues (17.8%) and loss of employment (11.2%).

Table 7.3: Income shocks faced by households

Income Shock	Rural (%)	Urban (%)	Overall (%)
2021			
Cost of living	56.0	54.5	55.5
Major sickness/health problem/accident	19.0	15.3	17.8
Loss of a job or a source of income	5.2	17.2	11.2
Death of a family member	6.3	7.1	6.6
Flooding/drought/climate-related	4.5	1.2	3.4
Death of main income earner	2.9	2.3	2.7
Pest/ diseases (locust)	1.5	0.4	1.1

High costs related to a childbirth	0.9	1.6	1.1
Non-climate-related loss	0.7	0.5	0.6
2019			
Major sickness/health problem/accident	57.6	59.3	58.1
Loss/damage of business/livestock or crop	20.1	9.5	16.1
Death of main income earner	3.2	3.1	3.1
Death of a family member or other relative	12.1	17.7	14.3
Loss/damage of major asset/ money	2.8	4.0	3.4
Childbirth	3.4	4.9	4.0
Other	0.7	1.6	1.1

Data Source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Most of the income shocks affected rural and urban households in same proportions. However, loss of jobs was more pronounced in urban settings. The proportion of households who experienced high cost of living as a shock was nearly similar in rural and urban areas, but most urban dwellers (17.2%) experienced loss of jobs compared to 8.2 per cent for the rural households. It is also notable that more rural households experienced health-related income shocks compared to urban households.

At the county level, the predominant shocks experienced by households was high cost of living. At least 20 per cent of households in 45 counties cited high cost of living as the main income shock (Table 7.4). Counties whose majority of respondents (60% and above) cited high cost of living are mainly in the arid and semi-arid lands (ASALs) such as Tana River, Garissa, Marsabit, Kitui and Makueni. This is because these regions are usually characterized with inadequate rainfall, low agricultural production and consequently higher food prices.

Table 7.4: Shocks by county (%)

County	Health	Climate Related	Death Bread Winner	Death of Relative	Non- Climate (Fire & Theft)	Childbirth	Job Loss	Cost of living	Pest/ Diseases
Baringo	16.6	4.2	4.6	1.2	3.7	0.2	7.8	58.4	3.2
Bomet	11.8	3.1	0.6	4.7	0.6	0.6	9.3	68.5	0.6
Bungoma	29.9	1.0	1.9	10.7	0.2	1.0	10.7	43.8	0.7
Busia	8.6	3.4	0.4	6.5	0.0	1.3	7.6	72.3	0.0
Elgeyo Marakwet	11.7	3.2	7.1	3.2	4.2	0.0	5.8	63.0	1.6
Embu	23.7	0.6	2.9	4.5	0.6	1.0	11.4	53.2	1.9
Garissa	1.1	12.4	0.5	2.2	0.0	0.0	0.5	81.2	2.2
Homa Bay	30.4	1.0	19.4	15.4	1.3	3.0	11.7	17.1	0.7
Isiolo	15.8	20.0	2.3	5.4	1.7	1.1	14.1	38.6	1.1
Kajiado	13.2	8.1	1.3	9.4	0.3	1.8	23.8	41.0	1.3
Kakamega	23.7	0.0	2.4	9.9	0.0	1.6	11.6	50.9	0.0
Kericho	34.1	0.0	1.3	5.3	0.0	0.7	9.3	48.7	0.7
Kiambu	18.5	1.5	2.3	5.4	0.4	0.4	18.1	53.5	0.0
Kilifi	16.1	1.0	0.5	18.8	1.0	2.1	5.7	53.6	1.0
Kirinyaga	51.2	0.6	1.2	11.1	0.6	1.9	12.3	20.4	0.6

Kisii	23.8	0.0	1.3	3.3	0.0	2.8	13.5	55.4	0.0
Kisumu	40.8	0.7	6.5	14.4	0.3	3.8	14.4	18.8	0.3
Kitui	5.3	0.3	1.8	0.6	0.0	1.2	13.3	77.3	0.3
Kwale	10.3	8.1	3.7	13.2	0.4	0.4	13.6	50.0	0.4
Laikipia	15.1	3.8	0.0	1.6	1.6	0.5	10.8	64.5	2.2
Lamu	12.7	3.6	0.8	12.4	0.8	2.0	0.0	67.7	0.0
Machakos	18.6	0.0	1.9	4.0	0.0	1.1	12.7	61.4	0.2
Makueni	14.3	1.1	1.4	3.9	0.6	0.3	8.4	69.5	0.6
Mandera	10.0	6.2	7.7	7.7	0.0	0.5	9.6	51.7	6.7
Marsabit	11.1	1.9	1.6	2.2	0.3	0.6	3.5	78.7	0.0
Meru	11.4	0.3	3.8	1.6	0.0	0.6	13.3	68.6	0.3
Migori	25.7	2.3	5.4	13.1	0.2	2.5	8.7	40.5	1.7
Mombasa	15.4	0.5	4.0	10.9	0.0	1.5	27.4	40.3	0.0
Murang'a	60.4	5.7	3.1	6.9	0.0	0.6	10.1	11.9	1.3
Nairobi	11.2	0.0	1.0	9.8	0.5	0.5	21.1	56.0	0.0
Nakuru	18.7	1.4	1.6	2.7	0.0	0.6	19.9	55.2	0.0
Nandi	19.9	0.0	3.2	10.2	0.0	0.5	2.7	63.4	0.0
Narok	9.9	4.7	2.0	10.7	2.0	1.6	19.8	46.6	2.8
Nyamira	17.8	0.2	1.8	1.6	0.0	1.8	16.8	60.0	0.0
Nyandarua	24.8	2.5	1.9	3.1	0.0	0.0	5.0	62.7	0.0
Nyeri	11.6	0.0	1.2	2.6	0.5	1.9	17.9	64.4	0.0
Samburu	10.9	27.2	2.3	2.3	1.1	0.8	10.9	41.9	2.6
Siaya	9.7	0.4	0.6	6.7	0.0	0.4	6.9	75.1	0.0
Taita Taveta	14.2	2.0	0.7	18.2	1.0	0.7	3.3	59.9	0.0
Tana River	8.8	1.3	0.6	0.0	0.6	1.3	0.6	86.8	0.0
Tharaka Nithi	19.2	2.3	0.4	3.5	0.0	0.8	3.5	66.5	3.8
Trans Nzoia	24.3	0.7	2.9	8.6	0.0	1.8	18.2	42.1	1.4
Turkana	18.4	31.6	5.2	7.2	3.6	2.0	4.0	23.2	4.8
Uasin Gishu	22.7	0.8	1.6	9.0	0.0	0.8	1.6	63.5	0.0
Vihiga	19.3	0.0	1.9	6.7	0.2	0.2	9.1	62.3	0.2
Wajir	3.7	12.3	3.7	7.4	0.8	1.2	5.7	52.0	13.1
West Pokot	11.5	1.5	5.7	0.9	1.7	0.2	10.5	65.4	2.6

Data Source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

7.4.2 Households' financial goals and food security

To understand their financial goals and health, households were asked to mention the most important goal in their lives (Table 7.5). The two most important financial goals for households were spending on educational needs (32.0%) and putting food on the table (29.0%). The goal of putting food on the table is more important to rural households (30.7%) compared to urban households (28.3%). The fact that putting food on the table is one of the most important goals to majority of households is an indication that most households have limited financial resources and are food insecure, and that most of the income is spent on food.

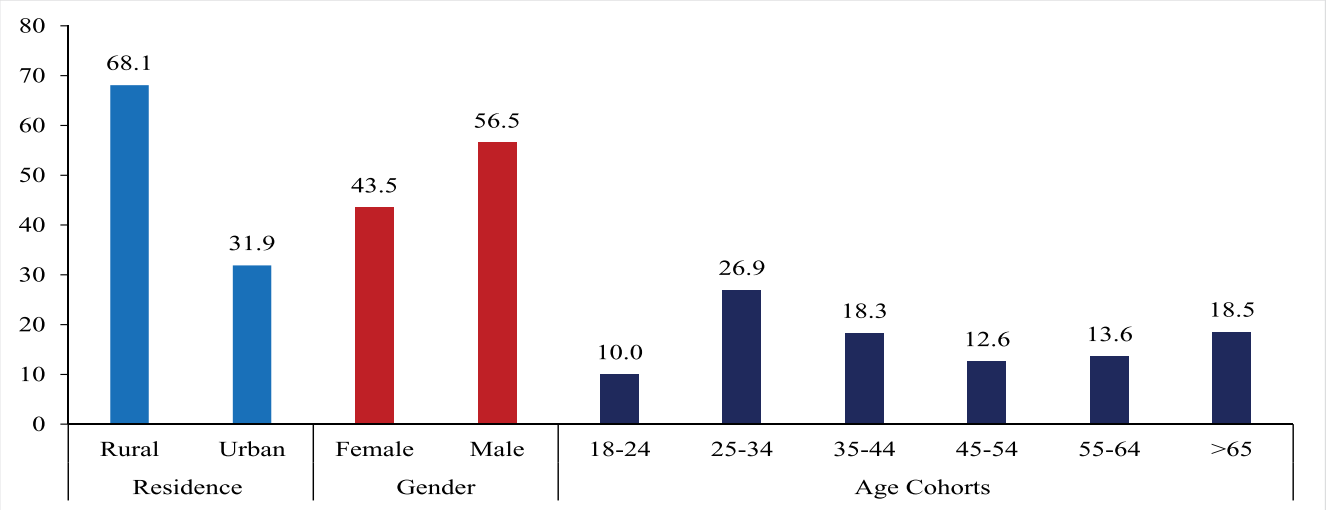
Table 7.5: Most important financial goals to households

Main Goal in Life	Rural	Urban	Overall
Putting food on the table	30.7	28.3	29.9
Educating yourself or your family	33.1	29.8	32.0
Starting/Improving your business/farm/ add livestock	15.6	15.1	15.4
Buying household assets e.g. TV, refrigerator	0.1	0.2	0.1
Buying land/ Building a house / improving your house	4.2	5.0	4.4
Health (yourself or family/ others)	10.5	10.6	10.5
Getting a job/developing your career	5.9	11.0	7.6

Data Source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Majority of households whose main financial goal was putting food on the table are from rural areas (Figure 7.1). About 68 per cent of households whose main goal is to put food on the table are from rural areas while 31.9 per cent are from urban areas. Across gender, males (56.5%) are more worried about putting food on the table compared to females. Across the age cohorts, most of those who are worried about putting food on the table are the youths, with majority aged between 25 and 34 years. Those in the age category of 18-24 years are the least worried about putting food on the table. By linking this to borrowing sources, the findings reveal that 95.0 per cent of those whose main goal is putting food on the table borrow from informal channels.

Figure 7.1: Goal of putting food on the table (%)

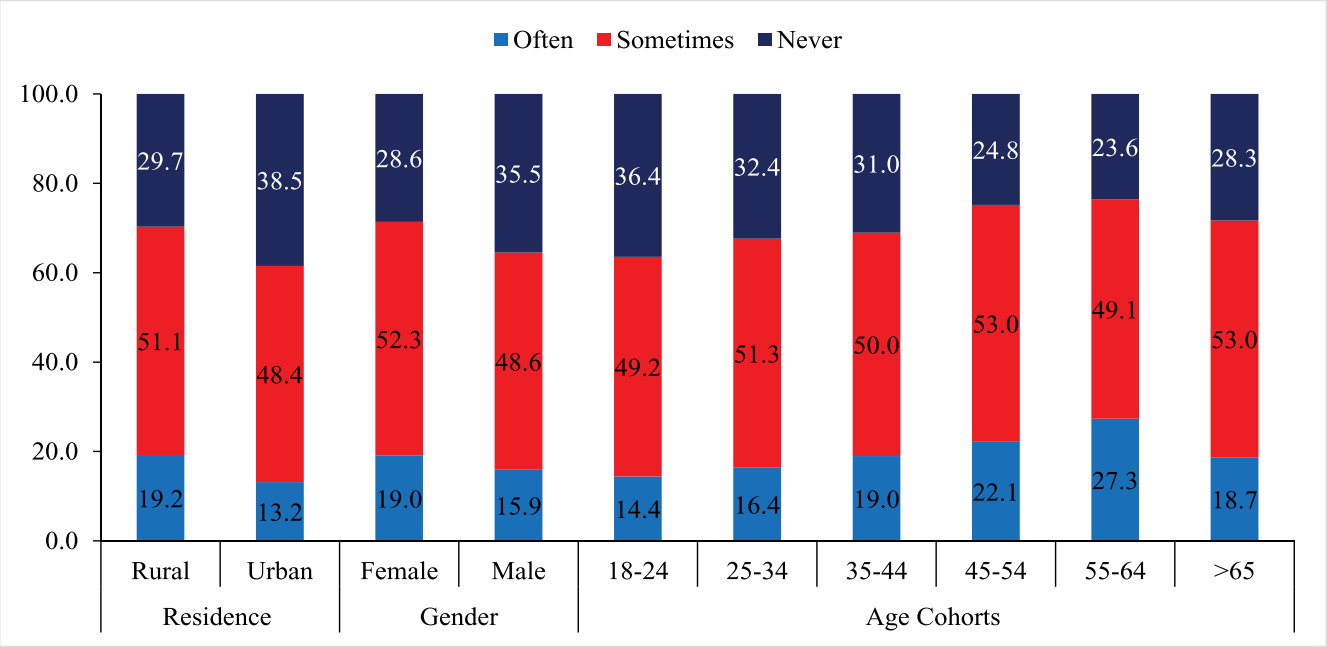


Data Source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

To understand the level of vulnerability to food insecurity, households were asked to state how often they had gone without food to eat (Figure 7.2). On average, 17.3 per cent of households often go without food, with households from rural areas more likely to go without food compared to their counterparts in urban areas. The results further show that females more often go without food compared to males. Those aged more than 45 years are more likely to frequently go without food compared to other age groups.

In terms of food insecurity and access to finance, those without access to formal credit constitute most households who often go without food. Furthermore, they are mostly engaged in informal employment. The findings further show that only a few Kenyans are food secure, with just 32.5 per cent not having gone without food to eat. Most households sometimes go without food, depicting low levels of food security existing among Kenyan households.

Figure 7.2: Households' vulnerability to food insecurity (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

7.4.3 Coping with income shocks

Households were further asked to state how they responded to various shocks listed in Table 7.3. The findings show that households respond to shocks differently. The most popular coping strategies to income shocks by households are reducing expenses and getting assistance from friends and family (Table 7.6). About 24 per cent of households who experienced income shocks adjusted their consumption patterns by reducing spending. Cutting down on spending implies consuming and spending less on nutritional food items. This exposes vulnerable households to nutritional shocks. About 23 per cent of households who encountered income shocks relied on assistance from family or friends. Other important coping strategies include disposing assets such as livestock (10.7%), drawing on savings (10.1%) and getting additional jobs (8.6%). Borrowing was also used as a coping strategy. However, borrowing from informal channels was more popular compared to borrowing from main banking institutions. This reveals the challenges that households face in accessing formal finance in Kenya, with only 3.3 per cent of households having access to formal finance. Compared to 2019, taking goods on credit became popular in 2021, pointing to the predominant shock (high cost of living) experienced in 2021. However, this strategy may be unsustainable since some households may default on their payments, and most sellers usually rely on regular cash flows to maintain their businesses. This may lead to closure of some businesses.

Table 7.6: Coping with income shocks by households

Coping Strategy	Rural (%)	Urban (%)	Overall (%)
2021			
Cut back on expenses/ adjust consumption patterns	25.0	23.3	24.0
Assistance from family and friends	24.1	21.5	23.3
Borrow from informal channels	9.0	14.5	10.7
Sold assets (including livestock)	13.8	3.9	10.7
Savings	8.4	13.7	10.1
Additional jobs	8.3	9.1	8.6
Goods on credit	5.4	5.9	5.5
Borrow from formal financial institutions	2.7	4.6	3.3
Did nothing	1.7	1.0	2.0
Relocated / changed place of residence	0.9	1.5	1.0
Claimed insurance	0.5	0.6	1.0
Withdrew/transferred children from school	0.2	0.3	0.2
2019			
Assistance from family and friends	41.0	41.5	41.2
Savings	19.2	27.9	22.7
Borrow from informal channels	7.8	9.5	8.5
Sold assets (including livestock)	13.7	6.0	10.6
Additional jobs	5.6	3.9	4.9
Claimed insurance	2.2	3.1	2.6
Cut back on expenses/adjust consumption patterns	3.1	2.6	2.9
Borrow from formal financial institutions	1.2	2.1	1.5
Did nothing	2.7	1.3	2.1
Self-managed/used current income	1.1	0.7	0.9
Relocated /changed place of residence	1.1	0.6	0.9
Not recovered yet	0.3	0.5	0.4
Goods on credit	1.1	0.3	0.8
Withdrew/transferred children from school	0.1	0.0	0.0

Data source: KNBS, CBK and FSD (2021; 2019) FinAcess Household Survey 2021 and 2019

Regression analysis was conducted to further determine what explains the choice of household's coping strategy in the event of an income shock. The findings are presented in Box 7.2. The findings are robust and largely conform to the analysis based on the descriptives. The findings show that households are likely to employ multiple strategies to cope with various income shocks and not necessarily adopting a single strategy. For instance, in response to high cost of living, households tend to adjust their consumption expenditures, rely on social networks, draw on savings and borrow from formal and informal channels.

Box 7.2: Probit regression results (marginal effects) on households' choice of coping strategy to high cost of living

	Dependent Variable (Coping strategyCost of living shock)					
Variables	**Adjust consumption**	**Savings**	**Formal borrowing**	**Informal borrowing**	**Asset disposal**	**Assistance from family and friends**
Age (1=non-youth)	0.007	0.002	0.003	-0.001	0.016**	-0.014
	(0.027)	(0.012)	(0.006)	(0.014)	(0.007)	(0.009)
Gender (1=male)	0.011**	-0.001	0.001***	-0.007	0.020***	-0.036**
	(0.006)	(0.013)	(0.000)	(0.010)	(0.001)	(0.012)
Marital status (1=married)	-0.016***	0.005	0.002	0.036**	0.007	-0.028***
	(0.002)	(0.005)	(0.002)	(0.019)	(0.014)	(0.007)
Residence (1=urban)	-0.040**	-0.001	0.007	0.009	-0.055***	-0.028*
	(0.020)	(0.016)	(0.017)	(0.006)	(0.002)	(0.015)
Education level (1= at least secondary level)	0.018	0.014**	0.015***	-0.013	-0.018**	-0.024
	(0.037)	(0.007)	(0.006)	(0.013)	(0.008)	(0.023)
Employment (1=formal employment)	-0.045***	0.030**	0.021***	0.065***	-0.031***	-0.096***
	(0.010)	(0.015)	(0.006)	(0.009)	(0.002)	(0.008)
Wealth (1= top 2 quintiles)	-0.029	0.022***	0.018***	-0.015***	-	-0.047***
	(0.061)		(0.004)	(0.002)		(0.005)
No. of obs.	1180	1180	1180	1180	1015	1180

*Note: *** p<.01, ** p<.05, * p<.1, standard errors in parentheses*

Source: Author's computation using FinAccess Household Survey 2021

a) Adjusting consumption

When faced with high cost of living, households tend to adjust their expenditure or consumption patterns. However, this strategy is less likely to be adopted by urban households. This implies that urban households are less likely to cut down their consumption spending when faced with high cost of living compared to their rural counterparts. Therefore, households in urban areas are more able to smooth their consumptions relative to rural households. Across gender, males are more likely than females to adjust their consumption patterns when faced with high cost of living. The findings further reveal that those in formal employment are less likely to adjust their consumption patterns compared to those in informal sector employment. This is explained by the fact those in formal sector employment are more likely to have a stable income that can be used when faced with high cost of living.

b) Dissaving and disposal of assets

More educated households tend to use savings as buffers when faced with high cost of living compared to households with relatively less education. This is because households with more education can secure better paying jobs and they are well informed on the benefits of savings. Further, those in formal employment sectors are more likely than those employed in the informal sector to use savings when there is high cost of living. This is expected since wages in the formal

sector tend to be higher than the informal sector. Therefore, employees in the formal sector are more likely to save due to higher incomes. Households in the top 2 quintiles (top 40%) are likely to use savings to cope with income shocks compared to the bottom 3 quintiles. With respect asset disposal, the non-youth tend to dispose assets as coping strategy compared to the youth. This may be explained by the fact that the non-youth may have accumulated some assets that they can rely on in response to cost-of-living shocks. In comparison to females, males are more likely to sell assets to cope with high cost of living. This could be partly explained by gender disparities in asset ownership; that is, males are more likely to own assets compared to females. The results also show that households with educated heads and working in the formal sector are less likely to rely on asset disposal to respond to high cost of living.

c) Assistance from family and friends

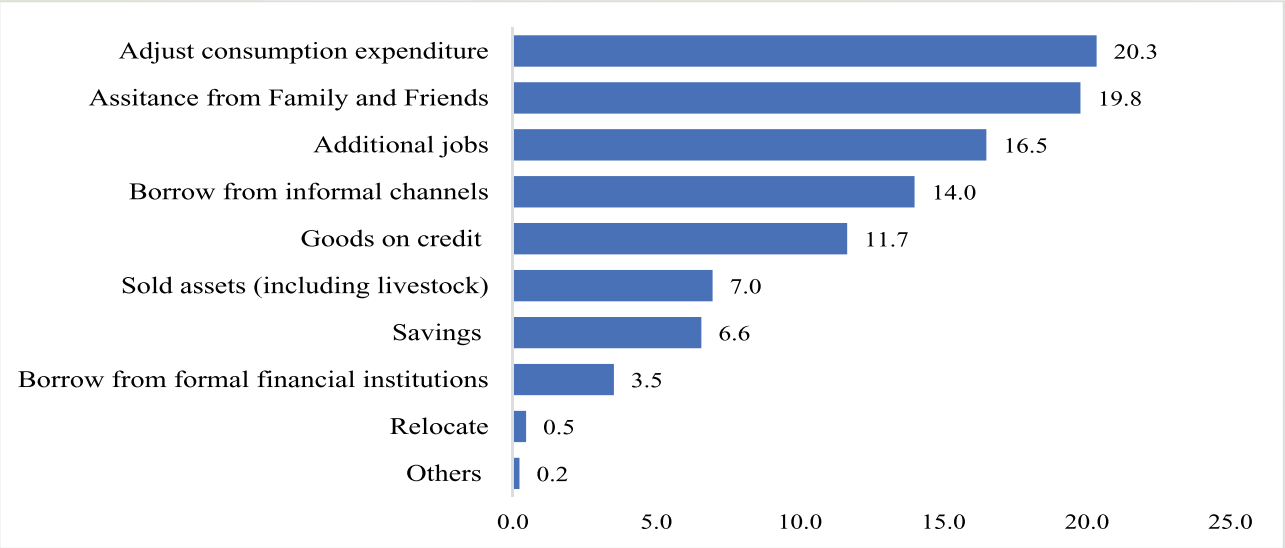
The findings show that males compared to females are less likely to get assistance from family and friends to cope with high cost of living. Households in urban areas are also less likely to get assistance from family and friends compared to rural households in periods of high cost of living. This is because, to a large extent, those in urban areas are more likely to be in paid employment and may have some source of income that can be used to cope with high cost of living. The results also show that those in formal employment and the top 40 per cent in terms of wealth are less likely than those in informal sector employment and the bottom 60 per cent in terms of wealth to receive assistance from family and friends to cope with high cost of living.

d) Borrowing from formal and informal channels

Formal borrowing is another coping strategy used by households when faced with shocks related to high cost of living. The results indicate high likelihood of males using formal credit than their female counterparts to cope with high cost of living. Additionally, with respect to education and access to formal credit, the findings reveal that households with educated heads (with at least secondary schooling) relative to those with less schooling, are more likely to access formal credit when there is high cost of living. The findings also confirm that those in formal employment and the top 40 per cent in wealth quantile are more able to access formal credit when faced with high cost of living relative to those in informal sector employment and households in bottom 60 per cent of the wealth quintile. The results also show that those in formal employment are more likely to access informal credit in the event of high cost of living compared to households in informal employment. However, wealthy households are less likely to use informal credit as a coping strategy.

Further, in the 2021 FinAccess Household Survey, households were asked what they did when they could not meet their regular spending needs or when faced with liquidity distress over the last 12 months. Figure 7.3 shows that cutting down consumption expenditure and getting assistance from family and friends and taking loans from family and friends are the most popular forms of credit access by households when faced with liquidity distress at 20.3 per cent and 19.8 per cent, respectively. Loans from formal channels (banks, SACCOs and micro finance institutions) and informal channels such as *Chamas* constitute about 3.5 per cent and 14.0 per cent, respectively. Most households that had indicated using insurance as a coping strategy to income shocks do not necessarily have a better access to formal credit. When faced with liquidity distress, most would adjust their consumption patterns (36.4%) and get assistance from family and friends (27.3%).

Figure 7.3: Household source of credit when in liquidity distress



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Most of the respondents who borrowed (around 64%) did so outside the formal financial system. The numbers were even higher for rural households (70.6%) compared to urban households (53.2%). Taking goods on credit and fintech-oriented channels such as *Fuliza* are the most important forms of borrowing, according to the FinAccess Survey 2021 (Table 7.7). Of those who borrowed, 32.7 per cent indicated they had taken goods on credit while 17.0 per cent borrowed through *Fuliza*. From formal (prudential) financial institutions, fintech channels mainly *Fuliza* and mobile banking are the most popular channels of borrowing, accounting for 25.7 per cent of the total borrowings. Overall, fintech channels (*Fuliza*, mobile banking and digital loans) accounted for 76.6 per cent of the borrowings from formal institutions. Only 3.8 per cent borrowers accessed credit through SACCOs while 3.0 per cent accessed through commercial banks.

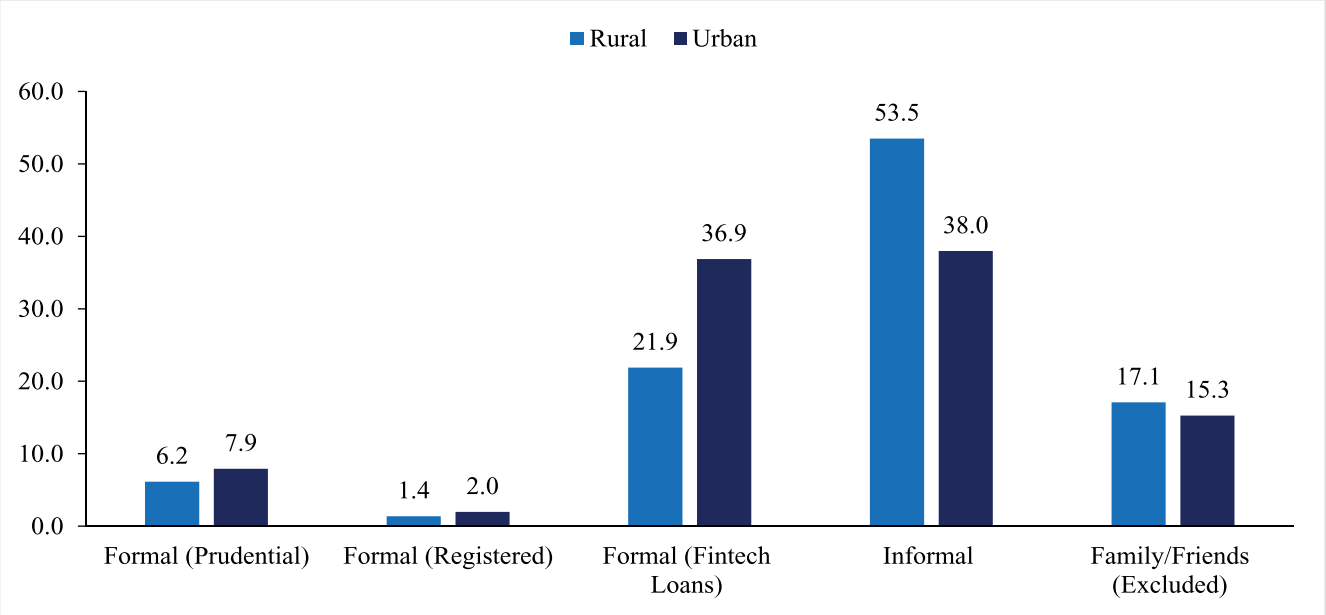
Table 7.7: Households' borrowing by source (%)

Classification	Institutions	Rural	Urban	Overall
Formal (Prudential)	*Fuliza*	14.1	21.9	17.0
	Mobile banking	6.9	11.6	8.7
	Bank /Microfinance bank	2.5	3.9	3.0
	SACCO	3.6	4.0	3.8
	Insurance	0.0	0.0	0.0
Formal (Registered)	Digital loans	0.9	3.4	1.8
	Microfinance institution	0.7	1.4	0.7
	Government institution	0.7	1.4	0.9
Informal	Goods on credit	36.4	26.5	32.7
	Group	10.6	6.6	9.1
	Hire purchase	3.2	1.6	2.6
	Shopkeeper	1.6	1.7	1.6
	Buyer of your harvest	0.8	0.1	0.6
	Employers	0.4	0.8	0.6
	Shylocks	0.4	0.6	0.5
Excluded	Family/Friends	17.1	15.3	16.4

Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Financial technologies are becoming more popular since they aid access to credit more conveniently compared to the traditional channels. To better understand the role of fintech in enhancing access to credit, the three main fintech channels, mobile money, money banking and digital loans were grouped together and comparison made against the traditional channels (Figure 7.4). The findings reveal that fintech is an important channel that can be used to promote access to formal credit. Other than informal credit, credit via fintech channel is the mostly widely used across rural and urban households. This is explained by relative ease of access compared to other channels, as they are mainly channeled through mobile phones.

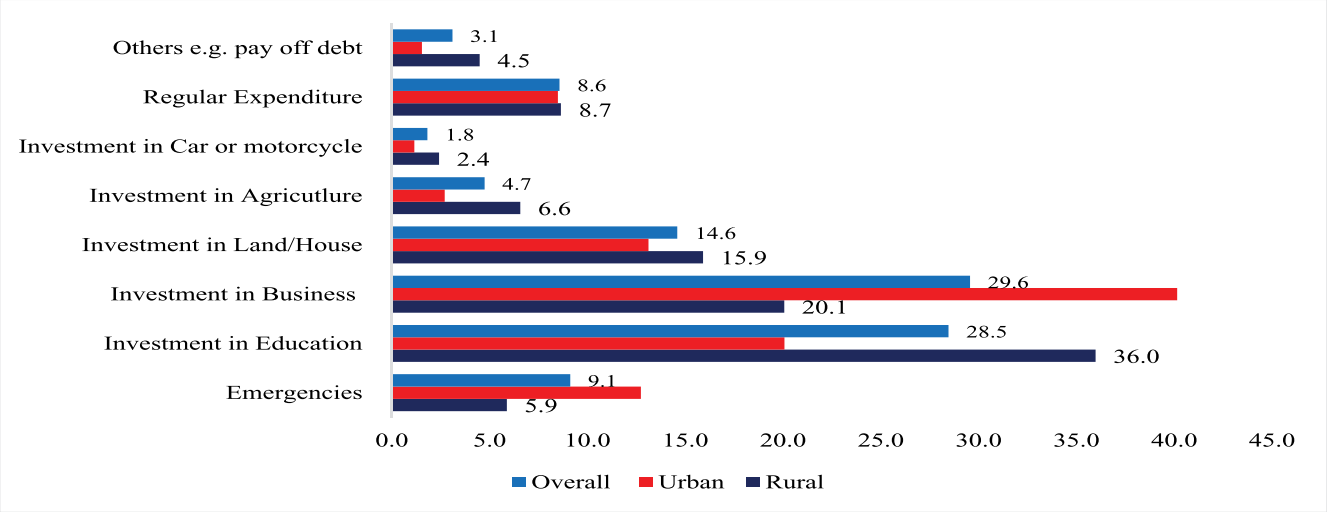
Figure 7.4: Fintech and access to credit



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Most households borrow to investment in businesses and finance education-related expenses. From the survey, 29.6 per cent of the borrowers indicated that they had borrowed to invest in business ventures while 28.5 per cent indicated borrowing to finance education expenditure (Figure 7.5). However, most urban households (40.2%) borrow for investment in businesses compared to rural households at 20.1 per cent. In financing for education, rural households are more likely to borrow compared to their urban counterparts. Borrowing for investments is more likely to build households' long-term resilience compared to other forms of spending. The findings further show that households normally borrow to cushion themselves from the impact of high cost of living. For instance, in this survey, it is evidenced by borrowing for emergencies (9.1%) and day to day household expenditure needs (8.6%).

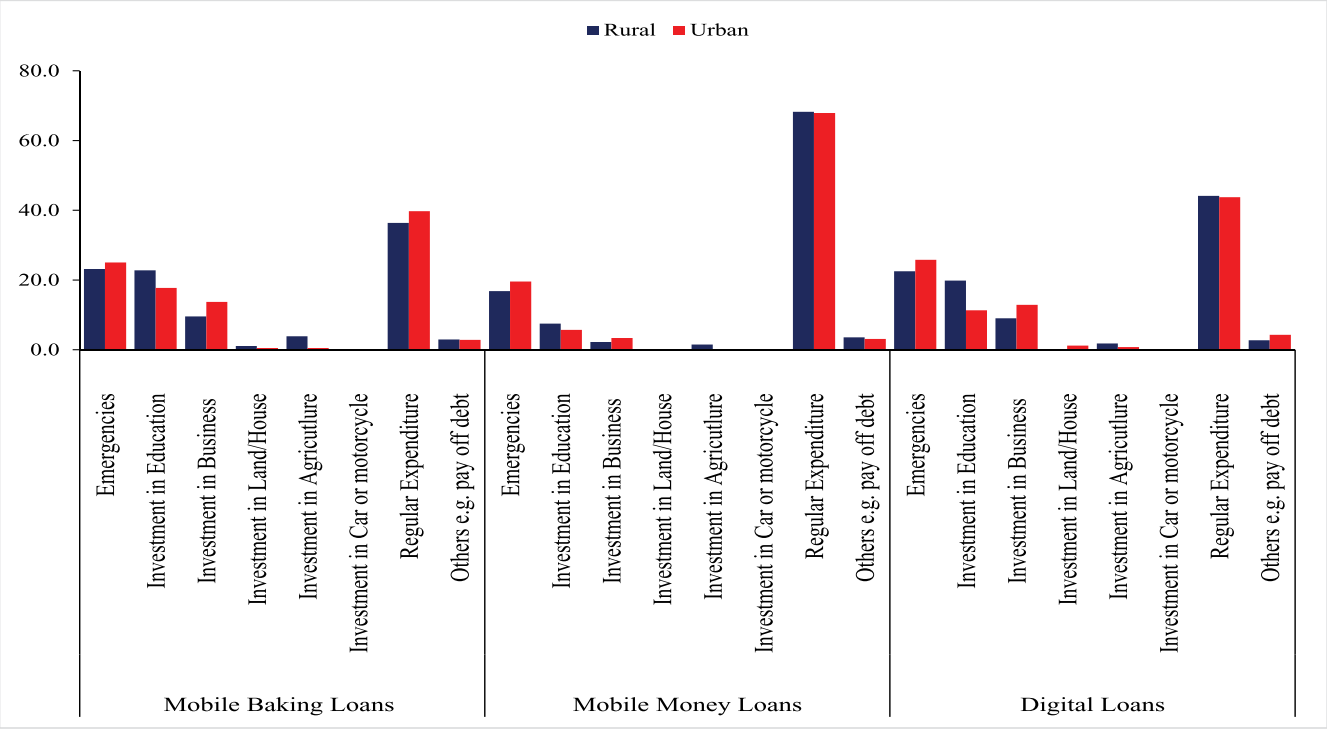
Figure 7.5: General usage of borrowed funds (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

To further understand the role of fintech in promoting access to formal credit, the study analyzed what borrowers from mobile banking, mobile money loans such as *Fuliza,* and digital loans mainly use their borrowings for (Figure 7.6). The results show that fintech loans are mainly to finance regular expenditure (such as meeting day to day households needs, acquiring households goods) and emergencies. This is consistent across all the three main forms of fintech loans available in the country. The main reason for considerations for high use of these loans for regular expenditure and emergencies are convenience and ease of access.

Figure 7.6: Households' usage of fintech loans

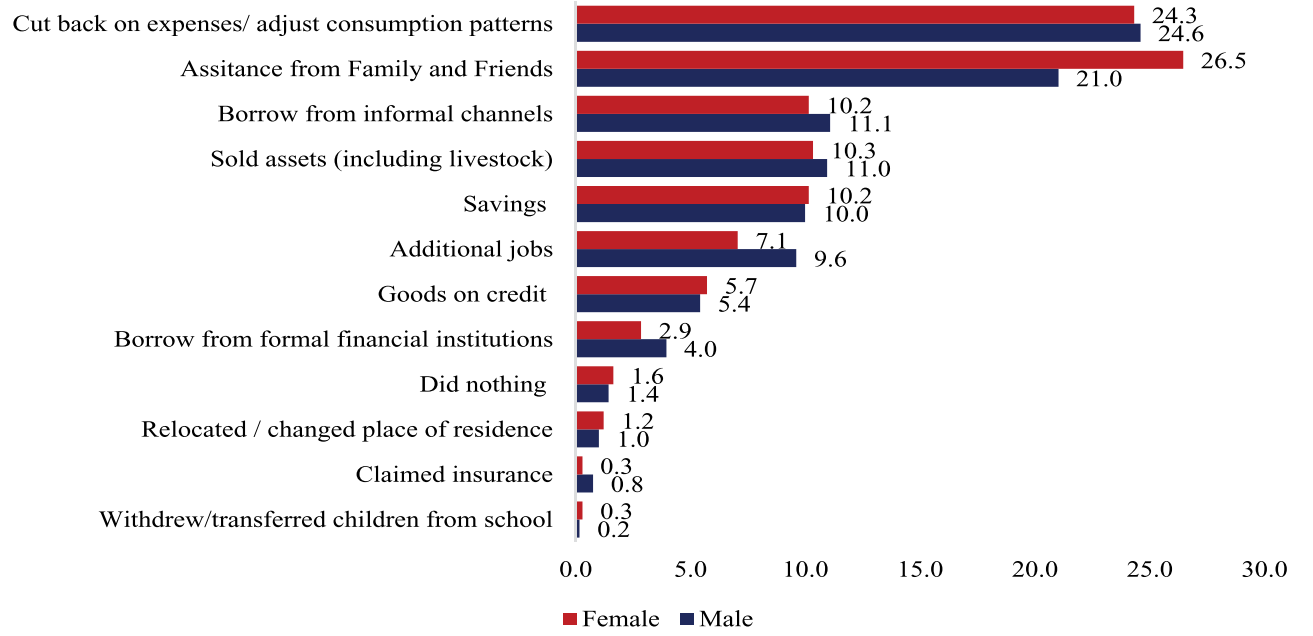


Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Similarly, the priority in coping strategies in 2019 included assistance from family and friends and savings. Cutting back expenditure/consumption, which was the main strategy employed in 2021, was not the main coping strategy in 2019. This is because, unlike in 2019, high cost of living was the main shock in 2021, hence the coping strategy. This implies that households employ various coping strategies depending on the nature of income shock.

Across gender, both female and male are equally likely to adjust their consumption patterns when faced with income shocks, but females are more likely to get assistance from family and friends (Figure 7.7). However, men are more likely to borrow from formal and informal channels, dispose assets and do extra jobs compared to their female counterparts. Insurance was also used as a coping strategy, although at very low levels. The findings reveal that 78.3 per cent of those who used insurance product used it to address health-related shocks such as sickness, revealing the great potential of health insurance in addressing catastrophic health spending. However, the use of insurance products as coping mechanism reveals huge disparities across gender. For instance, among the households who were able to claim insurance, 78.0 per cent of them were males while females constituted only 22.0 per cent.

Figure 7.7: Coping mechanism by gender (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Across age cohorts, cutting down consumption expenditure is the most popular strategy, but more adopted by the youth between 35 and 44 years. For those between 18 and 24 years and those above 55 years, getting assistance from family and friends is the dominant strategy for managing income shocks (Table 7.8). Those between 35 and 54 years are more likely to borrow from informal sources compared to other age cohorts. The findings further reveal that the non-youth are more able to draw on savings when faced with income shocks. This could be due to low-income levels and limited knowledge on the benefits of saving for emergencies.

Table 7.8: Coping with income shocks by age cohorts, in years (%)

Coping Strategy	18-24	25-34	35-44	45-54	>55
Cut back on expenses/ adjust consumption patterns	23.8	25.6	27.6	23.5	21.0
Assistance from family and friends	31.5	19.5	15.4	15.5	33.7
Borrow from informal channels	6.5	9.2	11.6	11.7	5.3
Sold assets (including livestock)	11.1	8.7	9.2	12.9	13.4
Savings	8.1	10.1	9.9	11.8	10.7
Additional jobs	7.9	10.6	10.2	10.7	3.9
Goods on credit	3.7	6.7	6.5	5.1	4.8
Borrow from formal financial institutions	4.6	5.7	6.6	6.0	3.1
Did nothing	1.1	1.7	1.2	1.5	1.6
Relocated / changed place of residence	1.5	1.2	1.4	0.7	0.8
Claimed insurance	0.0	0.6	0.2	0.0	1.6
Withdrew/transferred children from school	0.2	0.3	0.0	0.5	0.1

Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Analysis based on educational level reveals that households with high levels of education have better coping mechanisms compared to those with low levels of education (Table 7.9). Those with higher levels of education are more likely to rely on savings, have better access to formal credit and are less likely to dispose assets or take goods on credit when faced with various income shocks compared to households with low levels of education.

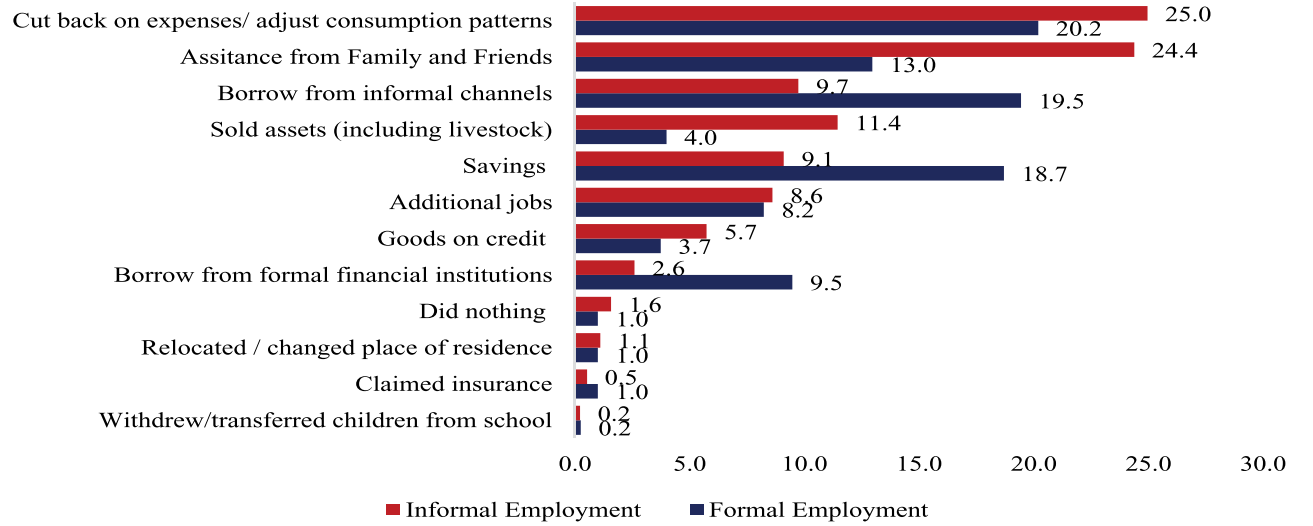
Table 7.9: Households' coping strategies by educational level

Coping Mechanism	None	Primary	Secondary	Technical Training	University	Other
Cut back on expenses/ adjust consumption	18.5	26.0	25.5	23.4	26.5	16.7
Assistance from Family and Friends	24.4	23.3	23.6	20.8	19.9	33.3
Savings	8.5	8.4	10.7	16.2	15.9	16.7
Borrow from informal channels	6.3	11.4	11.0	12.7	14.6	16.7
Borrow from formal financial institutions	1.1	2.3	3.5	9.0	8.6	0.0
Additional jobs	3.7	10.5	10.0	4.3	5.3	0.0
Sold assets (including livestock)	22.6	10.0	7.8	6.4	2.6	0.0
Relocated / changed place of residence	1.3	0.7	1.5	0.9	2.0	0.0
Goods on credit	9.3	5.9	4.2	2.9	2.0	16.7
Claimed insurance	0.3	0.5	0.8	0.6	1.3	0.0
Did nothing	4.0	0.9	0.8	2.9	1.3	0.0
Withdrew/transferred children from school	0.0	0.1	0.6	0.0	0.0	0.0

Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Large variations exist in coping mechanisms between those employed in the formal and informal sectors (Figure 7.8). Those in informal employment are more likely to reduce their consumption expenditure, get assistance from family and friends and dispose assets compared to those in formal employment. Those in formal employment have higher access to loans and savings to smooth their consumption when faced with income shocks compared to their counterparts in the informal sector.

Figure 7.8: Coping mechanism by employment sector (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Borrowing from formal financial institutions to cope with high cost of living is less popular among households in Kenya. To cope with high cost of living, most households cut back their expenses (Table 7.10). Cutting back on expenses and getting assistance from friends and family emerged as the most popular coping mechanisms by households at 32.3 per cent and 20.1 per cent, respectively. Other major coping strategies include borrowing from informal channels (10.0%), perform additional jobs to get extra income (9.1%), and use savings (9.1%). Borrowing from formal financial institutions such as banks, SACCOs and microfinance was only used by 3.2 per cent of households.

Table 7.10: Coping with high cost of living by households

Coping Strategy	Rural (%)	Urban (%)	Overall (%)
Cut back on expenses/ adjust consumption patterns	33.0	30.0	32.3
Assistance from family and friends	20.8	18.4	20.1
Borrow from informal channels	8.7	13.4	10.0
Additional jobs	9.3	8.7	9.1
Savings	7.8	12.3	9.1
Sold assets (including livestock)	8.4	3.5	7.1
Goods on credit	5.7	6.3	5.9
Borrow from formal financial institutions	2.6	4.8	3.2
Did nothing	2.7	1.6	2.4
Relocated / changed place of residence	0.4	0.7	0.5
Claimed insurance	0.1	0.1	0.1
Withdrew/transferred children from school	0.1	0.1	0.1

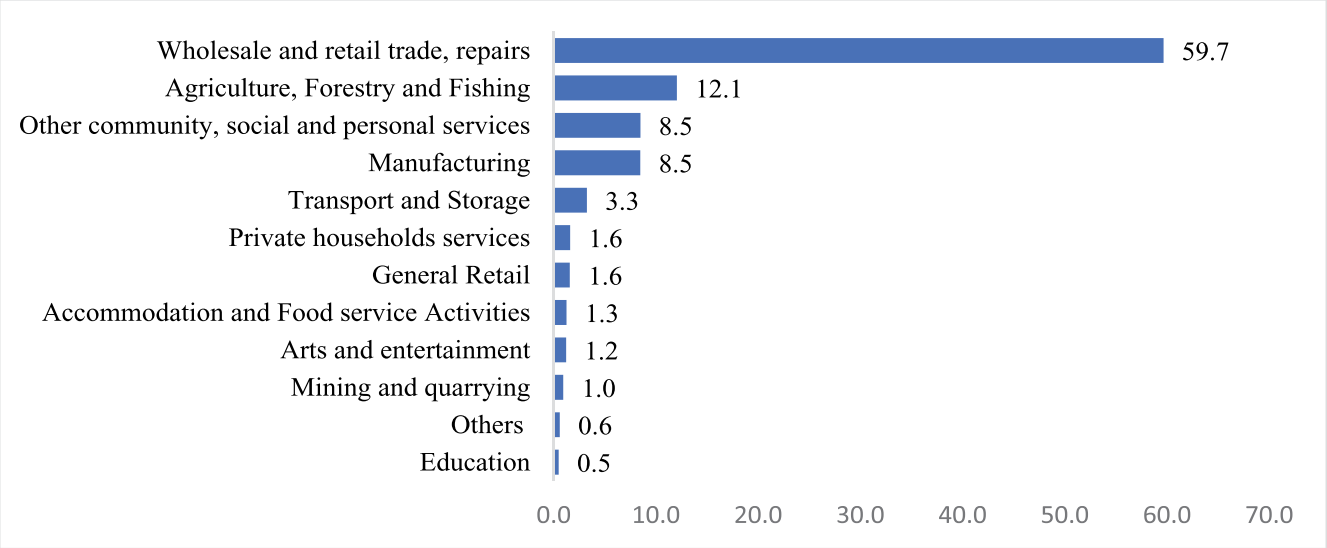
Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Rural households, compared to urban counterparts, are more likely to cut down their consumption spending or get assistance from family and friends when faced with high cost of living (Table 7.10). Other popular coping mechanisms among the rural households are getting additional jobs (9.3%) and sale of assets, livestock (8.4%). However, a bigger proportion of urban households access credit through formal financial institutions, draw on savings and take goods on credit compared to the counterparts in rural areas.

7.5 Households Access to Business Credit

According to FinAccess 2021, 27.6 per cent of households reported casual work as the main source of income followed by support from family and friends (25.2%) and farming (21.1%). 14.3 per cent of households reported to be running their own businesses or are self-employed. Most households who run businesses as the main economic activity are in wholesale and retail trade, repairs sector at 59.7 per cent (Figure 7.9). Other main sectors that households engaged in include agriculture, forestry and fishing (12.1%), other community, social and personal services (8.5%) and manufacturing (8.5%).

Figure 7.9: Households business activities by sector (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

The main sources of start-up capital for households in business are savings and getting assistance from family, friends or community, which is not repayable (Table 7.11). Borrowing from the formal credit channels in the form of business loans is low at 8.6 per cent. Loans from non-formal financial institutions are popular sources of start-up capital.

Table 7.11: Households' sources of start-up capital

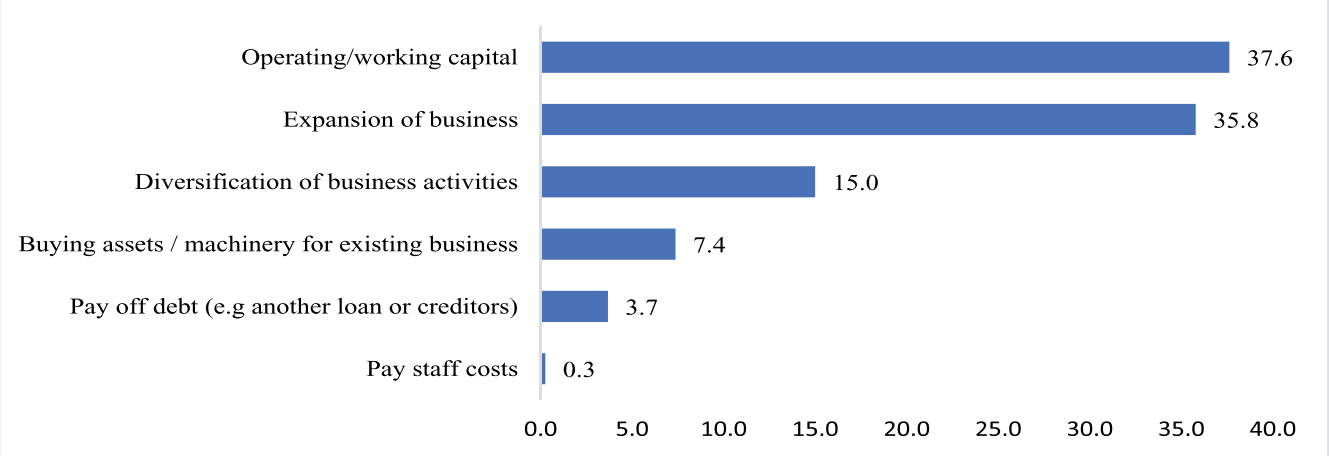
Source	Rural	Urban	Overall
Formal credit	6.9	10.5	8.6
Informal credit	12.6	13.0	12.8
Savings	36.7	35.3	36.1
Salary	2.9	4.8	3.8
Profit plough back or income from other businesses	12.7	8.7	10.8

Family and friends	25.8	25.7	25.8
Sale of assets	2.1	1.8	1.9
Others	0.3	0.2	0.2

Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

Business loans acquired by households are used for operating capital (37.6%) and expansion of businesses (35.8%) (Figure 7.10). Other uses of business loans include diversification of business activities (15%), buying assets/machinery for existing business (7.4%) and paying off debts (3.5%).

Figure 7.10: Usage of business loans (%)



Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

The choice of credit for households when faced with liquidity constraints was driven by available option (Table 7.12). Most households (51.1%) went for the choices based on available option while others (22.6%) cited convenience as the main reason for choice of credit channel. Other reasons for choice of finance included features suited to their needs (13.5%), affordable fees and charges (8.8%), the only option (7.9%), easy to use/make repayments (6.8%) and trust (4.8%).

Table 7.12: Factors influencing households' choice for personal loans

Borrowing Channel	Male (%)	Female (%)	Overall (%)
The only option I had/no other choice	49.5	53.4	51.1
Convenient/Fast /Easy to access/use	23.4	21.4	22.6
Feels most comfortable / trust	9.6	8.6	9.2
Reliable / I knew funds will be available	5.7	5.5	5.7
Cheap / affordable / lowest fees	5.1	3.9	4.6
Privacy	3.2	3.9	3.5
The features suited my needs	1.5	1.3	1.4
Offers longer repayment period	0.5	0.4	0.5
Skilled/Experienced in it	0.5	0.3	0.4
Recommended to me	0.5	0.7	0.6
Less paperwork / documents required	0.3	0.3	0.3
Trying to build my credit history	0.1	0.1	0.1
Other	0.1	0.1	0.1

Data source: KNBS, CBK and FSD (2021) FinAcess Household Survey 2021

7.6 Key Messages and Policy Recommendations

7.6.1 Key messages

1. Households experience multiple income shocks at different points in time. Based on the findings from FinAccess Survey 2021, high cost of living and health incidents were the main income shocks that households reported to have faced, with health-related incidents recurring.

2. Most households do not have adequate buffers against income shocks. The main coping mechanism to cost of living shocks is cutting back on expenses or adjusting consumption patterns. Poor households are more likely to cut their expenditures on food when faced with a significant income shock such as high cost of living. In a country where most people spend more than half of their incomes on food, to some households, adjusting consumption expenditure would simply imply falling back to poverty.

3. Additionally, reliance on assistance from family and friends and borrowing from informal channels are other popular coping strategies adopted by households since; government social protection initiatives are limited. Therefore, if high cost of living persists, in regions where most households are universally poor, getting assistance from family and friends may not be sustainable as there will be little to share as the shock affects all in the society. This may lead to many households sliding back to poverty.

4. The relative importance of taking goods on credit as a coping mechanism improved significantly in 2021 compared to 2019 owing to the nature of the main shock experienced in 2021, high cost of living. While this strategy may offer a short-term relief to households, it may not be sustainable. In a situation where many households are struggling due to income shocks, risks of default may increase, which may make business unstable and susceptible to failure.

5. Access to formal credit is heavily linked to employment and wealth. This is because the wealthy are more likely to have assets that can be used as collateral while the employed normally have a steady flow of income, which in most cases is required by banks to qualify for credit. In addition, financial institutions may perceive the wealthy as less risky compared to poor households. Those with education are also more likely to access formal credit compared to the less educated. Therefore, the poor are usually left with expensive credit from the informal sources, this may perpetuate a vicious cycle of poverty and inequality.

6. The use of insurance, though critical in addressing catastrophic health spending and other income shocks, is limited and has very low penetration rates. Only 1 per cent of households who faced various income shocks reported having used insurance as a coping strategy.

7.6.2 Policy recommendations

1. Expansion of formal insurance products to help households cope with various health incidents and climate-induced shocks is a priority. This will require expansion of existing health insurance schemes to address catastrophic health expenditure and fast-track transition to Universal Health Care (UHC). Additionally, livestock and crop insurance schemes are critical for the agriculture sector that is prone to weather-related shocks. This will build the resilience of rural households, who are heavily reliant on agriculture.

2. Strengthen the formal credit market to provide different products that can be used by households to overcome various shocks such as high cost of living and reduce over-reliance on informal credit. Commercial banks and other microfinance institutions can redesign their loans

to address challenges encountered by households when faced with high cost of living. This can minimize sale of livestock used by rural households as a coping mechanism.

3. Scale up social protection programmes to enable vulnerable households smoothen incomes and cope with high cost of living and when reliance on social networks becomes unsustainable. For example, social protection can enable food insecure households increase their spending on nutritional foods in the event of shocks.

4. Expansion of credit guarantee scheme to enhance lending to household businesses and the under-lent sectors such as agriculture is one channel of building households' long-term resilience. In addition, the use of Warehouse Receipt System can be enhanced to improve access to credit by those in the agriculture sector.

8 LEVERAGING ON FOOD MANUFACTURING TOWARDS LOWERING THE COST OF LIVING

Manufactured food products account for 25 per cent of consumer expenditures, with substantial implications for the cost of living through price increases. Manufacturing enables processing of primary products to smoothen food supply, thus cushioning against seasonality related supply volatility. There are, however, costs involved in food manufacturing which, if not managed, affects consumer prices. Food manufacturing faces constraints related to supply of raw materials, technology, innovation and production capacity. The constraints in supply of raw materials are occasioned by droughts that disrupt agriculture production. Food manufacturing that depends on imported inputs faces high costs of production, through exposure to price changes in the international markets. The cost of production feeds into the consumer prices, suggesting price transmissions from manufacturing to consumer prices. Low technology adoption, policy uncertainty, low access to credit and skills hinder capacity utilization, especially among the Micro and Small Enterprises (MSEs), which account for 86 per cent of the food manufacturing enterprises. To address the cost of living through manufacturing, it is imperative to expand production capacities in food processing while lowering costs related to raw materials. The large share of MSEs in food manufacturing is an opportunity to be exploited by mitigating the constraints to innovation, technology upgrading, and capacity utilization by strengthening skills, access to markets, Research and Development (R&D) investments, and policy predictability. Strengthening the role of support institutions for MSEs through one-stop shop centres of excellence is also imperative.

8.1 Introduction

Processing of primary products such as fruits, vegetables, milk, and meat serves as a stabilizer of market prices over time and across geographical locations due to ease of distribution and longer shelf lives. Research across 15 African economies reveals that manufactured food products have lower price volatility compared to unprocessed food products (Minot, 2014). Manufacturing may also be linked to consumer prices through costs of production related to raw materials, labour, financing, electricity, water, logistics and taxes on inputs. Further, manufacturing technology, comprising the methods and techniques of production, serves as a "cost shifter" through reduction in wastages and improved production efficiency required for enhanced supply of processed products (Newman et al., 2016).

The analysis in this chapter focus on food manufacture, considering its substantial influence on the inflation of consumer prices. Food inflation averaged 13.1 per cent against the overall inflation rate of 7.7 per cent in 2022, suggesting the role of products in this segment of the consumer basket in the cost of living. Manufactured food products account for 24.8 per cent of the consumer expenditure basket (KNBS, 2020), with key constituents being meat products (19.3%), wheat products

[7] Authors' calculations based on Consumer Price Index Rebasing Report (KNBS, 2020).

including wheat flour, bread, buns, cakes and biscuits (14.7%), alcoholic beverages (11.8%), milk (10.8%), rice (8.6%), maize flour (7.6%), cooking oils and fats (6.0%), fish (5.3%), non-alcoholic beverages such as tea, juices, soda and mineral water (4.3%), and other miscellaneous manufactured food products (11.6%).[7] The analysis also includes aspects on manufacturing activities that supply packaging materials to food processing, including plastics, steel and iron, and paper products – as these are key to protecting the processed food from damage, tampering and contamination for longer shelf lives.

8.2 Processing of Primary Products and Implications for Consumer Food Prices

Kenya's food supply is largely used in an unprocessed form such as human food, animal feed and seed. This implies that under the prevailing circumstances, manufacturing plays a limited role in supporting the supply of processed food across time and geographical locations. As shown in Table 8.1, the proportions of processed food supply are low across different categories of food products. Food produce with low proportions of processing tend to have a higher proportion that is reported as loss. These losses occur due to preservation challenges, considering perishability of food produce. The losses are 'leakages' that reduce the supply of food in the market. This suggests opportunities that exist in scaling up the processing capability of manufacturing to support the supply while concurrently helping minimize the losses.

Table 8.1: Supply of food and proportions processed or lost

Type	'000 metric tonne			% of domestic supply	
	Supply	Processed	Loss	Processed	Loss
Cereals – Maize, wheat, barley, millet, sorghum, rice	7,960.00	175.00	185.00	2.20	2.32
Starchy roots – Potatoes, cassava, yams, roots and tubers)	3,474.00	0.00	283.00	0.00	8.15
Sugar and sweeteners - Sugar canes and sugar beets	1,007.00	48.00	0.00	4.77	0.00
Pulses – Beans, peas	1,821.00	0.00	124.00	0.00	6.81
Tree nuts – Nuts and products	39.00	0.00	0.00	0.00	0.00
Vegetable oil – sunflower, soya beans, coconuts	140.00	53.00	0.00	37.86	0.00
Vegetables – Tomatoes, onions	3,748.00	0.00	184.00	0.00	4.91
Fruits - Oranges, bananas, pineapples,	4,556.00	1.00	498.00	0.02	10.93
Milk	4,244.00	30.00	200.00	0.71	4.71

Data source: KNBS (2022), Economic survey. NB: The losses are exclusive of those that happen at the farm level

Further insights on food processing opportunities are evident through statistics on exports and imports. Food and beverages account for 10.9 per cent of the value of manufactured imports (KNBS, 2022a). While for food exports only 20 per cent is in processed form, for imports 52 per cent is in processed form. This implies that the country has missed opportunities for food processing, which may otherwise help add to domestic supply. Further, importation of processed food exposes consumers to price dynamics in the international markets.

Food products for which raw materials are unavailable or insufficient locally tend to

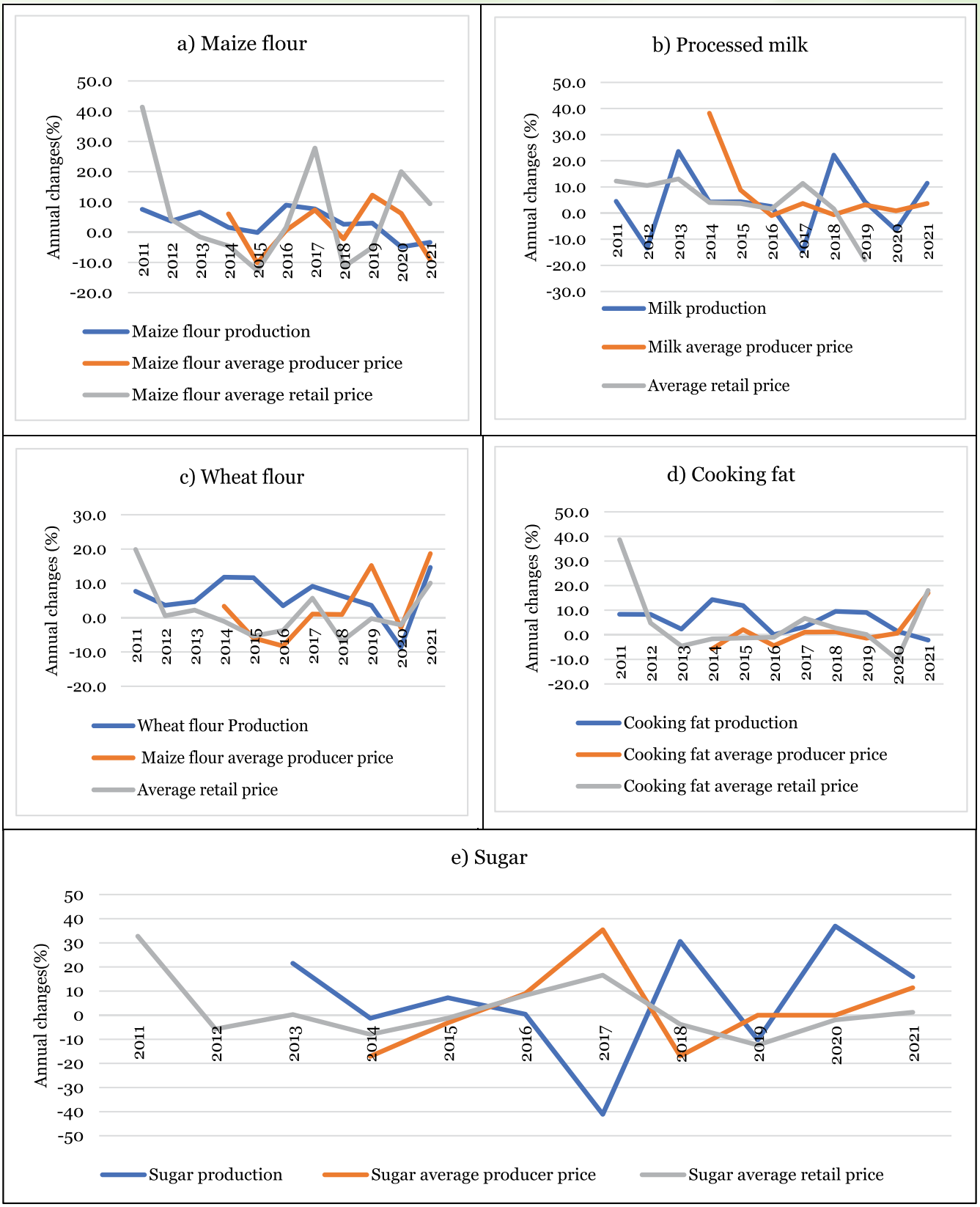
account for the largest share of imported processed food. About 12 per cent of raw materials for food manufacturing are imported (World Bank, 2018). Manufacturing activities with high share of imported raw materials are those in the manufacture of sugar and confectionery (23.0%), cooking oils and fats (21.0%), and grain mill products (15.0%). Households in Kenya spend on average 6.3 per cent of consumption expenditure on these manufactured food products (KNBS, 2020). Thus, price changes of these commodities within the international markets could affect the cost of living.

8.3 Link between Manufacturing Producer Prices and Consumer Prices

The Manufacturing Producer Price Index (MPPI) measures the change in prices of products sold as they leave the factory ("factory gate prices"), excluding taxes, transport and trade margins that the purchaser from the manufacturer may have to pay once the goods leave the factory (OECD, 2023). Changes in MPPI reflect price inflation at the manufacturers level, while changes in the Consumer Price Index (CPI) reflects price inflation at the consumer level. Findings from available studies suggest positive correlations between MPPI inflation and CPI inflation, with the former expected to provide useful information in predicting the latter (Sidaoui et al., 2009). When rising prices is due to excess demand, the CPI inflation would precede the MPPI inflation, while in the case of supply chain-related cost push inflation, the sequence of changes is in reverse order (Meyer and Habanabakize, 2018). Thus far, the direction of causality has been shown to be dependent on the context, particularly the strength of demand and supply drivers of prices (Akçay, 2011; Alemu, 2012).

The supply of the main manufactured food products in the consumer expenditure basket are shown in Figures 8.1 (a) to (e), together with the respective producer prices and consumer prices. Overall, the producer and consumer prices of the selected manufactured food products change in tandem. Whenever production levels of the product reduce, both the producer price and consumer price tend to increase, suggesting possibility of supply induced price increases, particularly in drought years such as 2011/2012, 2014, and 2016/2017. The production of food manufacturing activities that get substantial raw material inputs from import (such as wheat and cooking fat) tend to be less interrupted by drought occurrences, compared to those that majorly source input from domestic markets, as the case with milk and sugar.

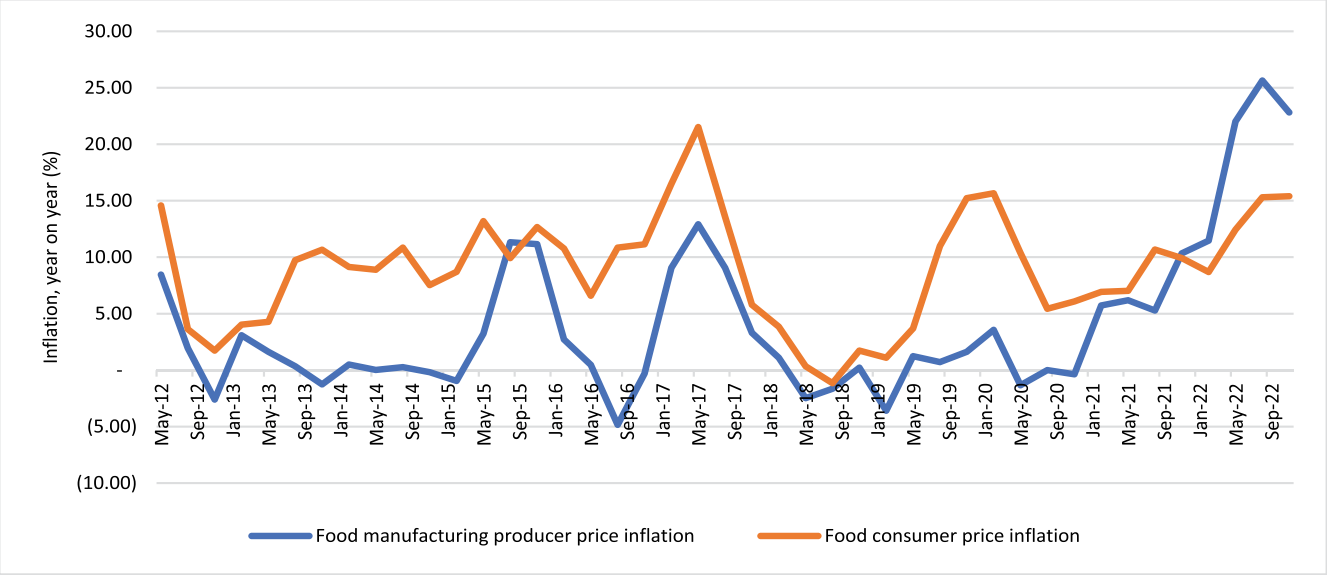
Figure 8.1: Production, producer and consumer prices of selected food products



Data source: KNBS (Various), Economic Survey and Statistical Abstract

The trends in food MPPI inflation and food CPI inflation are shown in Figure 8.2. The two series display similar patterns. However, food MPPI inflation seems to exhibit persistence in adjustments. Unlike consumer purchases, manufacturers face contractual arrangements with suppliers of raw materials, and with retailers who purchase in bulk. The contractual arrangements induce slow adjustments of some costs, showing persistence in changes in producer prices. Nonetheless, the two series for food CPI inflation and food MPPI inflation demonstrate a high positive correlation of 91 per cent. The food MPPI inflation rose from February 2021, a period that coincided with the roll out of COVID-19 vaccine during the first quarter of 2021. This led to resurgence in demand and slow recoveries in production and trade logistics that put pressure on input prices for manufacturers. The surge in producer prices in 2022 further reflects dynamics within the global prices, particularly with the onset of the Russia-Ukraine war in February 2022, which disrupted the global supply chains for fuel, energy, fertilizer and food grains such as wheat.

Figure 8.2: Food MPPI inflation and food CPI inflation



Data source: KNBS (Various), Quarterly MPPI reports and KNBS (Various), monthly CPI inflation reports

The statistical relationship between food manufacturing producer price index and food consumer price index is detailed in Box 8.1. Previous studies mostly employ Granger causality test to establish if one time series is a useful indicator of changes in the other in subsequent periods (Sidaoui et al, 2009; Akçay, 2011; and Meyer and Habanabakize, 2018).

Box 8.1: Granger causality results for food MPPI and Food CPI

In line with previous studies (Sidaoui et al., 2009; Akçay, 2011; and Meyer and Habanabakize, 2018), Granger causality test was conducted between food MPPI and food CPI using quarterly data from 2011 to 2022 (2011q2–2022q4; with 47 observations). Beginning in 2011, the KNBS collects MPPI data in mid-quarter months (February, May, August and November), for which the MPPI reports are published in the following corresponding months (March, June, September and December). The food CPI series uses a base period of February 2019 (as reported by KNBS). Similarly, the food MPPI was recalculated to a base period of February 2019. Both food CPI and food MPPI series were found to be non-stationary at levels, but stationary on first differencing. Thus, Granger causality test was conducted with the two series on first differencing *(Null hypothesis: Variable X does not granger cause variable Y. Thus, rejection of the null hypothesis in favour of the alternative hypothesis suggest that variable X granger causes the Y variable. Both food CPI and food MPPI takes the roles of X and Y variables in turn, in undertaking the Granger causality tests)*. The Wald tests of Granger non-causality results are as follows, with the MPPI granger causing CPI with two lags on quarterly basis at 5 per cent significance level.

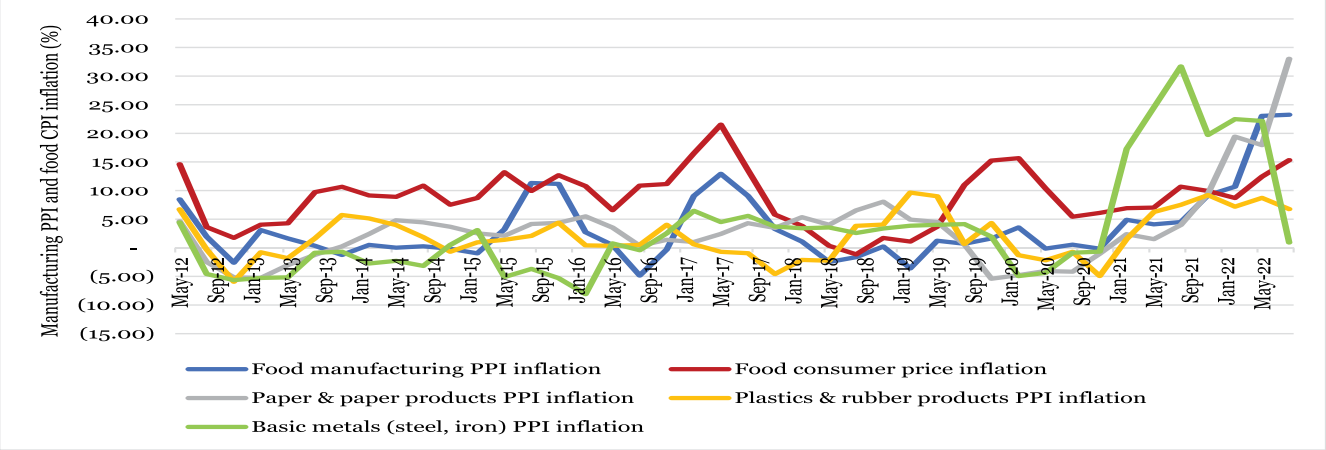
Equation	Chi^2	Lags	Prob > Chi^2
Food CPI	6.1496	2	0.0460
Food MPPI	39.1310	11	0.0000

Overall, the results show a unidirectional granger causality from food MPPI to food CPI, suggesting the dominance of cost-push inflation: Rising prices from producer to consumer. The Granger causality of food CPI on food MPPI, however, commences at lag 11 (after almost three years) compared to Granger causality of food MPPI on food CPI at lag 2 (within half year). This suggests that cost push inflation is of relatively an immediate nature, compared to demand pull inflation that tends to be relatively of long run nature – within three years).

Source: Author's estimations and elaborations based on KNBS (Various), CPI and quarterly MPPI data for various quarters since 2011

The MPPI inflation trends for the manufacturing activities that provide packaging materials for food (paper and paper products, plastic and rubber products, steel and iron) are shown in Figure 8.3. The MPPI for these products are mostly in tandem with that of food manufacture, save for basic metals, which in most part of 2021 and 2022 demonstrated a rapid increase in price changes due to the global price surge for steel and iron ore. The food MPPI demonstrates a high correlation with that of paper and paper products at 67.2 per cent, while that of plastic and rubber products, and basic metals are 34.8 per cent and 36.0 per cent, respectively. The prices of these products are therefore expected to feed into the cost of food manufactured through prices of packaging materials.

Figure 8.3: MPPI inflation for food and manufacturing activities supplying packaging materials



Data source: KNBS (Various), Quarterly PPI Reports and Inflation

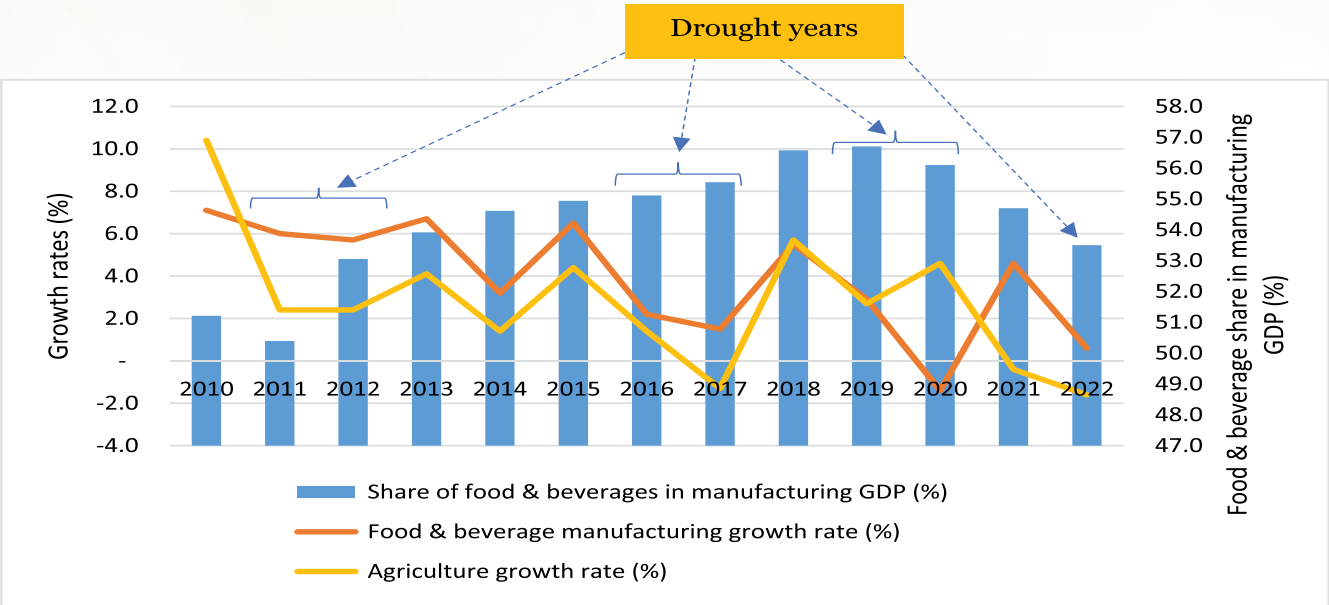
8.4 Food Manufacturing Cost

There are various factors that are likely to influence food manufacturing producer prices, including droughts that disrupt agricultural supply to manufacturing industries, cost of labour and intermediate inputs and firm size elements.

8.4.1 Implications of droughts on cost of food manufacturing

Food manufacturing in Kenya is prone to supply disruptions emanating from droughts that adversely affect agricultural production through low precipitation levels. Droughts depress the agriculture sector production, which in turn constrain availability of raw materials supplied to the food manufacturing industries. With depressed supply, the cost of raw materials increases due to unmet demand. The surge in consumer prices was highest for food products in the consumption basket, with year-on-year inflation at 13.8 per cent in December 2022 compared to the 9.1 per cent for the overall inflation over the same period (KNBS, 2022c). As illustrated in Figure 8.4, food manufacturing and agriculture demonstrate similar growth patterns, with drought years showing depressed growth rates. Consequently, the share of food and beverage in the overall manufacturing GDP tends to decline during drought years.

Figure 8.4: Food manufacturing and agriculture growth rates, 2010-2022



Data source: KNBS (2021; 2022; 2023), Economic Surveys

8.4.2 Cost components of food manufacturing activities

The prices of consumer goods may be linked to manufacturing through costs embedded in labour, intermediate input (raw materials, electricity, water), and logistics in sourcing of inputs (Jongwanich et al., 2019). Considering the implications of food manufacturing producer prices for food consumer prices, it is imperative to gain insights on the cost components of food processing. Tables 8.2 and 8.3, respectively, shows the labour and intermediate input costs for various food manufacturing activities, scaled by sales for relative comparisons. The labour cost is lower across the various food processing activities, compared to intermediate input costs. Labour costs as a share of sales for food manufacturing average 7.4 per cent, compared to that of the overall manufacturing at 9.0 per cent.

Table 8.2: Food manufacturing labour cost (% of sales)

Cost	2016	2017	2018	2019	2020	2021	Average for 2016-2021
Processing and preserving of meat	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Processing and preserving of fish	18.4	19.3	18.5	20.8	19.7	15.1	18.6
Processing and preserving of fruits and vegetables	5.2	4.7	3.9	4.1	3.5	6.5	4.7
Cooking oils and fats	3.6	3.7	3.7	3.8	3.2	4.9	3.8
Dairy products	5.5	6.3	6.0	6.0	7.0	7.3	6.4
Grain mill products	1.2	2.3	2.6	2.4	2.6	2.8	2.3
Bakery products	7.7	7.9	8.5	8.5	8.0	7.6	8.0
Sugar and confectionery	5.5	6.4	5.9	7.4	4.8	3.9	5.7
Other food products	10.7	10.7	10.7	10.9	10.5	10.5	10.7
Average for food products	7.2	7.5	7.4	7.3	7.2	7.6	7.4
Beverages	4.8	5.0	4.9	4.8	4.8	5.3	4.9
Total manufacturing	8.7	9.0	9.3	9.4	9.1	8.6	9.0

Data source: KNBS (2021; 2022), Statistical Abstracts

The intermediate input cost for food manufacturing is higher compared to that of labour, at 67.3 per cent of sales. The manufacture of cooking oils and fats, sugar and confectionery, and grain mill products has higher share of intermediate input costs compared to the average for all food manufacturing activities. This is notable given that these products account for 9.6 per cent of the consumer consumption basket. Cooking oils and fats, and sugar and confectionary account for a substantial share of imported manufactured food products, which create exposure to prices in the regional and international markets, though reducing exposure to domestic factors such as droughts. The importation of these products may be due to high costs of production attributed to input costs. Food manufacturing has a higher intermediate input cost compared to all the manufacturing activities, for which share of this cost component averages 64.9 per cent as a proportion to sales.

Table 8.3: Food manufacturing intermediate input costs (% of sales)

Cost	2016	2017	2018	2019	2020	2021	Average for 2016-2021
Processing and preserving of meat	72.2	69.1	70.4	70.5	70.5	70.5	70.5
Processing and preserving of fish	62.1	62.2	61.9	61.5	60.3	58.0	61.0
Processing and preserving of fruits and vegetables	54.9	56.6	55.3	54.5	57.5	60.8	56.9
Cooking oils and fats	78.6	79.1	79.6	80.2	80.7	79.7	79.6
Dairy products	51.0	53.2	55.1	54.1	54.8	57.1	54.2
Grain mill products	65.9	70.5	74.0	72.4	72.9	76.6	72.0
Bakery products	56.7	45.0	51.6	47.2	46.5	50.1	49.5
Sugar and confectionery	77.4	78.1	74.4	76.7	82.4	71.9	76.8
Other food products	72.0	70.9	62.7	66.8	64.5	62.2	66.5
Total food products	68.3	67.1	66.8	66.9	67.2	67.5	67.3
Beverages	44.5	46.7	45.9	47.7	48.0	52.6	47.6
Total manufacturing	64.7	63.9	63.7	64.2	65.6	67.4	64.9

Data source: KNBS (2021; 2022), Statistical Abstracts

A further disaggregation of costs based on the micro level enterprise survey data (World Bank, 2019) reveals that intermediate input costs comprise raw materials. The intermediate input costs also vary across various manufacturing activities; it is relatively high for processing of dairy products, processing and preservation of fish, and processing and preservation of fruits and vegetables. These products also tend to have a higher share of electricity costs, due to high perishability if not well preserved through cold storage facilities awaiting processing.

The productivity gains are expected to lower costs of production and, therefore, average unit costs, which is expected to lower consumer prices. The manufacturing productivity analysis is shown in Table 8.4, as measured by value added per worker. The value added per worker is higher for processing of meat and fish products. Sugar and confectionary have the least value added per worker, which can be explained by higher input costs. Grain mill products have lower productivity compared to other products such as meat and fish processing. Compared to the overall manufacturing, food processing activities have a higher productivity.

Table 8.4: Food manufacturing value added per worker (Ksh million)

Cost	2016	2017	2018	2019	2020	2021	Average For 2016-2021
Processing and preserving of meat	15.92	19.39	19.98	21.41	24.21	26.30	21.20
Processing and preserving of fish	5.95	6.48	7.70	8.03	9.31	12.93	8.40
Processing and preserving of fruits and vegetables	1.19	1.45	2.01	2.17	2.54	2.15	1.92
Vegetables and animal oils and fats	3.61	3.66	3.84	3.96	3.82	4.50	3.90
Dairy products	3.11	2.67	2.90	3.20	2.99	3.06	3.00
Grain mill products	5.59	6.00	5.28	6.29	6.05	5.18	5.73
Bakery products	2.48	3.46	3.12	3.71	4.41	4.45	3.61
Sugar and confectionery	0.57	0.46	0.59	0.46	0.52	1.00	0.60
Other food products	1.09	1.28	1.56	1.20	1.55	1.75	1.41
Total food products	**2.31**	**2.63**	**2.79**	**2.91**	**3.27**	**3.45**	**2.89**
Beverages	7.26	7.24	7.83	7.82	8.14	7.67	7.66
Total manufacturing	2.07	2.16	2.26	2.29	2.58	2.60	2.33

Data source: KNBS (2021; 2022), Statistical Abstracts

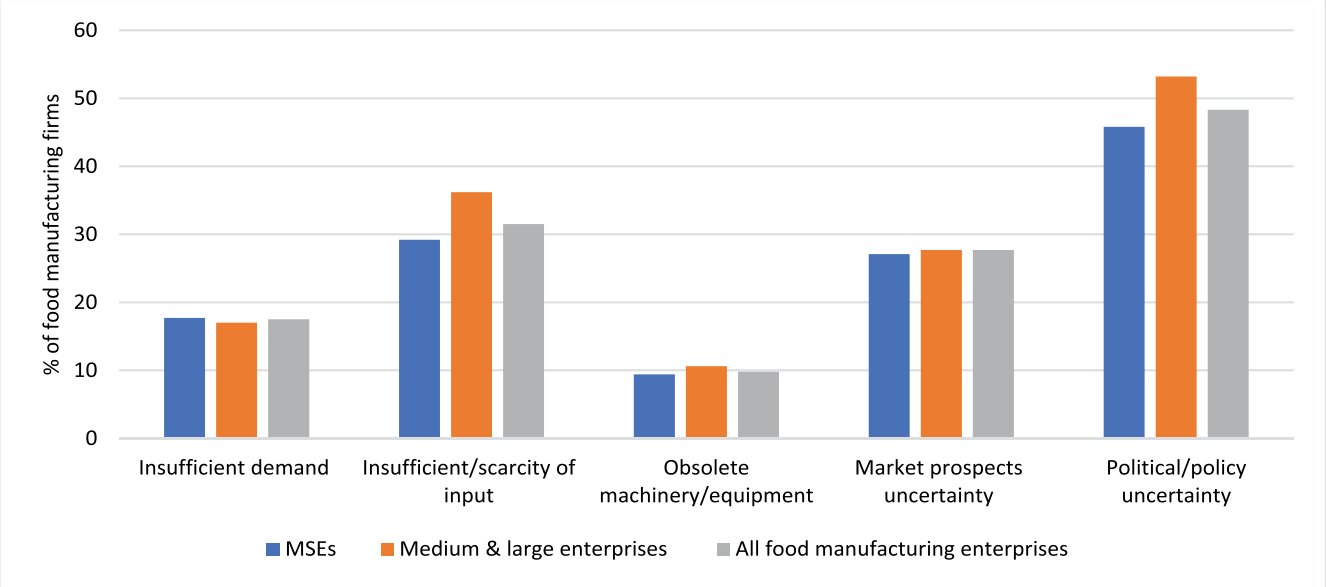
8.4.3 Implications of firm size on food manufacturing and costs

A notable feature of Kenya's food manufacturing is a large share of Micro and Small Enterprises (MSEs). The MSEs account for 86.0 per cent of Kenya's food manufacturing enterprises (KNBS, 2017), yet contribute only 10 per cent of food manufacturing output.[8] The low contribution of MSEs is due to the constraints they face related to capacity utilization, access to technology and innovation adoption. Enhanced capacity utilization supports realization of economies of scale that is expected to lower unit costs. Lower capacity utilization carries an implicit cost to manufacturers, which is priced through the fewer units produced. The food manufacturing MSEs use only 76.6 per cent of their existing capacities, compared to medium and large enterprises at 83.4 per cent. The reasons for low-capacity utilization are shown in Figure 8.5, driven by insufficient access to raw materials and policy uncertainty. The policy uncertainty depresses investments in productive capacity and production on a large scale. The limited demand and uncertainties related to

[8] Share in output based on the authors' calculations from the 2016 MSME Survey, and the KNBS (2021), Statistical Abstract.

the market prospects are also key factors stifling capacity utilization by food manufacturing enterprises in Kenya. Given that food manufacturing is concentrated in cereals, bakery and fruits products, seasonality of raw materials supply may explain why demand and market uncertainties are cited as key constraints to capacity utilization.

Figure 8.5: Constraints to capacity utilization



Data source: World Bank (2018), Enterprise Survey

One of the key drivers of manufacturing productivity is innovation and technology adoption (Barasa et al., 2019), supported by Research and Development (R&D) investments and knowledge transfer among the enterprises. Innovation among the Kenyan food manufacturing enterprises is low (World Bank, 2019) – only 35.0 per cent of the food manufacturing enterprises report to undertake product innovation (27.1% for MSEs and 51.1% for medium and larger enterprises). Process innovation is even slightly lower at 34.3 per cent (33.3% for MSEs and 36.2% for medium and larger enterprises). There are various factors why innovation among the food manufacturing enterprises is low. First, there is low investments in R&D. Only 23.2 per cent of the food manufacturing firms reported to undertake R&D investments. The top three sources of ideas for innovation and technology upgrading include interactions with customers, business associations, Internet search and government programmes, with R&D investment ranked fifth. This implies that innovation by food manufacturing enterprises is mostly marginal, within knowledge that mostly exists in the market. The key constraints to innovation and technology upgrading were limited access to finance (56.3% of the enterprises), followed by incompatibility of new technology with existing technology (30.5%) and limited availability of the skilled personnel (24.1%). These constraints are severe among the MSEs, compared to medium and large enterprises.

There are also challenges related to operations in the informal sector. This is considering that 86.4 per cent of food manufacturing MSEs operate within the informal sector, where they face additional barriers related to access to markets, quality infrastructure (electricity, water, worksites, shared user facilities, waste disposal facilities), and compliance with health and safety standards for food manufacturing. The 2016 Micro, Small and Medium Enterprises Survey reveals that the cost of production of food manufacturing MSEs comprise mainly of raw materials and supplies (42.9%), labour (14.7%), rent (9.3%), transport (7.5%), repairs and maintenance

(7.0%) and electricity (3.6%), and all other operating cost components at 15.0 per cent.

8.5 Government Interventions for Supporting Production and Lowering Costs of Food Manufacturing

The government has over the years initiated interventions to support agro-processing, with one of the focus areas being food. These include support for MSEs by enhancing access to finance, innovation and technology adoption and access to markets. These measures are articulated in the Kenya Vision 2030, the Medium-Term Plans (MTPs), and the National Industrialization Policy Framework for Kenya 2012-2030. To support MSEs overcome the constraints faced, there are various government institutions, including the Micro and Small Enterprises Authority (MSEA), the Kenya Industrial Estates (KIE), the Kenya Bureau of Standards (KEBS), and the Kenya Industrial Research and Development Institute (KIRDI). MSEA promotes development of MSEs through capacity development, technology transfer, research and product development, market access and provision of worksites and common user facilities. The KIE provides affordable credit to MSEs and supports incubation and worksite facilities. For instance, in 2021, KIE approved financing of 116 food manufacturing MSEs and advanced Ksh 233.6 million in loans (KNBS, 2022a). In 2022, the number of food manufacturing MSEs approved by KIE rose to 126 while financing increased to 381.9 million (KNBS, 2023). On its part, KIRDI supports MSEs through industrial incubation, provision of common manufacturing facilities and product standardization. During the financial year 2020/2021, KIRDI supported 600 startups through its incubation support, including those in food processing (KIRDI, 2022). KEBS has a key role in issuing the mark of quality. To encourage uptake of product quality certification by MSEs, KEBS offers a subsidized fee of Ksh 5,800 (KEBS, 2020). Product standardization and certification are vital for competitiveness and access to local and export markets, which in turn have implications for growth of food manufacturing MSEs.

The support offered to MSEs by various institutions is, however, constrained by funding gaps and coordination, which hinder the required synergy in the transformation of MSEs. The government has made efforts to address these gaps, for example through establishment of the Kariobangi MSEs Centre of Excellence, though the initiative is on a limited scale in terms of expansion across the country. The Kariobangi MSEs Centre of Excellence provides incubation worksites for MSEs. The MSEs housed at the centre benefit from reduced administrative burden of seeking support services. The centre houses various government agencies, including MSEA, KEBS, KIE, Kenya Accreditation Service (KENAS), Kenya Investment Authority (KenInvest), Kenya Revenue Authority (KRA), Numerical Machining Complex (NMC), Kenya Industrial Property Institute (KIPI), and Industrial and Commercial Development Corporation (ICDC). Besides easing administrative burden of seeking support services, the MSEs also benefit from a centralized business development services and learning, and access to common user facilities. In the medium term, the government plans to establish five similar centres of excellence by 2026 (Government of Kenya, 2022).

Another measure towards supporting food manufacturing includes strengthening value chains by linking farmers to food processing enterprises, such as cereals, fruits and tubers. Under the Bottom-up Economic Transformation Agenda (BETA), the key value chain priorities include edible oil processing, dairy products, beef, cereals and export-boosting crops such as tea, coffee, cashew nuts, avocado and macadamia. This is aimed at overcoming the barriers of low economies of scale with regards to sourcing of raw materials from individual farmers. This also benefits farmers as it often comes with capacity building initiatives to maintain the required quality of raw materials for food processing.

Government owned enterprises such as the Kenya Meat Commission, and the New Kenya Creameries Cooperatives are also aimed at promoting food processing. Further, under the MTP III flagship projects, the government initiated establishment of food processing enterprises. Examples of these include the Nyamira Integrated Agro-Industrial Park, Tomato Processing Factory in Oloitoktok, and mango value chain processing facilities in Elgeyo Marakwet, West Pokot and Baringo. Completion of some of these initiatives is, however, hampered by inadequate budgetary allocations. For those that are operational, such as the mango processing facilities, inadequate storage capacity are some of the hindrances.

8.6 Key Messages and Policy Recommendations

This chapter has provided analysis on the implications of food manufacturing for consumer food prices through processing of primary products to sustain supply, and producer prices that reflect costs of production at the manufacturing level. It has also provided analysis of key cost components by food manufacturing activities and firm size. Further, it has provided review of government initiatives to support food manufacturing – notably those aimed at supporting MSEs, strengthening value chain and establishment of government owned enterprises.

The following key messages and policy recommendations emerge from the analysis in this chapter.

8.6.1 Key messages

1. Food manufacturing cost is majorly attributed to the high cost of raw materials. Raw materials that are sourced domestically are prone to supply disruptions due to droughts, while those that are imported are prone to price changes in the international markets. Consequently, food manufacturing costs affect consumer prices as manufacturers reflect price changes through the producer prices. Changes in the manufacturing producer prices is therefore an early indicator of consumer price changes.

2. While importation of raw materials for food manufacturing is used to bridge local supply deficits, it is associated with high costs. The dependence on imports creates exposure to price changes in the regional and global markets, though cushioning against impacts of domestically originating constraints such as droughts that affect supply of raw materials.

3. The MSEs account for 86 per cent of Kenya's food manufacturing enterprises yet contribute to only 10 per cent of the manufactured food output. This implies that there are unexploited opportunities to tap into existing and new capacity of MSEs to contribute to the supply of manufactured food products. The MSEs face constraints in technology upgrading attributed to access to finance and skills, and low Research and Development (R&D) investments. Further, MSEs face capacity utilization constraints attributed to limited market access, supply of raw materials and policy uncertainty. Over 80 per cent of the food manufacturing MSEs operate in the informal sector, where they face multiple barriers related to infrastructure, access to markets, skills and compliance with health and food safety standards.

4. The institutions mandated to support MSEs through technology and innovation transfer, and compliance with standards are constrained by budgetary resources and coordination framework. Recently, the government has made efforts to address these gaps through centres of excellence, such as the Kariobangi MSEs Centre of Excellence. This initiative is, however, still on a limited scale as it is yet to be replicated in other areas. This intervention creates a one-stop shop for MSEs in accessing essential services such

as incubation, standards certification, capacity building and registration of intellectual property rights.

8.6.2 Policy recommendations

1. Reduce the constraints related to the supply of raw materials for food processing. Key considerations include strengthening the value chain that leverages on the cooperative model for economies of scale in supply of raw materials. It is also imperative to support raw material supply through infrastructure such as aggregation centres and storage facilities. The aggregation centres will help overcome low economies of scale in sourcing raw materials from individual farmers. Storage facilities, including cold storage facilities, are key considering perishability of raw materials for food processing, such as fruits, vegetables and tubers.

2. Support food manufacturing MSEs through measures to strengthen technology upgrading and capacity utilization. The measures to expand technology could include finance and skills development, while those for capacity utilization could include market access opportunities, access to inputs and policy predictability. This could be considered within the broader business environment interventions of infrastructure support, such as access to worksites.

3. Strengthen and expand the institutional support for MSEs on a model based on one-stop-shop, such as the Kariobangi MSEs Centre of Excellence. Fast-tracking infrastructure support, standards and capacity building anchored on business development centre in every ward is key, as articulated in the government priorities. It is also imperative to fast-track completion of other planned centres of excellence in the medium-term.

TRADE AND COST OF LIVING

9

The allocative and pricing function of trade is prone to distributional bottlenecks and adjustments in tax policy. Distributional bottlenecks are reflected in freight, insurance, and warehousing costs. Tax adjustments are reflected in taxes such as Value Added Tax (VAT), customs, and excise duties. The ensuing cost effects filter into consumer prices and have implications on the cost of living. Results from analysis reveal that information asymmetry between government and players in the consumer goods value chain is creating artificial shortages that translate to distortions in the pricing function of trade. This is compounded by the existence of distributional bottlenecks that hinder supply of goods from areas with surplus to areas with shortage to smoothen consumption. Diversifying imports of unmilled wheat away from Russia could cushion consumers against surge in prices driven by distributional bottlenecks associated with the Russia-Ukraine war. The bottlenecks could be addressed by enhancing the transparency of the country's Warehousing Receipt System by completing development of the central registry to promote real time monitoring of the country's food stocks for informed decision making on food acquisition and distribution. The outcome is improved efficiency in allocation and distribution of food commodities from areas of plenty to areas of shortage, thus smoothening consumption and preventing supply shortages that pull up prices. Diversifying import sources for essential consumer goods could cushion Kenyans against rise in the cost of living emanating from distributional bottlenecks linked to disruptions in the global value chain. Lastly, marginal reductions in VAT on animal fats and vegetable oils from 16 per cent to 14 per cent could raise disposable incomes for poorer households, thus smoothening consumption.

9.1 Introduction

Trade is the channel that links consumers with markets locally and globally. Cost effects along the supply chain affect the allocative and pricing function of trade, and this has implications on the cost of living. The two main channels through which cost effects are transmitted into commodity prices are logistics[9] and tax adjustments. Distribution (freight and insurance) and warehousing costs filter into trading costs and are reflected in commodity prices that have direct linkage with the cost of living. Tax adjustments on commodities also filter into final commodity prices faced by consumers, and this consequently affects the cost of living.

9.2 Status of the Trade Sector

a) External trade

Focus is directed to 11 tradeable commodities that account for 13.4 per cent in consumer expenditures in the CPI basket. The commodities include animal fats and vegetable oils, edible products and preparations, petroleum products, unmilled wheat, medicinal and pharmaceutical

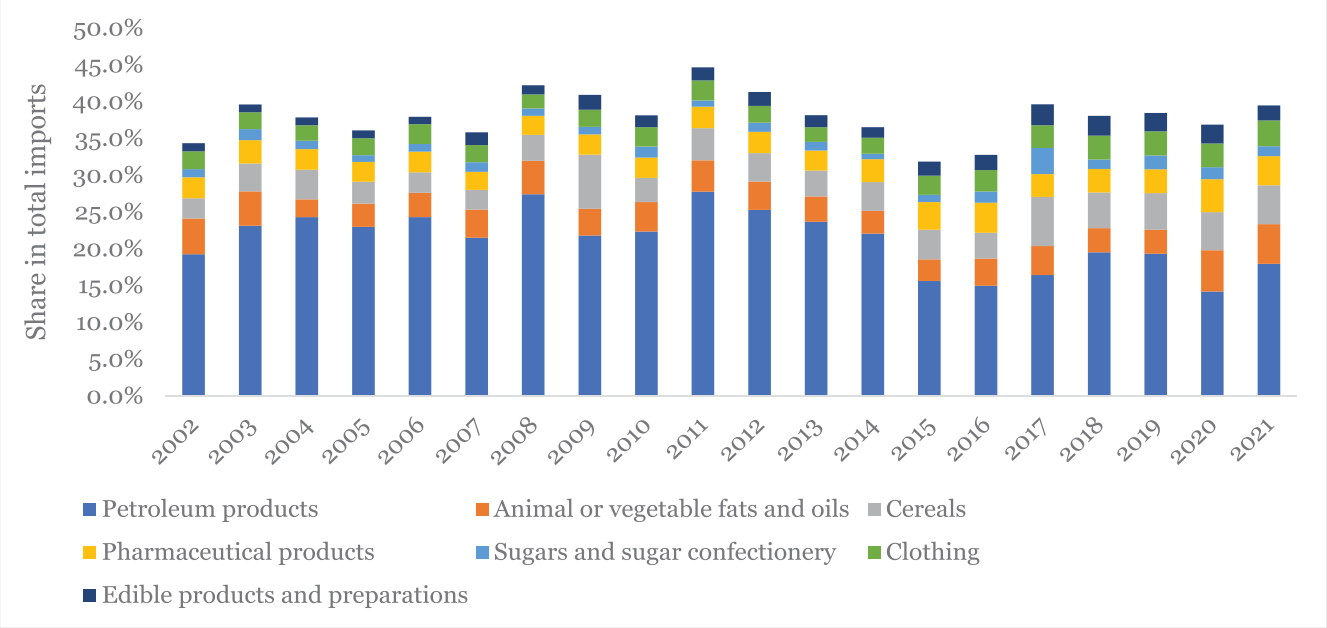
[9] Logistics has two main components, which are distribution and warehousing. Distribution costs are mainly reflected on freight and insurance costs.

products, wheat flour, liquified propane and butane, rice, sugars, second-hand clothing, and unmilled maize. They are essential commodities necessary for normal subsistence and sustenance of a decent living standard. The commodities also manifest large variations in price and income elasticities of demand across households, with the poorest households being the most sensitive to price increases (Burger et al., 2017).

The leading consumer import commodities have been petroleum products, cereals, animal fats and vegetable oils, medicinal and pharmaceutical products, and clothing (Figure 9.1). The rise in prices of these products due to costs related to freight, insurance, and warehousing could deteriorate the cost of living in the country. Commodities such as cereals, fats, and oils have been shown to have low income and price elasticities, meaning that they are necessities that consumers use irrespective of price and income adjustments (Clements and Si, 2015).

The main import sources for animal fats and vegetable oils are Malaysia (40.9%) and United States (29.4%). The largest shares of edible products and preparations come from Uganda (57.0%) and United States (18.9%) while United Arab Emirates (64.1%) and Saudi Arabia (13.8%) are the main sources for petroleum products. The largest share of unmilled wheat (30.4%) comes from Argentina followed by Russia (24.4%) while Belgium (17.3%) and Netherlands (15.8%) account for the larger shares of Kenya's imports of medicinal and pharmaceutical products. The largest proportion of wheat flour (39.7%) comes from China followed by India (33.5%) while Tanzania (54.5%) and Iran (10.1%) account for larger shares of imports of liquefied propane and butane (cooking gas). Tanzania accounts for 41.0 per cent of Kenya's imports of rice while India accounts for 43.9 per cent of Kenya's imports of sugars, mollases and honey. The largest shares of imports of second-hand clothing are from China (45.7%) and United States (13.7%). Tanzania accounts for 77.3 per cent of Kenya's imports of unmilled maize (Table 9.1). Diversifying from Russia for imports of unmilled wheat could cushion consumers against rise in prices emanating from logistical bottlenecks associated with the Russia-Ukraine war.

Figure 9.1: Import performance of consumer commodities



Source: Analysis based on data from Kenya Revenue Authority

Table 9.1: Major import sources for various commodities

Commodity	Major import sources			
	Malaysia	United States	Djibouti	Rest of world
Animal fats and vegetable oils (kg)	40.9%	29.4%	13.9%	15.8%
Edible products and preparations (tonne)	Uganda	United States	Denmark	Rest of world
	57.0%	18.9%	1.6%	22.5%
Petroleum products (litre)	UAE	Saudi Arabia	Oman	Rest of world
	64.1%	13.8%	6.8%	15.3%
Unmilled wheat (tonne)	Argentina	Russia	Australia	Rest of world
	30.4%	24.4%	23.3%	21.9%
Medicinal and pharmaceutical products (kg)	Belgium	Netherlands	Finland	Rest of world
	17.3%	15.8%	15.6%	51.3%
Wheat flour (tonne)	China	India	South Africa	Rest of world
	39.7%	33.5%	5.2%	21.6%
Liquefied propane and butane (kg)	Tanzania	Iran	South Africa	Rest of world
	54.5%	10.1%	7.7%	27.7%
Rice (tonne)	Tanzania	India	United States	Rest of world
	41.0%	19.6%	4.9%	34.5%
Sugars, mollases and honey (tonne)	India	Turkey	Egypt	Rest of world
	43.9%	19.2%	18.4%	18.5%
Second-hand clothing (tonne)	China	United States	Germany	Rest of world
	45.7%	13.7%	3.1%	37.5%
Unmilled maize (tonne)	Tanzania	Romania	Mozambique	Rest of world
	77.3%	4.3%	2.2%	16.2%

Source: Analysis based on data from Kenya Revenue Authority

b) Domestic trade

The country has witnessed huge variations in average unit retail prices for consumer cereals such as beans across the counties (Table 9.2). The price differentials are partly driven by distribution and warehousing (storage) costs. For instance, counties with high concentration of commercial activities such as Nairobi and Kisumu are among counties with highest average unit retail prices for cereals, and this is partly explained by warehousing costs. Existing evidence has linked warehousing and distribution costs to retail prices faced by consumers (O'Farrell and Poole, 2007).

Other counties such as Marsabit do not enjoy comparative advantage in production of cereals such as beans and are distant from counties producing the cereals. Accessing the commodities would mean that the final retail prices reflect distribution costs, making prices in counties that do not produce cereals higher than in counties producing the commodities. For Marsabit, this means that the observed average unit retail prices are partly explained by distribution costs. Evidence has also shown that transportation (distribution) costs influence retail prices for consumer goods (Shakhnovskaya, 2014). The implication is that distortions emanating from warehousing and distribution costs filter into retail prices faced by consumers and have adverse effect on the cost of living. The effect on the cost of living has been aggravated by information asymmetry between government and players in the consumer goods value chain on available food stocks in the country. The asymmetry has hindered timely decision making on acquisition and distribution of food commodities to regions with dire shortages. Existing evidence has shown that information asymmetry is a driver of pricing distortions (Cutts and Kirsten, 2006), and these have implications on the cost of living.

Table 9.2: Major import sources for various commodities

Commodity	Dry beans (Ksh per kg)				Dry maize (Ksh per kg)			
County	2019	2020	2021	2022	2019	2020	2021	2022
Kisumu	89.7	89.4	110.4	272.3	43.5	38.3	35.5	47.3
Nairobi	-	87.6	87.1	167.7	-	42.6	42.4	102.5
Vihiga	95.7	101.5	140.7	161.2	35.7	37.7	33.6	58.5
Tana River	95.0	110.0	110.0	140.8	50.0	-	40.7	70.0
Siaya	83.8	114.0	105.1	140.6	37.8	64.8	35.3	60.7
Marsabit	86.1	-	113.5	138.3	45.9	-	54.1	81.6
Machakos	82.1	96.2	99.5	128.4	38.4	41.0	37.6	61.1
Kajiado	101.3	112.0	112.2	126.8	52.4	47.6	48.8	76.3
Tharaka Nithi	100.9	-	90.3	126.2	58.2	-	49.2	73.1
Makueni	87.0	100.1	100.2	125.8	38.2	35.2	35.4	59.9
Busia	108.0	130.8	142.0	124.5	40.5	74.6	70.6	67.1
Kakamega	101.7	106.6	108.9	124.5	35.5	34.0	32.7	55.8
Mombasa	99.2	113.6	110.3	123.9	54.1	58.2	51.5	76.3
Taita Taveta	91.0	109.4	105.8	121.4	35.0	40.0	38.6	65.9
Kisii	85.3	110.7	112.5	121.4	38.5	41.7	32.4	60.4
Elgeyo Marakwet	92.0	100.0	105.5	120.6	40.9	39.8	36.8	64.4
Baringo	101.0	108.7	-	119.8	41.4	34.7	33.5	54.8
Embu	64.8	106.1	95.2	119.7	26.4	49.1	38.6	61.8
Meru	90.0	81.3	89.5	119.6	44.5	37.1	37.3	65.0
Nyandarua	90.1	83.5	105.6	119.1	41.8	47.1	43.7	62.1
Turkana	106.3	91.1	93.0	117.6	61.2	82.1	48.3	75.9
Bungoma	-	99.0	86.1	114.6	-	36.3	31.6	55.5
Kwale	100.9	99.9	103.9	112.4	48.4	45.5	59.8	71.2
Kiambu	83.9	96.1	99.8	110.1	47.5	43.2	44.4	61.9
Laikipia	101.2	112.9	115.5	109.6	46.3	51.9	44.5	59.5
Kilifi	-	-	-	109.3	-	-	-	53.8
Nandi	100.7	114.9	116.9	107.5	33.9	34.7	33.1	48.8
Garissa	93.7	116.9	106.7	106.7	57.7	69.8	66.9	67.5
Uasin Gishu	100.7	130.7	132.7	105.9	34.4	36.2	32.7	54.7
Migori	84.1	99.4	104.5	105.9	31.0	29.9	26.2	44.0
Kitui	92.0	105.1	103.8	103.3	33.9	33.1	33.9	49.5
Nyeri	84.3	107.6	107.8	102.8	34.6	43.2	44.3	62.4
Bomet	68.2	84.2	88.5	102.0	33.4	37.7	34.0	51.5
Lamu	110.0	100.0	100.3	100.0	42.5	40.0	39.2	55.2
Trans Nzoia	64.2	72.5	97.9	95.8	24.5	37.4	32.8	55.7
Homa Bay	-	-	102.2	95.6	-	34.5	26.3	63.0
Kirinyaga	65.9	81.7	84.9	93.9	45.7	39.2	36.5	62.7
Isiolo	68.0	85.0	92.4	86.9	34.3	45.8	45.6	60.0
Murang'a	69.6	77.2	79.9	84.4	39.8	37.5	35.1	56.0
Nakuru	63.6	61.4	72.8	74.6	37.7	45.1	49.9	47.7
Narok	83.0	-	89.3	74.5	27.6	-	29.3	39.6

Source: Analysis based on data from Leading Economic Indicators (2020, 2022), KNBS

9.3 Imports and Cost of Living

a) Distributional bottlenecks and import tax adjustments

Freight and insurance (distribution) costs are a main channel through which external shocks are transmitted into domestic prices. Import taxes add to the cost of importation that is passed on to consumers. Logistical bottlenecks emanating from external shocks such as the Russia-Ukraine war and COVID-19 raise import costs associated with freight and insurance (Olasehinde-Williams and Bacilar, 2020). For instance, freight charges more than doubled during the COVID-19 period. Port congestion, delays during sailing, transit, and border time crossings increased. Liadze et al. (2022) estimate that the Russia-Ukraine war contributes 2 per cent and 1 per cent to global inflation in 2022 and 2023, respectively.

The key import taxes include Value Added Tax (VAT), customs and excise duties. Custom duties are usually applied as a tool for protecting the domestic industry against external competition, thus incentivizing growth of local MSEs and raising government revenue. Excise duties and VAT are applied to raise revenue. Taxes are directly filtered into consumer prices, with implications on the cost of living (Besley and Rosen, 1998; Chipeta and Montfaucon, 2022; Gillingham and Greenlees, 1987; Grogger, 2017; Sun et al., 2013; Russel and Walbeek, 2016).

All imported commodities incur distribution costs (Table 9.3), with these costs varying from year to year and from commodity to commodity. In 2020, during the COVID-19, for instance, freight and insurance costs accounted for 58.8 per cent of the Free On Board (FOB) value of the commodities imported that year. With easing of the COVID-19 pandemic, these costs have fallen to 21.6 per cent in 2021 and 14.2 per cent in 2022. The contribution of distribution costs to FOB value of imports in 2022 was lower than during the pre-COVID period, implying that the Russia-Ukraine war that started in 2022 has not had significant effect on distribution costs. Further, all the imported commodities examined attract custom duties (Table 9.4). Only petroleum products attract excise duty (Table 9.5) while animal fats and vegetable oils, edible products and preparations, petroleum products, liquified propane and butane, sugars, and second-hand clothing attract Value Added Tax (VAT) (Table 9.6).

Reducing VAT on animal fats and vegetable oils could cushion consumers against rise in the cost of living associated with the tax. The evidence reveals that 31.3 per cent of households in rural areas are food-poor, compared to 28.0 per cent of households in urban areas that are food-poor. The poor households also tend to have low incomes and spend large proportions of their incomes on essential commodities such as food. The commodities are necessities consumed by food-poor households. These households are therefore the ones that are hardest hit by marginal increases in prevailing tax rate. They are also the largest beneficiaries from a marginal reduction in the applied tax rate. Marginal reductions in the applied VAT rate could therefore be welfare improving for poor households and this could support the country's bottom-up economic transformation plan.

Table 9.3: Contribution of distribution bottlenecks to FOB value of imports

Commodity	Freight and insurance costs						
	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Animal fats and vegetable oils (kg)	8.8	5.9	10.6	8.3	8.8	79.9	9.0
Edible products and preparations (tonne)	74.5	81.3	17.0	9.1	2.0	5.1	8.8
Petroleum products (litre)	16.0	17.4	16.9	16.5	18.2	17.3	16.9
Unmilled wheat (tonne)	13.4	15.5	17.1	17.6	16.1	16.2	18.9

Medicinal and pharmaceutical products (kg)	10.1	7.6	50.3	11.9	22.9	40.4	5.5
Wheat flour (Tonne)	19.1	14.1	8.9	12.9	512.4	18.2	34.3
Liquefied propane and butane (kg)	10.9	19.5	11.5	12.7	15.8	6.5	6.1
Rice (tonne)	7.7	9.9	8.7	9.5	5.5	9.2	10.1
Sugars, mollases and honey (tonne)	11.3	9.7	8.5	10.9	11.8	15.3	19.0
Second-hand clothing (tonne)	19.9	18.5	19.1	19.9	18.4	19.7	21.7
Unmilled maize (tonne)	9.0	13.8	10.2	9.9	15.1	10.0	5.7
Average	18.3	19.4	16.3	12.7	58.8	21.6	14.2

Table 9.4: Contribution of custom duty to FOB value of imports

Commodity	Custom duty						
	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Animal fats and vegetable oils (kg)	26.4	19.7	20.8	24.2	24.3	13.3	28.8
Edible products and preparations (tonne)	16.6	3.2	5.4	10.3	3.4	10.8	28.3
Petroleum products (litre)	2.5	2.0	3.9	2.9	4.6	3.9	1.4
Unmilled wheat (tonne)	11.5	11.6	11.5	11.9	16.5	40.4	41.6
Medicinal and pharmaceutical products (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheat flour (tonne)	0.5	1.7	1.6	35.0	52.5	55.4	67.2
Liquefied propane and butane (kg)	0.1	3.1	0.0	0.0	0.0	0.0	0.0
Rice (tonne)	71.4	50.5	49.2	53.0	38.4	33.3	52.2
Sugars, mollases and honey (tonne)	7.7	6.4	4.6	2.8	2.5	4.0	11.9
Second-hand clothing (tonne)	45.2	46.2	41.5	41.9	41.4	41.9	45.7
Unmilled maize (tonne)	1.2	0.1	0.4	1.3	1.4	1.5	30.5
Average	16.65	13.14	12.63	16.66	16.82	18.59	27.96

Table 9.5: Contribution of excise duty to FOB value of imports

Commodity	Excise duty (%)						
	2016	2017	2018	2019	2020	2021	2022
Animal fats and vegetable oils (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Edible products and preparations (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum products (litre)	70	53	61	74	122	75	18
Unmilled wheat (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medicinal and pharmaceutical products (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheat flour (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied propane and butane (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rice (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sugars, mollases and honey (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-hand clothing (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unmilled maize (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	70.0	53.0	61.0	74.0	122.0	75.0	18.0

Table 9.6: Contribution of Value Added Tax (VAT) to FOB value of imports

Commodity	Value Added Tax – VAT (%)						
	2016	2017	2018	2019	2020	2021	2022
Animal fats and vegetable oils (kg)	21.3	19.6	16.5	20.5	17.6	10.6	18.8
Edible products and preparations (tonne)	12.6	2.8	4.6	8.4	2.5	5.7	8.4
Petroleum products (litre)	8.3	10.5	12.3	11.2	12.1	12.6	12.1
Unmilled wheat (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medicinal and pharmaceutical products (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheat flour (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied propane and butane (kg)	9.2	10.2	0.0	0.0	0.0	9.3	12.8
Rice (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sugars, mollases and honey (tonne)	18.1	17.5	16.9	17.4	15.6	18.2	19.4
Second-hand clothing (tonne)	25.8	26.2	25.6	25.8	23.3	25.8	26.3
Unmilled maize (tonne)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	15.88	14.47	12.65	13.88	11.85	13.70	16.30

Source: Analysis based on data from Kenya Revenue Authority

Table 9.7: Average percentage change in unit import prices of consumer products

Commodity/Year	2016	2017	2018	2019	2020	2021
Animal fats and vegetable oils (kg)	2.9	14.1	-15.0	-13.1	30.9	67.4
Edible products and preparations (tonne)	16.9	-14.2	4.5	7.0	43.4	3.8
Petroleum products (litre)	-19.0	23.5	27.1	-8.5	-26.0	49.3
Unmilled wheat (Tonne)	-15.5	7.8	8.1	4.0	1.2	27.0
Medicinal and pharmaceutical products (kg)	-5.2	-4.0	-10.8	1.5	-5.1	52.0
Wheat flour (tonne)	-12.9	-8.0	-18.0	22.2	-2.6	34.2
Liquefied propane and butane (kg)	-23.0	25.5	5.9	-15.9	-9.1	45.1
Rice (tonne)	-7.4	53.3	-0.3	-3.5	5.7	13.4
Sugars, mollases and honey (tonne)	7.6	-5.5	0.1	-3.6	5.3	10.2
Second-hand clothing (tonne)	6.2	-1.4	-0.6	0.7	4.4	2.6
Unmilled maize (tonne)	43.2	23.9	-25.2	21.4	-0.9	3.6

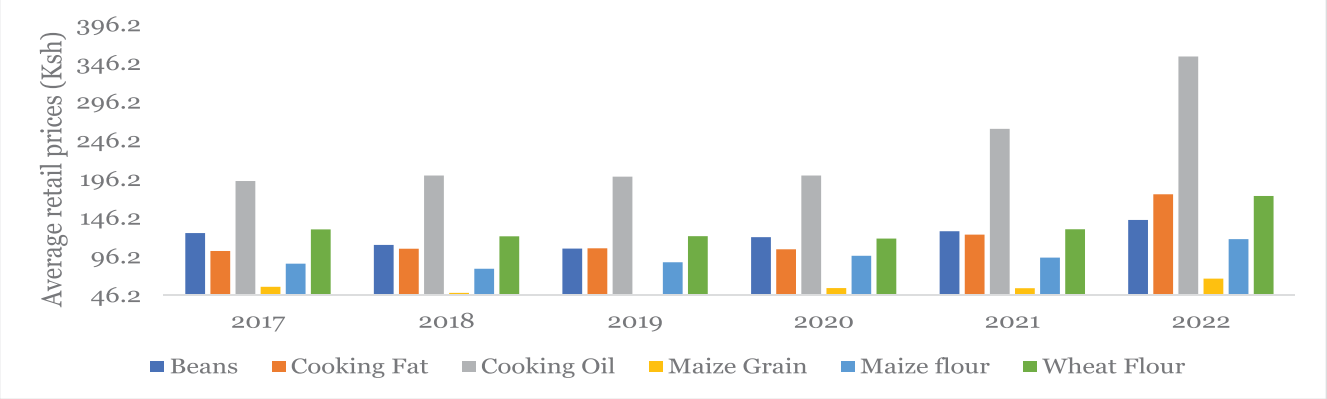
Source: Analysis based on data from KNBS (2022 and 2018), Economic Survey

9.4 Domestic Trade

Figure 9.2 illustrates average unit retail prices for consumer commodities. The commodities include maize grain, maize flour, wheat flour, beans, and cooking oil and fat. Cumulatively, the commodities contribute 4.2 per cent to consumer prices in the CPI basket. The commodities are currently exempted from Value Added Tax (VAT), except for animal fats and vegetable oils. The rise in retail prices of the commodities is driven by other factors, including distribution and warehousing costs.

Cooking oil has had the largest rise in retail prices followed by wheat flour. A larger share of Kenya's imported cooking oil comes from Malaysia while a larger share of imported wheat comes from Russia. Diversifying import sources for wheat could cushion consumers against rise in prices driven by distributional bottlenecks associated with the global supply chain disruptions.

Figure 9.2: Average retail prices for consumer commodities against annual inflation



Source: Analysis based on data from KNBS

Animal fats and vegetable oils currently attract VAT at 16.0 per cent. CGE simulations for reduction in VAT rate for the commodity reveal that welfare to households (measured by CPI) is largest when the applied VAT rate is reduced from 16.0 per cent to 14.0 per cent. Government savings at this new VAT rate are larger than loss in government tax revenue. This is possible in that reduction in the applied VAT rate raises the disposable income available to consumers. It also reduces government spending on cash transfers to cushion consumers against deterioration in living costs in a scenario without VAT reduction (Table 9.8). Although social protection would still be necessary even with the marginal reduction in VAT on animal fats and vegetable oils, the actual expenditures of social protection would be lower than they would have been without the reduction.

The simulations further reveal that the households benefiting the most from the marginal VAT reduction are those in arid and semi-arid rural areas and those in high rainfall rural areas (Table 9.8). Households in these areas tend to have low incomes and face the largest deterioration in the cost of living when taxes such as VAT on essential commodities such as animal fats and vegetable oils increase marginally.

Table 9.8: CGE simulation on the impact of adjusting VAT on animal fats and vegetable oils

Welfare effects (%)	12	8	4	0
CPI (%)	-1.5	-0.6	-0.2	-0.2
Government savings (%)	32.0	12.8	3.7	3.9
Government tax revenue (%)	-5.2	-195.0	-0.5	-56.0
Arid—urban (%)	0.7	0.3	0.1	0.1
Arid—rural (%)	1.6	0.7	0.2	0.2
Coast—urban (%)	-0.1	0.0	0.0	0.0
Coas—rural (%)	1.1	0.5	0.2	0.2
Semi-Arid—rural (%)	12.4	5.3	1.5	1.7
Semi-Arid—urban (%)	0.5	0.2	0.1	0.1
High rainfall—urban (%)	3.8	1.8	0.6	0.6
High rainfall—rural (%)	44.4	19.5	5.8	6.2
Mombasa—poorest (%)	0.0	0.0	0.0	0.0
Mombasa—richest (%)	0.2	0.1	0.0	0.0
Nairobi—poorest (%)	0.3	0.1	0.0	0.0
Nairobi—richest (%)	2.2	1.0	0.3	0.3

Source: Analysis based on DEMETRA CGE Model and 2017 SAM for Kenya

Box 9.1: Highlights from key informant interviews on drivers of living costs

The key drivers of rise in retail prices have been supplier costs related to logistics, warehousing, cost of production, rise in prices of raw materials, and rise in costs linked to electricity, and rent.

The Russia-Ukraine war created logistical and production bottlenecks, leading to cost-push and demand-pull price surges that have deteriorated the cost of living. The shocks have been transmitted through insurance and freight costs and depreciation of local currency. Due to logistical bottlenecks, the cost of wheat from Ukraine and Russia has risen by between 70% and 80%. Logistical bottlenecks related to COVID-19 lockdowns saw production and supply of chips and semi-conductors decrease at a time when demand was high. This translated to a rise in the cost of electronics, including television sets.

Petroleum and gas products from Russia were also subjected to higher logistical costs and uncertainty associated with sanctions, with the effect being rise in import costs and higher domestic prices. Freight charges more than doubled during the COVID-19 period due to logistical bottlenecks. Delays and congestion at the ports raised the free period. Sailing time also increased and there was longer border crossing periods for trucks, which increased transit times for trucks and reduced turnaround period from 4 trips in a month between Nairobi and Kampala in ordinary times to just 1-2 trips per month during COVID-19.

Climate change as witnessed through recurrent droughts in the country has adversely affected agricultural production, leading to supply shortages and demand-pull rise in prices.

Operation costs by retailers in the country have risen by 15-20%, and these costs have been transmitted to higher final retail prices. Speculative hoarding of essential consumer goods has also created artificial supply shortage and consequently driven prices up with the outcome being deterioration in the cost of living. Collusion in pricing by suppliers has also been driving up prices. Weakening of the Kenyan Shilling against major currencies has raised the cost of imported raw materials used by domestic producers and cost of final consumer goods imported by retailers. Subsidies have also created distortion in the pricing mechanism of the market. Warehousing costs have been increasing by 5-10% per year, and this is passed through to final retail prices.

9.5 Key Messages and Policy Recommendations

9.5.1 Key messages

1. Information asymmetry between government and players in the consumer goods value chain creates artificial shortages and pricing distortions. This has manifested in incidences of government importing food commodities only for the local farmers and millers to indicate that the country had enough food stocks.

2. Distributional bottlenecks are hindering distribution of consumer goods from regions with surplus to regions with shortages. This has manifested in differentials in retail prices across counties producing cereals and those that do not.

3. Diversifying import sources for essential food commodities could cushion consumers against price increases driven by distributional bottlenecks associated with the global supply chain disruptions.

4. Marginal reduction of VAT on animal fats and vegetable oils could ease the cost of living among poor households in Kenya's rural areas. Although government expenditure on social protection would still be needed, the expenditures would be lower in a scenario with marginal reduction of VAT on animal fats and vegetable oils.

9.5.2 Policy recommendations

1. Enhance transparency in the country's warehousing receipt system by finalizing development of the central registry by the Warehousing Receipt System Council (WRSC) to promote real time monitoring of the country's food stocks and inform government decisions on food acquisition and distribution. The outcome is improved efficiency in allocation and distribution of food commodities from areas of plenty to areas of shortages, thus smoothening consumption and

preventing supply shortages that pull up prices.

2. Incentivize local MSEs to tap into opportunities in the local logistics industry and enhance distribution of consumer commodities from regions with surplus to regions with shortages. This is possible through expanding access to the country's Financial Inclusion Fund (Hustler Fund) among local MSEs in the logistics sector. Access to the Warehouse Receipt System by the MSEs could also enable them to use the warehouse receipts as collateral for accessing credit.

3. Diversify import sources for essential consumer goods, especially unmilled wheat, to cushion consumers against rise in the cost of living emanating from distributional bottlenecks linked to the global supply chain disruptions.

4. Reduce VAT on animal fats and vegetable oils from 16.0 per cent to 14.0 per cent to cushion poorer households from rural areas against erosion in the cost of living. It raises the disposable incomes available to the households, and this smoothens consumption.

ACCELERATING ADOPTION OF ELECTRIC MOBILITY FOR AFFORDABLE AND SUSTAINABLE TRANSPORT IN KENYA

10

High price of fuel is a policy challenge for the cost of living and economic stability. With high fuel prices, transport costs rise which ultimately affects households' ability to meet their basic needs. Transport accounts for 9.65 per cent of total household expenditures and constitutes a high percentage of government expenditures if fuel subsidies are offered. Reducing reliance on fossil fuels by adoption of electric mobility is a strategic policy shift towards having affordable and sustainable transport. Electric mobility has the potential to correct the current and unfavourable mobility model, which is dominated by imported second-hand fossil fuel vehicles. Electric mobility not only offers affordable and sustainable transport but also numerous socio-economic benefits that include reduction of carbon emissions and job opportunities. Kenya has made significant efforts to promote the use of electric mobility as evidenced by increased number of electric mobility innovations, startups, assemblers, retrofitters and financiers. The electric mobility sector is still young with huge potential to transform transport services in the country. Focusing on putting in place adequate charging infrastructure, reducing electricity prices, offering funding and enhancing the capacity of suppliers, assemblers and retrofitters will support the growth of electric mobility. To accelerate the adoption of electric mobility, the following interventions should be prioritized: engagement of private sector players in building adequate charging points and battery-swapping stations along the major routes is a key consideration; exploring public private partnership to support the assembling, distribution and selling of electric vehicles; introduction of subsidized charging fee, offering reduced insurance and number plate fee and free parking in public areas for the new vehicles will increase uptake of electric mobility: prioritizing retrofitting offers a promising complementary solution to new vehicles and therefore building technical skills for 2 and 3-wheelers is key in reducing the shifting costs: creating a fund by amending the road maintenance levy fund and tapping on Financial Inclusion Fund and Climate Change Fund are crucial considerations to support infrastructure, innovations and startups in the sector. Other considerations include setting of targets for public agencies to adopt electric vehicles and developing standards to convert fossil fuels vehicles to electric. Expanding and modernizing power grid to support distribution and billing for smart charging is a key priority. Finally, fast-tracking the development and approval of a comprehensive National Electric Mobility policy framework to enhance sector wide coordination is imperative.

10.1 Introduction

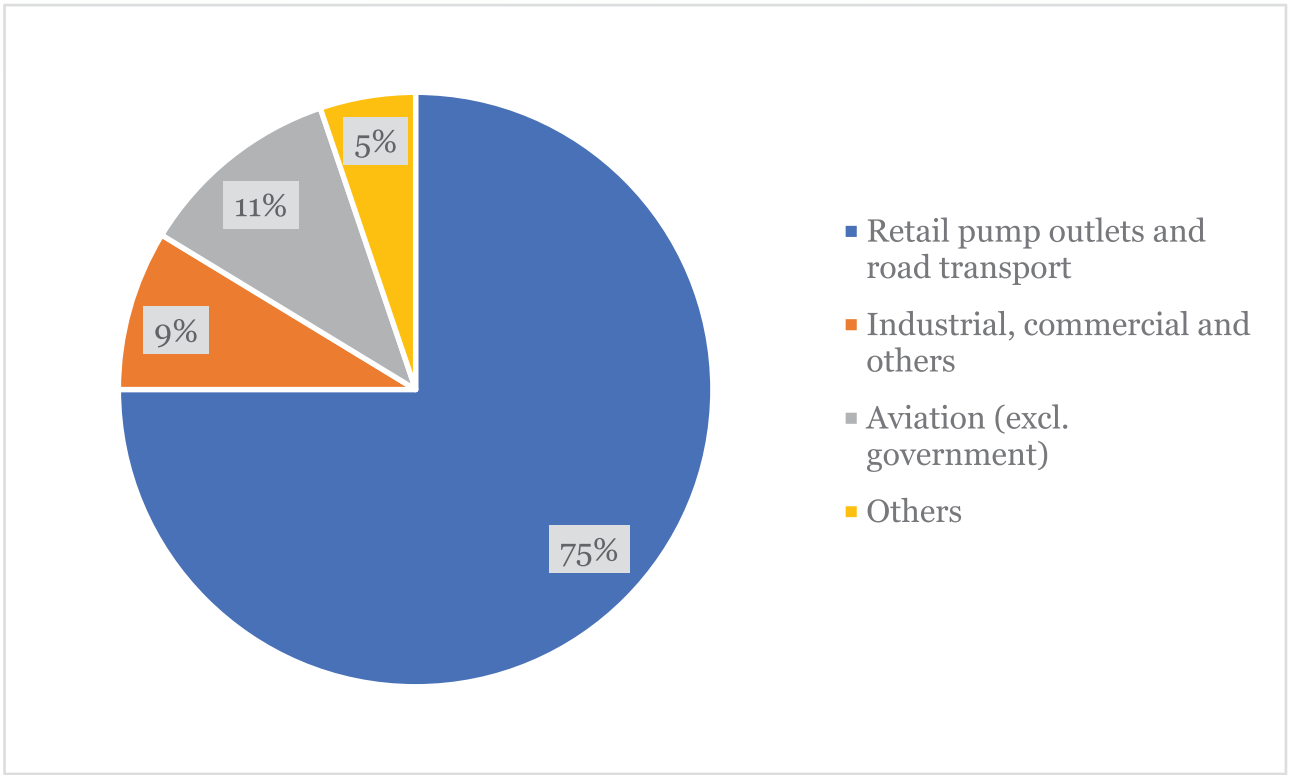
The past and recent global fuel crises triggered by shocks such as Russia-Ukraine war and climate change have interrupted the markets and supply chain networks, prompting a surge in fuel prices among the oil import-dependent countries. These shocks have disrupted the economic outlook, eroding standards of living and aggravating macroeconomic imbalances. A major cause of high prices is sluggish supply response to fast-growing demand due to increased difficulty and costs of extracting oil from new fields. Price increase and supply interruptions of fuels have had a ripple effect on the cost of goods and services in the economy. High fuel prices lead to increased transport costs, which affect the prices of goods and services. High fuel prices are linked to high inflation, increased poverty, budget constraints and

thus increasing vulnerabilities of households to economic shocks. For instance, in the agriculture sector, high fuel prices negatively affect the production and distribution of food products, thus increasing food insecurity in the country.

High fuel prices are a policy challenge for the cost of living and economic stability as noted in the Bottom-up Economic Transformation Agenda. The sector most seriously and immediately affected by high fuel prices is usually the transport sector. The transport sector is not only a vital enabler of economic activity and social connectivity but also one of the fastest growing energy end-use sectors. The bulk of energy used by the transport sector (about two-thirds) is accounted for by passenger transport while the rest is by freight transport. With high fuel prices, oil-importing fragile countries including Kenya experience rising transport costs and constitute a high percentage of government expenditures if fuel subsidies are offered. Further, the Consumer Price Index Rebasing Report of 2020 indicates that nationally, transport accounts for 9.65 per cent of total household expenditures, while for Nairobi the share is 11.81 per cent. In addition, the report indicates that bus and matatu fares were ranked second out of the top ten expenditure components for households behind mobile phone airtime. With high fuel prices usually driven by fuel inflation, this will further increase the cost of living and, therefore, affect the ability of households to meet their needs.

The highest percentage of imported petroleum fuels is consumed in the transport sector. The value of petroleum products imported in 2022 was Ksh 628.4 billion, and about 75 per cent of the petroleum fuel sales was in the retail pump outlet and transport category.

Figure 10.1: Percentage sales of petroleum fuels by major consumer category, 2022



Data source: KNBS (2023), Economic Survey

Reducing reliance on fossil fuels is not only a strategic shift to overcome undesired consequences that come with high fuel prices due to supply interruptions of fuels but also an effective way to build affordable and sustainable transport. Further, reducing dependency on fossil fuels supports the global effort to decrease production of fossil fuel by 6 per cent per year to limit global warming to 1.5 degrees Centigrade (°C) (Production Gap Report, 2020). This calls for exploring alternative and efficient energy systems for economic development. Various global development agendas have highlighted the need to shift from fossil fuels to more sustainable renewable energy sources. For instance, the Sustainable Development Goal (SDG) number seven (7) aims to "ensure access to affordable, reliable, sustainable and modern energy for all", which is a necessity for economic development and well-being of households. Provision of secure, affordable and modern energy for all citizens is central to poverty reduction and economic growth. To realize this aspiration, governments around the world are investing in low carbon technologies and systems.

Adoption of electric mobility, also known as vehicle electrification, is an innovative way to reduce the burden of fossil fuels and positively contribute to lowering transport costs and therefore the cost of living. Having affordable, reliable and efficient transportation reduces transport-related costs across many economic sectors, while inefficient and unsustainable transport increases these costs. Adoption of electric mobility speeds up the transition to a low-carbon energy system necessary for affordable and sustainable transport. By promoting electric mobility, Kenya can acquire a competitive advantage in new technologies and export them to other countries. Globally, cities and urban areas are responsible for nearly 80 per cent growth in total carbon emissions from vehicles alone due to more roads, highways, and car usage. Transportation accounts for an average of 34 per cent of any country's carbon pollution, making it the highest polluting sector in the economy. Kenya's transport sector is one of the main contributors of greenhouse carbon emissions due to the sector's predominant use of fossil fuel vehicles.

Available evidence indicates that an electric vehicle is about three or four times more efficient than comparable fossil fuel vehicle commonly referred to as combustion engine vehicle. Electric vehicles are thus not only cleaner, but also much more economical than fossil fuel vehicles. Reducing mobility costs could boost global economic recovery and bring down the high cost of living. Electric vehicles have potential to reduce 11 billion tonnes of carbon dioxide (CO_2) by 2050. Globally, 2 and 3 wheelers and light duty vehicles account for 90 per cent of all vehicles and contribute 50 per cent of vehicular emissions while buses and trucks emit the other 50 per cent. This indicates the need to transition to electric mobility. Stemming pollution from the transport sector will supplement efforts to the global agenda of reducing carbon dioxide emissions to net zero by 2050. The path to net zero emissions requires immediate deployment of clean and efficient energy technologies and this gives electricity the edge in the race to net zero. As the electricity sub-sector becomes cleaner, electrification emerges as a crucial economy-wide tool for reducing carbon emissions. According to the International Energy Agency (IEA) Report on Net Zero by 2050 (IEA, 2021), economic recovery efforts should be aligned with the net zero pathway to speed up the deployment of clean and efficient energy technologies. As the global market for electric vehicles continues growing steeply, the report indicates that electric mobility will account for 60 per cent by 2030 globally.

Kenya is well-endowed with cheap renewable power resources and is strategically focusing on reducing its oil dependency in the transport sector by shifting to more affordable and sustainable energy. Of critical importance is the recognition of electric mobility as a viable socio-economic solution to offer cheap and sustainable transport. This is demonstrated by the formulation of various strategic policy

documents. For instance, the Kenya National Energy Efficiency and Conservation Strategy (2020) plans to have 5 per cent of imported cars annually to be electric by 2025. Kenya has signed the COP26 declaration on accelerating the transition to 100 per cent zero emission cars and vans. Similarly, the National Climate Change Action Plan (2018-2020) advocates for the adoption of electric vehicles as a climate change mitigation to reduce emissions. Further, the Bottom-up Economic Transformation Agenda notes that accelerating transition to electric vehicles will contribute to Kenyan's emission reduction commitment, cheaper transport, and will put the country in a position to serve the growing local and regional market on electric mobility.

The current mobility model in Kenya is dominated by imported second-hand fossil fuel vehicles that run on imported fossil fuels. With high fuel prices, this model is unfavourable to both households and the government on many levels, including increasing the amount spent on transport. As Kenya transitions to electric mobility, it is an opportunity for Kenya to build an affordable and sustainable transport system.

10.2 Shifting from Fossil Fuel Vehicles to Electric Vehicles

With high fuel prices and the global call to reverse climate change impacts, countries are expected to shift from fossil fuel vehicles to electric mobility (McKinsey, 2021). Countries such as the United Kingdom and France aim to phase out fossil fuel vehicles by 2040. Similarly, other European countries and Japan have pledged to end carbon emissions from fossil fuel vehicles by 2030 and are aspiring to go all-electric. By shifting to electric mobility, countries not only reduce the levels of overall expenditure on oil imports, carbon emissions, noise pollution, and air pollution, but also create a more climate-friendly environment that supports employment creation and revenue generation.

Electric mobility has been around for hundreds of years but started gaining popularity in recent years due to significant technological evolution in battery construction and rapid charging, thus translating into massive socio-economic benefits. Electric mobility reduces energy dependence on expensive fossil fuels, thus saving the consumers and the country from high and fluctuating costs of importing petroleum. Though electric vehicles are comparatively expensive on initial purchase because of the high cost of batteries, they are cheaper in the long term because of the minimal maintenance and running costs. Generally, electric vehicles are more reliable and affordable in terms of operational and maintenance costs. It is estimated that by 2040, electric vehicles will make up more than 60 per cent of car sales. The continued affordability of electric vehicles makes them a great option for low or middle-income earners because of the reduced cost of operation and maintenance. Electric vehicles run on batteries and have fewer moving parts, making them have less wear thus limiting the need for servicing, unlike fossil fuel vehicles.

Electric vehicles are environmentally friendly because they are powered from renewable energy. Electric vehicles reduce carbon and noise pollution because of fewer moving parts, unlike the many parts in fossil fuel vehicles. It is estimated that electric vehicles moving at an average speed of below 20 km/hr emit very minimal sound to the environment. Further, electric vehicles use lithium-ion batteries that generally last as long as 10 years before losing enough performance and thus requiring replacement. Such batteries retain about 90 per cent of their power capacity upon removal and can be reused as power storage for domestic and commercial buildings or to store electricity from solar panels and wind turbines. The batteries can also be recycled to harvest raw materials, further reducing the environmental footprint.

Electric vehicles are more efficient than fossil fuel vehicles because they convert about 90 per cent of the electrical energy to motion compared to 30 per cent for fossil fuels

vehicles. They have a better torque than fossil fuel vehicles and offer instant response during acceleration and braking during traffic snarl-ups. Electric vehicles consume power while in motion while the fuel vehicles consume power even during traffic snarl-ups.

Shifting to electric mobility has huge potential to create direct and indirect employment opportunities in the automotive, electronics and IT industries and other supporting industries such as in the deployment and operation of charging infrastructure, local assembly, maintenance of electric vehicles, and recycling and reuse of batteries. A study by the European Association of Electrical Contractors indicates that by 2030, a total of nearly one million high quality, local, green jobs could be created globally in fields such as electricity generation, civil and road works, battery cell manufacturing, installation and maintenance.

Drive Electric conducted a study on the competitive value of electric mobility in Kenya in 2017. The study findings indicate that electric vehicles registered more benefits than fossil fuel vehicles as demonstrated in Table 10.1.

Table 10.1: Competitive value comparison of an electric vehicle and a petrol vehicle (small car)

Parameter	Electric vehicle	Petro vehicle
Battery/engine capacity	24 kWh	1500 cc
Power consumption per km	0.2 kWh	0.09 L (0.819 kWh)
Average fuel economy	Higher	Lower
Energy cost/km traveled	Ksh 4.00 (Ksh 20.91/kWh)	Ksh 8.50 (average petrol cost of Ksh 106.3/l)
Torque (Nm)	350	150
Tail pipe CO_2 emissions per km	Zero	185.20 gm/CO_2 e*
Cost of maintenance (engine related service schedule)	Nil (service scheduled at 12,000 km)	Ksh 7,500/service (service scheduled at every 5,000 km)

*Source: Drive Electric (2017) and *Notter and Füssler (2018)*

Box 10. 1: BasiGo observations on electric buses

The electric bus company BasiGo piloted electric buses plying on the North Airport Road to Allsops and the Dandora–City Stadium routes covering 120,000 km and ferried over 150,000 passengers. The pilot data showed that it was much cheaper to operate an electric bus compared to a diesel-powered one of a similar capacity. Electric buses had 98% uptime and run on 45 days continuously without any stoppage for maintenance due to the fewer moving parts. The data shows that it was cheaper to run an electric bus in terms of charging cost compared to an equivalent diesel bus. The charging cost to cover 250km is Ksh 5,000 (Ksh 20/km) as compared to Ksh 12,000 (Ksh 170/litre) for a diesel bus in a day.

Source: BasiGo (2023)

10.2.1 Electric vehicles models

Electric vehicles are propelled by one or more electric motors powered by rechargeable battery packs in place of an internal combustion engine (ICE). Electric mobility encompasses all the different types of vehicles: cars, motorcycles, bicycles, 2 and 3 wheelers, buses, boats and electrified rails. Generally, there are four categories of electric vehicles based on the use of electricity as the primary fuel or in part to improve the efficiency of fossil fuel vehicles. Battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) are the most

common categories of electric vehicles. It is noted that BEVs are the most energy efficient category offering the cheapest and most sustainable means of transport, followed by PHEVs.

Table 10.2: Categories of electric vehicles

Category	Description	Components
Battery electric vehicles (BEVs)	BEVs are pure electric vehicles and use batteries to store the electric energy that powers the motor. The electric vehicle batteries are charged by plugging the vehicle into an external electric power source. These cars have a range of 100 - 200 miles	• Electric motor • Battery pack • Regenerative braking
Hybrid Electric Vehicles (HEVs)	HEVs are powered by an internal combustion engine and by an electric motor that uses energy stored in a battery. Hybrid vehicles can only be driven a few miles on pure electricity. A hybrid car has no plug; instead, it recovers energy under braking and uses it to recharge its battery on the move.	• ICE • Petrol/diesel • Electric motor • Battery pack • Regenerative braking
Plug in Hybrid Electric vehicles (PHEVs)	PHEVs are powered by a combination of electricity and fossil fuel (petrol or diesel). PHEVs have a smaller battery than pure electric cars, which means they have a maximum electric vehicle range of 15 - 30 miles. When the battery is empty the combustion engine will power the vehicle until the battery is recharged again. The vehicle can be plugged in to an electric power source to charge the battery.	• ICE • Petrol/diesel • Electric motor • Battery pack • Regenerative braking
Fuel Cell Electric Vehicles (FCEVs)	FCEVs use hydrogen to generate electricity on-board the vehicle. Hydrogen is an abundant element that can be readily derived when water (H2O) is broken down into 2 hydrogen molecules and 1 oxygen molecule. They are then harnessed separately, and consequently, hydrogen used as fuel for the vehicle. Refueling a fuel cell vehicle is comparable to refueling a conventional car but at a hydrogen refueling station, taking less than 10 minutes.	• Electric motor • Hydrogen tank • Battery pack

Source: Electric Mobility in Kenya (2021)

10.2.2 Categories of chargers for electric vehicles

A charger connected to the electricity grid (electric vehicle supply equipment) is used to charge an electric vehicle at home, at mall, at work or in public charging stations. There are three levels of chargers based on the maximum amount of power the charger provides to the battery from the grid. Notably, full charging times can range from less than 30 minutes to more than 8 hours based on the type of charger, type of battery, charge level and its capacity. Level 1 and Level 2 chargers are best suited for overnight charging or during long stopovers. Direct current (DC) fast chargers are used when there is need for a quick recharge within a short amount of time. Further research into battery technologies continues to reduce the cost of batteries, increasing efficiency and driving the range of electric vehicles and decreasing charge times.

Box 10.1: BasiGo observations on electric buses

- Level 1: Provides charging through a 120V alternating current (AC) plug and does not require installation of additional charging equipment. It is most often used in homes. Level 1 chargers can take 40-50 hours to charge a battery electric vehicle (BEV) from empty and 5-6 hours to charge a plug-in hybrid electric vehicle (PHEV) from empty.
- Level 2: Provides charging through a 240V (for residential) or 208V (for commercial) plug and requires installation of additional charging equipment. It is used in homes, office buildings, and for public stations. Level 2 chargers can charge a BEV from empty in 4-10 hours and a PHEV from empty in 1-2 hours.
- DC fast charge: Provides a high-power direct current (DC) up to 120kW directly to the battery and requires highly specialized, high-powered equipment and special equipment in the vehicle itself. This charger is used most often in public charging stations, especially along heavy traffic corridors or highways. In some electric vehicles, the battery can simply be removed and exchanged for a fully charged battery or taken home for charging. This equalizes the standard time of fuelling a conventional vehicle. DC fast charge equipment can charge a BEV to 80 per cent in just 20 minutes to 1 hour. Most PHEVs currently in the market do not work with fast chargers.

Source: US Department of Transportation (2023)

10.3 Sector Performance

The analysis of performance of electric mobility sector is based on the review of performance of the road transport sub-sector in terms of its contribution, vehicles registered and fuel consumption. The analysis is also based on the value chain approach for electric mobility including innovations and startups; assemblers; financiers; infrastructure providers; academia and research institutions; policies; and electricity sub-sector in Kenya.

10.3.1 Overview of road transport sub-sector

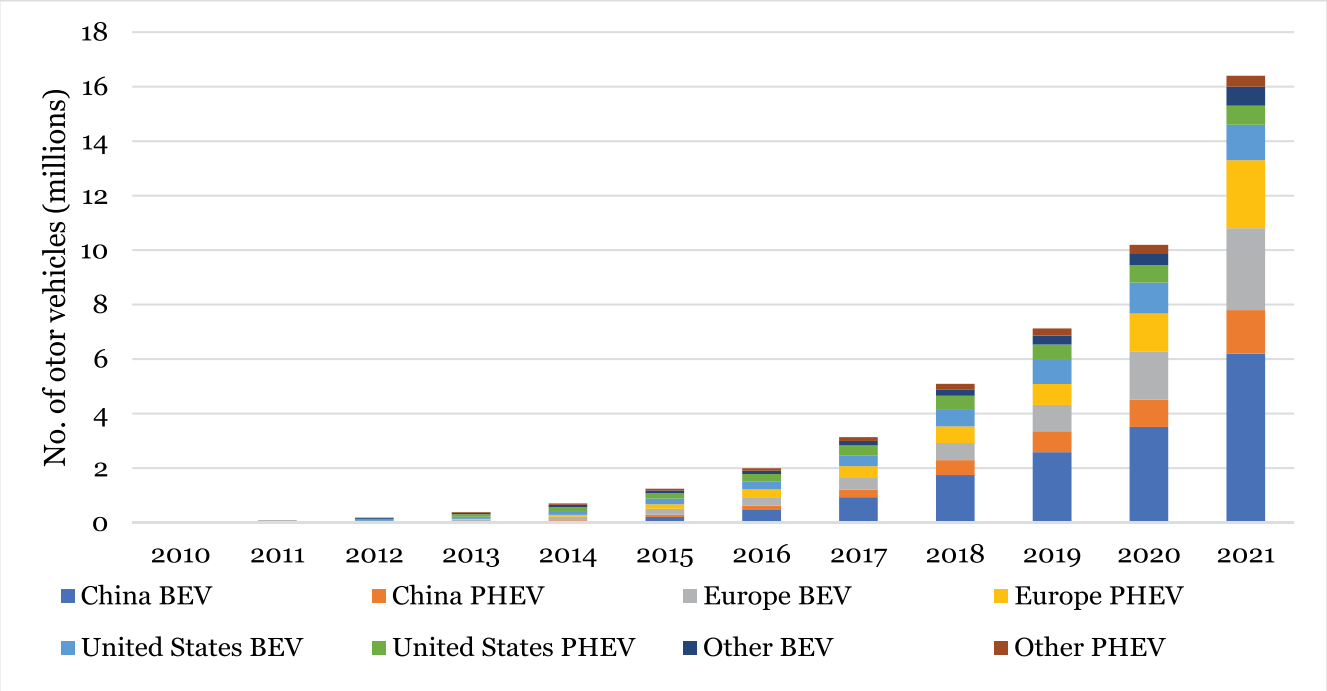
As electricity becomes cheaper and cleaner, electrification of vehicles is emerging as a crucial economy-wide tool for making transport to be affordable and sustainable. As noted earlier, based on the IEA 2021 report, the importance and demand for electric mobility will increase. Sales of electric cars globally will increase from 5 per cent in 2021 to about 60 per cent in 2030. Over 16.5 million electric cars were on the road in 2021, tripling in just three years from 2018 as shown in Figure 10.2. BEV and PHEVs are the most popular electric vehicles. There is a promising future for electric mobility based on demand experienced in the last few years. Similarly, at the continental level, Africa has the least number of electric mobility vehicles compared to other continents. Africa had less than 3,000 electric vehicles by 2021 based on the Global EV 2022 outlook report (IEA, 2022).

Although Kenya has few electric vehicles, the value of output in the road transport sub-sector has continued to increase and dominate other modes of transport, including railway, water and air transport. The value of output for road transport increased to Ksh 2.2 trillion in 2022 from Ksh 0.62 trillion in 2015 as shown in Figure 10.3. The electric mobility sector is still in its early stages in Kenya. Based on the NTSA statistics, a total of 671 electric vehicles are registered in Kenya. Motorcycles make up the biggest share at 324, while electric 3-wheelers and electric motor vehicles are 105 and 128, respectively. The remaining vehicles fall under "other" vehicle categories. The electric mobility industry is heavily dominated by 2 and 3 wheelers, which account for over 83 per cent of electric vehicles in the country.

As Kenya's road transport sub-sector continues to grow, there is a huge increase in the number of motorbikes and *tuk-tuks* (rickshaw). Motorbikes are increasingly becoming the main mode of transportation in many urban and rural areas. Kenya has over 2 million motorcycles. Although motorcycles and public vehicles offer convenience, meet the demands of busy commuters and last-mile delivery services, they are expensive

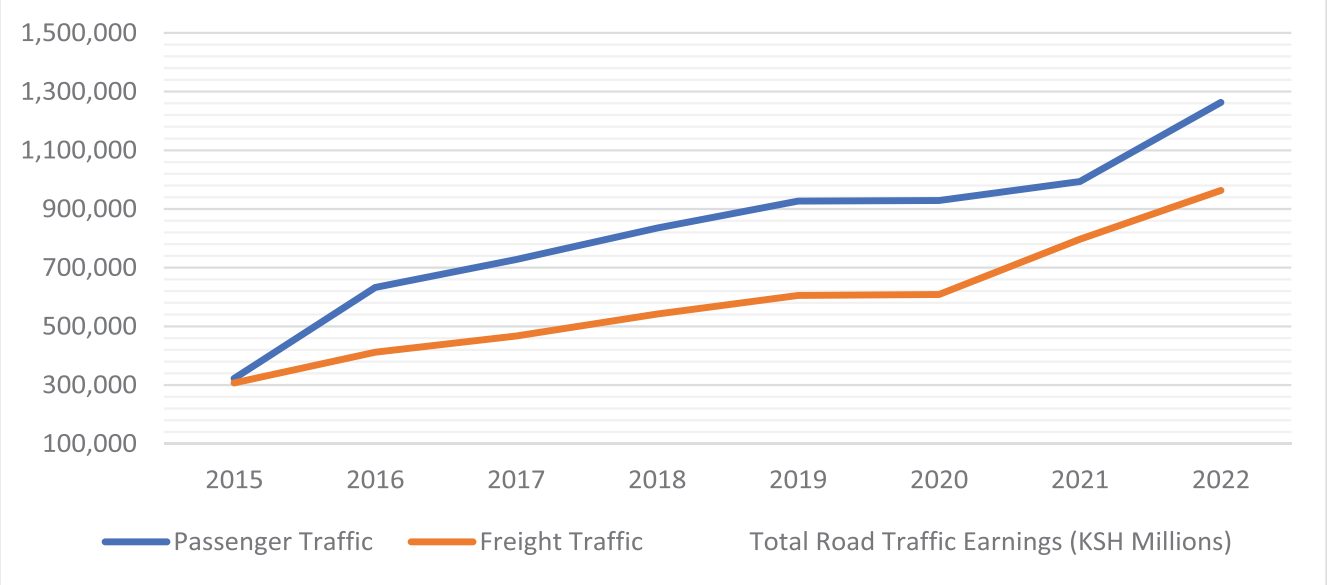
to run, noisy, and polluting. Accelerating the adoption of electric motorcycles and vehicles in general will help reduce operational costs and reduce carbon emissions from the road transport sub-sector.

Figure 10.2: Global electric cars (2010-2021)



Source: IEA (2022), Global EV 2022 outlook report

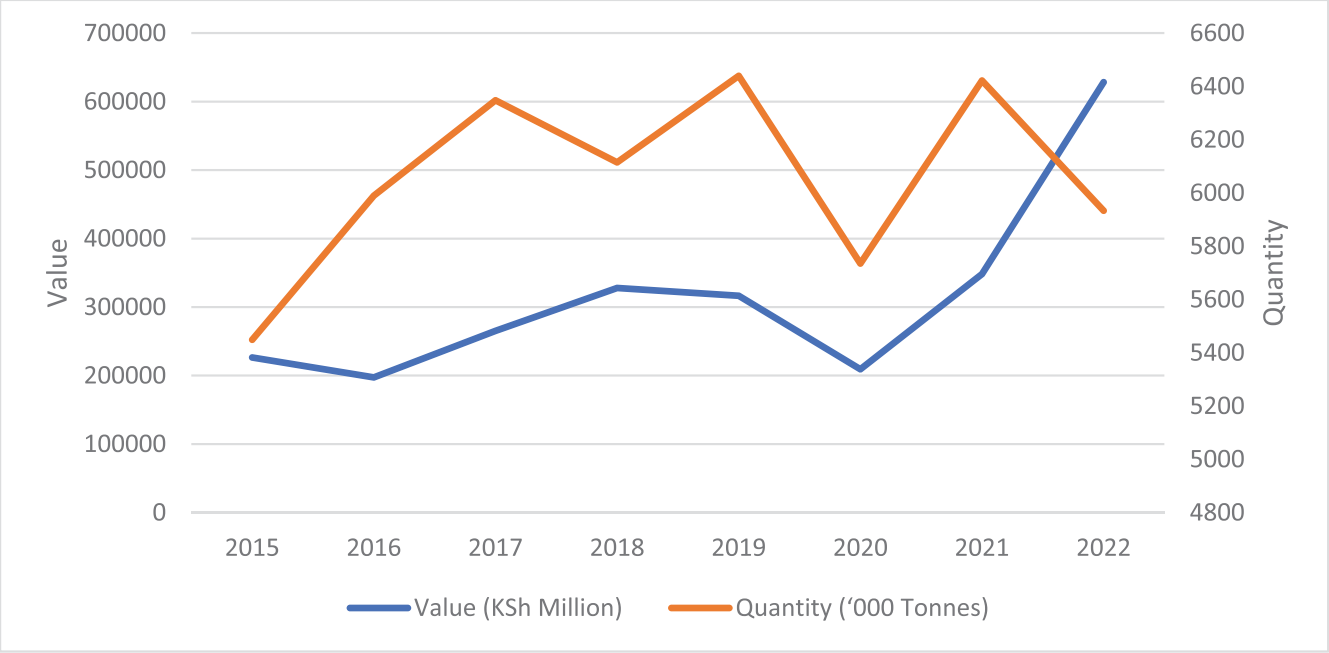
Figure 10.3: Road transport output



Data source: KNBS (Various), Economic Survey

Kenya's current mobility model is dominated by imported fossil fuel vehicles that require importation of fuels, thus making the transport costly and unsustainable especially when global supply of fuel is disrupted. Of interest, quantity and value of petroleum fuels have been increasing over the recent years in the country. For instance, the total import bill of petroleum fuel has steadily grown over years, and 2022 had the highest value of Ksh 628.4 billion as shown in Figure 10.4. Similarly, the quantity for petroleum has grown from 5,470,000 tonnes in 2015 to 5,933,000 tonnes in 2022. This indicates increased demand for petroleum fuels as road transport and aviation sub-sectors grow. Kenya imported 1,561,300 tonnes of motor spirit and 2,219,700 tonnes of light diesel oil in 2022. Overall, Kenya spent Ksh 628.4 billion on importation of petroleum fuels in 2022.

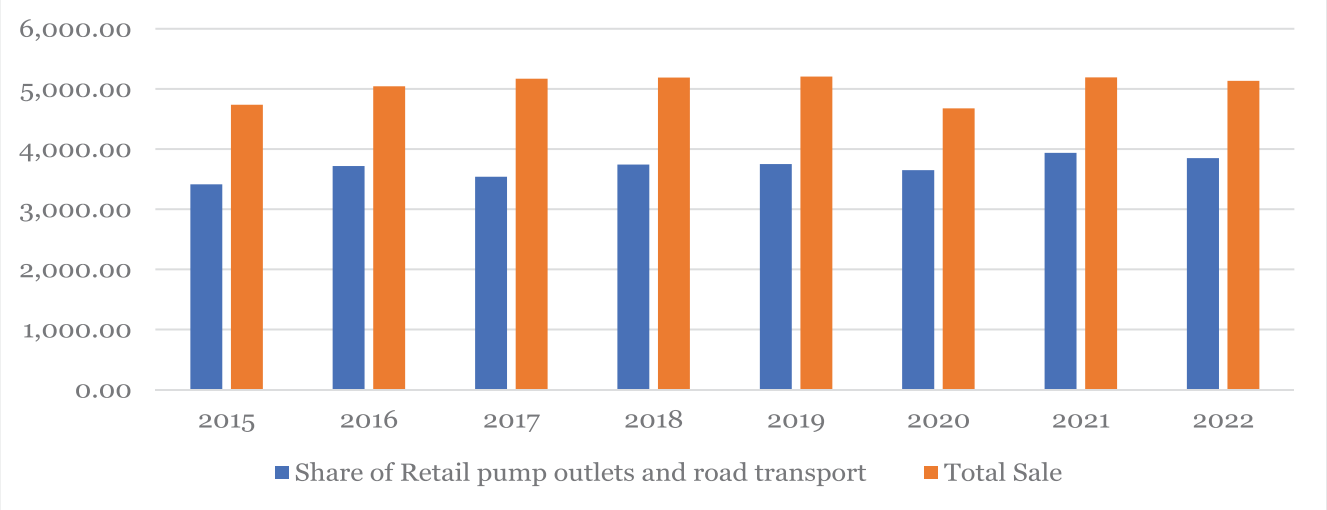
Figure 10.4: Quantity and value of imports of petroleum fuels



Data source: KNBS (Various), Economic Survey

The retail pump outlets and road transport accounts for the largest share of total sales of petroleum fuels. Out of the quantity of petroleum products sold in 2022, totaling 5,134,100 tonnes, the retail pump outlets and road transport accounted for 3,849,300 tonnes as shown in Figure 10.5.

Figure 10.5: Domestic sale of petroleum fuels ('000 tonnes)

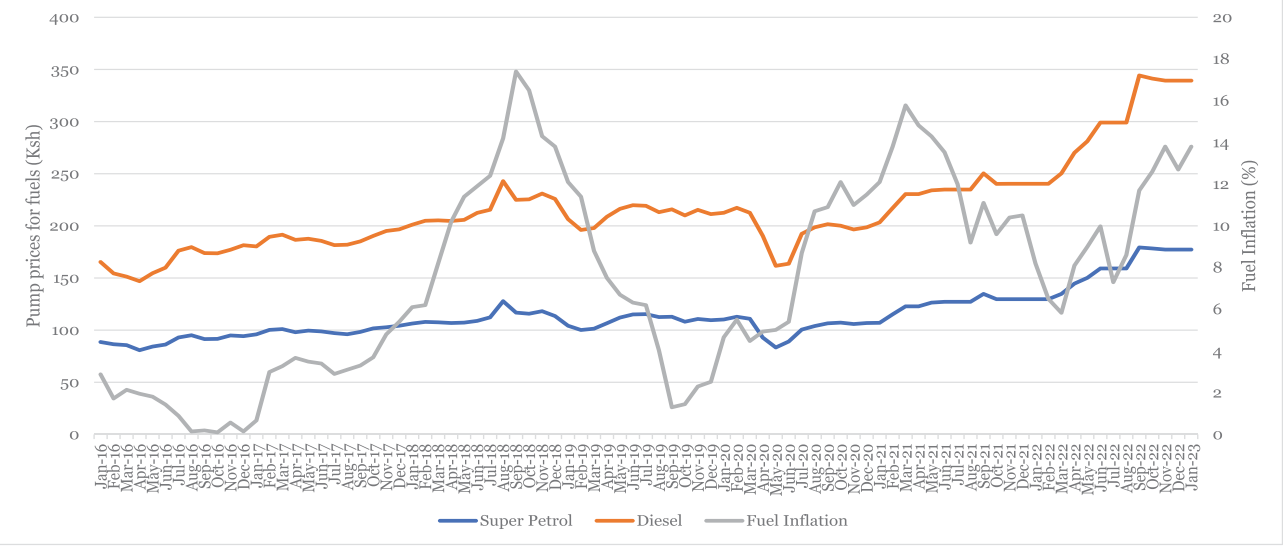


Data source: KNBS (Various), Economic Survey

The average retail prices for petroleum fuels have shown an increasing trend for the last five years. For instance, the average prices for motor spirit premium and light diesel oil in 2017 were Ksh 100.20 and Ksh 89.03, respectively, and rose steadily to Ksh 157.34 and Ksh 139.69 in 2022.

Fuel price surges have been a major issue that affects the affordability of petroleum fuels, thus increasing the cost of living. As noted earlier, the global disruption of oil production generally affects the supply of petroleum products and, as a result, fuel prices tend to go up. In recent years, the country has witnessed very high fuel inflation rates in the month of September of 2018 and March 2021 as shown in Figure 10.6. Consequently, the prices of fuel increase, thus making households spend more on transport. The adoption of electric mobility will strategically address the heavy reliance on fossil fuels in the transport sector, which has affected the ability of households and the government to meet other equally important basic needs.

Figure 10.6: Fuel inflation January 2016 - January 2023



Data source: CBK (Various) Reports

10.3.2 Electric mobility value chain in Kenya

Understanding the performance of the entire value chain of electric mobility in Kenya is key in identifying the gaps that require to be addressed to build a robust electric mobility ecosystem. The subsequent sections provide analysis of the critical components along Kenya's electric mobility value chain.

a) Electric mobility innovations and startups

The number of innovations and startups has increased in recent years, indicating an interest in the relatively young sector. The innovations range from development of eco-friendly buses to electric ride sharing applications. Among the startups pioneering a new generation of eco-friendly buses include BasiGo, which raised Ksh 111.3 million in pre-seed funding to electrify Kenya's public transport system in major cities such as Nairobi, Nakuru, Kisumu and Mombasa. The capital is funding the construction of 25 and 36-seater capacities with a range of about 250 kilometers, enough to cover daily trips. BasiGo introduced Ksh 5 million (US$ 4,2571) passenger electric bus in March 2022 in anticipation of increased demand for environmentally friendly transport. The 25-seater bus is designed by the world's largest manufacturer of electric buses BYD Automotive and has a 250-kilometre range with a recharging period of fewer than four hours. The buses are already in service in Eastlands in south-east Nairobi, and in the city centre and Jomo Kenyatta International Airport. BasiGo placed an order for 15 electric buses early in 2023 and are now plying on various routes in Nairobi County.

Some startups convert diesel and petrol vehicles and motorcycles engines into electric, thus reducing carbon dioxide emissions. For instance, Opibus started in 2017 as a Nairobi-based green energy company that deals with electric vehicle conversion. Its initial focus has been on conversion of off-road vehicles, for safari use. They are also developing an electric motorcycle through their subsidiary Flux Motors. Opibus has raised Ksh 834.37 million (US$ 7.5 million) in equity and grant funding to scale up production of electric motorcycle and bus manufacturing in 2023. Similarly, META Electric is an electric vehicle dealership that is among the first companies to import Kenya's first new electric vehicles. Meta Electric aims to promote greener transportation in Nairobi and to pave way for critical investment in electric vehicle infrastructure. META Electric introduced the T3 delivery vans that were manufactured by BYD located in China, the largest supplier of rechargeable batteries in the world. The vans come with AC charger (8 hours charging time) and an optional DC charger (1.5 hours charging time). The vans have a range of 300 km, or 250 km at full capacity. The engine is silent and has exceptionally high torque that makes the vehicle move from stationary almost instantly, even when carrying heavy loads. Some of the leading public bus operators using electric vehicles from META Electric include Neo Kenya Mpya, which is one of Nairobi's biggest public bus operators.

Some startups provide access to productive, affordable and reliable mini grid electricity for millions of rural homes and businesses. For instance, Powerhive was founded in 2021 to develop scalable bankable off grid utility solutions for everyone to access clean energy. The company is piloting over 30 2-wheelers in Kisii County. Similarly, the Energy and Petroleum Regulatory Authority partnered with UNEP, Kisumu County and KPLC to pilot 50 electric 2 wheelers in 2021. Other similar efforts include SIEMENS Stiftung Foundation, which has partnered with WE!Hub Victoria Ltd to pilot electric trucks, cargo bikes and boats in Western Kenya.

Other electric mobility innovations that offer affordable, safe and reliable mobility services through smart electric vehicle solutions on digital platforms include: Nopia Ride also known as 'eco-taxi'; the first fully electric ride sharing application established in August 2018 to offer zero-emission rides.

This mobility innovation allows the company to charge less compared to other ride hailing applications, pay their drivers more and protect the environment. The company is scaling up, building three charging stations at the Two Rivers Mall, the Hub and Thika Road Mall. Similarly, ARC Ride startup was established in 2020 in Kenya to provide electric solution to mass transport in rapidly growing African cities. ARC Ride has created a scalable model that incorporates both a fleet of electric vehicles and the infrastructure for battery charging. Similarly, Uber has launched an electric motorcycle in Kenya but is only available in Nairobi for now.

Further, there are startups that offer digital platforms for electric bicycles (e-bikes) to consumers and businesses. For instance, Ebee Africa offers a new and disrupting mode of transport that is affordable for work and leisure. Ebee promotes environmental responsibility while providing a healthy, fun, and economical alternative to mobility. More than half of all riders are using their e-bikes daily to earn a living. E-bikes increase savings and reduce greenhouse emissions as well. Similarly, GetBoda is a smart on-demand logistics platform which partners with couriers to offer e-commerce, food delivery and courier services on a mobile application. Businesses in need of courier services can access registered and vetted trucks, vans and motorbikes and convenient product pick-up points for their customers. Finally, innovations on electric mobility are also used to support gig economy by Uber, Bolt and Jumia.

The innovations and startups demonstrate a growing demand for electric mobility. There is immense potential to create a dynamic electric mobility industry for electric taxis, buses and delivery couriers. However, a huge number of startups are primarily driven by private actors. Further, there are very few service centres that serve as swap and charging centres in cities and urban areas, which hinders adoption of electric mobility. Most electric vehicle innovations and startups are in their early stages of development and, therefore, require a lot of support to mature and finally scale up to address the needs of the electric mobility industry.

b) Assemblers of electric mobility solutions

The assessment done by the RoadMap-to-e-Mobility-in-Kenya report indicates that Kenya has not established any electric vehicle manufacturing plant. However, there are more than 15 assemblers of electric vehicles operating in the country, majorly focusing on prototyping electric motorcycles and bicycles (2-wheelers). In addition, the sector has multiple players that are not involved in assembling but also selling and distributing electric mobility.

Solar E-Cycles was established in 2014 to assemble light electric vehicles, including electric bicycles, scooters and 2, 3 and 4-wheeler vehicles. The solar powered light electric vehicles can travel 50 kilometers a day, just with power from the solar rooftop. The 3-wheelers can serve as replacement for *tuk tuks* (auto rickshaw), which are popular in urban areas for short distances. The inexpensive solar car can serve as affordable and sustainable vehicle in isolated off-grid rural areas in Africa. As of 2021, Solar E-Cycles had assembled 7 tricycles for passengers and cargo and 5 electric bicycles for the Kenyan market. Similarly, Kiri EV was the first to bring a true electric 2-wheeler assembler based in Nairobi. This assembler commissioned their motorcycle and battery swap stations to provide small portable battery in 2020. Further, Fika Clean Mobility was established to assemble 2 wheelers and provide smart battery based on renewable energy since 2019. This enables recharging of electric vehicles at a lower cost and faster speed than convectional electric charging points. Similarly, Roam, a technology company that develops, designs and deploys electric vehicles tailored for Africa has recently unveiled 10,000-square-meter facility in Kenya to produce 50,000 electric motorcycles per year and battery development labs.

Some actors not only assemble electric vehicles but also offer battery swapping to support smooth running of electric mobility. For instance, Mazi Mobility assembles 2 and 3-wheelers in Nairobi. This company offers battery swapping options and flexible payment plans to convert mass transport systems to a smart, efficient, clean and shared form of mobility. Similarly, Ecobodaa was established in 2020 to design, assemble and maintain 2 wheelers in Nairobi. The company provides battery and battery swapping stations. The startup offers lease-to-own payment plan. Some of the key features of the electric bike include powerful removable 72 Voltage Lithium battery that covers 6-75 km, supports a maximum speed of 60Km/hr and 75 per cent less carbon emissions. Study findings indicate that these electric bikes lower the operating costs by saving riders 36 per cent on daily fuel spent, over 75 per cent on repairs, and 90 per cent on servicing over a period of 3 months, and thus enabling riders to make some savings.

Other critical actors in the electric mobility ecosystem offer supply, distribution and selling services. For instance, META Electric aims to become a leading supplier of electric commercial vehicles, selling and leasing units across East Africa to customers who want to switch to cleaner transportation. As the cost of production reduces, electric mobility is becoming increasingly attractive. Total cost of ownership for electric mobility is set to fall lower than for internal combustion engines, making the economics of switching as compelling as the environmental benefits.

Building partnerships between the public and private sector players is key in enhancing local production of electric vehicles. The share of locally assembled fossil fuel vehicles is about 80 per cent of all new automotive sales, indicating a strong preference for locally produced new cars. There are several partnerships that are shaping the future of assembling new electric cars for the sector. For instance, Kenyan electric mobility startup BasiGo has partnered with the Associated Vehicle Assemblers (AVA) to assemble its buses in Mombasa as demand for electric vehicles is projected to rise in future. In this partnership, over 1,000 electric buses (33-seater) will be assembled in the next three years, creating over 300 jobs in manufacturing, charging, maintenance, and financing. Although Kenya has several assemblers for electric vehicles, most of them focus on the 2-wheelers such as electric motorcycles and bikes. Almost all assemblers are based in Nairobi and have not scaled up operations to other regions. Kenya's electric mobility has the potential to create significant number of jobs in fields such as electricity generation, civil and road works, battery cell manufacturing, installation and maintenance. To prepare for a promising electric mobility industry, there is need for capacity building through training on development, deployment and maintenance of electric mobility infrastructure.

c) Retrofitters for electric mobility

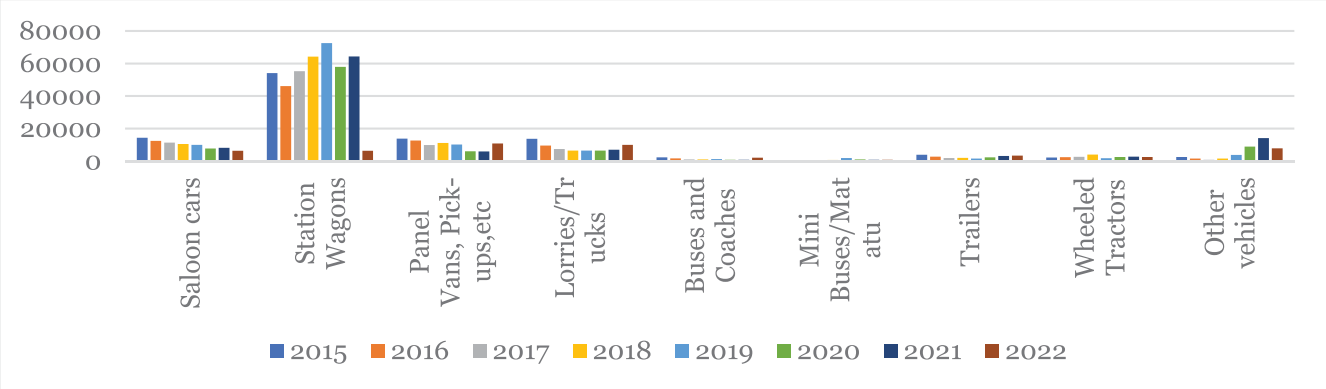
Retrofitting is the conversion of fossil fuel cars into electric cars. Retrofitting consists of removing the internal combustion powertrain, the exhaust and the tank and replacing them with an electric powertrain and a battery pack. This conversion takes between four hours and two days. Retrofitting is technically possible on all vehicles (recent, old, buses, trucks, cars, two-wheelers) and its target use makes retrofitting coherent (power, range). Generally, the cost of buying a new electric vehicle is considerably high and hence not affordable by many households. Retrofitting presents an opportunity to reduce the shifting costs of owning an electric vehicle. Retrofitting thus offers a promising complementary solution to new vehicles. It will play a key role in ensuring fossil fuel vehicles are still useful in mobility as the world transits to electric mobility and therefore reduce greenhouse carbon emissions in an inclusive and circular way.

A review of the road transport sector reveals huge opportunities for retrofitters to convert massive numbers of fossil fuel vehicles that are registered every year. The Economic

Survey data indicates significant growth of both passenger and freight traffic over recent years, which is a strong indication of the importance of road transport. In terms of new registration of motor vehicles, most vehicles are second-hand fossil fuel based with station wagons and saloon cars dominating the type of vehicles imported into the country (Figure 10.7). Overall, the number of total registered units has increased steadily over the years but declined to 234,879 in 2022 from 247,181 in 2015. Imported second-hand fossil fuel vehicles account for about 90 per cent of car purchases. Further, motorcycles accounted for about 73 per cent of total registered units in 2021, an indication that motorcycles are becoming popular means of road transport. In addition, the number of motorcycles has increased over the years as shown in Figure 10.8. This high number of newly registered vehicles indicates that retrofitters have enormous opportunities to convert fossil engines of 2 million cars and 2 million motorcycles.

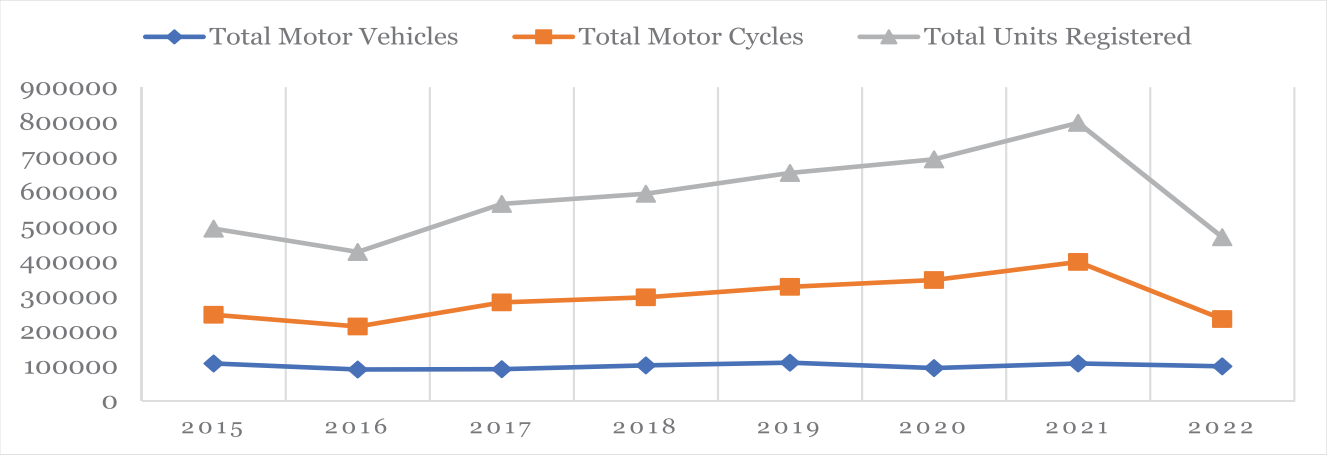
Majority of public service vehicles (PSVs) run on fossil fuel and, therefore, retrofitters are expected to play a key role in making the public transport go electric. Based on the data from National Transport and Safety Authority (NTSA), the number of PSV licenses issued to matatus (0-14 seaters) dominates the public road transport and has increased significantly over the years as shown in see Figure 10.9. In the last three years (2020, 2021 and 2022), the number of mini-buses and buses increased as compared to matatus, an indication that the investors are now preferring vehicles with larger capacity because of better returns. By converting mini-buses to electric, investors will be able to reduce their operational and maintenance costs, and hence increase revenue. To successfully convert the fossil engines, retrofitters will require technical standards to ensure safety of vehicles. It is important to address any constraints that may arise due to patents by automotive makers to support successful retrofitting.

Figure 10.7: New registration of road motor vehicles



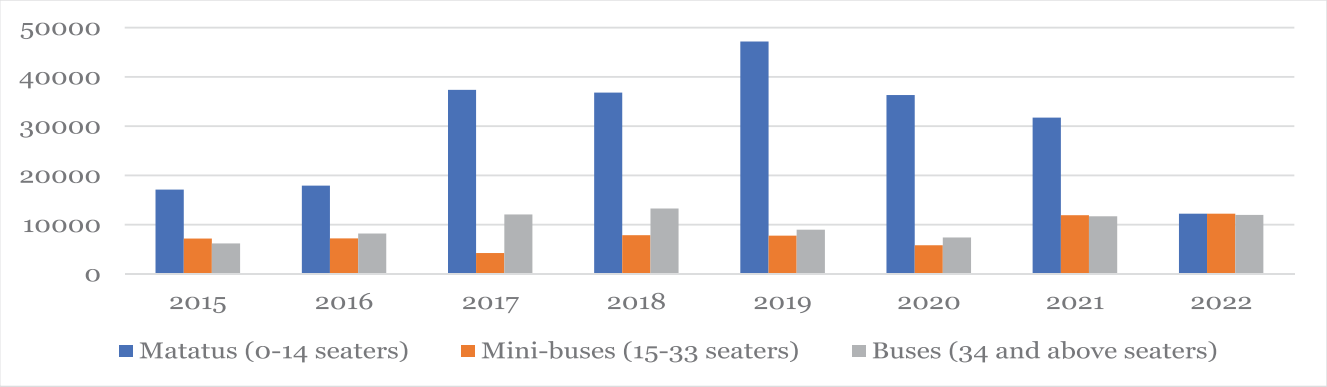
Data source: KNBS (Various), Economic Survey

Figure 10.8: Registered units



Data source: KNBS (Various), Economic Survey

Figure 10.9: Road transport licenses issued



Data source: KNBS (Various), Economic Survey

d) Financiers of electric mobility

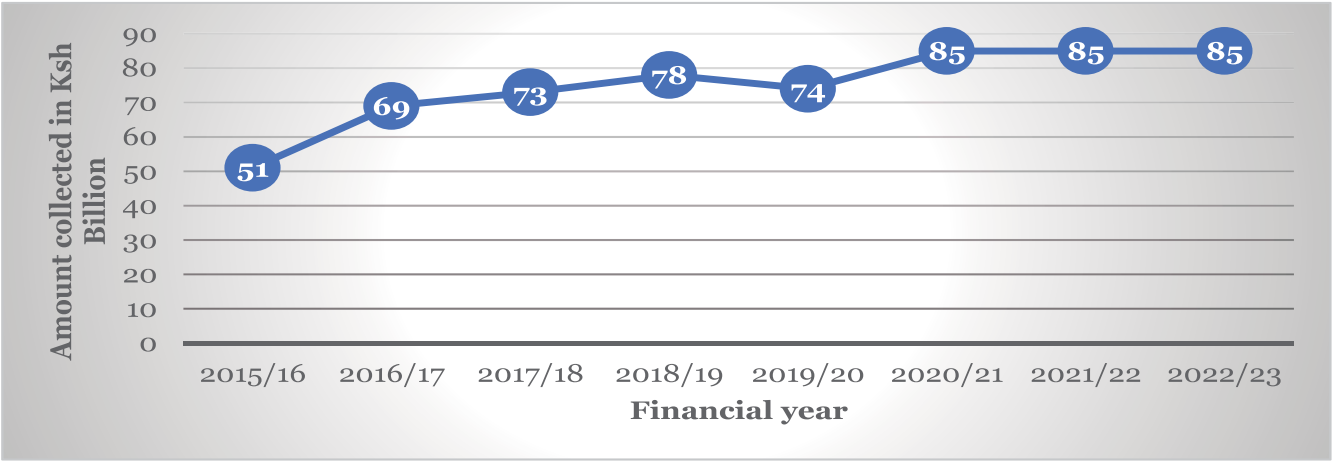
Given the growing interest and potential of electric mobility, there are a significant number of interested financiers offering financial services such as vehicles, loans and grants to support the electric mobility sector. For instance, Watu Africa is an asset fintech established in Nairobi that is revolutionizing mass-market mobility across Africa through financial inclusion and accessibility. Watu provides access to affordable and flexible financing for two and three-wheelers. The asset finance company has provided over 430,000 loans across seven countries including Kenya and has positively impacted the lives of more than 2.5 million people. Watu is also actively promoting financial literacy and independence, adoption of digital payments and increased regulatory and safety compliances. Watu is expanding its footprint across final frontier markets to be the pioneers of Africa's movement towards 'clean and green mobility' through the financing of new electric motorbikes. Similarly, MOGO Kenya is part of Eleving Group, an international FinTech company operating in 17 countries. MOGO is a world-class financial company providing affordable financing options for used cars, logbook loans, Boda Boda, and *Tuk tuk* loans for Kenyans. MOGO processes the loan request within 24 hours and provides a long-term repayment period that can last for up to 60 months.

Some financiers are playing a key role in supporting electric mobility innovations. For instance, Mobility 54 is a corporate venture capital of Toyota Tsucho and CFAO group. It is the largest distribution network in Africa. It supports investment in high-potential startups in Africa by providing industrial support. Mobility 54 supports startups that bring tangible and innovative solutions to mobility challenges in Africa in terms of enhanced logistics, route optimization, digital transport and ride hailing applications, mobility marketplace, mobility fintech and mobility carbon neutral. Other financiers include Maris, which is an investment holding company providing loans for *boda boda* drivers at 50 per cent interest rate annualized to acquire electric 2 wheelers; P4G, an accelerator funding programme through a partnership with Siemens, Opibus, Tugende and We!Hub on electric mobility; Siemens Stiftung Foundation, offering grants on electric mobility initiatives; and Total Energies in partnership with P4G, offering capacity building and funding to accelerate electric mobility in Kenya. Leading banks including NCBA and KCB are key in providing funding to electric mobility initiatives.

Global and regional institutions support the adoption of electric mobility. For instance, the United Nations Environment Programme (UNEP) has established a Sustainable Mobility Unit to support developing countries switch to low emissions mobility. In Africa, UNEP is working with various actors including governments and the private sector to integrate sustainable transport into development planning processes, and to increase funding for greener mobility. Locally, there are various initiatives including pilot projects on electric mobility that are funded by UNEP. At the continent level, Afreximbank and the African Association of Automotive Manufacturers (AAAM) have developed a comprehensive strategy for automotive manufacturing in Africa. Under the strategy, Afreximbank has committed a US$ 1 billion Automotive Fund to support any investment that seeks to pursue local content development in the automotive value chain, including electric mobility initiatives.

Introduction of electric vehicles presents an opportunity to generate additional revenue to complement the fuel levy collected by the Kenya Roads Board. Fuel levy fund is used for road maintenance, rehabilitation and development. Fuel Levy charge currently stands at Ksh 18 per litre of petrol and diesel, with Ksh 3 allocated to annuity fund and the balance to support road works. The annual trend of fuel levy collections realized during the last 5-year shows a marginal increase as illustrated in Figure 10.10. As demand grows for more funds to support road works, tapping on electric mobility is an innovative way to support the development of the roads sub-sector.

Figure 10.10: Fuel levy collections (Ksh billion)



Source: Kenya Roads Board (2023)

e) Infrastructure providers for electric mobility

As Kenya's electric mobility market continues to grow, several players are providing charging facilities. Public sector actors are keen on providing infrastructure for electric mobility. For instance, the Kenya Power and Lighting Company plans to build a nationwide network of public charging points for electric cars. To prepare to meet the future power demand for electric vehicles in the country, Kenya Electricity Generating Company (KenGen) is installing charging stations for electric vehicles in the city of Nairobi. The facilities will power the electric batteries of at least 50,000 buses and two million motorbikes. In addition, KenGen has installed capacity of 1,817 MW and has recently commissioned 83.3 MW Olkaria geothermal power plant to diversify Kenya's electricity mix as electric vehicle drivers look to clean and affordable energy. Further, KenGen plans to set up more than 30 electric vehicle charging stations in major towns as it seeks to tap into the electric mobility market. To demonstrate commitments in electric mobility, KenGen unveiled its first four electric vehicles for data collection and to guide policy development in this sector.

The private sector plays a key role in providing supporting infrastructure for electric mobility. For instance, ChargeNet Kenya is providing zero-emission mobility products and service, and the firm has already set up some charging stations in Nairobi. Notably, the charging station at ABC Shopping Mall along Waiyaki Way is already in use and has been charging for free for some months to promote the uptake of electric cars. Similar stations in Kasarani and Ngong Racecourse are planned to be opened by ChargeNet. Other actors include TotalEnergies in partnership with a Rwandan-based company Ampersand. They launched an electric motorcycle battery swapping and charging stations in Kenya in 2022. Ampersand is known to build affordable electric vehicles and charging systems for more than 5 million motorcycle taxi drivers in East Africa. The startup has been fundraising to help it scale up and in 2022 Ampersand secured US$ 9 million loan facility from the US International Development Finance Corporation (DFC) to expand its operations in Rwanda and Kenya. Ampersand is supporting 400 bikes on the road and recording over 35,000 swaps per month. The battery swap is done within minutes and the swap stations will enable drivers to exchange their depleted batteries for recharged ones in different locations. The charging stations located in Hurlingham, Dagoretti, and Mountain View service stations provide clean, affordable, and reliable energy powered by electricity. Ampersand offers a fit-for-purpose motorcycle, a reliable battery that costs less than fuel, and advanced swap technology. This means that the Kenyan motorcycle industry will save on fuel and maintenance while doubling the motorcycle drivers' income and at same time reducing carbon emissions by more than 80 per cent. Further, emerging companies including electric motorcycle manufacturer Kiri Electric and Drive Electric are leasing electric vehicles and providing charging station installation operation and maintenance, e-mobility consultancy, electric vehicle leasing and fleet analysis.

Despite some initial efforts done in building enabling infrastructure for electric mobility, there are numerous challenges emerging in the path of Kenya's goal of becoming fully electric in mobility. If Kenya aspires to go all-electric, a lot of steps need to be taken by the government to actualize the goal of electric and clean transportation. The adoption of electric vehicles is relatively low in Kenya, characterized by low percentage out of the total number of vehicles registered due to several challenges. For instance, the cost of importing an electric car to Kenya is considerably high, primarily because there is no auto assembly factory for electric vehicles in Kenya. Importing an electric car is costly due to 25 per cent import duty, 10 per cent excise duty, declaration fee, VAT, and other charges. Further, Kenya lacks adequate infrastructure for charging, maintenance, and after-sale service facility for electric vehicles, hence hampering the wide adoption of electric mobility solutions. Kenya is yet to put

in place public charging stations networks for electric vehicles accessible by drivers in strategic places. Similarly, most households do not have charging facilities, including chargers at their homes and would require such facilities to build confidence in electric mobility.

Most of the cars sold in Kenya, especially the pre-owned cars, are imported from Japan. The condition of electric vehicles in Japan will help in predicting the pace of their adoption in Kenya. The adoption of electric vehicles in Kenya largely depends on the adoption of the same in other countries from where Kenya imports its vehicles.

Setting up automotive production lines for fully electric vehicles in the country will help cut down the shifting costs. There are various companies for electric mobility solutions that are willing to open an auto assembly factory in Kenya upon invitation by the government.

f) Policy initiatives for electric mobility in Kenya

There are several policies, laws, strategies, standards and regulations put in place in Kenya that directly and indirectly support the adoption of electric mobility and other related aspects such as renewable energy and climate change. The Kenyan government through the ministries in charge of transport, energy and environment prioritizes creation of an enabling environment that supports provision of safe, efficient and cost-effective transport. Electric mobility is key in supporting this commitment since it offers low-carbon, affordable and reliable transportation.

Under climate change, the Climate Change Action Plan (2018-2022) recognizes the negative impacts of the transport sector on the environment and recommends the adoption of electric vehicles through pilot projects and the construction of the Bus Rapid Transit (BRT) system as mitigation actions to climate change. The BRT will mainly be served by electric vehicles. The five-year plan helps the country decrease carbon emissions and adapt to climate change. Sessional Paper No.5 on National Climate Change Framework Policy (2016) recognizes the transport sector as a major contributor to greenhouse gas emissions, which leads to increased air pollution and serious health implications and, therefore, recommends promotion of clean technologies in all sectors, including transport. The Climate Change Act (2016) recommends the promotion of low carbon technologies, improvement of efficiency and reduced emissions in all the economic sectors of County and National governments, including the transport sector. Under this Act, the Climate Action Plan prescribes measures to enhance energy conservation, efficiency and use of renewable energy in transport. Kenya's latest National Determined Contributions (NDCs) lists low carbon and efficient transportation systems and use of clean and sustainable energy technologies to reduce reliance on fossil fuels as mitigation activities.

In the energy sector, the Kenya National Electrification Strategy aims to connect every Kenyan to electricity by 2022. Universal electricity access will facilitate easier adoption of electric mobility across the country. The Energy Act (2019) established the Rural Electrification and Renewable Energy Corporation (REREC), formally Rural Electrification Authority (REA), that is mandated to implement the Rural Electrification Programme and promote renewable energy, both of which are key for electric mobility. The Least Cost Development Plan 2017-2037 (Government of Kenya, 2018) is a 20-year energy development plan that captures many elements, including energy supply and demand scenarios and implications of climate change, while giving recommendations on how to boost the country's energy sector. The plan advocates for enhancement of renewable energy technology in the country. It is a merger of the updated version of the 2015-2035 Electricity Sector Masterplan and the Feed-in-Tariffs (FiT), focusing on the "Big Four" agenda. It was done through collaborative effort of multiple energy sector players, with the Ministry of Energy providing policy

guidance. The plan contains load forecasts, generation and transmission planning and recommendations to enable the fast-tracking of the Kenya Vision 2030. Assessments of energy resources and investments costs, population growth scenarios, implications of climate change and losses during transmission are also considered in this plan. The Renewable Energy Auctions Policy (2021) and Feed-in-Tariffs Policy (2012) promote renewable energy by providing assured markets and returns to those wanting to invest in renewable energy sources such as wind, solar, biomass, geothermal and hydro sources.

Additional policies and laws that directly support electric mobility include the Kenya National Energy Efficiency and Conservation Strategy (2020). The strategy aims to improve energy security, reduce the expenditure of foreign currency reserves on energy imports, lessen the strain on the national grid during peak times and lowers the cost externalities associated with emissions. The strategy has outlined key targets for the transport sector that include increasing Kenya's electric vehicles annual share to 5 per cent of imported cars by 2025. As a demonstration of Kenya's willingness to reduce emissions in the transport sector, the country signed the COP26 declaration on accelerating the transition to 100 per cent zero emission cars and vans. The declaration aims to rapidly accelerate the transition to zero emission vehicles to achieve the Paris Agreement goals. As part of the declaration targets, government signatories will work towards having all sales of new cars and vans being zero emission by 2040 or earlier.

Other related efforts include the launch of the Kenya Carbon Emission Reduction Tool (KCERT 2050) in 2022. KCERT 2050 is a data driven policy-making tool that allows users to project emissions generated from various sectors and provide government departments with an opportunity to develop action plans and long-term energy strategies on emission reductions. This tool will be instrumental in ensuring decisions made by policy makers are backed by data when planning the country's low-carbon transition and climate mitigation approaches. Similarly, the Kenya Private Sector Alliance (KEPSA) has launched the Development of Kenya Private Sector Strategy on Climate Change Solutions (2022-2030) to guide the private sector in implementing climate change-oriented solutions towards a low carbon development pathway.

The Finance Act of 2019 contains an amendment relating to some duties and taxes for electric mobility. The amendment has prepositions on reduced exercise duty for electric vehicles from 20 per cent to 10 per cent. This was meant to boost the uptake of electric vehicles in Kenya. Further, the Kenya Bureau of Standards (KEBS) has developed standards to govern the importation of electric vehicles. So far, 24 developed standards have been adopted and they cover specifications and testing procedures and elements on performance and power consumption. However, there is need to develop technical standards to guide retrofitting and swapping of batteries necessary for electric mobility.

GiZ working with the Ministry of Transport are supporting formulation of policy environment and regulatory framework for electric mobility uptake. The government is developing the National Electric Mobility Policy to guide electric mobility development and provide a favourable and enabling environment to enhance uptake of electric vehicles and supporting infrastructure. Finally, Sessional Paper of 2012 on Integrated National Transport Policy recognizes urban environmental pollution as a challenge in the transport sector. Currently, the National Transport Policy is being reviewed and hence needs to include electric mobility aspects. Several actors including Kenya Power and Lighting Company and Kenya Roads Board are conducting studies on feasibility and economic impact of electric mobility in Kenya. Lastly, the government has appointed a taskforce to formulate policy, legal and regulatory framework for electric mobility in August 2023.

g) Role of research and academic institutions

Universities and research institutions have a unique role in supporting the development of electric mobility through research on challenges that companies, power grids, and other facilities face as transport sector transits to electric mobility. Despite enormous potential contributions expected from the research and academic institutions, local institutions are yet to tap into this space. A few of the selected local research initiatives include Opibus, which started as a research project to give new life to old vehicles by converting them to run on electric motors. This has been a successful startup in Kenya and the region. Similarly, Strathmore University signed a Solar Charging Project Collaboration Agreement with EKoRent to establish a framework for setting up Kenya's first Nopea SolarHub Electric Vehicle Charging Station. EkoRent operates NopeaRide, an all-electric taxi-hailing service in the city with 14 grid-tied charging points in six locations across Nairobi. The new solar hub will now enable its vehicles to charge their batteries using solar energy from the sun. Electric mobility presents key transformative issues to researchers such as development of vehicle autonomous control, enhancing battery life, wireless charging of electric vehicles (dynamic charging on the road), user and travelers' behaviours, and the modelling of transport systems, smart grids, energy demand scenarios for electric vehicles, regulatory options, and consumer barriers and incentives.

h) Electricity as a driver for electric mobility

Electricity is the key driver for electric mobility and in particular renewable energy sources. Kenya is well endowed with renewable energy sources with potential to offer cheap and clean energy to support electric mobility. With increased adoption of electric mobility, Kenya requires efficient distribution and supply of electricity.

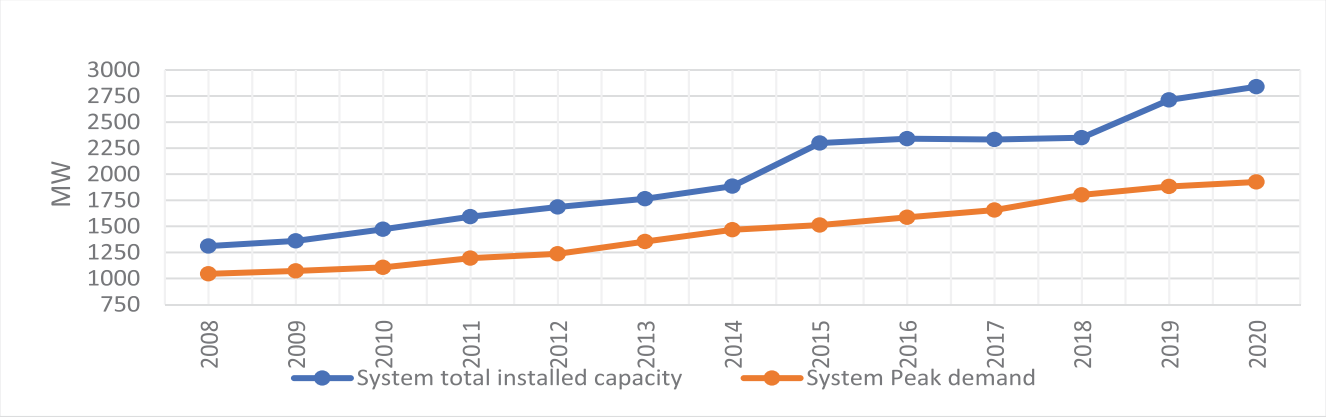
- Electricity supply and demand

Kenya has a slower growth in electricity demand compared to supply. In 2020, the energy system peak demand was 1,860 megawatts (MW), against supply (installed capacity) of about 2,700MW as shown Figure 10.11. The percentage of renewable energy sources such as geothermal, solar, biomass and wind in the energy mix has had a great improvement from 66.8 per cent in 2008 as shown in Figure 10.12. The improvement indicates Kenya's success in exploiting its rich renewable energy resource potential. The country has great winds of up to 6 m/s and beyond, in specific areas such as Samburu, Kajiado, Marsabit and Laikipia that can be used for wind power production. Further, the Least Cost Development Plan (2017-2037) identifies great geothermal potential of approximately 10,000 MW along Kenya's Rift Valley. KenGen plans to increase its power generating capacity by 3,000 MW over the next 10 years, doubling its current electricity production capacity, which currently stands at 1,904MW. Although KenGen has only tapped less than 10 per cent (900MW), Kenya has the potential to produce an estimated 10,000MW through geothermal. Further, given the vast nature of the agriculture sector, there is also a huge availability of biomass resources, which is key in the energy sector.

On the share of total generated electricity, geothermal has been the leading source since 2014 as shown in Figure 10.13. In 2021, geothermal was the leading energy source, followed by hydro, wind, thermal, solar and co-generation, respectively. There has been a general decline in Kenya's reliance on hydro and thermal energy due to prolonged droughts, climate change and high operational costs. Generally, electricity from renewable energy sources is cheaper than that from non-renewable despite the high upfront costs of installation, such as geothermal facilities. This is partly due to the abundance of renewable energy resources such as solar energy and wind and low reliance on fossil fuels.

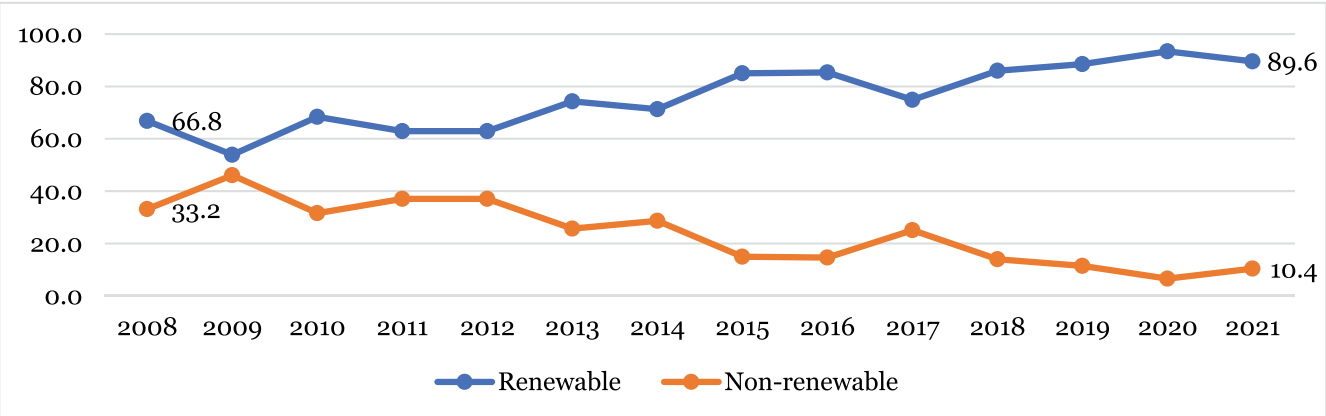
Solar energy is among the cheapest and most available renewable energy source in Kenya. The International Energy Agency predicts that the levelized cost of energy of solar will continue to decrease to levels of between US$ 0.018/kWh and US$ 0.049/kWh by 2030, making it cheaper than wind power or gas. Because of its affordability and availability, the use of solar energy has been on the rise. Solar takes up about 2 per cent of the nation's total energy mix. On a smaller scale, the use of solar energy is still very evident throughout Kenya. The Kenya Integrated Household Budget Survey 2016 indicates that 12.2 per cent of Kenyan households have installed solar panels and 6.4 per cent identified solar panels as their main source of electricity. Solar energy is the second most common source of electricity for Kenyans, after Kenya Power and Lighting Company (KPLC). Therefore, given its affordability and availability, solar energy has a huge potential in providing electricity for electric mobility. Solar panels can be used to power electric mobility in places not connected to the national grid. Further, Kenya's equatorial position facilitates ample insolation throughout the year, with potential daily 5-7 peak hours providing 4-6 kWh/m^2/day, thus boosting solar energy's suitability to provide cheap and stable supply of electricity for electric vehicles at the household level.

Figure 10. 11: Kenya's total installed capacity and peak demand since the year 2008



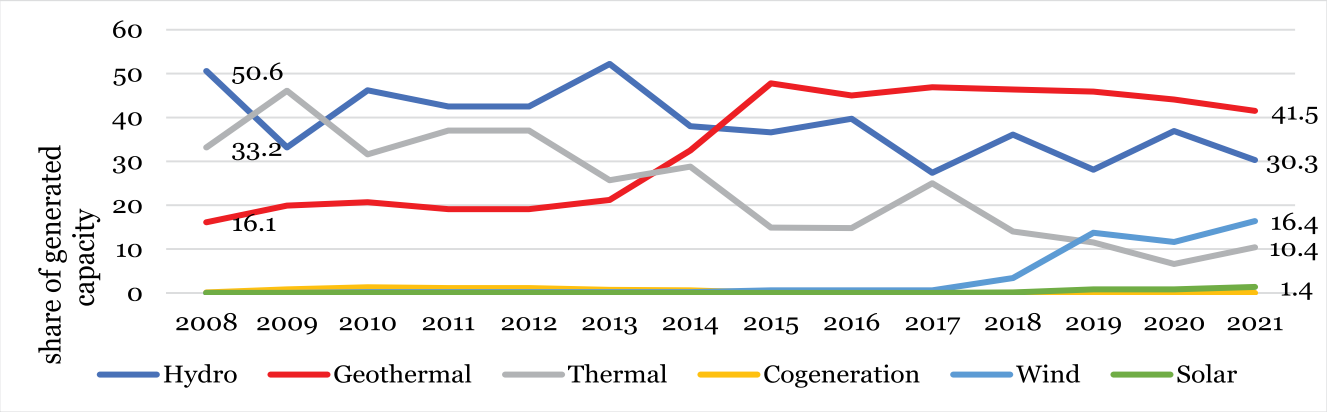
Data source: Kenya Power and Lighting Company (Various), Annual reports

Figure 10.12: Share of electricity generated from renewable and non-renewable sources



Data source: KNBS (Various), Economic Survey

Figure 10.13: Share of electricity generation from various sources in Kenya

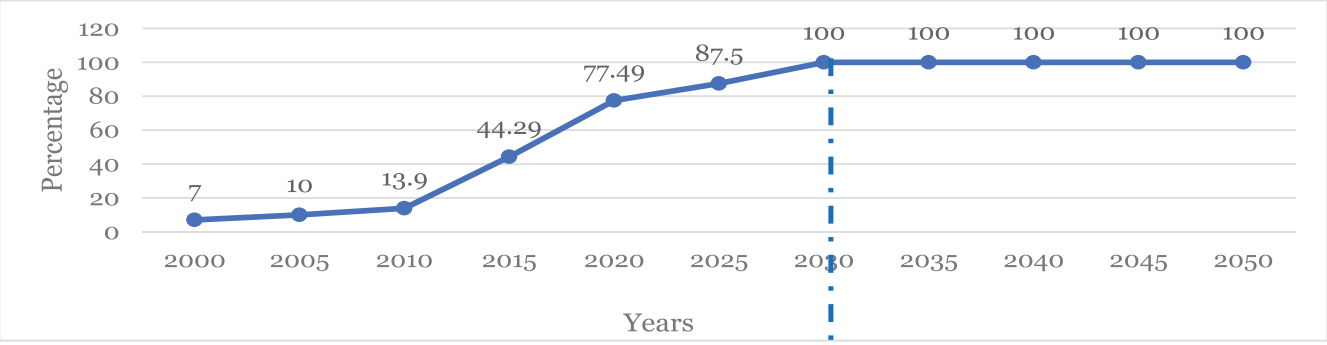


Data source: KNBS (Various), Economic Survey

As noted earlier, Kenya has had slow growth in demand for electricity. This challenge is highlighted in the Least Cost Development Plan (2017-2037). The slow growth in energy demand is attributed to several factors such as incomplete key government projects with potential for high energy demands. However, there are various government and non-government initiatives to support growth of electricity demand such as the Last Mile Project, Rural Electrification Programme (REP), Scaling up Renewable Energy Programme (SREP) and Kenya Off-grid Solar Access Programme (KOSAP).

Increased demand can further be achieved through universal energy access goals and strategies such as the Kenya National Electrification Strategy (KNES) and the Sustainable Development Goal (SDG) No. 7, which have a target of universal electricity access by 2022 and 2030, respectively. Notably, there are 6,515,762 new customers that have been connected to the national electricity grid through the KPLC and REP from 2008 to 2020 (see Figure 10.14). The new customers bring the total number of those who buy electricity from KPLC to over 9 million, served through 248,834 kilometers of transmission and distribution networks. Adoption of electric mobility can assist to further drive the increase of electricity demand, while utilizing the extra supply capacity, most of which is renewable energy. As noted earlier, Kenya has the capacity to support electric mobility growth given that it has a reserve capacity of 800 MW upwards. In addition, KPLC has expressed its interest in venturing into electric mobility and to initially exploit the low overnight off-peak demand of 1,100 MW, ideal for slow charging at homes. The off-taker has also proposed a special tariff costing Ksh 17 per kilowatt-hour for between 200 and 15,000 kilowatts to facilitate demand and growth of electric mobility.

Figure 10.14: Proportion of population with access to electricity (2000-2020)



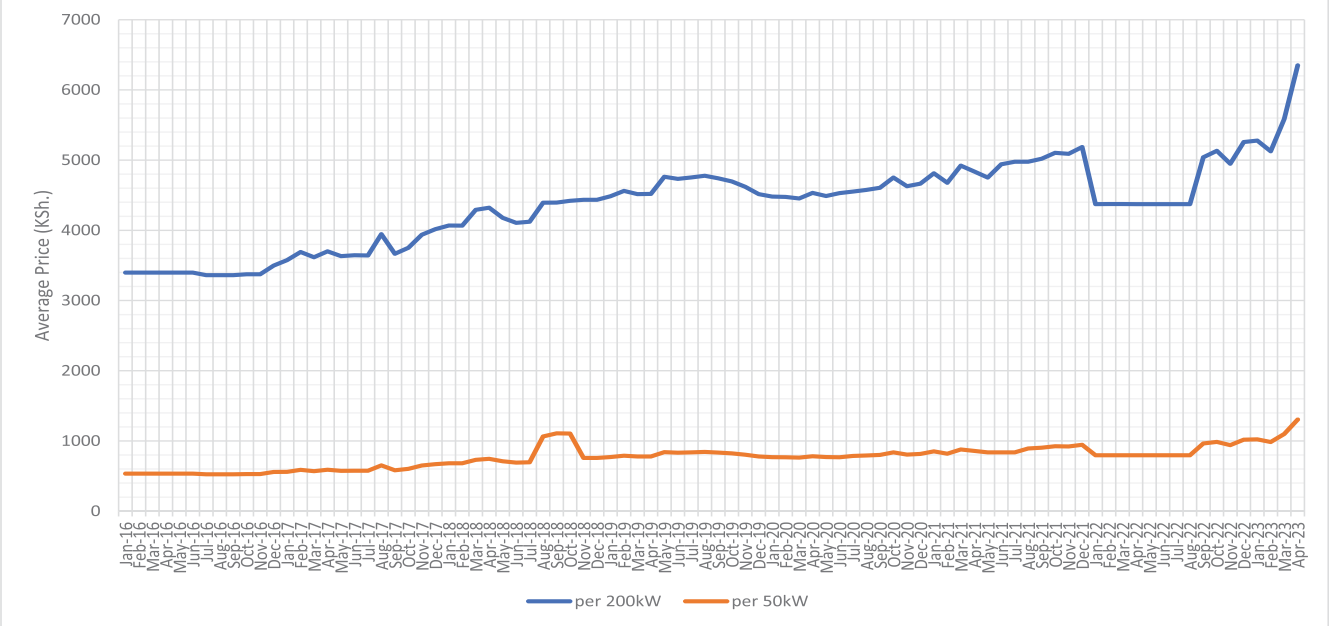
Data source: International Energy Agency (2022)

- Electricity costs

One of the reasons attributed to Kenya not achieving the universal energy is the relatively high cost of electricity. The electricity prices have slightly fluctuated over the years as shown in Figure 10.15, with 200kW showing a marginal increase while 50kW has remained stable. Electricity prices in Kenya are higher compared to neighbouring countries. The high prices elevate the cost of living due to synergies with economic sectors such as manufacturing's production costs. To address the high cost of electricity and many other issues facing the electricity sub-sector, a presidential taskforce was formed in 2021 to offer recommendations in the sub-sector. The key focus of the taskforce included the review of the existing Power Purchasing Agreements (PPAs) to reduce electricity prices. Following the taskforce's recommendations, the government issued directives, key among them to prioritize review of the existing PPAs to lower electricity costs. In early 2022, the government began to implement a 15 per cent reduction in electricity tariffs to lower the prices. These prices remained constant for the greater part of last year as shown in Figure 10.15. However, the recent withdrawal of the fuel subsidy and other factors have contributed to the rise in electricity prices. According to the Consumer Price Index (October 2022), the price of 200kW of electricity was at Ksh 5,040.70 while that of 50kW was Ksh 796.83 during the month of September 2022. This is up from Ksh 4,373.12 for 200kW and Ksh 796.83 for 50kW in the previous month. This, in turn, has also contributed to a rise in the cost of living, with the inflation rate rising to 9.2 in September 2022 from 8.5 in August in 2022.

The continued use of non-renewable energy has contributed to high electricity costs. For instance, the cost that KenGen spent on the purchase of fuel for its fleet of thermal power generators grew almost threefold last year to intensify power production to make up for shortfall in generation by geothermal and hydropower plants due to droughts and technical hitches. KenGen reported 163 per cent increase in fuel charge revenues to Ksh 9.67 billion in June 2022 compared to Ksh 3.67 billion over a similar period in 2021. The cost that KenGen spends on heavy fuel oil to power its thermal plants is compensated by consumers, through the fuel cost charge (FCC).

Figure 10.15: Average monthly electricity prices in Kenya January 2016-April 2023



Data source: KNBS (various), Consumer Price Indices Report

Apart from the formation of the taskforce and offering of electricity subsides, the government has come up with numerous interventions to reduce electricity costs. As highlighted earlier, the dependence on the more expensive non-renewable energy sources such as thermal has drastically reduced over the years because of the recent government efforts to invest in renewable energy sources. For instance, the Least Cost Development Plan 2017-2037 (Government of Kenya, 2018) aims to enhance generation and reliable transmission of electricity through load forecasts and assessment of energy resources among other measures. Other related policies aimed at tapping more finances to increase cheap renewable energy include the Feed-in-Tariff (FiT) policy (2012), Public Private Partnerships Act (2013) and Renewable Energy Auctions Policy (2021). These policies target private sector investment in renewable projects. The Kenya Off-grid Solar Access Programme (KOSAP), Scaling up Renewable Energy Programme (SREP), Rural Electrification Programme, the Last Mile Connectivity Programme (LMCP) are examples of government programmes that increase access to and capacity in renewable energy.

Other government incentives include reduction of taxes on renewable energy equipment such as solar products to encourage solar ownership. Reducing the electricity cost remains a challenge as the electricity cost is dependent on several factors such as existing power Purchasing Agreements, the inflation rate, high taxes, fuel costs from generating companies and forex exchange fluctuations given that some PPAs and fundings are done in foreign currencies. The Energy and Petroleum Regulatory Authority (EPRA) approved a special tariff under the e-mobility category for charging of electric vehicles (EV) in April 2023. The new electric mobility tariff is set at Ksh 16 for energy consumption up to 15,000 kWh during peak periods and Ksh 8 per kWh during off-peak periods, also up to 15,000 kWh. The electric mobility tariff is also fixed until 2025/2026.

Other challenges that hamper progress of electricity sub-sector besides the electricity costs include presence of non-renewable sources in the grid, intermittency of weather patterns that may disrupt supply of renewable energy, high construction costs, substandard materials in the market and shocks such as earthquakes that may disrupt generation and supply. Land issues, environmental disruptions, poor grid systems, theft and vandalisms, power interruptions and interruptions in policies are examples of challenges in the transmission and distribution in the electricity sub-sector.

Considerable solutions to these challenges would be upgrading the poor grid to reduce system losses, better monitoring the importation and sales of materials used, increased diversification of the energy mix to reduce interruptions, encourage continuity of policies through political cycles, improved security for energy infrastructure, having a land index to guide on land issues and wayleaves, have backup systems in place in cases of shocks and aiming to limit environmental disruptions when constructing electricity projects. Some possible measures to reduce electricity costs include the use of local currency in PPAs, adoption of net metering, promoting increased use of renewable energy and investment in modern and efficient distribution systems. Implementation of these solutions to overcome the electricity sub-sector challenges would facilitate the growth of electric mobility adoption in Kenya.

- Powering electric mobility in Kenya

The current demand coupled with the expected demand from increased adoption of electric mobility will be increase electricity consumption and, therefore, requires higher electricity supply. The success of meeting this demand will be dependent on variables of electric mobility, including: electric vehicle categories, number of vehicles, battery capacity, charging frequency and types of chargers. For instance, an additional 1,000 electric vehicles (cars) and 1,000 motorcycles would lead to higher electricity

consumption. This requires the involvement of both public and private stakeholders such as electric-vehicles owners, off-takers, energy generators, regulators and charge station operators to play a critical role in meeting the power charging needs.

Table 10.3 shows approximate costs and energy consumptions for two different types of electric vehicles, BEVs and PHEVs, and petrol-based cars. The calculations are based on two major assumptions. *The first one is that each vehicle covers an average of 10,000 kilometers annually. Additionally, it is also assumed that there are 1000 units of each vehicle type in use per year*. The table compares the annual energy consumption for 1,000 units of each electric vehicle type (BEVs and PHEVs) and 1,000 petrol vehicles.

The electric vehicle capacities are based on the average capacity of the electric vehicle types in the United States of America. From the comparison, it is evident that BEVs consume less power than PHEVs and, hence, are more energy efficient. A study conducted in the United Kingdom from 14,052 survey respondents indicated that 73 per cent of respondents preferred BEV over PHEVs, among other types of vehicles. It is expected that this trend towards BEVs as preference will continue to grow as governments across the globe continue to signal their intentions to phase out fossil fuel vehicles. It is expected that electric vehicle technology will continuously improve and offer more affordable electric vehicles with better batteries (ElementEnergy, 2022).

Table 10.3: Comparative value simulation for electric and petrol vehicles

Parameter	Electric Vehicle type vehicle		Petrol Vehicle
	Battery Electric Vehicles (BEVs)	Plug in Hybrid Electric vehicles (PHEVs)	
Average battery/ engine capacity*[1]	82.8 kWh	14.9 kWh	1500cc
Average fuel economy*[1]	5.66km/kWh	3.07km/kWh	12.68 km/L *[2]
Annual power consumption (assumption 1)	1766.78kWh	3257.33kWh	781.25L
Annual power consumption (assumption 2)	1,766,784kWh	3,257,328 kWh	781,250 L
Annual total cost (Ksh 20.91/KWh*[2] and Ksh 177/L*[3])	36,943,453.44	68,110,728.48	Ksh138,128,250

**1- Data from evstatistics.com (9th February 2023), Assumption 1 - total annual mileage/ vehicle = 10,000km; Assumption 2 - 1,000 units of each EV and petrol vehicle type in use, *2- Energy cost from Drive Electric (GiZ, 2017).*
NB: Excludes maintenance costs; Based on prices as of 9th February 2023
Data Source: evstatistics.com and Drive Electric (GiZ, 2017)

To further demonstrate Kenya's potential in meeting the electricity needs for the 2 wheelers (most dominant mode of road transport), a comparison analysis was carried out. Table 10.4 shows comparative simulations for electric and petrol motorcycles. Similar assumptions are made for these approximations: *each motorcycle covers 10,000 kilometres each year and 1,000 units for each type is considered*. The engine capacity for the petrol motorcycles is based at 150cc, which is common for petrol motorcycles in Kenya.

Table 10.4: Comparative value simulation for electric and petrol-based motorcycles

Parameter	Electric motorcycles	Petrol motorcycles
Average battery/ engine capacity*1	6.48kWh	150cc
Average fuel economy*1	25km/kWh	60km/L
Annual power consumption (assumption 1)	400kWh	166.67L
Annual power consumption (assumption 2)	400,000kWh	166,670L
Annual total cost (Ksh 20.91/KWh*2 and Ksh 177/L*3)	8,364,000	29,500,590

*1- Data from ecobodaa (10th February 2023), assumption 1 - total annual mileage/ motorcycle = 10000Km; assumption 2 - 1000 units of each E-motorcycle and petrol motorcycle type in use, *2- Energy cost from Drive Electric (GiZ, 2017).
NB: Excludes maintenance costs; Based on prices as of 10th February 2023
Date source: Ecobodaa and Drive Electric (GiZ, 2017)

The analysis shows that the total annual power consumption based on the simulations of an additional 1,000 electric motorcycles, 1,000 BEVs and PHEV 1,000 is 0.4GWh, 1.766 GWh and 3.257 GWh, respectively. The cumulative total of 5.441GWh is significantly lower when compared to the annual total energy use in Kenya, which was 12,101 GWh between 2020 and 2021 (KPLC, 2022). This shows that despite mass adoption of electric mobility leading to increased energy consumption, Kenya is well-capable to adequately meet the electricity demand by electric mobility. Tables 10.3 and 10.4 further demonstrate that the use of electric vehicles and motorcycles is significantly cheaper when compared to petrol-based vehicles and motorcycles.

As discussed earlier, Kenya plans to have 5 per cent of imported vehicles as electric in the short-term. This will translate to more electric vehicles import, leading to increased number of electric vehicles in the country. Based on this policy direction, it is projected that 19,952 units of electric vehicles will be registered each year in future. This will comprise 5,375 electric motor vehicles, 14,260 electric motor and autocycles and 317 electric 3-wheelers. This demonstrates Kenya's ability to meet the demand by electric mobility since most of the imported vehicles will be electric.

Box 10.3: BasiGo observations on electric buses

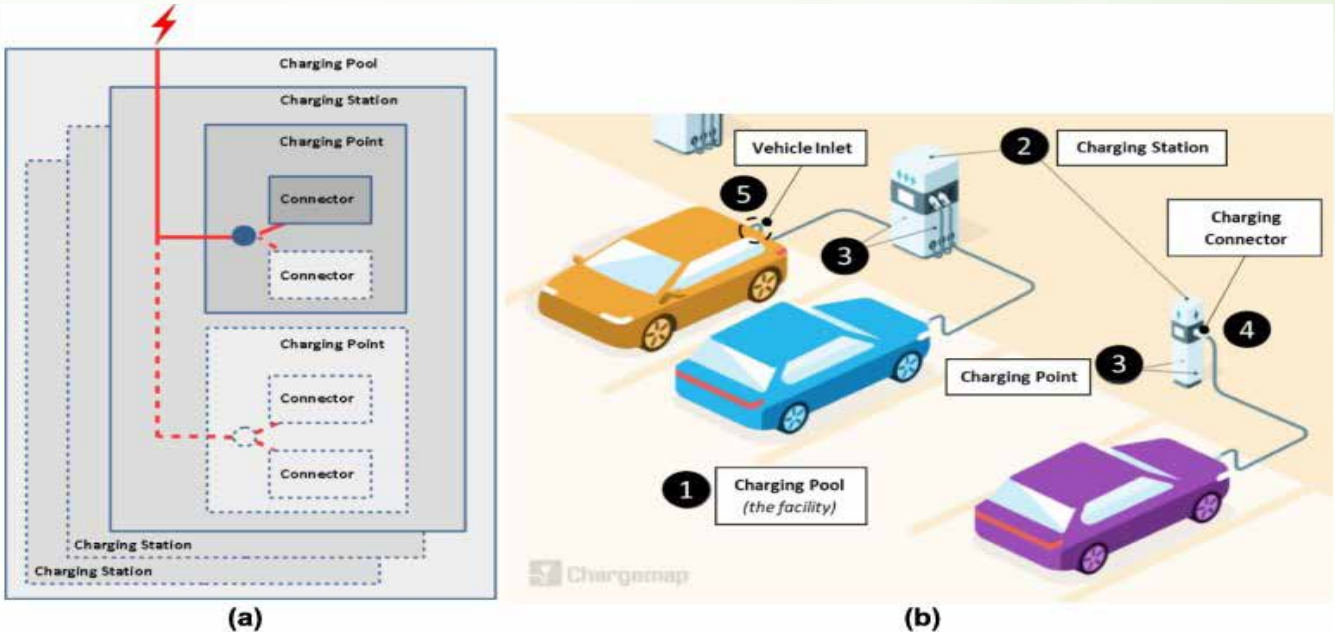
The electric bus company BasiGo piloted electric buses plying on the North Airport Road to Allsops and the Dandora–City Stadium routes covering 120,000 km and ferried over 150,000 passengers. The pilot data showed that it was much cheaper to operate an electric bus compared to a diesel-powered one of a similar capacity. Electric buses had 98 per cent uptime and run on 45 days continuously without any stoppage for maintenance due to the fewer moving parts. The data shows that it was cheaper to run an electric bus in terms of charging cost compared to an equivalent diesel bus. The charging cost to cover 250km is Ksh 5000 (Ksh 20/km) compared to Ksh 12,000 (Ksh 170/litre) for a diesel bus in a day.

- Charging infrastructure required

Among the key challenges affecting electric mobility in Kenya is lack of charging infrastructure. The Sustainable Transport Forum (STF) classifies Electric Vehicle Charging Infrastructure (EVCI) by size, from large to small into charging pool, charging station, charging point, and charging connector/outlet as discussed in section 10.2.2 and in Figure 10.16. The physical linkage between a charging point and an electric vehicle through which electricity is transmitted to the electric vehicle is called a charging outlet or connector. It can be an induction plate, socket or cable. A charging point charges one vehicle at a time, whereas a charging station can charge multiple vehicles. A collection of multiple charging stations forms a charging pool. Charging

stations connected to the grid have the following main components: charger, power grid, meter, energy controller, software platform and a network operation system. Chargers have capacities and charging speeds. Power storage systems such as solar powered charging infrastructure have a battery and power conversion system as their main components. The batteries control the charge and discharge, and the power conversion system has an inverter and thermal management system to regulate temperature. The software helps in management of the electric vehicle station and customer services such as billing and driver access.

Figure 10.16: Electric Vehicle Charging Infrastructure (EVCI) hierarchy



Source: (a) STF Classification (Visser, 2019); (b) Example on STF Classification; A charging pool with three charging stations and six charging points adopted from (Anatomy of a Charging Pool for Electric Vehicles, 2020)

Charging infrastructure can also be grouped in terms of location, usage, ownership and operating entity. These parameters can be used to determine whether the infrastructure is public, semi-public or private-public infrastructure that is open to all electric vehicle users and can be in public parking lots or on the streets. Shared charging for a limited group of electric vehicle users can be referred to as semi-public and can be found in apartments, shopping malls and hospitals. Private infrastructure has restricted usage to either person(s) or organization(s) and can be found in homes or workplaces.

There are different types of chargers recommended for different charging purposes as noted in Box 10.2. Residential charging requires level 1 chargers and single-phase AC power outlets in homes and private residences. No additional equipment is required for this type of charging, and it can take 40-50 hours to fully charge a battery electric vehicle (BEV) and 5-6 hours to charge a plug-in hybrid electric vehicle (PHEV) from no charge. Charging at larger scales requires a DC charger to support larger charging needs and all types of electric vehicles. This is because the recharging is faster, more efficient and of a higher power. For example, it can only take 20 minutes to 1 hour to charge a BEV. Charging stations, in-house electric installations and wall-boxes are examples of possible ways of charging electric vehicle batteries. In-house electrical installations can include using special sockets designed for charging.

Based on the IEA 2021 report, the number of public charging points for electric vehicles is expected to rise from around 1 million in 2021 to 40 million in 2030, requiring annual investment of almost US$ 90 billion in 2030. In addition, the report indicates that the annual battery production for electric vehicles is based on 160 gigawatt-hours (GWh) in 2021, but this will increase to 6,600 GWh in 2030 – the equivalent of adding almost 20 gigafactories each year for the next ten years. This indicates a rising demand for electric vehicles in the near future.

Box 10.4: Impacts of electric vehicle charging on power grid

China plans to have electric vehicles as the mainstream of new vehicle sales and the passenger sector to be fully electrified by 2035. China is leading in terms of electric vehicles and production of batteries. By 2025, China sets to have sales of electric vehicles account for 20 per cent of the total vehicle sales. About 6 million electric cars were sold in China in 2022. The country has put in place incentives such as generous government subsidies, tax breaks, procurement contracts, and other policy incentives, a slew of homegrown electric vehicle brands. BEVs are estimated to gain significant market share and will be the major driver of market growth in China's passenger vehicle market. People with different ages, place of residence, and weekday/weekend have different lifestyle and daily routines, leading to different charging behaviour of electric vehicles.

The annual electricity demand of electric vehicles is projected to increase to 510.8 GWh in 2050, with the increasing electric vehicles population accounting for 1.5 per cent of the national demand. Large-scale deployment of electric vehicles will significantly impact the power system. The daily peak demand is 1,407 GW in 2050 without electric vehicles charging demand. Integrating electric vehicles charging load will increase by between 2.6 per cent and 8.2 per cent in 2050, which highly depends on the charging infrastructure assumptions and charging strategy. In 2020, China's State Grid Company had planned to build 78,000 more electric vehicle charging stations to complement more than 516,000 public charging connectors, and one million private chargers. China also plans to build a smart ultra-high voltage transmission system alongside urban and rural distribution grids to link the Internet to the nation's electricity supply and support the development of smart cities.

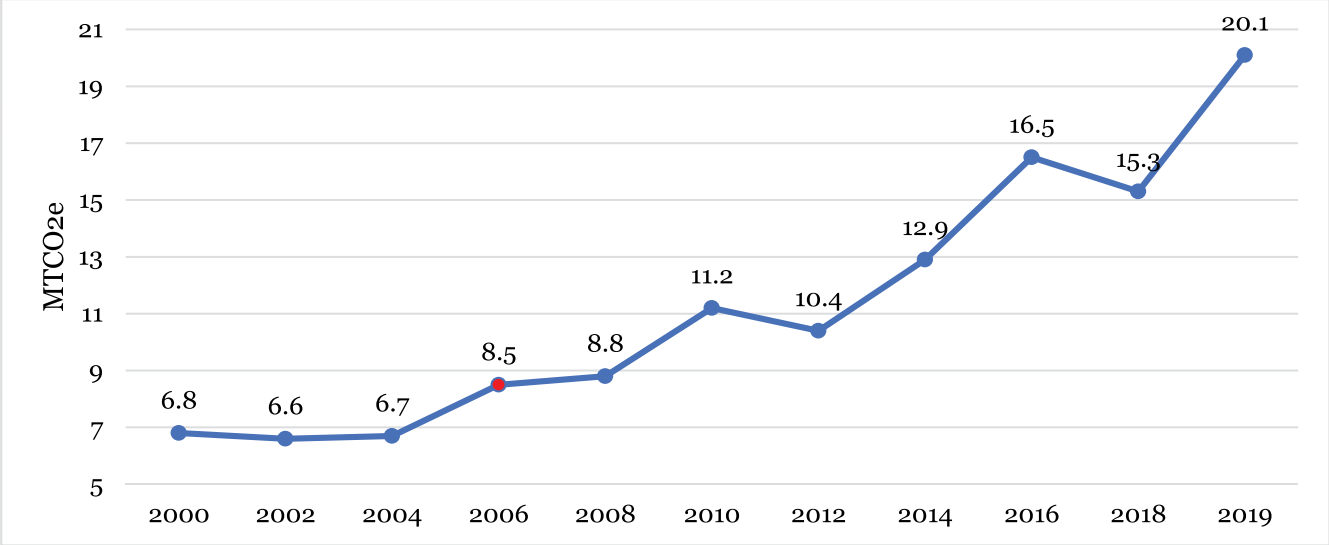
Source: Li et al, (2022)

10.4 Effects of Carbon Emissions on Cost of Living

Carbon emissions cause climate change, whose effects are devastating, far outreaching and some are irreversible. Among the effects are extreme weather conditions such as floods, droughts and cyclones. Their aftermath in some cases has detrimental effects such as damage on households, properties, agriculture and other related sectors. Also, interruptions in production and supply of goods and services are also witnessed, leading to inflated prices. Air quality is also disturbed by pollution, leading to health issues among the populace. Treatments to these ailments are usually long-term, and associated with huge medical costs by households.

The transport sector is a key contributor of greenhouse carbon emissions due to the sector's predominant use of fossil fuel. As motorized vehicle use increases in Kenya, the residents of cities such as Nairobi are likely to suffer the effects of worsening air pollution. According to World Air Quality Index, Kenya's air quality is "moderate". It is noted that Nairobi City is ranked the second worst city in the world for traffic congestion, has particulate matter (PM) 2.5 levels five times higher than the 2021 WHO recommendations. This is a recipe for respiratory diseases that ultimately cause illness and death among children in the country. The country's carbon emissions show an increasing trend, but plans are underway to reduce the emissions by 2030 (Figure 10.17).

Figure 10.17: Total carbon emissions in Kenya, 2000-2019



Data source: International Energy Agency (2022)

Kenya is focused on reducing carbon emissions through many approaches. For instance, the adoption of electric mobility would reduce carbon emission, hence promoting public health and limiting the environmental damage. Healthcare costs and labour hours that would otherwise be lost due to sicknesses would be saved. Further in December 2020, Kenya submitted its updated nationally determined contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC), setting a new target of reducing green house gas emissions by 32 per cent by 2030. In addition, power generators are focusing on installing additional geothermal and increase reliance on other renewable energy sources for cheaper electricity supply. Kenya was among the few developing countries that signed the *"COP26 declaration on accelerating the transition to 100 per cent zero-emission cars and vans"*.

Global evidence: Electric mobility and cost of living

Box 10.5: Global evidence: Electric mobility and cost of living

Electric mobility offers the following:

Decarbonization benefits - the potential benefits of electric mobility for low- and middle-income countries go well beyond those associated with decarbonization. Electric mobility for passengers in developing countries not only brings significant decarbonization benefits, but also has the potential to contribute to several other important development agendas—notably inclusive mobility, local air quality, energy security, and industrial policy.

Promote inclusive mobility - life cycle costs for some types of electric vehicles are becoming lower than those associated with conventional alternatives. Moreover, the proliferation of cost-effective 2 and 3 wheelers may bring transportation within reach of lower income populations. Electric 2 and 3-wheelers are already popular in many low-income markets for transporting people and goods. In rural areas, low-cost electric motorbikes, in combination with solar photovoltaic systems, reduce dependence on expensive or hard-to-obtain gasoline, facilitate access to markets and other opportunities, and help solve the first or last mile problem when using public transit. As electric vehicles move towards capital cost parity with their conventional counterparts, such benefits will be further accentuated.

Improve local air quality - deteriorating local air quality is a serious health issue in many large cities across the developing world and is responsible for 7 million fatalities globally each year. Switching to electric passenger vehicles reduces emissions of the most harmful particulate matter by as much as a factor of 10 per passenger kilometre travelled. Not only is electricity a cleaner fuel, but it also reduces the air pollution from vehicle tail-pipes in crowded cities.

Bolstering energy security - many countries rely on imported oil products to power traditional petrol and diesel-based vehicles. Fuel imports can absorb a significant amount of foreign exchange and often leave balance of payments vulnerable to oil price shocks. To the extent that countries generate electricity from renewable energy, or even other indigenous fossil fuels, introducing electric mobility can bring significant benefits in terms of enhanced energy security and associated macroeconomic resilience. For example, countries such as Ethiopia and Nepal, which import fuels but can generate electricity almost entirely from indigenous hydropower and could significantly reduce their reliance on oil by switching to electric mobility.

Democratizing manufacture - The manufacture of motor vehicles based on internal combustion engines is relatively complex, and hence not widespread, with just five countries accounting for 60 per cent of global production. Although the manufacturers of batteries for electric vehicles also remains highly concentrated globally, the greater simplicity of electric vehicles themselves, as well as the considerable commoditization of many key components, suggests the possibility of much greater scope for domestic production (or at least assembly) in many developing countries. An early indication is the innovative start-ups emerging in Kenya, Uganda and Rwanda, providing affordable alternatives for electric 2-wheelers and already exploring lower cost options for electric buses and trucks.

Source: World Bank report on The Economics of Electric Vehicles for Passenger Transportation, 2022

Source: World Bank report on The Economics of Electric Vehicles for Passenger

10.5 Key Messages and Policy Recommendations

10.5.1 Key messages

1. Transport accounts for 9.65 per cent of total household expenditures in urban areas, with bus and matatu fares being ranked second out of ten top ten expenditure components for households, behind mobile phone airtime. With high fuel prices, this increases the cost of living for households.
2. The current mobility model in Kenya is dominated by imported second-hand fossil fuel vehicles that depend on importation of fuel. This is unfavourable on many levels, including public health and environment. Further, Nairobi City has PM2.5 levels, five times higher than the 2021 WHO recommendations. This is a recipe for respiratory diseases that ultimately cause illness and death among children in the country. As Kenya transitions to affordable and sustainable mobility through

electric mobility to reduce dependency on fossil fuels and cut down emissions, it is an opportunity for the Kenyan economy to correct the current unsustainable model for future transport.

3. The electric mobility industry is in its early stages in Kenya with potential to grow. In the recent years, Kenya has experienced increased number of innovations and startups largely targeting the 2 and 3-wheelers. Notably, Kenya is home to over 2 million motorcycles and most riders are showing interest to convert their motorcycles to be electric because of the ability to save on fuel and maintenance while doubling their income.

4. Despite policy incentives in importing electric vehicles, the cost of importing an electric car to Kenya is considerably high. Retrofitting offers a promising complementary solution to new vehicles. It is noted that retrofitting of fossil fuel engines to electric will help cut down the shifting costs. Further, equipping the electric mobility sector with technical automotive skills for engine conversion will be key in cutting down the shifting costs. Further, the sector requires technical standards to guide retrofitting and swapping of batteries necessary for electric mobility.

5. Fuel levy collections have shown marginal increase in the few years. Electric mobility presents an opportunity to generate additional funds required to support maintenance, rehabilitation and development of roads, which largely depends on fuel levy collections. Additional funds will be key to the development of infrastructure, including charging facilities for innovations and startups in the sector.

6. Electric mobility requires adequate charging infrastructure and network, maintenance and after-sale service facilities in public strategic locations and routes for electric vehicles.

7. The electricity-sub sector generates more power than demand by over 800 MW, with a huge potential to generate more electricity from geothermal sources. Notably, over 90 per cent of domestically produced electricity comes from renewable sources, and this presents a strong platform for clean and cheap electricity for electric mobility. Upgrading and modernizing the power grid will improve power reliability and promote smart charging.

10.5.2 Policy recommendations

1. Invest in infrastructure for electric mobility ecosystem:
   - Partner with the private sector, and petrol stations to increase the charging points and battery-swapping stations across major routes in the country.
   - Issue guidelines to have new residential buildings have charging facilities.
   - Scale up efforts by power generators and distributors to have dedicated charging facilities.
   - Introduce subsidized charging fees to boost confidence in the adoption of electric mobility.
   - Incentivize the electric mobility users by offering reduced insurance fees, reduced fees for license plates and free parking in public areas.

2. Support retrofitting, assembling, distribution and selling of electric vehicles:
    - Build retrofitting skills for 2 and 3-wheelers.
    - Explore public private partnership to build a home-grown supply chain for 2 and 3-wheelers.
    - Set targets for public agencies to adopt electric vehicles.
    - Develop standards for the conversion of fossil fuel engines to be electric.
    - Build collaboration with policy makers, research and learning institutions to research and develop electric mobility solutions.
    - Build a positive culture among Kenyans about electric mobility.
3. Finance electric mobility:
    - Create an electric mobility fund by amending the Road Maintenance Levy Fund Act to support essentials of electric mobility.
    - Tap on Hustler Fund to support innovations and startups.
    - Tap on climate change funds to support electric mobility startups.
4. Invest in electricity for cheaper and reliable electricity:
    - Expand and modernize power grid to enhance distribution and billing for smart charging.
    - Accelerate the last mile power connectivity in urban and rural areas.
    - Power producers to scale up the use of geothermal and other renewable sources to increase supply of cheap electricity.
    - Implement the recommendations of the presidential taskforces on electricity sub-sector reforms to reduce electricity prices.
5. Fast-track the development and approval of a comprehensive National Electric Mobility Policy Framework to enhance sector-wide coordination.

GOVERNMENT INTERVENTIONS TOWARDS MAKING MARKETS WORK

11

Government intervention is crucial in reducing the cost of living by fostering well-functioning markets characterized by availability, accessibility, and affordability of quality goods and services. Market failures, often caused by market power, information asymmetry, and negative market externalities, can be corrected through government interventions. The Competition Authority of Kenya (CAK) enforces the Competition Act (2010) to prohibit imbalanced market power as a result of restrictive trade practices, price discriminations and abuse of dominant positions. Market power is prevalent in the growing digital market, which has outpaced the traditional competition regulations framework thus posing surveillance and monitoring challenges. Similarly, government support for new innovations raises concern for entry by newcomers as consumers' royalty is entrenched. The information asymmetry creates an opportunity for the exploitation of less-informed consumers. The Consumer Protection Act (2012) mandates businesses to provide accurate and complete information about their products and services. Information asymmetry is prevalent due to technical language on product labels and lack of standardization of labeling of consumer goods, complicating comprehension of an average consumer. As the country transitions to digital economy, the digital divide disproportionately affects rural populations who are not able to access product information online. Negative market externalities result from misallocation of resources, inefficient pricing and adverse impacts on third parties. Various government agencies such as the National Environment Management Authority (NEMA) collaborate with other sector-specific agencies to regulate and control externalities related to environmental pollution and degradation. However, the escalating use of electronic devices and improper disposal of electronic waste (e-waste) is increasingly contributing to soil and water pollution. Similarly, rapid urbanization is increasing pressure on housing, infrastructure, and public services, leading to negative consequences such as traffic congestion, air pollution, inadequate waste management, and strain on water and energy resources. To address these issues, strengthening and modernizing competition and sector-specific regulatory frameworks to account for the rapidly growing digital markets and emerging sectors is key. This includes enhancing surveillance and monitoring systems to keep pace with technological advancements, fostering innovation, and facilitating competitive entry for newcomers, improving, and enforcing standardization and consumer protection policies for consumer goods, and developing comprehensive strategies to address negative market externalities, such as implementing sustainable urban planning and promoting proper e-waste disposal methods to mitigate environmental and public health risks.

11.1 Introduction

Government intervention in the economy is traditionally legitimized by market failures. Market failure occurs when the market does not provide allocation-efficient and socially enhancing results due to concentrated market power, information asymmetry, and externalities (Stiglitz, 2006). As such, market failure is characterized by inadequate well-functioning market structures and economic systems that are supposed to make the market economy resilient to such economic shortcomings (Nwaogu, 2017). Thus, the price mechanism of normal distribution of

goods and services is artificially distorted. Conversely, governments have the responsibility of ensuring that markets are functioning perfectly.

Imbalanced market power results to a single firm or group of firms influencing the prices or output in the market. This arises from factors such as economies of scale, brand recognition or control over critical resources. Firms with high market power limit competition, perpetuate price discrimination, reduce innovation and often, promote rent-seeking behaviour, all of which have implications on the cost of living of the final consumer (Smith, 2020). For example, limited competition eliminates alternatives for consumers and price discrimination, leading to higher prices for consumers who are unable to negotiate (Stiglitz, 1987). Furthermore, dominant firms influence policy making in favour of regulations that further limit new entrants. It is estimated that anti-competitive prices in Kenya reduce GDP growth by about 2 per cent annually (CAK, 2016). In addition, limited competition in the telecommunications sector in Kenya reduces the growth of GDP by about 0.4 per cent per year (World Bank, 2015).

Information asymmetry creates unfair advantage to the party with less information. This could cause breakdown of the market, as buyers and sellers become hesitant to participate in transactions due to the risk of buying "lemons". More often, the parties to the transaction end up investing in costly mechanisms such as paying advisors to protect them from making expensive purchase decisions (Smith, 2018). Resultantly, consumers may end up paying more for goods and services or purchase poor quality products that see them spending more money to replace or repair such products. Also, consumers with less market information have limited choices, which may result to paying higher prices. For example, in the agricultural sector, smallholder farmers are exploited by brokers and receive lower returns because they do not have market information (Ngenoh et al., 2016).

Market externalities occur when the production or consumption of a good or service has a positive or negative impact on third parties who are not involved in the transaction. It also occurs when a common resource is overused or depleted due to the absence of clear property rights or government regulation. The incidental costs pose additional costs not reflected in the market price of goods or services. For instance, the use of pesticides and fertilizers in the agriculture sector leads to soil and water pollution if chemicals run off into nearby waterways and contaminate water sources, leading to loss of aquatic life and posing risks to human health. Similarly, air pollution related economic cost of respiratory illnesses in Kenya is estimated at 0.3 per cent of the country's GDP with loss of productivity at 0.4 per cent (KEMRI, 2016).

Addressing market failures is essential in tackling the cost of living as it highlights the inefficiencies and inequities within the market system that have significant implications on consumers. By identifying and addressing market failures, such as imbalanced market power, information asymmetry, and externalities, the government can implement targeted interventions that improve the overall functioning of markets and promote equitable outcomes for all. These interventions lead to increased competition, better access to information, and reduced negative impacts on society, resulting in more affordable and higher-quality goods and services for consumers. A comprehensive understanding of market failures allows policy makers to design effective measures that not only enhance economic efficiency and growth but also contribute to a more inclusive and sustainable society, where the cost of living is manageable for all the citizens.

11.2 Government Interventions in Making Markets Work

The role of government to support well-functioning of markets is anchored on Kenya's Vision 2030, which seeks to promote a more competitive and inclusive economy.

One of the main goals of the Vision is to create a robust private sector that is globally competitive and capable of driving economic growth. One of the key pillars of the Vision focuses on improving the business environment by reducing the cost of doing business, simplifying regulations, and improving access to finance and technology to provide more opportunities for Micro and Small Enterprises (MSEs). County Business Environment for MSEs (CBEM) indicates an overall improvement in MSEs business environment, highlighting positive outcomes on government interventions in improving worksites and related infrastructure, market environment, MSEs technical capacity, governance and regulatory framework, financial inclusion and risk preparedness and management (KIPPRA, 2022). The establishment of Huduma Centres, which provide a one-stop-shop for business registration, the SME credit guarantee schemes which guarantee SMEs to access commercial loans, and strengthening of the intellectual property rights framework have lowered entry barriers for MSEs. This has allowed them to compete more effectively in the market, and access reliable financing and benefits from investments in research and development. Such investments encourage them to innovate and improve efficiency to compete with the larger firms and reduce market concentration by increasing the number of players in various industries.

The Bottom-Up Economic Transformation Agenda (BETA) focuses on policy interventions that promote inclusive growth and development by empowering MSEs to overcome structural barriers and participate effectively in markets. For instance, one of the BETA initiatives, the Hustler Fund, offers loan to small businesses, thus enabling them to access ready funds at very low interest rates. So far, the government has committed Ksh 50 billion a year to provide MSMEs with 100 per cent access to affordable finance through SACCOs, venture capital, equity funds and long-term debt for start-ups and growth-oriented SMEs. In terms of business licences, BETA focuses on reviewing and rationalizing all business licences and capping total licences at 1.5 per cent of turnover, consequently reducing the cost of doing business for MSEs and supporting their growth and competitiveness. Enactment of the administrative burden law will ensure that businesses do not spend more than 4 person hours a month on tax and regulatory compliance, thus reducing the cost of business and compliance rates and creating a level playing field for all businesses. By strengthening MSEs, the government aims to enhance competition, create employment opportunities, and stimulate local economic growth.

The government has established various policies, laws and regulations to promote competition (Annex 1). The Competition Authority of Kenya (CAK) enforces the Competition Act, which monitors and enforces regulations to promote fair competition and prevent anti-competitive behaviour arising out of market power imbalance, information asymmetry and market externalities. Market power imbalances is characterized by restrictive trade practices, price discrimination, and mergers and acquisitions, which yield market dominance, reduce competition, and potentially disrupting other firms from entering the market. To address restrictive trade practices, the Act prohibits any agreements, or concerted practices between businesses deemed to prevent or restrict fair operations in the market, including price-fixing, market allocation, bid-rigging, and collusive tendering unless granted exemptions or authorizations by the Competition Authority upon being satisfied that the restrictive trade practices are necessary to maintain or promote the interests of the industry, exports, employment, or economic development in Kenya. It requires companies with significant market power, such as in the telecom industry, to open their infrastructure to other competitors or require companies to provide equal access to their services for all customers.

Section 24 of the Competition Act prohibits firms with a dominant position from using market power to charge different prices to different customers or market segments

without an objective justification. Price discrimination is permissible on legitimate variations in the cost of production, distribution, or provision of the products, on volume discounts, differences in time of purchase and discounts or rewards to customers based on their loyalty or frequent purchase. Moreover, the Competition Act and the Competition Authority of Kenya (CAK) have established a comprehensive legal framework with clear guidelines and procedures to control and regulate mergers and acquisitions (M&A). The Authority has been proactive in reviewing M&A transactions and analysing the competitive landscape of the country by analysing market shares, market concentration, barriers to entry, and the potential for coordinated or unilateral effects resulting from the transaction. While the Competition Authority of Kenya is focused on enforcing all the aspects of competition law, Fox and Bakhoum (2019) noted that it has been more active in merger control than in other areas of competition law.

Focusing on information asymmetry, the government has enacted protection laws and regulations to protect consumer rights and interests such as the Consumer Protection Act of 2012. The Competition Authority of Kenya, under the guidance of Kenya Consumers Protection Advisory Committee, is primarily responsible for enforcing the provisions of the Act, addressing unfair trade practices, including false advertising, misleading claims, and deceptive marketing practices. It requires businesses to provide accurate and complete information about their products and services to consumers, and the right to seek compensation for losses arising from misleading or false information of the products. Further, by setting industry standards, the mandatory disclosure requirements ensure that consumers are provided with accurate and complete information about products. Product labeling regulations require manufacturers to disclose certain information on product labels, such as ingredients and nutritional content for consumers to make informed choices. Moreover, the presence of regulatory agencies to oversee and regulate various sectors of the economy ensures that businesses operating in these sectors provide accurate information to consumers.

The Kenya Bureau of Standards (KEBS) enforces product standards and quality control measures to protect consumers from substandard and dangerous products. Further, the Anti-Counterfeit Authority (ACA) combats counterfeit goods, protecting consumers from unsafe and substandard products that may pose a risk to their health and safety. Under the Ministry of Trade, Industry and Cooperatives, the Directorate of Consumer Protection and Education (DCPE) is mandated to promote consumer education and awareness, and to receive and address consumer complaints and grievances. Through campaigns and outreach programmes, the government seeks to educate consumers on how to make informed decisions, how to identify and report unfair trade practices, and how to seek redress in case of a dispute.

In addressing the combination of market power and information asymmetry, the government has established price control mechanisms in various sectors to protect consumers from excessive prices and price gouging. For example, it has set maximum retail prices for petroleum products, including petrol, diesel, and kerosene, through the Energy and Petroleum Pricing Regulations. The Pharmacy and Poisons Board has also established maximum retail prices for certain essential medicines to ensure that they are affordable and accessible to the general population. In response to the COVID-19 pandemic, the government has established price controls on certain consumer goods, including maize flour and cooking oil, to prevent hoarding and inflated prices during a time of increased demand.

The government has implemented policy, legislative and regulatory frameworks that control market externalities in Kenya (Annex 1). For instance, the National Environment Management Authority (NEMA) sets standards for emissions and effluents from

industrial facilities, thus controlling negative externalities arising from air and water pollution and waste disposal. Sector-specific agencies regulate the quality of goods to prevent unintended consequences to the consumers. For example, the Energy and Petroleum Regulatory Authority carries out regular inspections and monitoring of energy infrastructure, including pipelines, storage facilities, and distribution networks, to ensure that they meet safety and environmental standards. The Pharmacy and Poisons Board (PPB) ensures that drugs are safe and effective to eliminate the negative effects such as illness caused by counterfeit medicines. The National Transport and Safety Authority (NTSA) has set speed limits and mandatory safety features such as seat belts and airbags aimed at reducing negative externalities associated with road transport.

The use of taxes as a regulatory tool to reduce market externalities has been effective in control of various externalities. The introduction of tax on plastic bags with fines of up to Ksh 4 million (approximately US$ 38,000) or up to four years in jail for anyone found violating the law has significantly promoted the use of alternative packaging materials. In 2019, the NEMA reported a reduction of plastic bags by approximately 80 per cent since the ban's implementation. Taxes on cigarettes and alcohol discourage their consumption and reduce the associated negative externalities of health problems and social costs. As of 2018, excise tax on cigarettes in Kenya amounted to 49.12 per cent of the retail price in 2018, which has potentially discouraged uptake of tobacco products. Research shows that the 2013 introduction of excise tax on alcoholic beverages decreased alcohol consumption in Kenyan slums (Kendagor, 2015). The revenue generated from these taxes is used to fund environmental and social programmes, such as waste management and healthcare, which help mitigate the associated negative externalities.

The use of subsidy to reduce market externalities has gained popularity as a government measure to control externalities especially in use of renewable energy, and in public transport. In 2008, the Feed-in Tariff (FiT) programme was established to provide financial incentives to promote the production of renewable energy, including wind, biomass, small hydro, geothermal, biogas, and solar power generation. The programme supports renewable energy producers to sell their electricity to the national grid at a fixed rate, which is higher than the market rate, thus reducing the negative externalities associated with fossil fuel-based energy production. The FiT programme has contributed to the realization of Garissa Solar Power Plant commissioned in 2018, which is currently the largest grid-connected solar power plant in Kenya with a capacity of 54.6 MW.

Despite the government interventions, there are challenges that hinder enhancing market efficiency. The Competition Authority of Kenya has inadequate regulatory framework to handle emerging competition issues. Technological advancements have outpaced the current regulations, leading to rise of digital giants who have had first mover advantage of technological breakthrough and have dominated the market due to high switching cost and strong lock-in effects. As the country moves into data-driven economy, the increasing dominance of digital platforms poses concerns on market concentration, barriers to entry, and other potential anti-competitive practices. Data-driven economies often exhibit winner-takes-all dynamics, as companies that collect and analyse vast amounts of data can gain a significant competitive advantage over their rival. Moreover, the digital platforms benefit from network effects, where the value of a platform increases as more users join it, creating barriers to entry for new competitors as it becomes increasingly difficult to challenge established platforms with large user base. The traditional measures of market power, such as market share and revenue, do not accurately reflect firms' competitive position, making it difficult for the Competition Authority of Kenya to carry out surveillance particularly when it involves companies with valuable data assets but low revenue.

The limited capacity in terms of funding and human capital among various enforcing institutions limits their ability to enforce compliance. For instance, the Competition Authority of Kenya has a broad mandate to oversee various aspects of competition and consumer protection while the resources to efficiently handle the workload of investigations, research, and enforcement actions is limiting (Fox and Bakhoum, 2019). The Authorities' over-reliance on exchequer funding limits its resources to adequately carry out its mandate (CAK, 2021). Furthermore, corruption undermines government interventions to market failure. Anecdotal evidence points out various corruption incidences among public officers charged with monitoring and enforcing the regulations. Corruption creates uneven playing field, as some businesses gain an unfair advantage over their competitors. It erodes public trust in the government's ability to effectively address market failures and protect consumer interests.

Therefore, to make markets work, the government could invest in updating its regulatory framework to address emerging competition issues in the digital age, strengthen the capacity of regulatory agencies, and implement measures to combat corruption. By doing so, the government will continue to work towards achieving its Vision 2030 objectives and fostering an inclusive and competitive economy that benefits all Kenyans.

11.3 Market Power

In some sectors of economy, there are high barriers of entry in a market caused by regulatory barriers, economies of scale, and capital requirements, among other factors (Stigler, 1968) and has promoted anti-competitive practices allowing dominant player to exploit market power to the detriment of consumers. The outlined anti-competitive practices by the Competition Act of 2012 include restrictive trade practices, price discrimination, and mergers and acquisitions. Some of the restrictive trade practices, that significantly constraint competition in the Kenyan market yielding some firms dominance in the market include restrictive trade practices and price discrimination (Competition Authority of Kenya, 2022).

11.3.1 Restrictive trade practices

The common restrictive trade practices include price fixing, market allocation, bid rigging and exclusive dealing. Price fixing eliminates competition among businesses, allowing them to charge higher prices than they would in a competitive market. It also occurs when businesses agree to charge the same price for their goods or services, regardless of their cost of production or other market factors. The practice reduces incentives for businesses to compete on price or quality, as they can maintain their profit margins without making any improvements or innovations.

Market allocation occurs where businesses agree to divide a market among themselves and avoid competing, thus charging higher prices for their products or services. The practice poses challenges for new businesses to enter the market to compete with the incumbent, consequently resulting to higher prices and potentially reducing the quality of the product. In bid rigging, businesses collude to manipulate the bidding process for contracts by submitting artificially higher bids than they would in a competitive process, thus distorting the market dynamics. It creates higher costs for public projects and inefficiencies and misallocation of resources as projects are awarded to less efficient or less qualified businesses.

Exclusive dealing occurs where business require customers to only purchase its products or services and not those of its competitors, eliminating competition among businesses supplying similar products or services. In such a case, the supplier of the good or service dominates the market and charges higher prices than it would in a competitive market. Notably, detecting exclusive dealing is difficult, particularly if the agreements are not public or if the parties involved are not willing to disclose them. The Competition Authority of Kenya relies on

complaints from consumers or competitors to identify exclusive dealing agreements. Moreover, processing of exclusive dealing cases involves complex legal issues and often requires a high burden of proof, and more especially if the agreements are between parties in different jurisdictions (OECD, 2018).

In suspected cases of restrictive trade practices based on a complaint from a consumer or business, or on its own initiative, the Authority procedurally conducts investigations to gather evidence from the businesses involved, their customers, and other relevant stakeholders through site visits, review documents and records, and interview witnesses. If an anti-competitive practice is evident, it takes enforcement action to stop the behaviour and impose penalties on the businesses involved. This includes fines, cease, and desist orders, and other measures to punitive measures provided by the law.

Restrictive trade practices are not limited to large corporations but also exist within MSEs in Kenya (Abbey and Danso, 2022). MSEs are particularly vulnerable to restrictive trade practices as they often have limited bargaining power compared to larger firms, making them more susceptible to the influence of dominant players in the market. They often have limited information or resources to fully understand the implications of a restrictive trade practice and are often heavily dependent on a single buyer or supplier, making them vulnerable to exclusive dealing or other forms of vertical restraints (African Union Commission, 2019).

Other MSEs lack awareness of competition laws and the importance of fair competition in the market. This makes them more likely to unknowingly engage in anti-competitive behaviour. For instance, small traders in a particular area may collude to fix prices or allocate customers among themselves to maintain social harmony, rather than for purely economic reasons (UNCTAD, 2021). The CAK has established a special unit to monitor and regulate anti-competitive behaviour among MSEs and is working to increase awareness of competition laws and promote fair competition in the market.

There are several emerging issues in addressing restrictive trade practices in Kenya. There is a growing concern of anti-competitive behaviour in the e-commerce platforms and other digital markets. Regulating and monitoring online markets pose a challenge for the traditional competition framework models because of their opaque nature, with limited information on pricing, terms of service, and other relevant factors and constantly evolving business models (UNCTAD, 2020). Further, as new sectors emerge, such as the renewable energy sector, the regulation framework is limited to promote innovation and new business models to maintain a level playing field and protect consumers from anti-competitive behaviour. This is driven by the deep understanding of the market dynamics and the unique challenges that are not adequately addressed by the current policy, legislative and regulatory framework.

Lastly, the effectiveness of the Competition Authority leniency programme in deterring anti-competitive behaviour and promoting fair competition continues to be debated. While it has been successful in detecting and prosecuting cases of anti-competitive behaviour, some experts argue that it may not be effective in promoting long-term compliance with competition laws and promoting a culture of fair competition in the market. Critics argue that the programme encourages businesses to engage in anti-competitive behaviour in the first place, with the hope of receiving immunity or reduced penalties if they are caught. Additionally, some businesses may not come forward and provide information about anti-competitive behaviour, even if they are aware of it, due to concerns about reputational damage or fear of retaliation (African Union, 2019).

a) Healthcare sector

The healthcare sector in Kenya is a crucial industry that has seen significant growth in

recent years, contributing to about 4.59 per cent of GDP (KNBS, 2019). The Constitution of Kenya (2010) outlines principles related to health and devolution of the management of health services. The Kenya Vision 2030 has placed strong emphasis on improving the quality and accessibility of healthcare services in Kenya. Moreover, the healthcare sector is a critical development sector to the bottom-up economic transformation agenda in Kenya, as it directly affects the well-being and productivity of individuals and businesses. By investing in healthcare, the Bottom-up Economic Transformation Agenda promotes social and economic inclusion, creates job opportunities, stimulates economic growth, and supports entrepreneurship and small businesses.

The composition of the sector comprises of public and private healthcare providers, pharmaceutical companies, medical equipment suppliers, and health insurance providers. The market structure of the healthcare is a mix of public and private providers, with the public sector dominating the primary healthcare provision (Wamae, 2016). The sector is pluralistic in nature, consisting of private and non-governmental providers. Out of over 9,696 health facilities, about 42.9 per cent are owned by the public sector while the private sector accounts for 37.8 per cent. Of the ones owned by private sector, about 3,696 fall under ownership of the commercial private sector, and 1,384 are owned by Faith-Based Organizations (FBOs), Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs) (Ministry of Health, 2016).

The Competition Authority of Kenya has unearthed various restrictive trade practices within the healthcare sector in Kenya. Price fixing occurs in various ways; for instance, doctors in a particular area agree to charge a certain fee for a particular service, regardless of the actual cost of providing the service; or insurers and healthcare providers collude to set prices for medical services, leading to higher prices for consumers and reduced competition in the market. In 2018, the CAK investigated the Kenya Medical Association (KMA) and found that they had colluded with private hospitals to fix fees for medical procedures. The CAK fined KMA and the hospitals involved Ksh 17 million for engaging in anti-competitive practice.

The healthcare sector is fragmented in nature of the sector. With many small providers and suppliers, market allocation is less common in the healthcare sector. An example of a market allocation case is when the CAK in 2018 investigated a group of radiologists in Mombasa over allegations of market allocation. The investigation found that the radiologists had colluded to allocate the market for radiology services. They were fined Ksh 5.8 million. Similarly, due to the nature of the services offered especially in hospitals, which have emphasis on patient choice, collaboration and regulatory oversight makes exclusive dealing less common compared to other sectors. However, it occurs within the pharmaceutical segment of healthcare sector. In 2014, the CAK investigated several pharmaceutical companies and found that they had engaged in exclusive dealing by requiring physicians to only prescribe certain drugs. The pharmaceutical companies were fined for engaging in anti-competitive behaviour.

Like other sectors, the healthcare sector is increasingly adopting digital technologies to deliver healthcare services and products. For example, some digital health platforms that have gained popularity is ConnectMed, a telemedicine platform that enables users to consult with doctors and healthcare professionals through video conferencing; and *mydawa,* a digital healthcare service that enables users to purchase prescription drugs and over-the-counter medication online. The success of these two platforms may lead to high entry barriers for new competitors, as they would need to invest significantly in technology, customer acquisition, and partnerships with healthcare professionals and suppliers to compete effectively. This could reduce the number of viable competitors in the digital healthcare market, limiting competition and innovation.

(b) *Transport sector*

Restrictive trade practices in the public transport sector in Kenya are prevalent, particularly in urban areas such as Nairobi, Mombasa, and Kisumu (Nyachieo and Mangera, 2022). Cartels in public transport operators often control the market and make it difficult for new entrants to enter and compete, resulting to higher prices for public transport. According to the 2019 Kenya Population and Housing Census, approximately 46 per cent of Kenyans rely on public transport as their primary mode of transport. Therefore, increasing public transport prices significantly affects the cost of living for most Kenyans who rely on public transport. Due to the informality of the sector, addressing cartels is somehow limiting as it is difficult to monitor and enforce compliance. Notably, cartels in the transport sector often have significant economic and political power, making it difficult to challenge their dominance in the market (Ommeh, 2015).

To address the prevalence of cartels and other anti-competitive behaviour in the public transport sector in Kenya, the CAK and other regulatory agencies require innovative strategies that consider the informal nature of this market and other peculiar sector-specific challenges to the sector. This involves working closely with industry stakeholders, consumer advocates, and other stakeholders to increase transparency, promote fair competition, and protect consumers. It may also involve working with law enforcement agencies to address violence and intimidation used by cartels to maintain their dominance in the market.

The rise of the ride-hailing services and delivery services create new opportunities for anti-competitive behaviour. For instance, in 2017, CAK launched an investigation into Uber's pricing practices in Kenya. The investigation was initiated following complaints from consumers and taxi operators about Uber's pricing model, which was accused of being anti-competitive. Even though it concluded that Uber had not violated competition laws in Kenya then, it continues to monitor the ride-hailing market for anti-competitive behaviour. The surge of other numerous ride-hailing services and delivery services calls for development of robust policies, legislation and regulations. Looking into the future, the advances in technology, such as the development of electronic vehicles and other forms of innovative transport, requires new approaches to enforcing competition laws and promoting fair competition in the market.

c) Rental housing sector

The housing sector in Kenya, which includes both commercial and residential rental property, is vulnerable to a range of restrictive trade practices. Property owners or managers may require tenants to exclusively use certain service providers, such as maintenance or cleaning companies. Limiting consumer choice and competition in the market is a common practice especially within the urban areas in Kenya. Price fixing is also common as landlords or property managers collude to fix rental prices for housing units, preventing competition, and increasing prices for tenants especially in the leafy sub-urban areas (Mwangi, 1997).

The entrenchment of the price restrictive practices in the rental housing sector arises out of the many different players in the housing market in Kenya, which makes it difficult to coordinate enforcement actions and investigate cartel behaviour effectively. The informal nature of the housing sector can make it difficult to enforce competition law. For example, many small-scale developers and contractors may not be registered with regulatory bodies, making it challenging to monitor their activities and enforce regulations. Additionally, many transactions in the housing sector are conducted in cash, making it difficult to track and monitor their financial flows.

An emerging issue in the rental housing sector in Kenya is the use of short-term rental platforms, for example Airbnb. While

these platforms increase consumer choice and promote competition in the market, they can also create regulatory challenges and lead to unfair competition. For example, property owners use Airbnb to circumvent regulations and avoid paying taxes, putting traditional rental providers at a competitive disadvantage. The Airbnb has disrupted traditional rental models and requires new approaches to regulation and enforcement to ensure fair competition and consumer protection.

Many consumers in the rental housing sector are not aware of their rights and may be vulnerable to unfair practices. Consumer education and awareness campaigns could play a critical role in achieving this goal. These campaigns provide tenants with information about their rights under existing laws and regulations, and practical advice on how to navigate the rental market. They can also help raise awareness of anti-competitive practices in the rental sub-sector and encourage tenants to report any unfair practices they encounter.

The government has implemented various measures to address market failures in the housing sector, such as the establishment of the National Construction Authority (NCA) to regulate the construction industry and the introduction of mortgage financing schemes to promote access to affordable housing.

11.3.2 Price discrimination

Price discrimination occurs when different prices are charged for the same product or service to different customers. It creates inequities in the market and limits consumer choice. It reduces competition by allowing dominant firms to charge different prices to different customers, depending on their willingness to pay, which eventually results into smaller firms being priced out of the market. In other cases, price discrimination is used as a tool to maintain or increase a seller's market power, particularly if the seller has significant market share.

Kenya has high levels of income inequality, with significant disparities in income and wealth between different segments of the population. This, therefore, poses challenges for businesses that are seeking to price their products or services in a way that is both profitable and equitable. Given that price discrimination is used as a tool to address such challenges, it can also create new inequities in the market and limit consumer choice.

The rise of digital platforms, including the e-commerce websites and ride-hailing apps, has created new opportunities for price discrimination. These platforms have access to vast amounts of data about consumer behaviour and preferences, which they can use to target prices to different consumers. Thus, the Competition Authority of Kenya needs to develop new approaches to regulating and monitoring price discrimination in the digital economy.

Like exclusive dealing, price discrimination cases often require a high burden of proof, and the Authority faces challenges in gathering the necessary evidence to prove that the pricing harms competition and consumers. It is particularly challenging to enforce competition laws among MSEs or where pricing practices are complex. On the same note, consumers are often not aware of their rights with respect to price discrimination and may be vulnerable to unfair pricing practices.

To address emerging issues related to price discrimination, it is necessary to develop new regulatory approaches and tools, and to increase consumer awareness and education on this issue.

a) Healthcare sector

Price discrimination in the healthcare sector is prevalent in Kenya. Healthcare providers use different pricing strategies to charge different patients based on their insurance status, income, age, or health status. It affects access to quality healthcare services, particularly for low-income households and

vulnerable populations. For instance, some healthcare providers may charge higher prices to uninsured patients or patients with lower-cost insurance plans compared to patients with higher-cost insurance plans. Additionally, healthcare providers may charge higher prices for patients with pre-existing conditions or chronic illnesses compared to patients without these conditions, leading to reduced access to healthcare services for patients with chronic illnesses, leading to negative health outcomes.

While it may not necessarily be harmful to consumers, it can create inequities in access to healthcare and limit patient choice. Patients who are unable to pay higher prices are excluded from certain services or may receive lower quality care than those who can afford to pay more. Notably, price discrimination in the healthcare sector is difficult to detect and regulate due to the opaque nature of the pricing practices. To address this, there may be need for greater transparency in healthcare pricing, including the publication of price lists and other information that can help patients make informed decisions about their healthcare choices.

The government has implemented several policies and programmes aimed at reducing price discrimination in the healthcare sector. For example, the National Hospital Insurance Fund (NHIF) provides universal health coverage to all Kenyan citizens, regardless of their ability to pay. This programme aims to reduce disparities in access to healthcare and promote equity in the healthcare system.

The rise of telemedicine and other digital health technologies has the potential to create new opportunities for price discrimination. Telemedicine providers may charge different prices for virtual consultations based on the patient's location or ability to pay. Therefore, there is need for the Competition Authority of Kenya to establish new approaches to regulation and monitoring to ensure that patients are not being unfairly priced when accessing healthcare services.

b) Transport sector

Price discrimination in this sector occurs when transport service providers charge different prices for the same service to different passengers, based on factors such as the passenger's ability to pay or their location. For example, a taxi driver may charge a higher fare to a passenger travelling to a wealthy neighbourhood than to a passenger traveling to a less affluent area. Similarly, a bus operator may charge different fares for the same service depending on the passenger's age or status. While it is not necessarily harmful to consumers, it creates inequities in access to transport services and limits passengers' choice.

The government has implemented several policies and programmes aimed at reducing price discrimination in the transport sector. For example, the Matatu Owners Association (MOA) has established a standardized fare system for matatus, which are the most common form of public transport in Kenya. This system aims to reduce disparities in transport pricing and promote equity in the transport system. While the system has helped to establish a baseline for pricing and has reduced some of the disparities in transport fares, there are still significant challenges to its implementation and enforcement. Many matatu operators continue to charge different fares for the same service, particularly for longer or more expensive routes.

Further, the rise of ride-hailing and other digital transport platforms has the potential to create new opportunities for price discrimination. The platform operators use algorithms to charge different fares to different passengers based on factors such as their location or time of day. This calls for new approaches to regulation and monitoring to ensure that passengers are not being unfairly priced out when accessing transport services.

c) Rental housing sector

Price discrimination in the housing rental sector occurs when landlords or property managers charge different rental prices for similar housing units to different groups of tenants based on certain characteristics, such as their income level, nationality, or ethnicity. While it may not necessarily be harmful to tenants, it creates inequities in access to rental properties and limits tenants' choice. In Kenya, there is limited data on the prevalence of price discrimination in the rental housing sector. However, anecdotal evidence suggests that the practice is common, particularly in urban areas where rental demand is high, and landlords have significant market power.

Largely, landlords are not transparent about their pricing practices, making it difficult for tenants to understand how rental prices are determined and compare prices across different properties. This lack of transparency could contribute to price discrimination and limit tenants' choice. Moreover, the shortage of affordable rental housing especially in urban areas in Kenya is catalytic to price discrimination as landlords are more likely to discriminate against tenants who are unable to pay high rents, as they have a smaller pool of potential tenants to choose from.

The Constitution of Kenya prohibits discrimination based on race, gender, ethnicity, religion, or social status, and the Rental Housing Act of 2016 prohibits discrimination based on family status, disability, or HIV status. Moreover, the government has established a Rent Control Board to regulate rents in certain areas and prevent landlords from charging excessively high rents. Despite legal protections against discrimination, there is limited enforcement capacity to hold landlords accountable for discriminatory practices. This can make it difficult for tenants to seek redress and deter landlords from engaging in discriminatory practices. Further, the Board's authority is undermined by a lack of enforcement capacity and resources, which limits its effectiveness in regulating rents and preventing discrimination.

To address these emerging issues related to price discrimination in the rental sector, policy makers and regulatory agencies may need to take steps to increase transparency in rental pricing, promote competition in the market, and provide tenants with greater access to information about rental properties and their rights as tenants. This requires new approaches to regulation and monitoring, and efforts to promote consumer awareness and education around rental pricing practices.

11.4 Information Asymmetry

Information asymmetry occurs when one party in a transaction has more or better information than the other party, creating an imbalance in decision-making processes or power dynamics. It results in cases of adverse selection, where one party may have more information about the quality of a product or service than the other party, or moral hazard where one party has an incentive to take risks because they do not bear the full cost of those risks. The imbalance of the information causes inefficient allocation of resources as the party with insider information may overproduce or under-produce the products. It offers some market participants a disproportionate amount of market power and makes it difficult for new entrants to compete in a market.

The consumer protection laws require businesses to provide clear and accurate information about their products and services and provide consumers with legal recourse if they are misled or harmed by a business good or service. Further, investment in sector-specific consumer education programmes improve consumer awareness and empowers them to make informed decisions. The Competition Authority of Kenya has improved market surveillance through monitoring the consumer market to ensure compliance with regulations, investigates market misconduct, and takes enforcement action when necessary. Moreover, mandatory labeling requirements and standardized product information enables consumers to have access to accurate and relevant information about products and services.

Despite the establishment of the regulations, there is often weak enforcement related to information disclosure. The institutional capacity of the Competition Authority of Kenya and other agencies to enforce regulations related to information disclosure is limited by resources, thus monitoring, investigation, and enforcement of violations is negatively affected. Further, many consumers in Kenya do not have knowledge or skills to effectively navigate the marketplace and make informed choices. Reading and interpreting product labels is largely presented in two languages (Swahili and English), leaving out minority language speakers who do not have the capacity to read and comprehend the labels.

Addressing information asymmetry is faced by several emerging issues. The growth of the Internet has made information more accessible; there remains a significant digital divide between urban and rural areas, and among different socio-economic groups. This disparity in Internet access has led to information asymmetry, with people in remote or low-income areas having less access to vital information. Moreover, the proliferation of fake news and misinformation through social media and other digital platforms has exacerbated information asymmetry. Inaccurate information distorts public perceptions and decision-making, leading to negative outcomes in various sectors, including politics, economics, and public health. Conversely, the rise of e-commerce and digital transactions has increased the potential for information asymmetry between consumers and businesses. Consumers may not have enough information about products, services, or sellers, which can lead to fraud, exploitation, or sub-optimal purchasing decisions.

a) Healthcare sector

Asymmetric information occurs in the healthcare sector in a variety of ways; first in the form of pricing and cost information. Many patients lack the necessary health literacy skills to effectively understand and use health information, which exacerbates information asymmetry and could lead to sub-optimal decision-making. Patients do not always have access to clear pricing information for medical procedures or medications, especially individuals in remote or under-served areas, or those with limited access to technology, which can make it difficult to compare costs or make informed financial decisions.

Research shows that 62 per cent of patients in Kenya do not have access to clear and accurate information about their healthcare options. This may delay seeking care or not receiving care at all (Kabia, 2015). It could lead to more serious health issues and higher healthcare costs in the long-run. Indeed, patients who are unable to access or understand information about healthcare options may end up paying more for their care. In some cases, healthcare providers may take advantage of information asymmetry by charging higher prices for services that patients may not fully understand or need. Research shows that 10 per cent of patients receive unnecessary tests or treatments due to lack of information or knowledge about the best course of action (Grimshaw, 2012), leading to higher increased healthcare costs. Moreover, healthcare providers do not always have access to transparent information about the costs of medical supplies or pharmaceuticals, which can make it challenging to provide affordable care to their patients.

Moreover, there is substantial variation in patient costs between the public and private sectors, especially for the non-communicable diseases. On their research to quantify patients' payment for non-communicable diseases in Kenya, Subramanian et al. (2018) found that stage III cervical and breast cancer treatment cost was Ksh 500 higher at private facilities than public facilities. The cost and quality of cancer treatment in Kenya has driven up numbers of Kenyans seeking medical attention in India (Wangai et al., 2022). According to a 2016 report by the Indian High Commission in Kenya, around 10,000 Kenyans travel to India each year for medical treatment. However, this number is

likely to have increased in recent years, as the trend of medical tourism to India has continued to grow.

The rapidly evolving nature of medical research and the increasing complexity of treatments and interventions can make it difficult for patients and healthcare providers to keep up with the latest information, resulting in information asymmetry. In survey done by UN-Habitat in 2016, most Kenyans do not pay for insurance plans due to complex and difficult language that they do not fully understand, making it challenging for individuals to fully grasp the details of their coverage, thus relying on out-of-pocket healthcare expenses. In other cases, insurance companies do not always provide clear and transparent information about the details of their coverage. For example, individuals may not have access to information about the specific medical services that are covered under their plan, which can make it difficult to plan for health care expenses.

The CAK is responsible for regulating and enforcing competition laws in Kenya, which includes addressing issues related to information asymmetry in the healthcare sector. It requires healthcare providers, insurers, and pharmaceutical companies to disclose information about their prices, services, and products, helping to ensure that consumers have access to accurate and up-to-date information for informed decision-making. Moreover, CAKs effectiveness in addressing information asymmetry can be enhanced through robust collaboration with other government agencies, such as the Ministry of Health, the Communications Authority, and the Kenya Medical Practitioners and Dentists Board. These collaborations facilitate the sharing of expertise, resources, data, and the development and implementation of coordinated policies and interventions.

Moreover, the sector faces dynamic emerging issues which the CAK and the associated agencies need to address. Even though the rise of telemedicine and virtual care has the potential to improve access to healthcare, it might lead to information asymmetry between patients and healthcare providers, as providers may have limited access to a patient's full medical history or may struggle to perform a comprehensive examination remotely. The increasing reliance on social media and online sources for health information contribute to information asymmetry, as the quality and accuracy of information available online may vary significantly. Misinformation and 'fake news' related to health issues could lead to confusion and potentially harmful decisions. Addressing these emerging issues requires a multifaceted approach, involving collaboration between healthcare providers, policy makers, technology companies, and patient advocacy group. The strategies include investing in research and education to ensure that healthcare providers and patients have access to accurate, reliable, and up-to-date health information.

b) Transport sector

When transport providers have more information than consumers, they charge higher prices for their services, which increases transportation costs for individuals and businesses. This leads to higher costs of living, as citizens may need to spend more money on transportation to get to work, school, or other essential destinations. The attempts to regulate fares through various initiatives have generally faced several challenges and have not resulted in a comprehensive, standardized fare system for *matatus* across the country. It is a market-driven pricing sector where fares are often determined by supply and demand factors, and competition among *matatu* operators. This makes it difficult to implement a standardized fare system that accommodates the market's dynamic nature. Consumers rely on social media sites to review the information on safety records or quality of service of the public transport, which is not always reliable or accurate, as the information is based on individual experiences and opinions and, as such, consumers may not make accurate information based on that feedback.

Attempts to standardize fares has faced resistance from *matatu* operators who may view such regulations as a threat to their income, especially during peak hours. The power imbalance between drivers and passengers leads drivers to prioritize their own convenience over the safety of their passengers, which can put passengers at risk. For example, drivers may speed, overload their vehicles, or take shortcuts through unsafe areas, all of which can result in accidents or other safety incidents.

Even though the government through CAK and NTSA has introduced regulations aimed at improving transparency and consumer protection, there is need for strengthened enforcement mechanisms such as requiring transport operators to display fare charts and implementing safety standards for public transport vehicles. Implementing the Rapid Bus Transit (BRT) system will provide a more organized, reliable, and affordable public transport option for commuters. This could help reduce dependence on informal matatu services and promote more equitable access to transportation. The "*Barabara Watch*" Initiative, "Save a Life" initiative among other initiatives by NTSA educate consumers about their rights and the importance of accessing accurate and reliable information on safety. It empowers them to make more informed choices and demand better services from transport providers.

The emerging issues in this sector concern the ride-hailing platforms, which use algorithms to determine fares based on supply and demand. This results to surge pricing, which increases fares during high-demand periods. Consumers may not fully understand how these algorithms work or how the fares are determined, creating information asymmetry, and limiting their ability to make informed decisions. Moreover, the increasing adoption of electric vehicles raises concerns about the availability of charging infrastructure and the transparency of charging costs. Consumers may not have access to sufficient information about the location, availability, and pricing of charging stations, leading to information asymmetry.

c) Housing rental sector

In the rental housing sector, landlords often have more information than tenants. Landlords have more knowledge about the condition of the property, the rental market, and legal requirements, while tenants have limited information about these aspects. As such, tenants may make decisions that are not in their best interest, such as agreeing to unfavourable lease terms or paying too much for rent. A study by the Competition Authority of Kenya (2020) revealed that tenants often have limited access to information on rental prices, quality, and standards, making it difficult for them to make informed decisions when choosing rental property. Further, there is lack of standardization in the residential rental sector in Kenya, which has resulted in a wide range of rental prices for similar properties, making it difficult for tenants to determine a fair rental price. Many tenants have reported issues related to security deposits, such as landlords withholding the deposit without justification, which creates a sense of mistrust between tenants and landlords, further exacerbating information asymmetry. Also, challenges with property management, such as landlords failing to address maintenance issues in a timely manner has resulted in decreased quality of living for tenants. With the stated limitations, tenant protection is limiting, and poses a challenge to tenants seeking redress.

Ideally, landlords who have more information about the rental market and the condition of their property may be more likely to overprice their rental units. This means that tenants end up paying rent that is more than the market value, leading to a higher cost of living. Tenants with limited information about lease terms end up agreeing to unfavourable rental conditions, such as high security deposits or unexpected fees, which can increase the cost of living. Moreover, tenants with limited information about the rental market may have difficulty finding suitable rental properties that meet their needs and budget. This can lead to a longer search period and potentially higher costs associated with temporary housing or storage of belongings.

The lack of knowledge by the tenants about their legal rights and protections may be taken advantage of by landlords who engage in unfair practices, such as illegally increasing rent or withholding security deposits. This can lead to higher costs associated with legal disputes, or the need to relocate to a new rental property.

Like other sectors, the rental sector faces limited enforcement of existing regulations to promote transparency and protect tenants in the rental sector. Also, there is limited access to information on property ownership in Kenya, which makes it difficult for tenants to verify the legitimacy of landlords or agents. Tenants in the informal rent market are more exposed to unsafe or low-quality rental properties owing to less monitoring in the informal sector. Moreover, there is limited tenant education, which limits tenants understanding of their rights and responsibilities, making it difficult for them to make informed decisions about their rental agreements.

The sector has experienced various emerging informational asymmetry issues. The rise of short-term rentals through platforms such as Airbnb has introduced new challenges related to information asymmetry. Guests may not have accurate information about the property, its location, or its amenities, while hosts may not have complete information about the guests' rental history or behavior. The increasing use of online rental platforms can create information asymmetry if these platforms fail to verify the accuracy of property listings, pricing, and other relevant information. Tenants may encounter misleading listings, hidden fees, or inaccurate descriptions of the property, making it difficult to make informed decisions.

11.5 Market Externalities

Market externalities occur when the production or consumption of a good or service affects the well-being of individuals or entities who are not directly involved in the transaction, resulting to misallocation of resources and the inefficient provision of goods or services. Production that generates pollution, or consumption patterns of individuals such as excessive use of private cars in urban areas resulting to traffic congestion and increased air pollution, cause negative externalities. Addressing market externalities requires policies that internalize the costs of negative externalities and promote efficient use of resources, such as taxes, subsidies, or regulations.

In control of externalities, the government has implemented environmental regulations to control negative externalities associated with pollution and waste. Further, it has implicitly utilized taxes and subsidies to internalize the costs or benefits associated with production or consumption. The use of public education and awareness campaigns has been popular especially in promoting environmental protection and healthy lifestyles. For instance, the Green Belt Movement (GBM) promotes environmental conservation, sustainable development, and women's empowerment through community-based tree planting and reforestation initiatives. The Tobacco Control Campaign by the Ministry of Health discourages smoking to reduce negative externalities associated with poor health outcomes.

The Competition Authority of Kenya, which is mandated to address market externalities, has been actively engaged with NEMA to investigate cases of environmental pollution caused by factories and other industrial activities. In 2016, NEMA penalized London Distillers Kenya Limited (LDK), a leading alcoholic beverages manufacturer, for discharging untreated effluent into the Athi River, causing pollution and negative externalities for local communities and the environment. In the case of overfishing in Kenya's coastal waters, the Kenya Fisheries Service (KeFS) and the Kenya Maritime Authority (KMA) play critical roles in regulating, monitoring, and managing fisheries resources. These agencies, along with NEMA, collaborate to protect marine ecosystems, ensure sustainable fishing practices, and address market externalities associated with overfishing. The enforcement

of the plastic bag bans in Kenya in 2017 to address the negative externalities associated with plastic waste, such as pollution, harm to wildlife, and environmental degradation has been a significant success.

While policy, legislative and regulatory framework have established mechanisms to address market externalities, there are still some areas of improvement. In some cases, policies, laws and regulations have been inadequately enforced due to limited resources. NEMA has limited resources for monitoring air quality and emissions, making it difficult to identify polluters, assess compliance with regulations, and enforce penalties for non-compliance. Strengthening enforcement capacities has the capacity to improve the effectiveness of existing mechanisms. Moreover, limited coordination among government agencies has led to duplication of efforts or gaps in addressing market externalities. For instance, the management of waste in Kenya involves multiple government agencies, including NEMA, the Ministry of Environment and Forestry, the Ministry of Health, and county governments. The limited coordination among these agencies has led to gaps in waste management, with some areas experiencing high levels of pollution and waste, while others lack proper waste disposal facilities.

Notably, there are several emerging issues in addressing market externalities in Kenya that can have significant implications for the country's economic development, public health, and environmental sustainability. The rapid urbanization is increasing pressure on housing, infrastructure, and public services, leading to negative externalities including traffic congestion, air pollution, inadequate waste management, and strain on water and energy resources. Proper urban planning would be key to sustainable infrastructure development, and efficient public services. Further, climate change poses a significant threat to Kenya's agriculture, water resources, and ecosystems, leading to negative externalities such as food insecurity, water scarcity, and loss of biodiversity. Addressing climate change requires the adoption of climate-smart agriculture, efficient water management practices, and investment in renewable energy sources.

The growing use of electronic devices and the subsequent disposal of electronic waste (e-waste) leads to soil and water pollution, and public health risks due to hazardous materials. As such, there is need to develop and enforce e-waste management regulations and develop public awareness campaigns and recycling programmes. Moreover, a significant portion of Kenya's economy operates within the informal sector. This leads to negative externalities such as substandard working conditions, tax evasion, and environmental degradation. To address informalization, there is need for continuous promotion of formalization of the informal sector, which promotes compliance with labour and environmental regulations and provides support to small businesses.

a) Healthcare sector

Negative market externalities in the healthcare sector result from activities that have harmful effects on public health or healthcare costs. Industries that generate pollution have negative externalities by contributing to environmental degradation and associated health problems, such as respiratory diseases. KEMRI (2016) approximated 21,600 premature deaths in Kenya due to air pollution, with an economic cost of Ksh 68 billion in 2016 only. Healthcare costs impact disposable income by allocating a significant portion of an individual's or family's disposable income, leaving less money for other essential expenses, such as housing, food, and transportation.

Other forms of externality in healthcare sector are the abuse of drugs. For instance, the overuse or misuse of antibiotics leads to the development of antibiotic-resistant bacteria, which has far-reaching consequences that affect public health, healthcare costs, and the broader economy. The use of over the counter (OTC) medines due to its convenience and accessibility leads to negative consequences

that impose costs on society beyond the individuals using the drugs. High healthcare costs due to market externalities negatively impacts household budgets, leading to difficult trade-offs between healthcare expenses and other essential expenses, such as housing, food, and education.

The government uses a range of tools to address market externalities in the healthcare sector. It has set standards for the disposal of medical waste and established limits on the emissions of pollutants from healthcare facilities. Though not implemented, it has set out to imposes taxes on polluting activities to encourage healthcare providers to adopt more sustainable and cost-effective practices. In addressing unequitable distribution of healthcare resources, the government provides the subsidies to healthcare providers that offer affordable or free healthcare services to low-income individuals or those living in rural areas through NHIF.

Controlling market externalities in the healthcare sector is faced by a myriad of emerging issues. Kenya faces ongoing challenges from infectious diseases such as HIV/AIDS, malaria, and tuberculosis. The burden of these diseases has significant implications for healthcare costs, resource allocation, and public health. Additionally, the risk of new emerging infectious diseases and potential pandemics, such as COVID-19, remains a concern. Moreover, the rising prevalence of non-communicable diseases (NCDs) including diabetes, heart disease, and cancer is placing an increasing burden on Kenya's healthcare system.

The rise in infection is against inadequate healthcare infrastructure, particularly in rural and remote areas consequently increasing the healthcare cost. Even for the available infrastructure, the country faces shortage of healthcare professionals, particularly in rural areas, which limits access to healthcare services and leads to poorer health outcomes. Addressing this shortage requires investments in healthcare education and training, and incentives to retain and attract healthcare professionals. The increasing prevalence of mental health disorders in Kenya is placing a growing burden in the healthcare systems. Mental health issues lead to decreased productivity, increased use of healthcare resources, and societal costs related to disability, unemployment, and homelessness.

b) Transport sector

The externalities associated with the transport sector occur particularly in relation to environmental pollution and congestion. Transport activities, particularly those involving fossil fuel-powered vehicles, generate harmful emissions such as carbon dioxide, nitrogen oxides, and particulate matter. These emissions contribute to air pollution, which can have negative impacts on public health, including respiratory problems and cardiovascular diseases. In urban areas, transport activities contribute to traffic congestion, which can have economic and social costs, including lost productivity and time, increased fuel consumption, and increased greenhouse gas emissions. KIPPRA (2019) estimated that economic cost of traffic congestion in Nairobi was approximately Ksh 50 billion per year.

The government has invested in the development of new road infrastructure, including highways, bypasses, and expressways, to reduce congestion on existing roads. The implementation of traffic management measures such as traffic lights, roundabouts, and one-way roads has improved the flow of traffic and reduced congestion. The CAK has also worked with other government agencies and stakeholders to promote sustainable transport practices and reduced the negative impacts of transport activities on the environment and public health. For example, the Authority has partnered with NTSA to promote road safety and to address externalities, such as accidents and fatalities resulting from unsafe transport practices.

However, regarding reduction of emission, the tools of interventions remain unused. The possibility of setting regulations and

standards to limit emissions from vehicles and to promote more sustainable transport practices has not been implemented. The possibility of imposing taxes and fees on high-emission vehicles or on activities that contribute to congestion, such as driving during peak hours, is unexplored.

Some of the potential interventions that the government could explore include establishing and enforcing strict emissions regulations and standards for vehicles, for example mandatory emissions testing and limits on the amount of pollution vehicles can produce. Investing in the expansion and improvement of public transport systems will provide more efficient, reliable, and sustainable alternatives to use of private vehicles. This includes the development of mass transit systems such as buses, trains, and light rail, and improvements to existing transport infrastructure. Integrating land use and transport planning to encourage more compact, walkable, and transit-oriented development would reduce the need for use of private vehicles and promoting more sustainable transport options.

c) Housing rental sector

In the rental housing sector, market externalities have significant implications for both landlords and tenants, and the broader community and economy. When an area undergoes gentrification, property values and rental prices often increase, leading to displacement of low-income residents who can no longer afford to live there, resulting to social and economic disparities, and increased demand for affordable housing in other areas. The rental sector further experiences neighbourhoods spillover effects. Well-maintained properties increase property values and enhance the overall desirability of the neighbourhoods, resulting in positive externalities while poorly maintained properties contribute to neighbourhoods decline, lowering property values and creating negative externalities.

The current high demand for rental housing in urban areas has led to overcrowding, with multiple families or individuals sharing a single dwelling resulting to negative externalities such as increased noise, strain on local infrastructure and services, and public health concerns. Further, poorly maintained, or substandard rental properties pose health and safety risks to tenants, such as exposure to mold, pests, or hazardous materials. These conditions result to negative externalities, including increased healthcare costs and negative impacts on tenant well-being.

The government has used various tools to address externalities in the rental sector. The Rent Restriction Act of 1984 and the Landlord and Tenant (Shops, Hotels, and Catering Establishments) Act of 1987 were established to regulate rent control in Kenya. The Rent Restriction Act regulates the amount of rent that a landlord can charge tenants in certain urban areas, based on the size and location of the rental unit. The Act also provides for the establishment of Rent Restriction Tribunals, which are responsible for adjudicating disputes between landlords and tenants. The Landlord and Tenant (Shops, Hotels, and Catering Establishments) Act regulates the rent of commercial properties such as shops, hotels, and catering establishments charged by landlords.

However, there have been criticisms of the rent control policies in Kenya. Some argue that the policies discourage landlords from investing in rental housing, which can lead to a shortage of affordable housing units. Further, landlords find ways to circumvent the policies, for example by charging tenants additional fees outside of rent or by reducing the quality of rental housing, while tenants find ways of circumventing their end of bargain. The Housing and Regulation Policy (2012-2013) aims to improve the quality of rental housing and promote responsible behaviour by landlords and tenants to promote sustainable urbanization. Moreover, the Tenant-Landlord Dispute Resolution Framework aims to provide tenants with access to justice and protect them from exploitation by landlords.

11.6 Key Messages and Recommendations

11.6.1 Key messages

1. The evolving market dynamics require updated competition and sector-specific regulations to effectively address gaps that cause market power imbalances. Rapidly growing technology-based markets such as Jumia and Airbnb are outpacing the existing regulations. In emerging sectors such as renewable energy, there is implementation gap between naturing innovation and facilitating market entry for newcomers. Moreover, addressing market power imbalance among MSEs is faced with the challenges of surveillance and enforcement due to the fragmented and informal nature of the sector. This is aggravated by traders' limited awareness of anti-competitive practices.

2. Information asymmetry persists due to various factors that create barriers for consumers. Technical language on product labels, which is primarily in English and Swahili, excludes minority language speakers from understanding product ingredients or packages. This is compounded by inadequate standardization of packaging of products. Also, Kenya transitions to a digital market-based economy, the digital divide disproportionately affects rural populations as they lack access to Internet infrastructure and the necessary skills to navigate the online markets.

3. Rapid urbanization exacerbates market externalities by increasing pressure on housing, infrastructure, and public services, resulting to traffic congestion, air pollution, inadequate waste management, and strain on water and energy resources. Another growing externality arises from escalating use of electronic devices and improper disposal of electronic waste (e-waste), which contributes to soil and water pollution and poses public health risks. Prevalent too is the abuse of medicated drugs and the emergence of infectious diseases, such as COVID-19, which create significant cost implications, affect resource allocation, and negatively impact overall public health.

11.6.2 Policy recommendations

1. Develop adaptable and comprehensive competition and sector-specific regulations that keep pace with evolving market dynamics to accommodate emerging technologies and industries.

2. Update the competition framework to accommodate the unique barriers of MSEs, which would ease their regulatory surveillance and enforcement mechanisms.

3. Implement multilingual product labelling and standardization, incorporating minority languages to cater for all consumers including the minority.

4. Establish and enforce standardization guidelines for consumer goods, making it easy for customers to compare and understand products. Moreover, ensuring consistency in product labelling and specifications enables customers to make more informed decisions.

5. Bridge the digital divide by establishing Internet infrastructure and Internet education in rural areas.

6. Enhance the implementation of sustainable urban planning that prioritize efficient land use, improved public transportation, and eco-friendly infrastructure.

7. Establish and enforce comprehensive e-waste management policies that promote recycling, safe disposal, and the use of environmentally friendly materials in the production of electronic devices.

8. Strengthen healthcare systems to manage the burden of infectious diseases and address the growing abuse of medicated drugs.

CONCLUSIONS AND POLICY RECOMMENDATIONS

12

12.1 Conclusions

Macroeconomic Performance and Medium-Term Prospects

1. Kenya's economy recovered strongly in 2021 following a recession experienced in 2020, which was occasioned by the effects of the COVID-19 pandemic. The emergent economic recovery was disrupted in 2022 by the prolonged drought conditions that stifled agricultural performance, thus widening the output gap and resulted into increased food prices. Overall, the economy grew by 4.8 per cent in 2022 compared to a growth rate of 7.6 per cent in 2021. Agriculture contracted by 1.6 per cent while the services sector grew by 7.0 per cent and manufacturing had a growth of 2.7 per cent.

2. The country's medium-term growth outlook faces downside risks. The major risks to the outlook are weather shocks and uncertainty arising from the Russia-Ukraine war. On the upside, the country is leveraging on macroeconomic and political stability, and the implementation of priority projects and programmes under the Bottom-Up Economic Transformation Agenda to spur economic growth in 2023 and beyond. Reopening of the global and domestic economy after the COVID-19 pandemic presents a great opportunity for the recovery of all the sectors, especially the services sector.

3. While the economy sustained macro stability in 2022, inflation pressures persisted, breaching the upper band for the first time since 2017. Monetary policy tightening began on time before the inflation rate crossed the upper target band and was conducted successively, increasing the policy rate by 175 percentage points in a span of six months. The banking sector remained resilient, with most soundness indicators remaining consistent with the statutory thresholds. Nonetheless, in 2022, the ratio of non-performing loans to gross loans was 13.95 compared to 13.93 in 2021.

4. Fiscal results for the first three quarters of 2022/23 show the fiscal position improved at the end of March 2023 as fiscal deficit amounted to 3.5 per cent of GDP compared to 4.1 per cent of GDP in the same period in 2021/22, reflecting commitment to the fiscal consolidation path. Revenue and grants as a share of GDP was 11.7 per cent of GDP compared to 12.1 per cent in the same period in 2021/22, while expenditure and net lending amounted to 15.2 per cent of GDP compared to 16.2 per cent of GDP in March 2022.

5. Public debt stock was Ksh 9.4 trillion as of March 2023, against the Ksh 10 trillion ceiling. External debt was 51.7 per cent of total public debt stock, dominated by multilateral debt, which accounted for 46.3 per cent while commercial debt and bilateral debt components accounted for 25.8 per cent and 24.7 per cent, respectively. Moreover, Kenya faces high risk of debt distress, although external debt sustainability indicators are projected to improve in the medium-term and remain sustainable.

6. The current account position weakened due to weak merchandise trade balance but has continually been bolstered by strong diaspora remittances, which accounted for 62.2 per cent of secondary income account. Further, the Kenya shilling yielded to the pressure on external account and strengthening of the dollar in global markets and

experienced significant depreciation. In 2022, the Kenya shilling exchange rate against the US$ was 117.9 compared to 109.6 exchange rate in 2021.

7. Sectoral forecasts indicate recovery in all sectors. The overall growth will be supported by activities in the services sector. Accommodation and food services sector is expected to grow by 20.1 per cent in 2023, driven by recovery in the tourism industry. The information and communication sector is an enabler that supports activities in the various sectors and is projected to grow by 7.2 per cent in 2023 and average 8.4 per cent in the medium-term. Notably, the agriculture sector is envisaged to grow by 2.1 per cent in 2023, on assumption of improved weather conditions. Growth in the agriculture sector will be key in attaining growth of more than 5.5 per cent in 2023, as the sector has contracted in two consecutive years. Therefore, the government investments targeted to improve agricultural productivity are timely.

8. The economy is projected to grow by 5.7 per cent in 2023 and, on average 6.1 per cent in the medium-term, supported by growth in all sectors, indicating a broad-based growth. The growth will also be driven by investments and exports, anchored on investments in the Bottom-up Economic Transformation Agenda. Cognizant of the downside risks, economic growth may slow down to 5.5 per cent in 2023 and average 5.8 per cent in the medium-term in the event the risks materialize.

Inflation Dynamics in Kenya

9. Inflation in Kenya is a food phenomenon underlined by droughts. Inflationary episodes occur in periods when the country experiences erratic rainfall and prolonged drought conditions. Poor rainfall affects agricultural production and therefore food supply. Considering that food and non-alcoholic beverages account for 32.9 per cent of the consumer basket, disruptions in food supply results into increased food prices, which in turn pushes overall inflation.

10. While overall inflation rates averaged 7.7 per cent in 2022 and remained above the government upper target band of 7.5 per cent, overall inflation had breached this target band in the past. Notably in 2017 and 2011, the overall inflation averaged 8.0 per cent and 14.0 per cent, respectively. At the point of crossing the upper target band, inflation rate was 9.2 per cent in March 2011 and took nine (9) months to peak at 19.7 per cent in November 2011. Thereafter, it took seven (7) months to return to the target band. In 2017, inflation rate crossed the target band in February at 9.0 per cent and took about four (4) months for inflation rates to reach the peak of 11.7 per cent in May 2017. Thereafter, inflation rates took three (3) months to return to the target band.

11. In addition to domestic supply shocks, overall inflation is driven by exchange rate depreciation, which increases the cost of imported goods and services; and global food and commodity supply chain disruptions, which rally international food and oil prices. Moreover, increased money supply intensifies inflationary pressures. This implies that even with efforts to address supply-side factors, demand pull inflation cannot be ignored.

12. Second round effects of oil prices and food prices on core inflation exist and differ by magnitude and timings. Oil price second round effects are immediate and peak after three quarters, while food prices second round effects delay and begin after about 2.5 quarters and peak after six quarters. Potential wage-price spiral effects are revealed in the labour market as labour unions escalate wage negotiations during inflation episodes to cushion workers from the high cost of living.

13. Adjustment of inflation rates towards the government target band after a breach is slow and could last up to a maximum of

seventeen (17) months or 1.5 years. This is an important aspect for consideration in the conduct and timing of monetary policy responses.

Food Inflation and Cost of Living

14. Households spend a significant portion of their income on food (54.3%), with low-income households spending more than 60 per cent of their expenditures on food. Therefore, high food prices reduce access to adequate food in terms of quantity and quality. In addition, poor households are forced to cut back on spending on other essential items such as health, sanitation, clean water and education. This pushes them into poverty and makes them more susceptible to poor health and malnutrition.

15. The key drivers of food inflation include low rainfall and high fertilizer prices, which constrain food production, reduce food supply and hence contribute to high food prices. High energy prices contribute to increase in the cost of production, thus directly increasing food prices. In addition, global food inflation and depreciation in the Kenyan shilling expose the country to high cost of imported foods, which is transmitted to domestic food prices.

16. Further, investments in enhancing agricultural productivity are hampered by gaps in the food supply chains that contribute to import dependency and post-harvest losses. Poor market infrastructure, such as poor rural roads/feeder roads, and poor market information flows contribute to distribution constraints, and to food surplus and wastage in some parts of the country while other parts experience food shortages.

Minimum Wage and Cost of Living

17. Minimum wage in Kenya plays a critical role in providing a basic standard of living for the low-income earners, thus cushioning them against the high cost of living. It is regulated by law compelling every employer in Kenya to adhere to the statutory legislation on the implementation of minimum wage. The setting of minimum wage rate is recommended by the Wage Council and involves representatives from COTU, FKE, and the government (represented by the Ministry of Labour and Social Protection, and the National Treasury and Economic Planning). The Wage Council considers the cost of living and the current economic situation to recommend for adjustment in the minimum wage rate. The recommended minimum wage is then submitted to the Cabinet Secretary in charge of labour matters for consideration and implementation in accordance with Section 44 of the Labour and Institutions Act of 2007.

18. Minimum wage is subject to annual revision and is announced on the 1st of May. The minimum wage was reviewed in 2022 after the last review that was done in 2018. The minimum wage rates are different in sectors and occupations covered in the Wages Orders. Minimum wage earners for urban areas and skilled occupations receive a higher minimum wage compared to their counterparts in rural areas and unskilled occupations.

19. Trends in minimum wage reviews have not kept pace with the rising cost of living. The increase in the cost of living has eroded the purchasing power of income earners. There has been a decline in real earnings since the advent of the COVID-19 pandemic. In 2021, real earnings, which measure the purchasing power of the average wage, dropped by 3.8 per cent, whereas real minimum wage declined by 6.7 per cent in the same year. This suggests that the impact of inflation is higher on minimum wage earners compared with other income earners. This calls for adequate adjustment of minimum wage rates.

20. While Kenya has a legal minimum wage framework in place, the effectiveness of this system in ensuring that workers are paid a fair wage may be constrained by enforcement and compliance limitations.

Foremost, minimum wage enforcement in the informal sector is limited by the high incidence of informality. Therefore, workers in the informal sector may not have the same labour protection and benefits as those in the formal sector, including minimum wage law. Majority of the workforce operate in the informal economy, accounting for 83 per cent, which is shaded by non-compliance. The limited enforcement is majorly attributed to inadequate capacity in terms of staff numbers and resources, high incidence of informality, and limited information and awareness by employees and employers. The government agencies responsible for enforcing minimum wage include the Ministry of Labour and Social Protection, the National Employment Authority, and the Labour Court.

21. The minimum wage in Kenya only covers about half of the living wage, which is still inadequate to provide a worker with a decent life. As a result, it is challenging for workers to cover the cost of basic and essential commodities required to sustain themselves. Out of the basic components that form the minimum wage basket, the cost of food, and housing and amenities were the key drivers of the high cost of living for households.

Role of Credit Market in Managing the Cost of Living

22. The credit market offers different products that can be used by households to smoothen expenditures when faced with income shocks. The 2021 FinAccess household survey reveals that households experienced major income shocks, including high cost of living, health-related incidents, job losses, and deaths. Households do not have adequate buffers against these shocks.

23. To cope with such shocks, households employ various strategies depending on the nature of the shock. However, adequate coping strategies seem unfeasible for most households, with the use of products from formal credit market and insurance less common. When responding to shocks, particularly high cost of living, households are forced to cut down on consumption spending and rely on social networks. However, these strategies are ineffective in coping with widespread and protracted shocks. Further, cutting down on spending may push some households back to poverty.

24. Some households use savings as a coping mechanism, particularly for the high cost of living and health-related shocks. However, for prolonged shocks, savings may be depleted, and for poor households they may have limited savings to rely on. Households particularly in rural areas rely on sale of productive assets, especially livestock, when faced with shocks such as high cost of living. This strategy may be detrimental to their general productivity and expose them to risks of poverty. Other shocks managed by sale of assets are sicknesses and climate-related events such as droughts.

25. Although borrowing is used by households to cope with high cost of living and other income shocks, it is mainly informal. Households particularly in rural areas tend to access credit from outside the formal channels, such as *Chamaas,* and social networks. The choice of borrowing channel is driven by availability and convenience, with very few paying attention to cost considerations. This may expose them to risks of expensive credit. Households with access to formal credit are educated, and employed in the formal sector, and use it to manage high cost of living and health-related challenges.

26. While health insurance cover is an effective protection against health-related events and other income shocks, its use as a coping strategy is low compared to other strategies. Households use insurance to manage health-related shocks. Further, the use of insurance revealed great disparities across gender, with males more likely to use insurance cover.

Leveraging on Food Manufacturing Towards Lowering the Cost of Living

27. Manufacturing facilitates stabilization of consumer prices through processing of primary products such as fruits, vegetables and grains, which are key to sustain the supply of food by cushioning against seasonality. Manufactured food products account for 24.8 per cent of the consumer expenditure basket, thus having substantial implications for the cost of living.

28. Food manufacturing cost is majorly attributed to high cost of raw materials. Raw materials that are sourced domestically are prone to droughts that disrupt agricultural production, while those that are imported are prone to price changes in international markets. Consequently, food manufacturing costs affect consumer prices as manufacturers reflect price changes through producer prices. Thus, changes in manufacturing producer prices serve as an early warning indicator of consumer price changes.

29. While importation of raw materials for food processing is used to bridge local supply deficits, it has cost implications. The dependence on imported raw materials creates exposure to changes in the regional and global markets.

30. The MSEs account for 86 per cent of Kenya's food manufacturing enterprises yet contribute only 10 per cent of the manufactured food output. This implies there are unexploited opportunities to enhance the capacity of MSEs to contribute to the supply of manufactured food products. The MSEs face constraints related to technology upgrading attributed to constraints in access to finance and skills and low investments in Research and Development (R&D). Further, MSEs face constraints related to utilization of existing capacity due to limited market access, supply of raw materials and policy uncertainty. This is also considering that over 80 per cent of the food manufacturing MSEs operate in the informal sector, where they face multiple barriers related to infrastructure, access to markets, skills and compliance with health and food safety standards.

31. The institutions mandated to support the transformation of MSEs through technology and innovation transfer, and compliance with standards are constrained by budgetary resources and coordination framework. Recently, the government has made efforts to address these gaps through centres of excellence, such as the Kariobangi MSEs Centre of Excellence. This initiative is, however, still on a limited scale as it is yet to be replicated in other areas. This intervention creates a one-stop-shop for MSEs in accessing essential services such as incubation, product certification, capacity building and registration of intellectual property rights.

Trade and Cost of Living

32. Trade is the channel that links consumers with markets, and cost effects along the supply chain affect the allocative and pricing function of trade, with implications on the cost of living. Logistics (distribution and warehousing) and adjustments in the prevailing tax are specific channels through which cost effects are propagated to commodity prices.

33. Information asymmetry between government and players in the consumer goods value chain creates artificial shortages and pricing distortions. This was manifested in incidences of government moving to import food commodities, only for the local farmers and millers to indicate the country had enough food stocks.

34. Distributional bottlenecks are hindering distribution of consumer goods from regions with surplus to regions with shortages. This has manifested in differentials in retail prices across counties producing cereals commodities and those that do not.

35. Diversifying import sources for unmilled wheat from Russia could cushion consumers against price increment driven by distributional bottlenecks associated with the Russia-Ukraine war. This is because Russia is the second largest import source for Kenya's imports of unmilled wheat.

36. Marginal reduction of VAT on animal fats and vegetable oils could ease the cost of living among poor households in Kenya's rural areas. Although government expenditure on social protection would still be needed, the expenditures would be lower in a scenario with marginal reduction of VAT on animal fats and vegetable oils.

Accelerating Adoption of Electric Mobility for Affordable and Sustainable Transport in Kenya

37. Electric mobility is instrumental in achieving affordable and sustainable transport in Kenya. The current mobility model is dominated by imported second-hand fossil fuel vehicles. Transport accounts for 9.65 per cent of total household expenditures. With high fuel prices, households experience rising transport costs, which affect their ability to meet their needs. High fuel prices impose a fiscal burden on the government budget when fuel subsidies are offered.

38. The transport sector is a key contributor of greenhouse carbon emissions due to the sector's predominant use of fossil fuel. It is noted that Nairobi City has PM2.5 levels five times higher than the 2021 WHO recommendations, which pose a public health concern. In addition, reducing reliance on fossil fuels by adoption of electric mobility is a strategic policy shift towards having affordable and sustainable transport.

39. The electric mobility sector is in its early stages in Kenya with a potential to grow. The country has experienced increased number of innovations and startups targeting the 2 and 3-wheelers. Notably, Kenya is home to over 2 million motorcycles and majority of the riders are showing interest to convert their motorcycles to be electric because of the ability to save on fuel and maintenance while doubling their income.

40. Retrofitting offers a promising complementary solution to new vehicles. Retrofitting of fossil fuel engines to electric will help cut down the shifting costs and reduce carbon emissions. Further, equipping the electric mobility sector with technical automotive skills for engine conversion will build a home-grown supply chain for 2 and 3-wheelers. Further, the sector requires technical standards to guide retrofitting necessary for successful conversion to electric mobility.

41. Electric mobility presents an opportunity to generate additional funds required to support maintenance, rehabilitation and development of roads that depend on the fuel levy collections. Additional funds will be key to complement the fuel levy in supporting the development of infrastructure, including charging facilities for innovations and startups in the sector.

42. Electric mobility requires adequate charging infrastructure and network, and maintenance and after-sale service facilities in public strategic locations and routes for electric vehicles.

43. The electricity sub-sector generates more power than the demand by over 800 MW, with a huge potential to generate more electricity from geothermal sources presenting a strong platform for clean and cheap electricity for electric mobility. Upgrading and modernizing the power grid will improve power reliability and promote smart charging.

Government Interventions Towards Making Markets Work

44. Government interventions play a critical role in promoting well-functioning markets that provide availability, accessibility, and affordability of quality

goods and services. Market failures, often caused by imbalanced market power, information asymmetry, and negative market externalities can be corrected through government interventions.

45. The changing market landscape necessitates modernized, industry-specific regulations to efficiently tackle disparities that result in power imbalances. The expanding technology markets are outpacing the traditional regulatory frameworks, giving rise to difficulties in oversight and monitoring. In emerging sectors such as renewable energy, a gap exists between promoting innovation and enabling a competitive environment for new entrants. Addressing power imbalance among MSEs is made complex due to the dispersed and informal nature of the sector, thus posing regulatory hurdles for authorities to undertake surveillance and monitor the sector. This problem is exacerbated by inadequate understanding of anti-competitive practices among MSEs.

46. The presence of information asymmetry persists in the markets. The use of technical language in English and Swahili on product labels excludes minority language speakers from fully grasping the information of product labels. Additionally, inadequate standardization in consumer goods complicates comprehension for the average customer. As Kenya transitions to a digital economy, the digital divide disproportionately affects rural populations. These communities are disadvantaged compared to urban dwellers who have better access to Internet infrastructure and the necessary skills to navigate the digital market.

47. Accelerated urbanization intensifies market externalities by placing greater demands on housing, infrastructure, and public services, resulting in adverse outcomes such as traffic jams, air pollution, insufficient waste management, and stress on water and energy resources. Furthermore, the rising use of electronic devices and incorrect disposal of electronic waste (e-waste) lead to soil and water contamination, and public health hazards from toxic substances. The increasing misuse of prescription drugs and the emergence of infectious diseases such as COVID-19 have substantial cost implications, influence resource distribution, and affect overall public health.

12.2 Policy Recommendations

To enhance macroeconomic stability to support strong growth and reduce the cost of living:

1. Accelerate investments in agriculture sector for strong growth and stable food prices. This includes enhancing of affordable inputs, upscaling irrigated agriculture and adopting climate smart practices. This will revamp the sector's resilience to weather-related shocks and provide fresh impetus for agriculture sector growth. Further, adequately budget for the services and manufacturing sector to sustain growth in these critical sectors and enhance employment creation.

2. Timely tightening of monetary policy stance during inflation episode is necessary. However, to sufficiently contain inflationary pressures and anchor inflation expectations, adjustment of the policy needs to be adequate and timely. This will also help to moderate the second-round effects of food prices and oil prices on core inflation, and wage-price spiral effects.

3. Continued adherence to established fiscal consolidation path is needed to build fiscal buffers and bring public debt towards more sustainable levels. This can be achieved through enhanced revenue mobilization by expanding the tax base, ensuring that every eligible Kenya pays their fair share of the tax, rationalizing public expenditures and cutting back vulnerabilities in state-

owned enterprises, and preferring external public debt on concessional terms.

4. Accelerate growth and diversification of export goods and services for external balance. This will involve up-scaling production of major export commodities (horticulture, tea, and coffee) and seeking new markets for exports. This will help narrow the merchandise trade deficit and ease pressure on the current account. Additionally, fostering favourable environment to encourage Kenyans in the diaspora to remit more will strengthen the secondary income account. Overall, strengthening external position will help boost foreign exchange reserves and reduce the pressure on the shilling.

5. Fast-track the implementation of priority projects and programmes under the Bottom-Up Economic Transformation Agenda to ensure sustained economic growth and improved welfare in 2023 and beyond.

6. To inform domestic macroeconomic policy direction, maintain close surveillance on monetary and fiscal policy developments within the country while also closely monitoring global trends. This will enable a comprehensive understanding of macroeconomic policy direction and facilitate informed decision-making.

To stabilize food prices, and lower the cost of living:

7. Promote crop diversification and improved crop variety, including the promotion of local indigenous food crops that are less affected by extreme weather conditions. Further, more research is imperative to ensure that drought resilient crops are supported depending on the regional climatic conditions and soil types.

8. Promote irrigation systems such as drip irrigation, utilization of underground water in the ASALs and improve water harvesting to help reduce over-reliance on rain-fed agriculture.

9. Strengthen kitchen garden technologies, including urban farming, farms in schools and other learning institutions. This would contribute to households' access of fresh food, especially vegetables and fruits for healthy diets. The produce could also add to household income as they sell the surplus while supporting home grown feeding programmes.

10. Promote post-harvest management of fresh produce to minimize post-harvest losses through agri-food processing and adequate storage facilities to help mitigate the effect of seasonal supply disturbances, thereby stabilizing prices at all seasons.

11. Fast-track the establishment of local fertilizer production plants to help reduce the country's over-reliance on high global fertilizer prices. In addition, support farmers to diversify fertilizer to include the use of organic fertilizer, which is cheaper and helps reduce the cost of food production.

12. Rehabilitate rural roads and feeder roads to help boost marketing activities and connect food markets. Balanced development of transport infrastructure could minimize price disparities in retail food markets and improve distribution logistics.

13. Promote adoption of information and communications technology to improve market information flows. The use of modern information technologies such as mobile phones, Internet, and social media can help farmers access information about market prices, weather patterns, and other critical market information. In addition, establish sustainable market information systems to support dissemination of market information to farmers and other stakeholders, thereby reducing transactional costs or market power by some actors.

14. Enhance targeted social safety net programmes to protect the poor and vulnerable groups such as orphans, elderly and people living with disabilities from food inflation shocks. Early warning systems on weather shocks to be utilized to ensure that social safety nets are in place before a crisis occurs.

To make the minimum wage an effective tool to manage the cost of living and enhance the welfare of low-income individuals, the following interventions are recommended:

15. Align minimum wage with the prevailing minimum living wage. The review should be based on the cost of living trends and current economic conditions as provided for in Section 44(5) of the Labour Institutions Act of 2007. This is in line with the Bottom-Up Economic Transformation Agenda of the government, which aims to enhance the productivity of workers in the informal sector, thereby enabling the industries to pay workers a living wage.

16. Improve compliance and enforcement of minimum wage implementation in the informal sector; the Ministry of Labour and Social Protection to have adequate enforcement officers to oversee the compliance with the minimum wage policy. In addition, increase awareness to employers and employees through awareness campaigns to educate workers about their rights under minimum wage laws. These campaigns can be conducted through various channels such as radio, television, and social media.

17. Ensure every worker eligible for minimum wage is paid as stipulated in the law. This will promote social justice and reduce poverty. The key strategies include strengthening enforcement by providing resources for enforcement agencies and ensuring that employers who violate these laws are held accountable by increasing the penalties for non-compliance.

18. Implement a comprehensive social protection system (other than minimum wage) aimed at improving the livelihoods and welfare of the poor and vulnerable sub-population, particularly those workers whose minimum wage is below the living wage. This system will include measures such as provision of affordable public transport, housing, universal healthcare, and universal education, which will help alleviate the impact of the high cost of living on minimum wage earners.

To strengthen the credit market and bolster household resilience to income shocks:

19. Deepen the formal credit market to foster access to different financial products that can be used by households to overcome various shocks such as high cost of living. Commercial banks and other financial institutions need to redesign their loans to offer products that are more responsive to challenges encountered by households when faced with income shocks. In addition, greater financial literacy could raise households' awareness and shift towards formal finance.

20. Scale up investment in social protection programmes to enable vulnerable households smoothen consumption in periods of high cost of living. The programmes need to be well targeted to ensure they benefit eligible households. This can enhance the ability of vulnerable households to increase spending on food in periods of distress.

21. Expand health insurance coverage to enable households access essential healthcare and cope with catastrophic health expenditure. This can be done by expanding the existing health insurance coverage and fast-tracking transition to universal health coverage.

It is also important to expand livestock insurance schemes to transfer risks and minimize losses associated with climate shocks and build resilience of rural households who are heavily dependent on livestock.

22. Expand the credit guarantee scheme to increase the number of participating banks to de-risk lending to households to promote access to business loans. This is critical in building long-term resilience as most of the borrowed funds are used for investment and expansion of businesses. It is also important to raise awareness on the credit guarantee scheme to increase uptake.

To leverage on food manufacturing in lowering the cost of living:

23. Reduce the constraints related to the supply of raw materials for food processing. Key considerations include strengthening the value chain that leverages on the cooperative model for economies of scale in supply of raw materials. It is also imperative to support raw material supply through infrastructure such as aggregation centres and storage facilities. The aggregation centres will help overcome low economies of scale in sourcing raw materials from individual farmers. Storage facilities, including cold storage facilities, are key when considering perishability of raw materials for food processing, such as fruits, vegetables and tubers.

24. Support food manufacturing MSEs through measures to strengthen technology upgrading and capacity utilization. Measures to expand technology include finance and skills development, while those for capacity utilization include market access opportunities, access to inputs and policy predictability. This could be considered within the broader business environment interventions of infrastructure support, such as access to worksites.

25. Strengthen the institutional support for MSEs on a model based on one-stop shop, such as the Kariobangi MSEs Centre of Excellence. Fast-tracking infrastructure and capacity building anchored on business development centre is key as articulated in the Bottom-up Economic Transformation Agenda priorities. It is also imperative to fast-track completion of the centres of excellence planned by the government in the medium-term.

To ensure the trade sector plays its allocative and pricing role:

26. Enhance transparency in the country's warehousing receipt system by finalizing development of the central registry by the Warehousing Receipt System Council (WRSC) to promote real time monitoring of the country's food stocks and inform government decisions on food acquisition and distribution. The outcome is improved efficiency in allocation and distribution of food commodities from areas of plenty to areas of shortages, thus smoothening consumption and preventing supply shortages that pull up prices.

27. Incentivize local MSEs to tap into opportunities in the local logistics industry and enhance distribution of consumer commodities from regions with surplus to regions with shortages. This is possible through expanding access to the country's Financial Inclusion Fund (Hustler Fund) among local MSEs in the logistics sector. Access to the Warehouse Receipt System by the MSEs could also enable them to use the warehouse receipts as collateral for accessing credit.

28. Diversify import sources for essential consumer goods, especially unmilled wheat to cushion consumers against rise in the cost of living emanating from distributional bottlenecks linked to the disruption of global supply chains.

29. Reduce VAT on animal fats and vegetable oils from 16.0 per cent to 14.0

per cent to cushion poorer households from rural areas against erosion in the cost of living. It raises the disposable incomes available to the households and this smoothens consumption.

To leverage on electric mobility towards affordable and sustainable transport:

30. Partner with private sector players to build adequate charging infrastructure and battery-swapping stations across the major routes in the country. Further, issue guidelines to establish charging facilities in public parking and new residential buildings.

31. Build retrofitting skills for second-hand fossil fuel vehicles with emphasis on 2 and 3-wheelers to cut down the shifting costs and reduce carbon emissions. Further, develop technical standards to guide successful retrofitting of fossil fuel vehicles.

32. Explore public private partnership in assembling, distribution and selling of electric vehicles to build a home-grown supply chain for new electric vehicles. In addition, set targets for possessing electric vehicles by public agencies to create demand for electric mobility.

33. Introduce subsidized charging fee, offer reduced insurance and license plates fees and free parking in public areas to support efforts towards accelerating the adoption of electric mobility.

34. Tap into the Hustler Fund and the Climate Change Fund to support innovations and startups in the electric mobility sector. In addition, amend the Road Maintenance Levy Fund Act to generate additional revenue from electric mobility.

35. Expand and modernize power grid to enhance distribution and billing for smart charging.

36. Fast-track the approval of the draft National Electric Mobility Policy Framework to enhance sector-wide coordination in supporting its growth.

To leverage on the government interventions in making markets work:

37. Update the competition and sector-specific regulations to keep pace with the changing market dynamics with a goal to accommodate emerging technologies.

38. Standardize packaging and product information presented in non-technical language to make it easier for the public to compare and understand the products.

39. Build digital essentials in underserved and unserved areas to bridge digital gap. This will enable more people to access and benefit from the digital economy, hence promoting a more equitable distribution of opportunities across the nation.

40. Develop and implement sustainable urban plans that prioritize efficient land use and improved public transportation and eco-friendly infrastructure.

41. Develop and implement comprehensive e-waste management policies, legislative and regulatory framework that promotes recycling, safe disposal, and the use of environmentally friendly materials in the production of electronic devices.

42. Strengthen the healthcare systems to reduce the burden of infectious diseases and address the growing abuse of medicated drugs. Increased funding, improved access to healthcare services, and public awareness campaigns would be essential to promote responsible drug use and practices to prevent the spread of infectious diseases.

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APPENDICES

Appendix A4-1: Short- and long-term drivers of CPI inflation in Kenya

Short run		Long-run	
Variable	Coefficient	Variable	Coefficient
C	0.005*	C	0.581*
Lagged CPI	0.444*	Lagged CPI	0.791*
Oil price	0.028*	Oil price	0.022*
Exchange rate	0.106**	Exchange rate	0.180*
Money supply	0.162*	Money supply	0.078*
Lagged output gap	0.001*	Lagged Output gap	0.021*
Lagged Error Correction Term	-0.166*		

Notes: All variables are in logs
Source: Author's computation based on EViews 11
* ,** represent significance level at 1% and 5%, respectively.

Appendix A5-1: NCPB intervention in the maize (grain) market (detailed)

Year	Into-Depot/ Farm Gate Prices -90kg Ksh	Selling Price-90 Ksh	Remarks	Average Wholesale Price -90kg Ksh
	NCPB			Market Prices
2022	3,200	No maize to sale	Prices steadily have been increasing	6648
2021	2,500	2,750	Average price	4578
2020	2,500	1,900	Average price	2966
2019	2,300	2,700	Average price	3063
2018	2,300	2,300	GOK subsidy	2427
2017	NCPB 3,000, Imported 3,725	No maize to sale	There was local maize price and imported maize price	3541
2016	2,300	2,700	Average price	2814
2015	2,000	2,500	Average price	2726

Data Source: NCPB & SDCDAR (2022)

Appendix A5-2: NCPB intervention in the fertilizer (input) market (detailed)

Year	Into-Depot 50kg Ksh	Selling Price-50 Ksh	Remarks
(NPK-23:23:0)			
2022	NCPB commercial price 4,700	NCPB commercial price Ksh 4,900, Government of Kenya subsidy Ksh 3,000	There is NCPB price and subsidy price/Government of Kenya programme
2021	3,025	Ksh 3,125	Average price
2020	2,300	Ksh 2,700	Average price
2019	2,950	NCPB commercial price Ksh 3,050, Government of Kenya subsidy Ksh 2,300	This was a continuation of the government subsidy programme which was introduced in 2009.
2018	2,300	NCPB commercial price Ksh 2,500, Government of Kenya subsidy Ksh 1,500	
2017	2,235	NCPB commercial price Ksh 2,350, Government of Kenya subsidy Ksh 1,800	
2016	1,800	1,800	
2015	1,800	1,800	
(Mavuno-Planting)			
2022	NCPB price Ksh 4,700	NCPB price Ksh 4,900, Ksh 2,800 subsidy	There is NCPB price and subsidy price/Government of Kenya programme
2021	3,000	3,500	Average price
2020	2,550	2,625	Average price
2019	l ,700	1,700	There is NCPB price and subsidy price/Government of Kenya programme
2018	l ,700	1,700	
2017	l ,700	1,700	
2016	l ,700	1,700	
2015	l ,700	1,700	
Mavuno- Top Dressing			
2022	NCPB price Ksh 4,200	NCPB price Ksh 4,400, Ksh 3,000 subsidy	There is NCPB commercial price subsidy price/Government of Kenya programme introduced in April 2022
2021	2,700	3,500	Average price
2020	2,100	2,300	Average price
2019	1,800	1,800	GOK subsidized fertilizer program
2018	1,800	1,800	
2017	1,800	1,800	
2016	1,800	1,800	
2015	1,800	1,800	
CAN			
2022	NCPB commercial price Ksh 3,700	NCPB price Ksh 3,900, Ksh 1,950 subsidy	There is NCPB price and subsidy price/ Government of Kenya programme
2021	2,700	2,850	
2020	1,850	1,950	
2019	2,150	2,250	Government of Kenya subsidized fertilizer programme was in place
2018	1,500	1,500	
2017	2,391	1,500	
2016	1,500	1,500	
2015	1,500	1,500	

DAP			
2022	NCPB price 6,000	NCPB price 6,900, 2,800 subsidy	There is NCPB price and subsidy price/ Government of Kenya programme
2021	3,650	3,800	
2020	2,750	2,850	
2019	1,800	1,800	Government of Kenya subsidized fertilizer programme was in place
2018	3,150	1,800	
2017	2,660	1,800	
2016	2,780	1,800	
2015	3,030	1,800	
UREA			
2022	6,300	NCPB price Ksh 3,500, Ksh 1,700 subsidy	There is NCPB price and subsidy price/ Government of Kenya programme
2021	3,150	3,300	
2020	2,650	2,750	
2019	2,650	2,750	Government of Kenya subsidized fertilizer programme was in place
2018	1,500	1,500	
2017	1,500	1,500	
2016	1,500	1,500	
2015	1,500	1,500	

Appendix A11-1: Government intervention in making markets work in Kenya

Externality	Policies and Regulations	Role of the Policies and Regulations
Market power	Competition laws	The Competition Act of 2010 establishes the Competition Authority of Kenya (CAK) with the mandate to promote and safeguard competition and protect consumer welfare. The CAK investigates and penalizes anti-competitive practices, such as abuse of dominance, price fixing, and bid rigging.
	Price controls	The government has previously set price controls in certain sectors to prevent firms from exploiting market power to the detriment of consumers. Active price controls include: 1. Price control on petroleum products by the Energy and Petroleum Regulatory Authority (EPRA) sets the maximum retail prices for petroleum products based on market forces and the cost of production. 2. Price controls on agricultural products such as maize and wheat, to ensure that farmers are not exploited by middlemen and brokers. The government sets minimum prices for these products to ensure that farmers receive a fair price for their crops. 3. Price controls on public transport where the government regulates public transport fares to ensure that commuters are not overcharged by transport operators. The government sets the maximum fares for different routes and modes of transport, such as buses and matatus.
	Market liberalization	The government has implemented various policies and initiatives to liberalize the market and promote competition in the economy. Such liberalization include: - 1. Trade liberalization instruments by the government include including reducing tariffs and non-tariff barriers to trade. The government has also signed various trade agreements, such as the East African Community (EAC) and the African Continental Free Trade Area (AfCFTA), to promote regional and continental trade integration. 2. Privatization. The government has implemented policies to privatize state-owned enterprises and promote private sector participation in various sectors of the economy. In spirit of privatization, the government has sold off several state-owned enterprises, such as Kenya Airways, and promoted public-private partnerships to increase private sector participation in infrastructure development.

	Sector-specific regulations	The government has established sector specific regulations to prevent firms from using their market power to exploit consumers. For example: 1. In telecommunication sector, the Communications Authority of Kenya (CA) has implemented various regulations, such as mobile number portability and infrastructure sharing, to reduce barriers to entry and promote fair competition in the market. 2. In energy sector, EPPRA has implemented various regulations, such as price controls and licensing requirements, to reduce market power and promote fair competition in the market. 3. In financial sector, the Central Bank of Kenya (CBK) has implemented various regulations, such as licensing requirements and capital adequacy standards, to reduce market power and promote fair competition in the market. 4. In agriculture sector, Agriculture and Food Authority (AFA) has implemented various regulations, such as licensing requirements and price controls, to reduce market power and promote fair competition in the market. 5. In transport sector, the Transport Licensing Board (TLB) has implemented various regulations, such as licensing requirements and fare controls, to reduce market power and promote fair competition in the market.
Market Externalities	Environmental regulations	The government has implemented various environmental regulations to address externalities such as air and water pollution, deforestation, and waste disposal. For example: 1. Environmental Impact Assessment (EIA) which requires all major development projects, such as mining, oil exploration, and large-scale agriculture, undergo an Environmental Impact Assessment (EIA) before they can proceed. 2. Forest Conservation and Management Act which regulates forest use and promotes reforestation efforts. 3. Waste Management Act, which regulates waste disposal and promotes recycling and composting. 4. Air Quality Regulations, which regulate industrial emissions and promote clean energy technologies. 5. Water Quality Regulations, which regulate industrial and agricultural waste discharge and promote watershed protection
	Taxes and subsidies	The government may use taxes or subsidies to internalize externalities. For example: 1. Carbon tax on the consumption of fossil fuels, such as gasoline and diesel, to discourage carbon emissions and promote clean energy technologies. 2. Subsidies for renewable energy promote the development and use of renewable energy technologies, such as solar, wind, and geothermal energy

	Tradable permits	The plans to establish market-based instruments which it can use to control externalities, such as pollution, by creating a market for the right to pollute. For example: 1. Carbon credits scheme that will allow businesses to earn credits for reducing their carbon emissions. 2. Water pollution permits that allows businesses to trade permits for the right to discharge wastewater into water bodies. 3. Fishing permit scheme that allows fishing companies to trade fishing permits creating an economic incentive for reduce overfishing and internalize the negative externalities of overfishing. 4. Forest conservation permits that allows businesses to earn permits for conserving forest areas. 5. Renewable energy certificates that allow businesses to earn certificates for producing renewable energy
	Public education	The government has significantly invested on public awareness on the importance of reducing externalities. Examples of such initiatives include public health campaign, Environmental education programs, Agricultural extension services, Wildlife conservation education and financial literacy programs.
Information Asymmetry	Disclosure requirements	The government has put in a requirement for firms to disclose certain information to consumers or investors to reduce information asymmetry. For example: 1. Financial reporting requirements by the Companies Act, 2015 which require companies to prepare and file annual financial reports with the Registrar of Companies. These reports must include information on the company's financial performance, assets, liabilities, and cash flows, as well as any related party transactions. 2. Environmental impact disclosure requirements by the Environment Management and Coordination Act, 2015 requires companies to prepare and file environmental impact assessments (EIAs) for any major projects that may have significant environmental impacts. 3. Consumer protection disclosure requirements by the Consumer Protection Act, 2019 requires companies to provide consumers with clear and accurate information about the products and services they offer. 4. Corporate governance disclosure requirements by the Capital Market Authorities, Chapter 485A which requires listed companies to disclose information on their corporate governance practices, including board composition, remuneration, and audit committee activities. 5. Land ownership disclosure requirements by the Land Act,2012 which requires individuals and companies to disclose their land ownership and use, as well as any restrictions on land use.

	Consumer protection	The government has established policies, regulations, and institutions to protect consumers from exploitation and fraud. For example: 1. Consumer Protection Act which requires businesses to provide clear and accurate information about their products and services, and to refrain from engaging in deceptive or unfair practices. 2. Fair Packaging and Labelling Act which requires businesses to provide accurate and transparent information about their products, including the ingredients, nutritional information, and any potential health risks associated with the product. 3. Kenya Bureau of Standards which is responsible for ensuring that products sold in Kenya meet certain safety and quality standards. 4. The Anti-Counterfeit Agency responsible for coordinating and implementing measures to prevent counterfeiting, and for enforcing the Anti-Counterfeit Act. The Act provides for heavy penalties for those found guilty of counterfeiting, including fines and imprisonment.
	Education and awareness	The government has established various initiatives to promote consumer education and awareness to reduce information asymmetry. For example: 1. Huduma centres, which provide access to information on government services. 2. Agricultural extension services which provide farmers with information on modern farming techniques, pest management, and soil conservation. 3. Wildlife conservation education programs which provide education on the benefits of ecotourism and importance of conserving wildlife habitats.
	Market intermediaries	The government has established entities that operate between buyers and sellers to facilitate transactions and reduce information asymmetry. Examples of such facilities include: 1. Agricultural Development Corporation (ADC) which provides market intermediation services for agricultural products, including storage, transport, and marketing services. 2. Capital Markets Authority (CMA) which regulates and supervises securities markets and intermediaries, including stockbrokers and investment advisors. 3. Kenya Pipeline Company (KPC) which provides market intermediation services by transporting petroleum products from refineries to distributors and retailers. 4. National Social Security Fund which provides market intermediation services by investing its funds in various financial instruments, including stocks and bonds.

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The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is an autonomous institute whose primary mission is to conduct public policy research leading to policy advice. KIPPRA's mission is to produce consistently high-quality analysis of key issues of public policy and to contribute to the achievement of national long-term development objectives by positively influencing the decision-making process. These goals are met through effective dissemination of recommendations resulting from analysis and by training policy analysts in the public sector. KIPPRA therefore produces a body of well-researched and documented information on public policy, and in the process assists in formulating long-term strategic perspectives. KIPPRA serves as a centralized source from which the Government and the private sector may obtain information and advice on public policy issues.

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