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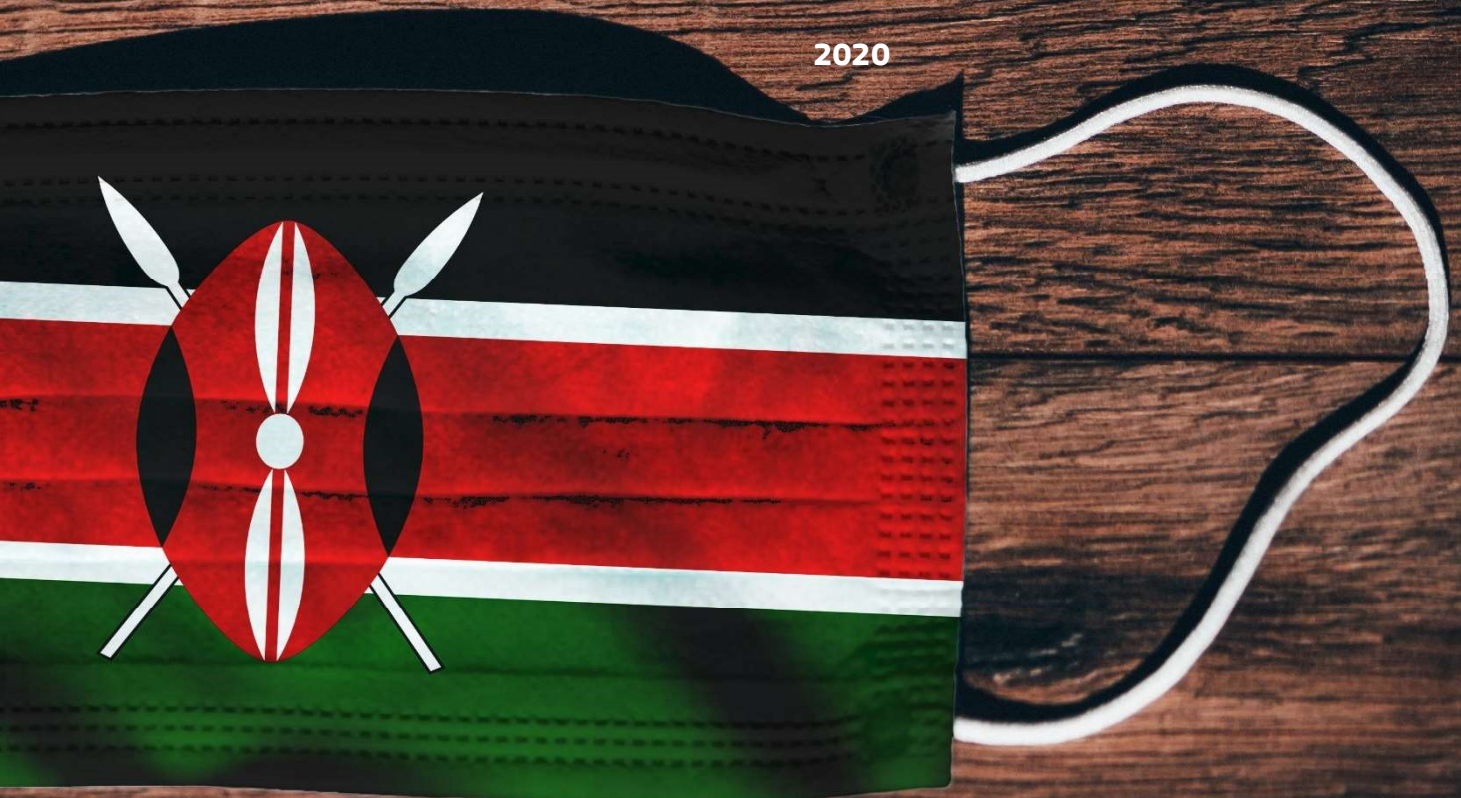


The **KENYA INSTITUTE** for **PUBLIC**
POLICY RESEARCH and **ANALYSIS**

COVID-19 impacts and short-term economic recovery in Kenya

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Summary

This technical report focuses on the short-term implications on the wider Kenyan economy of the COVID-19 lockdown by taking into account several impact channels (labour productivity, export demand and tourism, remittances, internal demand and internal trade costs). It considers the uncertainty of lockdown durations both domestically and abroad and incorporates the government fiscal and spending measures implemented through the Tax Laws (Amendment) Act, 2020, the COVID Spending Plan and the Economic Stimulus Plan.

In annualised terms, the modelling results of this study show that the April-June lockdown in Kenya would have an impact of 5.6% in GDP in 2020 relative to the pre-COVID baseline leading to close to zero economic growth for the year. The main drivers of the reduction in economic activity are the drops in labour productivity, in export commodities and in tourism. The GDP decrease is accompanied by a depreciation of the Kenya Shilling (KSh), a reduction of domestic investment and an increase in government deficit by 17.2 billion KSh. Employment reduces by 11.8% and real income decreases by 7.9% and 6.8% for rural and urban households respectively. The lower income determines a decrease in domestic demand and lowers market prices for the majority of commodities.

The impacts of the pandemic would be amplified if a new COVID-19 wave were to emerge in the second part of 2020. The GDP would see a contraction of approximately 0.8% of GDP relative to 2019 in case this hypothetical wave would only occur outside Kenya, and a GDP contraction of 3.8% in case a new set of lockdown measures would need to be imposed in Kenya as well. Employment levels would see a significant reduction of 19.1% while the government deficit would further expand.

Addressing the impacts of the April-June lockdown, the announced government spending measures and the reduction of rates for VAT, income, turnover and corporate taxes facilitated by an increase in foreign borrowing determine a short-term recovery at a macroeconomic level, with negative GDP impacts reduced from 5.6% to 4.8% of GDP, implying an approximately 0.9% growth rate for 2020. These measures have an even more pronounced effect for the recovery of household income and the food sectors. Government revenues nevertheless see a decline and, with an increase in public spending, the government deficit expands by a further 25.1 billion KSh. The extent to which this deficit will need to be covered through internal borrowing will influence private investment through crowding-out effects and will constrain medium-term recovery.

The main findings of the report show the negative macroeconomic effects of the pandemic on the Kenyan economy and how the government short-term recovery package can support households in reducing these negative impacts. The report also shows that these measures will put under severe stress the government resources, in particular in case of double waves. This calls for a global reaction in front of the negative impacts of the pandemic to support more fragile countries.

Future research on this topic will focus on medium-term impacts of economic measures to fight the spread of the pandemic and on distributional impacts of these measures.

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Note: The implementation of the CGE modelling framework has been entirely performed within JRC premises by Victor Nechifor and Emanuele Ferrari.

1 Introduction

The COVID-19 pandemic will likely produce one of the deepest global economic recessions in decades with the world economy potentially taking a few years to recover to its pre-2020 levels. Declared as a pandemic by the WHO in mid-March 2020, the economic effects of COVID-19 on the African continent may have been felt sooner than the occurrence of the first cases. The strict lockdown measures taken in China at the beginning of the year, followed by the further restrictions in Europe and the USA, have taken their toll on the international movement of goods and people, with significant impacts on international trade and tourism. There are early indications that global has already fallen in Q1 by 3% (UNCTAD, 2020). Furthermore, international passenger flying has been reduced significantly from the middle of March, with the global number of flights down by almost two thirds in April and May on a year-on-year basis¹.

In Kenya, with the declaration of the pandemic as a Formidable Epidemic Disease on the 27th of March, the government introduced a set of restrictions and social-distancing protocols among them:

- the closure of educational institutions
- the suspension of international flights except cargo and evacuation planes with an imposition of a 14-day quarantine for returning residents
- a reduction of public transportation capacity to below 60%
- suspension of domestic flight and passenger railway
- the recommendation for people to stay and work from home and the banning of public gatherings including places of worship, hotels, bars and restaurants
- movement restrictions from and to the counties of Nairobi, Kwale, Kilifi, Mandera and Mombasa
- requirement for all persons to wear face masks while in public places

Depending on the duration of these measures, it is expected that the restrictions will lead to significant impacts on labour supply and productivity, will increase the cost of internal trade and will alter the demand for certain commodities and services. Furthermore, the changes to the international context will likely yield a lower demand for Kenya's top export commodities (cut flowers, tea, coffee and fruits), while border restrictions will have an impact on the regional trade of livestock. In addition, with income of the diaspora being impacted by the economic downturn in other countries, it is expected that remittances to households will also be significantly reduced (World Bank, 2020).

Movement restriction has and will further adversely affect the tourism sector which is Kenya's largest foreign exchange earner. Without an increase in net foreign currency inflows through external loans and aid, the reduction in exports (already signalled by reduced exported volumes of cut flowers and fruits in the months following the COVID-19 outbreak (KNBS, 2020b) together with lower remittances could lead to a depreciation of the Kenya Shilling. This would further impact consumer prices and purchasing power.

The Kenyan government has put in place a set of measures to address the healthcare crisis and support the recovery of economic activities. A budget of 44.8 billion KSh (0.46% of GDP) has been allocated for the increased healthcare and COVID-19 monitoring costs and for enhanced social protection, cash transfers and food relief programmes. A set of fiscal² measures have also been put in place to stimulate the supply and demand of goods and services after the lockdown, namely:

- A reduction of VAT on most goods and services from 16% to 14%
- 100 % tax relief for persons earning gross monthly income of up to KSh 24,000.
- A reduction of resident Personal Income Tax Rate (Pay-As-You-Earn) top rate from 30% to 25%.
- A reduction in corporate tax from 30% to 25% for residents and increase in withholding tax rate on dividend payable to non-residents from 10% to 15%.
- A reduction in turnover tax from 3% to 1% with taxable turnover thresholds increased from an income of between KSh 1 million (US\$ 10,000) to KSh 50 million (US\$ 500,000) for MSMSEs.

Given the complexity of interactions between impacts and their incidence across all sectors of the economy and agents (households, enterprises and government), this study seeks to assess the short-term COVID-19 impacts on the Kenyan economy using a macroeconomic general equilibrium framework. By taking the multitude of impacts into account, it also evaluates the effectiveness of government measures in the context of reduced international trade and an uncertain landscape for foreign lending and aid.

¹ <https://data.icao.int/covid-19/>

² Tax Laws (Amendment) Act, 2020

2 Economy-wide modelling of impacts and recovery measures

The study uses the JRC DEMETRA model for Kenya³, a single-country recursive-dynamic open-economy computable general equilibrium model (CGE) which comprises a large number of economic sectors and households. The model results therefore allow for an advanced characterisation of impacts at different levels: sectoral (output and production costs), household (income and consumer demand), regional (households belonging and migrating between different regions) and aggregate (GDP, employment, trade). Important features of the DEMETRA model comprise:

- An assumption of perfect competition i.e. prices and quantities are not subject to market power on the supply or demand side
- A disaggregation of economic activities into individual processes captured as nested constant elasticity of substitution functions which combine factors of production and intermediate goods
- A small open-economy assumption whereby domestic price changes do not impact world prices
- A separation of marketed and subsistence commodities with a consistent accounting of home production for home consumption (HPHC) allowing for the study of semi-subsistence production and consumption processes

The model is calibrated using the 2017 Social Accounting Matrix (SAM) for Kenya developed by the JRC (Mainar Causapé et al., 2018). The SAM comprises annual economic transactions structured around 53 sectors (11 of which account for households as home producers), 55 marketed commodities (and 18 home commodities) and 22 household groups -- see Annex 1 for the SAM structure. Household groups are disaggregated into income quantiles for Nairobi and Mombasa and by the rural and urban division and agro-ecological zones for the rest of the country.

For this study, the model simulations are conducted based on the following closure rules:

- Savings-driven investment by which total investment adjusts based on fixed saving propensities of households and enterprises
- Fixed government consumption with variable government deficit funded through variable internal borrowing
- Fixed foreign savings and variable exchange rate
- Producer price index (PPI) used as model numeraire (reference price for all other price changes) – the consumer price index (CPI) therefore changes relative to the PPI.

As with other CGE models, the JRC DEMETRA model computes changes to prices and quantities of the captured economic transactions in annual timesteps. Therefore, the model simulations in this study account for changes in exogenous variables (e.g. labour productivity) using annualised values of the COVID-19 impacts. Nevertheless, the quantifications in this study reflect short-term adjustments to the economy and are determined through comparative static simulations through which economic performance and welfare changes are determined as deviations from baseline values for 2020.

The 2020 baseline was established by running the JRC DEMETRA model in a dynamic recursive setup from 2017 to 2020 and by calibrating Kenya's GDP growth rates with the observed growth rates for 2017-2019 and a pre-COVID rate forecasted at 6% for 2020. Government spending was also calibrated to match observed government deficit values as shares of GDP.

³ DEMETRA is an extended version of the model documented in Aragie et al. (2017).

3 COVID-19 impacts and short-term recovery measures

3.1 Lockdown impact scenarios

The impacts included in this study are differentiated across five channels:

1. **Labour productivity:** sector-specific changes to monthly labour productivity due to social distancing protocols in the range of -10% and -83% (see Table A4 in Annex2). The productivity calculations were based on the reduction of worked hours in the different economic sectors in Kenya as resulting from the May 2020 household survey (KNBS, 2020a). These monthly estimates were multiplied by the lockdown duration assumptions in the three lockdown scenarios.
2. **Internal trade:** annualized internal trade margins were increased by 1% in the V-V scenario and 2% in the V-W and W-W scenarios (see lockdown scenario definitions below) to reflect the higher cost of transportation and storage during the lockdown months – the KNBS April 2020 Survey reflected a 5% increase in transport cost for the month of April 2020 (KNBS, 2020a).
3. **Export and tourism demand:** changes in export volumes for specific commodities during the lockdown months with values for the April-June wave obtained from MoALFC⁴, KEPISA's findings on the impact of COVID-19 on businesses (KEPSA, 2020b, 2020a, 2020c) (KEPSA 2020a, 2020b, 2020c) and the June 2020 National Food Balance Sheet (MoALFC, 2020). For commodity groups where data was unavailable (notably industry), a reduction of 5.2% was included to reflect the average export decreases obtained for Sub-Saharan Africa in the global study by the World Trade Organization (WTO, 2020). Export volumes after the April-June lockdown were assumed to gradually return to normal values towards the end of 2020. The annualised reduction values are included in Table A5 in the Annex 2.
4. **Internal demand:** changes in household demand for specific commodity groups:
 - a. A decrease of household budget allocation to transportation by -15% (equivalent of a 75% reduction in transport demand during 2.5 months) and to hospitality by -54% (the same reduction as for foreign tourism demand)
 - b. An increase in household budgets for all other commodities to compensate for this reduced spending on transportation and hospitality
5. **Remittances:** a reduction in remittances to households by 23% from baseline values – this reduction is in line with World Bank remittance reduction for Sub-Saharan Africa (World Bank, 2020).

To capture the uncertainty around the evolution of the virus incidence inside Kenya and abroad, the study includes three lockdown scenarios:

- **Scenario V-V** comprising the lockdown from April-June 2020 in both Kenya and abroad. In this scenario, it is assumed that the lockdown and the social distancing measures imposed are effective in reducing and controlling the number of cases at low values for the rest of 2020. In Kenya this lockdown has implied restrictions over 10-11 weeks depending on the economic sector.
- **Scenario V-W** implying a single lockdown in Kenya but a second spike of cases abroad imposing a new lockdown globally during the second part of 2020. In this scenario, Kenya manages to control the number of domestic cases and isolates itself from a new increase in number of cases abroad.
- **Scenario W-W** comprising a second lockdown in the second part of 2020 in both Kenya and abroad. The scale of this hypothetical second lockdown is assumed to be 25% smaller to reflect some lessons learned during the first lockdown.

3.2 Government measures

The Kenyan government response towards a short-term recovery from the COVID-19 impacts is modelled across a number of fiscal and public spending measures. The study does not include guarantees and loan programmes but focuses on on-budget and non-financial measures, namely:

⁴ Ministry of Agriculture, Livestock, Fisheries And Cooperatives, March 31, 2020. Available at: <http://www.kilimo.go.ke/wp-content/uploads/2020/04/CS-Remarks-on-Food-Security-during-COVID-19-Pandemic.pdf>

1. The additional government spending to cover the additional healthcare costs and to support the economic recovery as announced in the Economic Stimulus Plan⁵ and the COVID Spending Plan⁶– see Table A6 in Annex 2.
2. Fiscal measures implemented through *the Tax Laws (Amendment) Act, 2020* effective 1st April 2020:
 - a. The reduction of VAT from 16% to 14%
 - b. The reduction of personal income tax across all tax brackets⁷ and the 100% tax relief for low income earners (earning below KSh. 24, 000)
 - c. The reduction of turnover tax for all economic sectors from 3% to 1%
 - d. The reduction of resident corporate tax from 30% to 25%

The study also includes additional government foreign loans of 600 million USD⁸ to partially cover the deficit resulting from the increase in government spending and the reduction in government revenues through lower tax levels. The rest of the government deficit changes are funded through internal borrowing.

An overview of simulations covering both the different impact channels and the recovery measures is presented in **Table 1**. In section 4.1, results will be detailed by impact channel (Labour, Exports, Internal Demand, Trade costs and Remittances) to capture their respective magnitude. Impacts will then be cumulated across different lockdown scenarios in section 4.2 (All Impacts V-V, V-W and W-W). Finally, in section 4.3, the recovery measures described above (All Measures in **Table 1**) will be added to the All Impacts (V-V) scenario to estimate their effects for short-term recovery at macroeconomic, sectoral and household levels. To further characterise the effects of the internal fiscal and public spending measures on income and GDP, the impacts of inflows through additional foreign loans are also represented distinctly in the study results.

Most of the results in this study are represented as annualised deviations from pre-COVID baseline values for 2020. Hence, GDP impacts are reflective of a change in GDP for an economy which was projected to expand at 6% in 2020. Also, the price changes reported represent averages for 2020, therefore, may not reflect the very short-term price fluctuations observed during the April-June lockdown.

⁵ 8th Presidential address on the coronavirus pandemic, 6th June 2020

⁶ 7th Presidential address on the coronavirus pandemic, 23rd May 2020

⁷ Due to data limitations on the distribution of households across tax brackets, in the current version of study the income tax is reduced by -16.6% across all household groups represented in the model. This corresponds to the effective reduction of personal income tax obtained for the top rate from 30% to 25%.

⁸ The model simulations were conducted in May 2020. In the meantime, the IMF announced a 739 million USD disbursement to Kenya. Nevertheless, the 'Foreign Loans' simulation illustrates the importance of foreign support for the short-term economic recovery.

Table 1. List of simulations of COVID-19 impacts and government measures. Simulations in bold represent the main simulations in this study.

Simulations	Labour productivity	Export demand reduction	Internal demand changes	Increase in internal trade costs	Decrease in remittances	VAT reduction	Income tax reduction	Turnover tax reduction	Corporate tax reduction	Government spending	Foreign loans
Labour	1 x										
Exports		1 x									
Internal Demand			1 x								
Trade Costs				1 x							
Remittances					-23%						
All Impacts (V-V)	1 x	1 x	1 x	1 x	-23%						
All Impacts (V-W)	1 x	1.75x	1 x	1 x	-35%						
All Impacts (W-W)	1.75x	1.75x	1.75x	1.75x	-35%						
All Measures	1 x	1 x	1 x	1 x	-23%	16% > 14%	-16%	3% > 1%	-16%	29.7 bn KSh	600m USD
Foreign Loans	1 x	1 x	1 x	1 x	-23%						600m USD

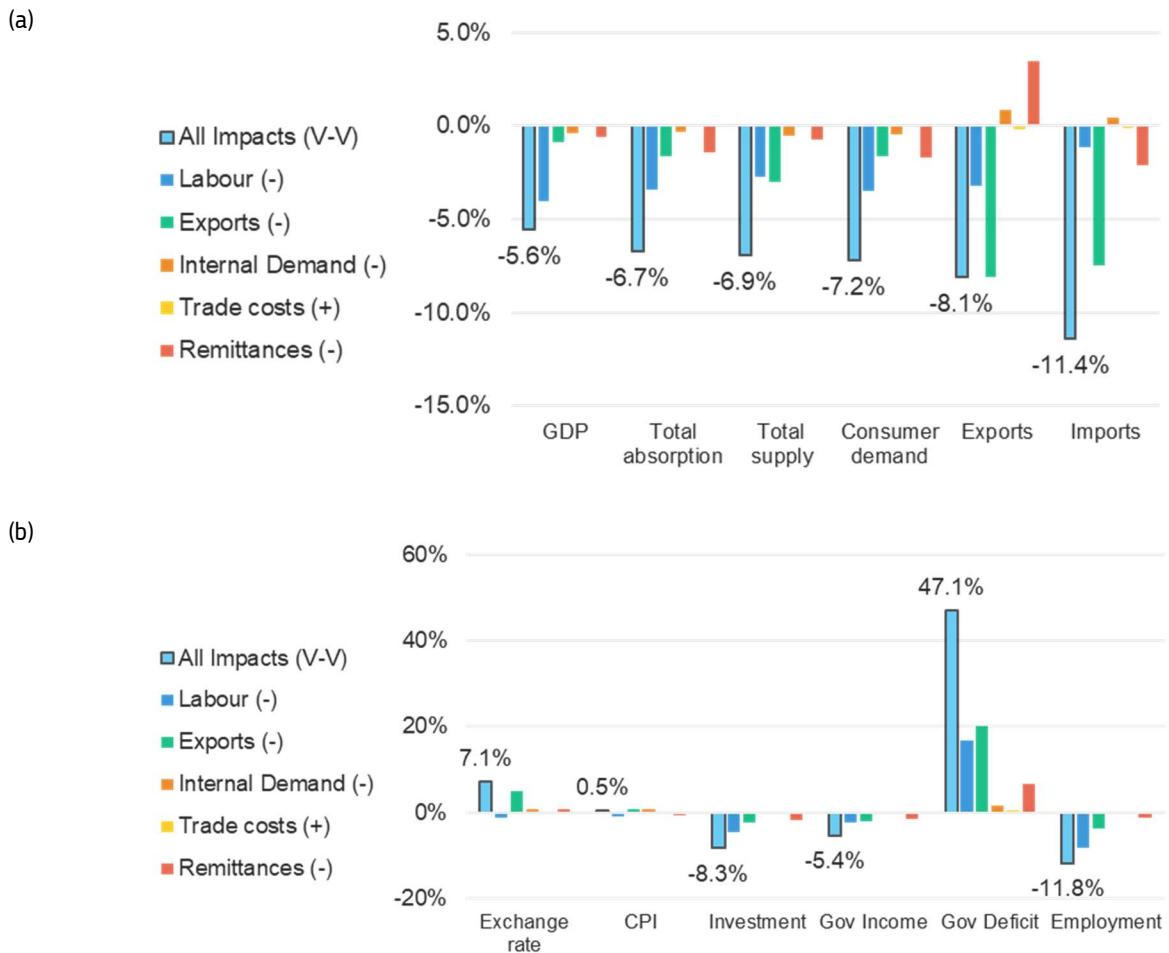
4 Results

4.1 April-June 2020 lockdown impacts at annualised levels

The simulation results show that the April-June 2020 lockdown could lead to a 5.6% reduction in GDP relative to the baseline (**Figure 1a**) with the largest contributors being the drops in labour productivity (-4% GDP impacts), export demand (-0.8%) and internal demand (-0.4%). Total absorption⁹ would reduce by 6.7% with a contraction of both the aggregate supply (-6.9%) and consumer demand (-7.2%). General employment would drop by 11.8% in annual terms (**Figure 1b**). The reduction in aggregate exports demand by 8.1% together with the decrease in remittances would lead to a depreciation of the Kenya Shilling (an increase in the exchange rate) and a consequent price increase of imported commodities. Therefore, under higher prices, imports could decline by 11.4% when all impact channels are combined.

The reduction in income from the economic contraction would determine lower overall savings and a consequent reduction in investment levels by 8.3% at an annualized rate. Also, the reduced economic activity would determine a decrease in government tax revenues with total government income down by 5.4% and an increase in the government deficit¹⁰ by 47.1% or 17.2 billion KSh.

Figure 1. Macroeconomic impacts of the April-June 2020 COVID-19 lockdown by impact channel



⁹ The total absorption represents the total final demand of marketed and subsistence goods and services within the Kenyan economy comprising both domestic and imported varieties.

¹⁰ The closure rule of fixed government demand used in the model implies that government spending follows the price changes of services and goods, however, demanded quantities remain unchanged from baseline values.

The decomposition of the impact channels in Figures 1a-b shows that:

- **Labour productivity** drops determine a reduction on the supply side through lower output, but also on the demand side through lower income from labour payments. The resulting contraction of the economy yields a reduction in the consumer price index, lower demand for both domestic and imported commodities. Investment is also impacted by lower household income and enterprises revenue.
- The reduction in **export demand** (including tourism by foreigners) has a significant effect on the depreciation of the Kenya Shilling accompanied by adjustment to the trade balances through a decrease in imports. Overall income is also negatively affected. Government deficit increases due to lower domestic output, income and reduced tariff revenues.
- The increase in **internal trade costs** through higher costs of transportation and the changes to the **internal demand** structure only have marginal effects at a macroeconomic level.
- The reduction in remittances have a negative impact over household income and domestic savings. Taken alone, lower remittances determine a 1% depreciation of the Kenya Shilling with potentially positive impacts on exports. However, this effect is more than counterbalanced when combined with the reduced export demand and tourism in the All Impacts simulation.
- The combined effect on CPI is just 0.5% in annualized terms as impact channels affect consumer prices in opposing ways – the lower labour productivity decreases the CPI as the income effect on demand dominates (Labour simulation) while changes in the internal demand together with the Kenya Shilling depreciation from a lower export demand determine an increase in the CPI.

4.2 Impacts from a potential second lockdown

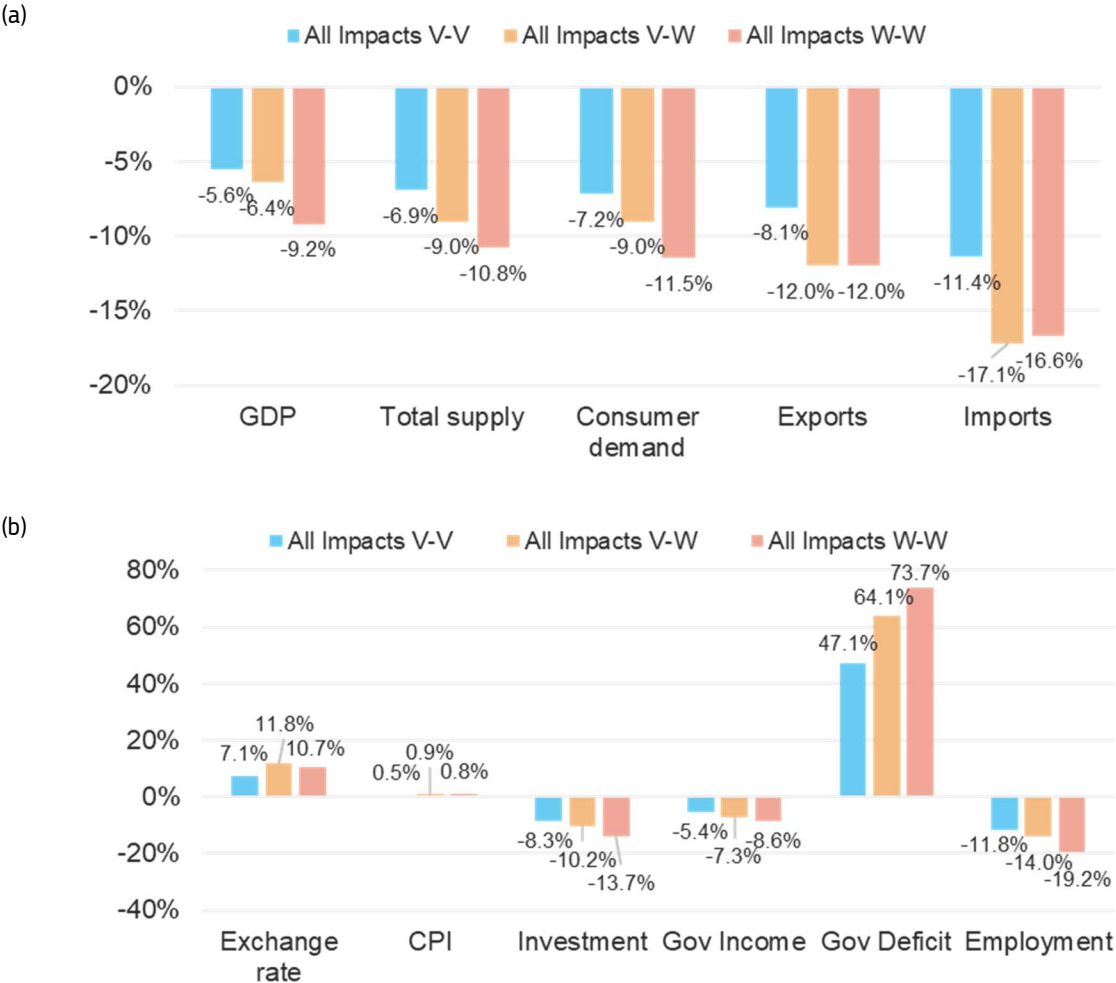
The simulations for a potential second lockdown occurring in the second part of 2020 show a further substantial impact on the macroeconomic indicators (**Figure 2a**). A second lockdown taking place only outside Kenya (V-W scenario) determines a decrease of aggregate exports to -12% from baseline values, a further reduction in total supply to -9% and a GDP drop to -6.4%. With a baseline GDP expansion for 2020 at 6%, a second lockdown outside the country could lead to an effective contraction of the Kenyan GDP of approximately 0.8% relative to 2019. The further decrease in investment levels to -10.2% would also lead to lower capital stock growth hindering a recovery in the following years.

With a second lockdown in 2020 extended to Kenya (W-W scenario), GDP decreases by 9.2% (an effective GDP contraction of approximately 3.8% relative to 2019) and employment drops by 19.2% relative to baseline values (**Figure 2b**). The differences between the V-W and W-W scenarios indicate that while the external factors have a visible effect on macroeconomic performance, the largest impacts come from the internal channel of labour productivity.

A second lockdown would also mean a further increase in the government deficit. A contraction in activity outside Kenya (V-W) would lead to a deficit expansion by an additional 6.1 billion KSh, while a lockdown extended to Kenya (W-W) would further increase the deficit by an additional 9.7 billion KSh relative to the April-June impacts (V-V). Consequently, investment levels for the W-W scenario would drop by -13.7% from baseline values¹¹. Import volumes would also be slightly higher given the reduction in domestic output (total supply) which would be marginally compensated by imported goods.

¹¹ The decrease in investment levels across all lockdown impact scenarios is based on government borrowing from internal sources and no additional foreign loans compared to the baseline. Thus, government borrowing has a crowding out effect on private investment.

Figure 2. Macroeconomic impacts of from a second lockdown wave abroad and in Kenya. V-V represents the reference values for the April-June 2020 lockdown, V-W implies a second lockdown occurring only outside Kenya, while in W-W both Kenya and rest of the world enter a second lockdown in the second part of 2020.



4.3 Recovery through government measures

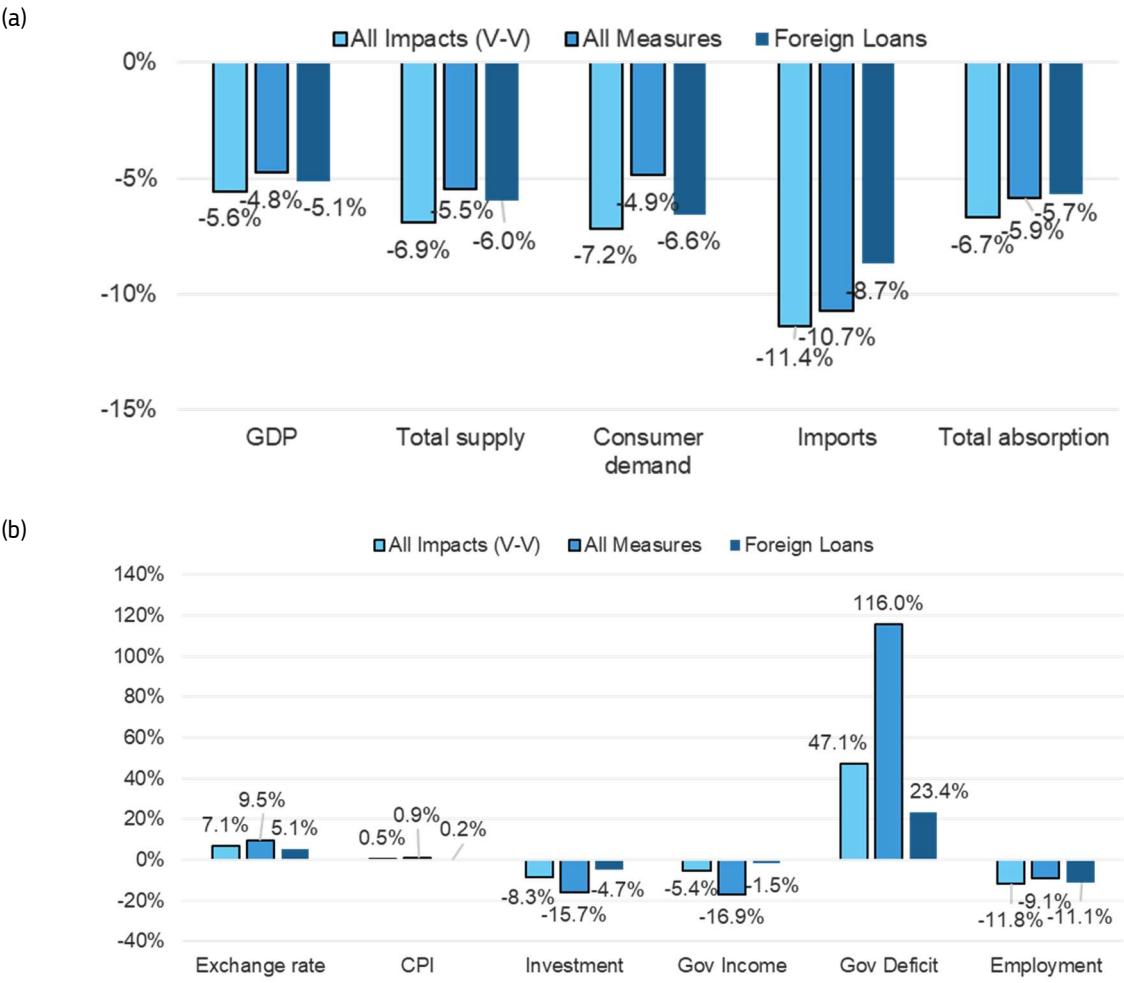
4.3.1 Macroeconomic effects

The government measures comprising fiscal reduction and changes to public spending, but also an increase in foreign lending, has a clear positive impact over GDP, activity levels and consumer demand. With all measures described in Section 3.2 included, the GDP impacts of the April-June lockdown decrease to -4.8% implying an economic growth rate of approximately 0.9% for 2020, total supply to -5.5% (from -6.9%) and consumer demand to -4.9% (from -7.2%) - **Figure 3a**.

These measures have a positive effect on the short-term recovery as the tax rate reductions determine an increase in real income which would boost internal demand. Nevertheless, constraints on the supply side could lead to an increase in imports accompanied by a further depreciation of the Kenya Shilling (an increase in exchange rate) and an increase in the CPI (**Figure 3b**). The fiscal measures and increased public spending also increase the differences between tax revenues and total public spending. The resulting government deficit which would need to be financed through internal means (once the 600m USD foreign loans are taken into account) would increase by 42.3 billion KSh relative to the baseline and by 25.1 billion KSh relative to the deficit without measures resulting from the April-June lockdown (V-V). Without these foreign loans, to cover expenses the government would need to borrow domestically and would thus constrain credit access by the private sector and would further contract investment levels.

With just an increase in foreign borrowing (in 'Foreign Loans' simulation in **Figure 3a-b**), therefore excluding the fiscal changes and the government additional spending, the macroeconomic indicators still improve, notably on the supply side. The resulting lower government deficits enable a partial recovery of investment levels and a consequent increase in capital stock goods. This has a positive impact on total supply and employment but also implies higher imports of machinery and equipment.

Figure 3. Macroeconomic effects of government measures. The All Measures scenario includes all government fiscal and spending measures and a 600 million USD foreign loan. The Foreign Loans scenario only includes the effect of the foreign loans on the short-term economic recovery from the lockdown.



4.3.2 Household and commodity-level effects

At a household level, the combined impact channels of the April-June lockdown (V-V) lead to a decrease in welfare by -7.9% and -6.8% for rural and urban households respectively¹² (Figure 4). The government measures reduce the negative welfare impacts by 1.8% and 1.7% for rural and urban respectively as income from employment would recover.

With a lower income from the lockdown impacts, households would generally decrease their demand for food commodities (Figure 5a) in spite of a shift in internal demand determining a larger share of total income dedicated to food. This change in demand would mostly be felt for market commodities, as household would continue to rely on home production to similar levels as in the baseline (see Figure A1 in Annex 2). Vegetables and poultry are the only categories for which demand increases as these also face some of the most significant price reductions due to the contraction of exports and tourism. The lower food demand contributes to a general reduction of crop prices (Figure 5b), with the exception of wheat and rice for which the domestic prices increase along with those of milled grains and bakery products – the imported volumes relative to total demand of wheat and rice are high, hence these two cereals become more expensive with the depreciation of the Kenya Shilling.

With the government measures included, the resulting increase in real income across household groups determines a recovery of food demand. The demand loss resulting from the lockdown is reduced by more than half for most food commodities. Wheat, rice and oil seeds are the only categories with a lower effect from the recovery interventions.

¹² The values represent an aggregation of the household groups in the JRC DEMETRA model for Kenya

Figure 4. Household welfare impacts. Welfare changes are calculated as income changes deflated by the price changes in the consumer basket of each household group in the model.

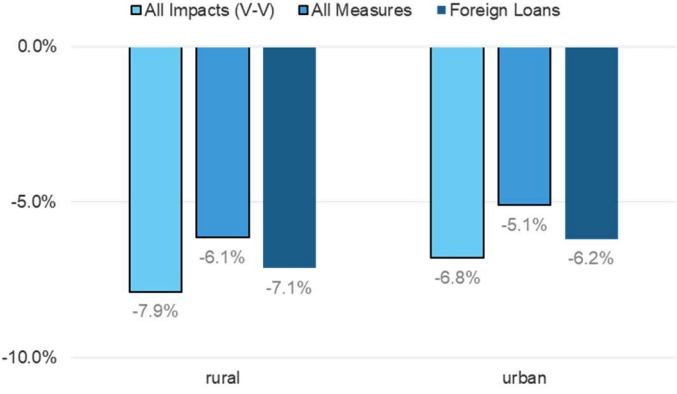
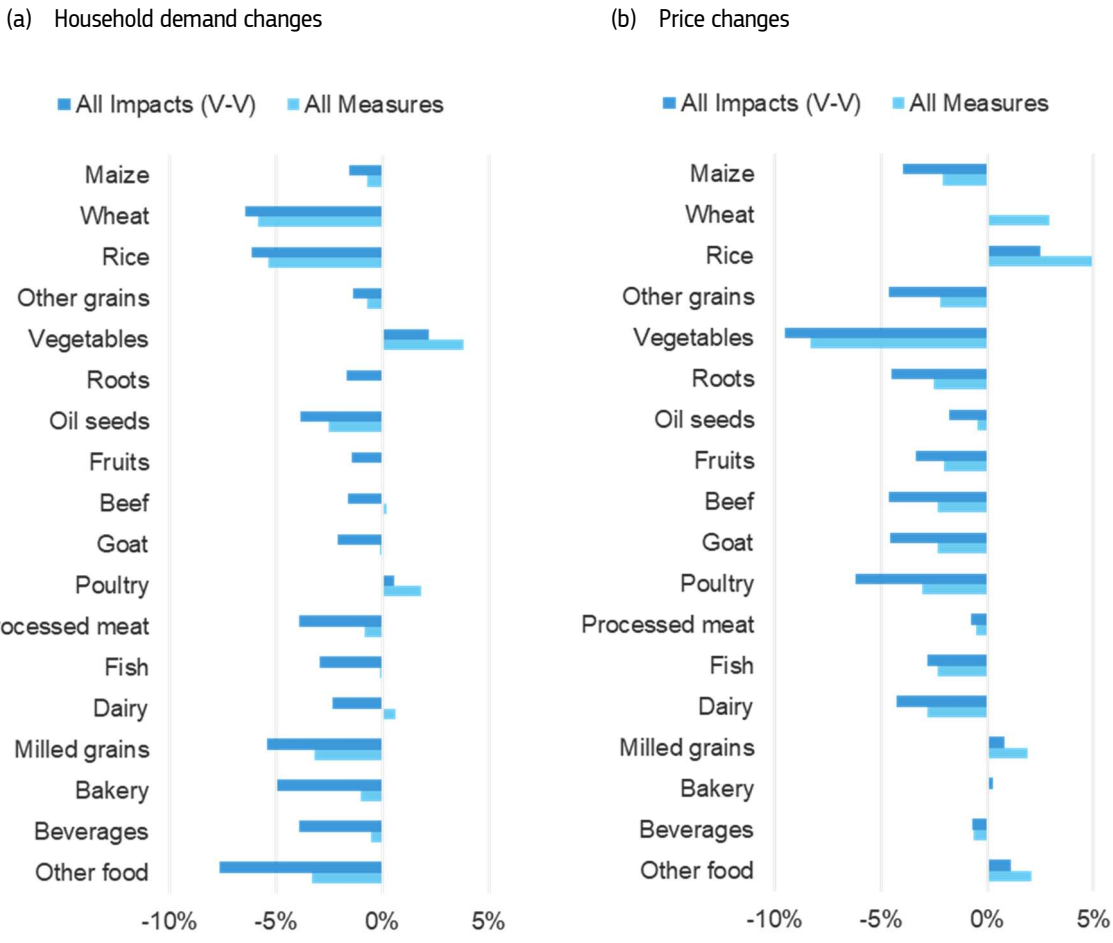


Figure 5. Food commodities demand and prices

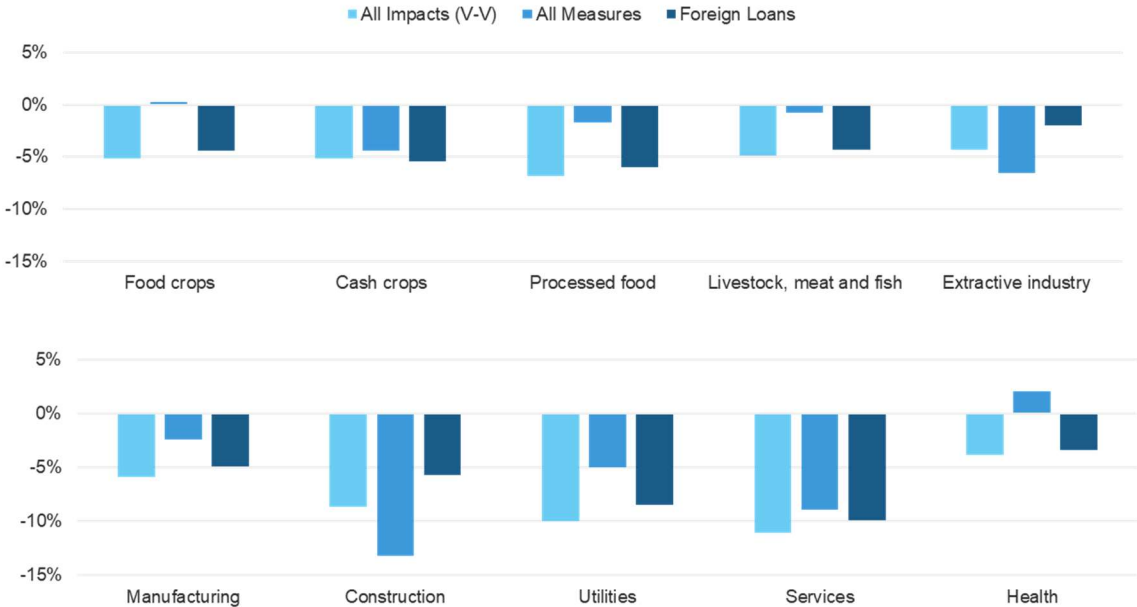


The April-June lockdown leads to a decrease in economic activities across all sectors, with most sectors reducing output by 5% and over (**Figure 6**) and services and utilities (water and energy) being the most affected. The sectoral output changes when including the government measures confirm the important role of government fiscal changes and public spending in re-launching the economy on the short-term.

In the simulation where the lockdown-induced government deficits are partially covered through an increase in foreign loans, the investment-related sectors (construction and the extractive industry) see a recovery, while the other sectors only marginally benefit from the increased activity in this area. In contrast, when all measures are included, the simulation results show an improved outcome for non-investment sectors with a consequent recovery of employment within these sectors. With the

improvement of household income, the food sectors (food crops, livestock and processed food) see the largest recovery across non-service activities. The government’s increased spending on COVID-related health response measures determines a boost for the healthcare sector resulting in output values higher than the pre-COVID baseline for 2020.

Figure 6. Short-term recovery by sector



5 Conclusions and policy recommendations

The study shows that:

- The economic impacts of the April-June COVID-19 lockdown in Kenya and abroad would lead to a 5.6% negative GDP impact and a 11.8% decrease in employment relative to projected pre-COVID values. Household welfare impacts could be at -7.9% and -6.8% for rural and urban households respectively. With a pre-COVID growth rate projected at 6%, the GDP expansion in 2020 would thus be reduced to about 0.1%.
- A second lockdown in the second part of 2020 taking place outside Kenya and determining further decreases in remittances, exports and tourism could determine a negative GDP impact of 6.4%. This would potentially lead to a contraction of the GDP in 2020 of approximately 0.8%. An extended second lockdown inside Kenya would further increase the negative GDP impacts to 9.2%, implying an economic contraction of around 3.8% in 2020, while employment would be reduced by 19.2% relative to baseline levels.
- Government measures through a lower taxation and increased spending in healthcare, infrastructure and tourism combined with an increase in foreign borrowing could determine an important short-term recovery of income.
- Food demand, while generally affected by lower household income, could reduce losses from the April-June lockdown by at least a half for most food categories under recovery measures.
- The significant increase in government deficit from the adopted measures could hinder the medium-term recovery as investment levels could be reduced by 15.7%. The potential reduction in FDI, not captured in the present study, could further reduce recovery prospects after 2020.
- Foreign loans could help reduce GDP impacts and government deficit and could improve investment prospects. However, household income recovery is supported more effectively when public borrowing is accompanied by fiscal measures.

The recovery of economic activity obtained in this analysis is nevertheless conditional on overcoming some of the very short-term impacts at a firm and household level. Table 2 highlights the main areas of action with the associated key recommendations. For MSMEs, liquidity will be essential in retaining jobs. Therefore, the Central Bank and the commercial banks will have a pivotal role in supporting cash flows and preventing insolvencies. The government could also temporarily offer support for the main running costs such as electricity and water for firms to ensure continuation of operations.

With the largest share of negative impacts coming from a reduction in labour productivity and employment, further fiscal support should focus on areas that stimulate job creation and competitiveness rather than stimulate consumption. In this regard, the government could consider introducing incentives for employers for new hires and for uninterrupted employment in areas that will continue to be negatively affected by COVID-19 such as tourism and export industries. To further support the recovery of exports, as external demand starts to pick up, the export capacity in terms of freight and border processing will need to be increased. At the same time, enhancing the preparedness of the logistic chains and electronic commerce to continue operations during potentially new COVID-19 restrictions would ensure the resilience of distribution networks and trade.

The schooling system is another area that would benefit from preparation in case of further restrictions. Implementing the measures for remote schooling such as e-schooling could improve attendance on the short-term but could also be an opportunity for human capital development and computer literacy on the long-run. E-schooling would nevertheless have its non-negligible costs as it would require children to have access to tablets and computers, that the equipment and e-schooling software are easy to use, and that internet and electricity access is provided. Therefore, investment programmes in this area would need to carefully consider the inclusion of the rural and low-income households.

Investment in capital stock should be harnessed to encourage those industries with large multiplier effects for employment. Public-private partnership (PPP) investment in areas such as geothermal and solar energy, road infrastructure, water, ICT, PPE and housing could provide short-term employment and foreign exchange but could also boost productivity across all sectors of the economy and stimulate trade on the longer run. Public investment amid a growing deficit could be supported by increasing the efficiency of spending and by restructuring public debt towards long-term maturity loans and concessional loans, if available.

The recovery of both private and public investment supported by loans, grants and FDI will be essential for the dynamics of economic development and poverty reduction to go back to pre-COVID levels. While the present study explored the short-term implications of government measures to alleviate the negative impacts of the pandemic, further work will be dedicated to exploring the medium-term recovery pathways.

Table 2. Policy recommendations to support the short-term economic recovery

Sector/ Area of Action	Key recommendation	Rationale	Actor
MSMEs	<p>Flexible bridge loans given to MSMEs under preferential conditions to ensure the sector has liquidity to survive the crisis. Priority should be given to MSMEs that broadly have demand, employ large number of people, and those that provide essential goods and services.</p> <p>Reduce critical expenses for MSMEs for instance; temporarily relieve or subsidize selected utility bills such as energy and water.</p> <p>Facilitate market dynamics by investing in supply and market infrastructure to ensure MSMEs can stay in operation. This can also be achieved through policy and regulation support to mitigate impact of lockdown.</p>	MSMEs are large employers in the informal sector and would support interventions targeted at stimulating demand, job creation and retention, and income generation	<p>Financial Sector (CBK, Commercial Banks) supported by development partners</p> <p>National and County governments</p>
Tourism	Tax deduction on wage/salaries spending by companies	Help retain staff in the sector during the pandemic period	KRA/National and county governments
Export Demand	<p>Export facilitation measures to include support to export in meeting compliance procedures and reducing costs of meeting the same</p> <p>Increase freight capacity of horticultural produce</p>	The demand for horticultural produce growing with the steady opening of economies, the available freight capacity cannot cope with the increase in volume demand	<p>Agriculture and Food Authority</p> <p>National and County governments</p> <p>International airlines</p>
Trade	<p>Investing in digital commerce (both e-commerce and m-commerce) to support trade and access commodities along the food value chain.</p> <p>To decentralize major agricultural markets</p> <p>Support traders in the procurement of PPEs</p>	<p>COVID-19 has slowed down trade activities due to the restrictions on movements. This has limited the ability of households to access markets/grocery stores to purchase food items</p> <p>Digital space will also reduce the frequency of traders and buyers converging to transact</p>	National and County governments
Agriculture	Zero rating/tax reduction of essential agricultural inputs	<p>Reduce cost of production thereby stimulate demand for the food commodities</p> <p>The measure would also improve the competitiveness of local agricultural</p>	National and County governments

		production relative to cheap food imports	
Education	Support schools with e-learning to facilitate continuous operations of educational institutions Suspension or waiver of business permits for private schools	To mitigate the loss of livelihoods in the sector especially in the private sector with permanent closure of learning intuitions up to January 2021	National and County governments
Social security	Subsidies in kind to include reduction of tax on essentials commodities and services including: energy, water, food, transport, PPEs and internet data services Deferral of mortgages and student loans mostly to benefit the unemployed or population in partial employment as a result of COVID-19.	The proposed actions will help to stimulating demand and stabilize population's purchasing power.	National and County governments Financial Sector
Domestic investment	Continue with and/or provide income tax cuts to firms to encourage them to rehire workers Review the investment pipeline to remove administrative and economic bottlenecks and prepare a set of ready-to-implement PPP projects	Reduced taxation on firms provides impetus to allow for continued operation and rehiring of workers Administrative and economic governance issues have continued to be an impediment to PPP projects that could stimulate domestic economic activity	National Treasury and Planning
Fiscal Deficit	Restructure public debt towards longer maturity loans and uptake of new loans on concessional basis Achieve more with less. Utilize available national resources in a prudent manner while avoiding fiscal slippages and inefficiencies brought about by graft	Need to strike a balance between the short-term fiscal support and long-term fiscal sustainability The country loses about a third of the national budget through graft and corruption related activities	National Treasury and Planning

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List of abbreviations and definitions

CPI	Consumer Price Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
KEPSA	Kenya Private Sector Alliance
KNBS	Kenya National Bureau of Statistics
MoALFC	Ministry of Agriculture, Livestock, Fisheries & Cooperatives
MSME	Micro, Small and Medium Enterprises
PPE	Personal Protective Equipment
PPP	Public Private Partnership

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Annex 1. Sectoral and household disaggregation in the JRC DEMETRA model for Kenya

Table A1. Economic sectors in the Kenya 2017 SAM

Economic sectors		
Food crops	Beverages	Other manufacturing
Cotton and fibres	Other food processing	Water supply and sewage
Sugar cane	Textiles	Electricity, gas and steam
Coffee	Leather and footwear	Construction
Tea	Wood products	Wholesale and retail trade
Tobacco	Paper and printing	Accommodation and food services
Flowers and other crops	Beverages	Transportation and storage
Livestock	Other food processing	Information and communication
Dairy	Textiles	Finance and insurance
Fishing	Other chemicals	Real estate
Forestry	Fertilizers - N	Other services
Minerals	Fertilizers - P	Public administration
Meat processing	Fertilizers - K	Health and social work
Grain milling	Non-metal minerals	
Bakery	Machinery and other equipment	

Table A2. Marketed commodities in the Kenya 2017 SAM

Commodities		
Maize	Fishing	Other manufacturing
Wheat and barley	Forestry	Water supply and sewage
Rice	Minerals	Electricity, gas and steam
Other grains	Other meat	Construction
Other roots	Milled grains	Wholesale and retail trade
Other oilseeds	Bakery	Electricity, gas and steam
Fruits and nuts	Goat	Road infrastructure
Vegetables	Other food	Irrigation infrastructure
Cotton	Leather and footwear	Other infrastructure
Sugars	Minerals	Construction other
Coffee	Paper and printing	Wholesale and retail trade
Tea	Petroleum products	Accommodation and food services
Tobacco	Other chemicals	Transportation and storage
Flowers and other crops	Fertilizers - N	Information and communication
Beef	Fertilizers - P	Finance and insurance
Dairy	Fertilizers - K	Real estate
Poultry	Non-metallic minerals	Other services
Tea	Machinery and other equipment	Public administration
Other livestock	Other manufacturing	Health and social work
Textiles	Water supply and sewage	Education

Table A3. Household grouping in the Kenya 2017 SAM

Household groups		
High Rainfall – Rural	Nairobi - Quintile 1	Mombasa - Quintile 1
High Rainfall – Urban	Nairobi - Quintile 2	Mombasa - Quintile 2
Semi-Arid North - Rural	Nairobi - Quintile 3	Mombasa - Quintile 3
Semi-Arid North - Urban	Nairobi - Quintile 4	Mombasa - Quintile 4
Semi-Arid South - Rural	Nairobi - Quintile 5	Mombasa - Quintile 5
Semi-Arid South - Urban		
Coast - Rural		
Coast – Urban		
Arid North - Rural		
Arid North - Urban		
Arid South - Rural		
Arid South - Urban		

Annex 2. April-June lockdown impacts and short-term recovery measures

Table A4. Changes to labour productivity across sectors

Sector	Lockdown duration (weeks)	Monthly productivity loss	Annualised productivity loss
Food crops	10	-17%	-3.2%
Cotton and fibres	10	-17%	-3.2%
Sugar cane	10	-17%	-3.2%
Coffee	10	-17%	-3.2%
Tea	10	-17%	-3.2%
Tobacco	10	-17%	-3.2%
Flowers and other crops	10	-17%	-3.2%
Livestock	10	-17%	-3.2%
Dairy	10	-17%	-3.2%
Fishing	10	-17%	-3.2%
Forestry	10	-13%	-2.4%
Minerals	10	-13%	-2.4%
Meat processing	10	-17%	-3.2%
Grain milling	10	-17%	-3.2%
Bakery	10	-17%	-3.2%
Beverages	10	-17%	-3.2%
Other food processing	10	-17%	-3.2%
Textiles	10	-25%	-4.8%
Leather and footwear	10	-25%	-4.8%
Wood products	10	-25%	-4.8%
Paper and printing	10	-25%	-4.8%
Petroleum products	10	-25%	-4.8%
Other chemicals	10	-25%	-4.8%
Fertilizers - N	10	-25%	-4.8%
Fertilizers - P	10	-25%	-4.8%
Fertilizers - K	10	-25%	-4.8%
Non-metal minerals	10	-13%	-2.4%
Machinery and other equipment	10	-25%	-4.8%
Other manufacturing	10	-25%	-4.8%
Water supply and sewage	10	-21%	-4.0%
Electricity, gas and steam	10	-10%	-2.0%
Construction	10	-48%	-9.2%
Wholesale and retail trade	10	-27%	-5.2%
Accommodation and food services	11	-63%	-13.0%
Transportation and storage	11	-25%	-5.2%
Information and communication	10	-27%	-5.2%
Finance and insurance	10	-25%	-4.8%
Real estate	10	-42%	-8.0%
Other services	10	-50%	-9.6%

Public administration	11	-4%	-0.9%
Health and social work	11	-10%	-2.2%
Education	11	-83%	-17.4%
Meat processing	10	-17%	-3.2%

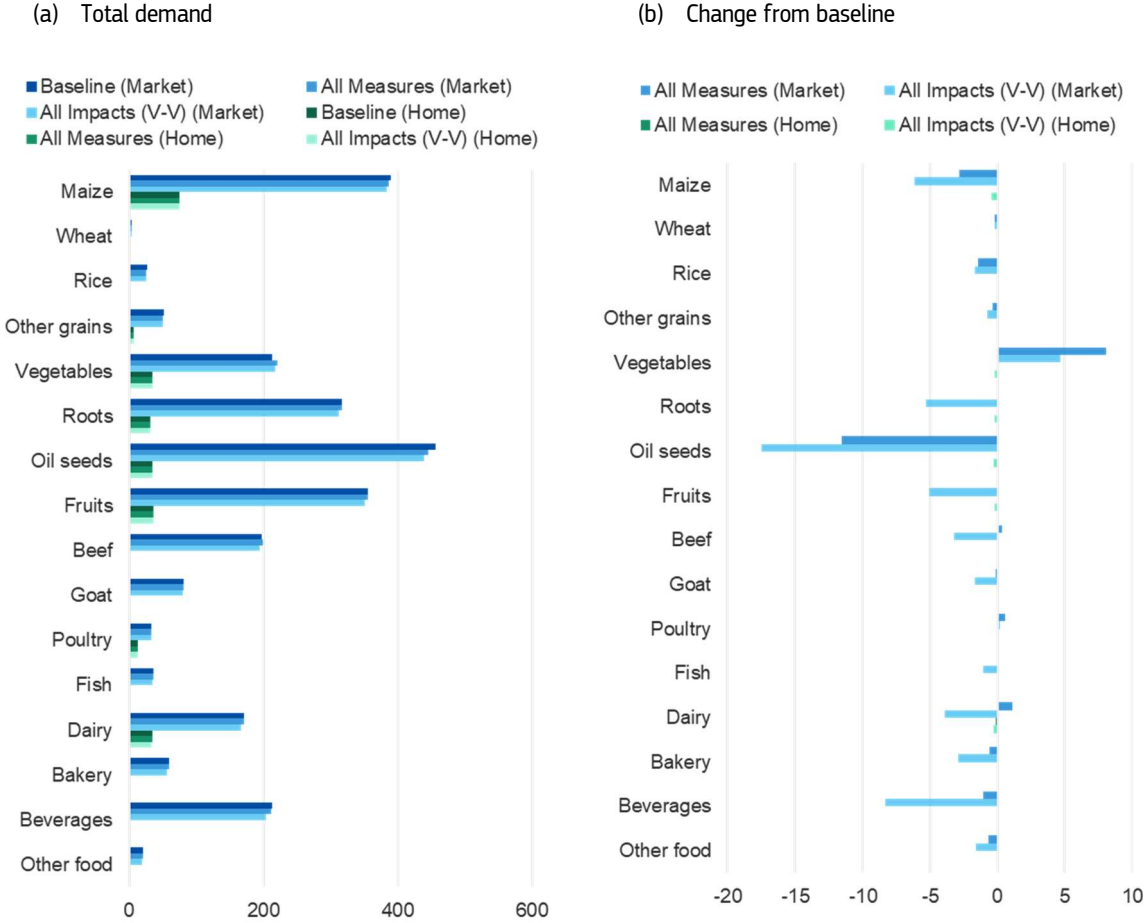
Table A5. Changes to commodity exports

Commodity	Annualised reduction	exports	Commodity	Annualised reduction	exports
Maize	-45.8%		Forestry	-5.2%	
Wheat and barley	-45.8%		Minerals	-5.2%	
Rice	-45.8%		Other meat	-5.2%	
Other grains	-34.4%		Milled grains	-5.2%	
Other roots	-34.4%		Bakery	-5.2%	
Other oilseeds	-5.2%		Goat	-5.2%	
Fruits and nuts	-34.4%		Other food	-5.2%	
Vegetables	-34.4%		Textiles	-5.2%	
Cotton	-5.2%		Leather and footwear	-5.2%	
Sugars	-5.2%		Minerals	-5.2%	
Coffee	-5.2%		Petroleum products	-5.2%	
Tea	-2.7%		Other chemicals	-5.2%	
Tobacco	-5.2%		Non-metallic minerals	-5.2%	
Flowers and other crops	-22.5%		Machinery and other equipment	-5.2%	
Beef	-5.2%		Other manufacturing	-5.2%	
Dairy	-5.2%		Wholesale and retail trade	-5.2%	
Poultry	-5.2%		Accommodation and food services	-45.8%	
Goat	-5.2%		Transportation and storage	-5.2%	
Other livestock	-5.2%		Finance and insurance	-5.2%	
Fishing	-5.2%				

Table A6. Additional government expenditure measures included in the analysis (in million KSh)

Area	Category	Amount
Infrastructure	<i>Total</i>	<i>6,470</i>
	Roads, foot bridges etc.	5,000
	Rehabilitation of wells, water pans and underground tanks	850
	Drilling of Boreholes in Informal Settlements in Nairobi	620
Health	<i>Total</i>	<i>11,940</i>
	Recruitment of health workers	1,000
	COVID related health response measures	6,240
	COVID expenditures on health	3,000
	Additional 5000 healthcare workers	1,700
Education	<i>Total</i>	<i>6,500</i>
Tourism	<i>Total</i>	<i>4,000</i>
	Soft loans to hotels and related establishments	2,000
	Engagement of 5,500 community scouts	1,000
	160 community conservancies	1,000
Public administration	<i>Total</i>	<i>400</i>

Figure A1. Household demand of food commodities by home production and market sources (in billion KSh at fixed prices)



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