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Impact of trade shocks on growth and poverty in selected countries

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The COVID-19 pandemic is affecting national economies through several channels, including through global commodity trade and markets.

This bulletin provides a comparative analysis of the growth and poverty effects of disruption in primary commodity markets in Ghana, Kenya, Nigeria, and Senegal. The analysis focuses exclusively on the impact of the disruption in global commodity trade, that is, of changes in global prices and market access.

The ReSAKSS¹ toolbox developed under the African Union's Comprehensive Africa Agriculture Development Program (CAADP) is utilized for this analysis. The toolbox includes a series of country-specific Computable General Equilibrium (CGE) and Micro-Simulation (MS) models linked in a top-down fashion.² The primary sources of information

are the Social Accounting Matrices (SAMs) accessible through the AGRODEP³ database and the United Nation Commodity Trade Statistics Database.⁴ Changes in the global prices of 46 primary commodities presented in Figure 1 are based on price forecasts for the year 2020 released by the World Bank in October 2019 and April 2020.⁵

Two types of scenarios are implemented in this analysis—Baseline and COVID. The scenarios are primarily built around changes in predicted 2020 prices for key primary commodities before and after the onset of COVID-19. The baseline scenario is based on the predicted primary commodity prices for the year 2020 by the

Global commodity market disruptions and african economies

The pandemic has not left a single region of the world untouched. Its disruptive effects have equally reached into every corner of the global economy. Global primary commodity markets in particular are affected by many of the measures taken to adapt to and control the spread of the pandemic. Measures to minimize the risk of cross-border infections interfere with the normal operations of commerce, slowing down or impeding the movement of goods around the globe. The changes affecting global supply chains can have significant repercussion on national economies. Changes in prices received for exports or paid for imports translate into gains or losses of foreign exchange earnings. The same applies to changes in availability of cargo or the operation of airports and ports, as they affect the cost and volume of goods shipped. Changes in consumer behavior, including under confinement conditions or otherwise, have similar consequences.

The forces of supply and demand ultimately dictate which prices move in which direction. Individual economies are affected based on the exposure to shocks in different markets, which in turn depends on the bundle of goods they sell to or buy from foreign markets. The more their exports or imports are skewed towards goods for which global prices move favorably, the more they tend to benefit and vice versa.

Changes in exported and imported quantities as well as related prices are transmitted to domestic firms and consumers, resulting in changes in production activities and demand for goods, which in turn affect the pace of growth, available incomes and thus livelihoods. The final impact depends on the ability of the economy to adjust to the changing market conditions. The more an economy finds ways to compensate for changes in prices or traded quantities, the more it is likely to minimize the negative impact from global market disruptions.

1 Regional Strategic Analysis and Knowledge Support System. (www.resakss.org)

2 The CGE models are built upon the competitive small open economy setting. The MS models use the reweighting technique to distribute income (from the CGE model) across the population and to assess the related changes in poverty measurements. Further details are provided by Fofana et al. (2019) www.ifpri.org/publication/naip-toolkit-malabo-domestication-economic-modeling-agricultural-growth-and-investment.

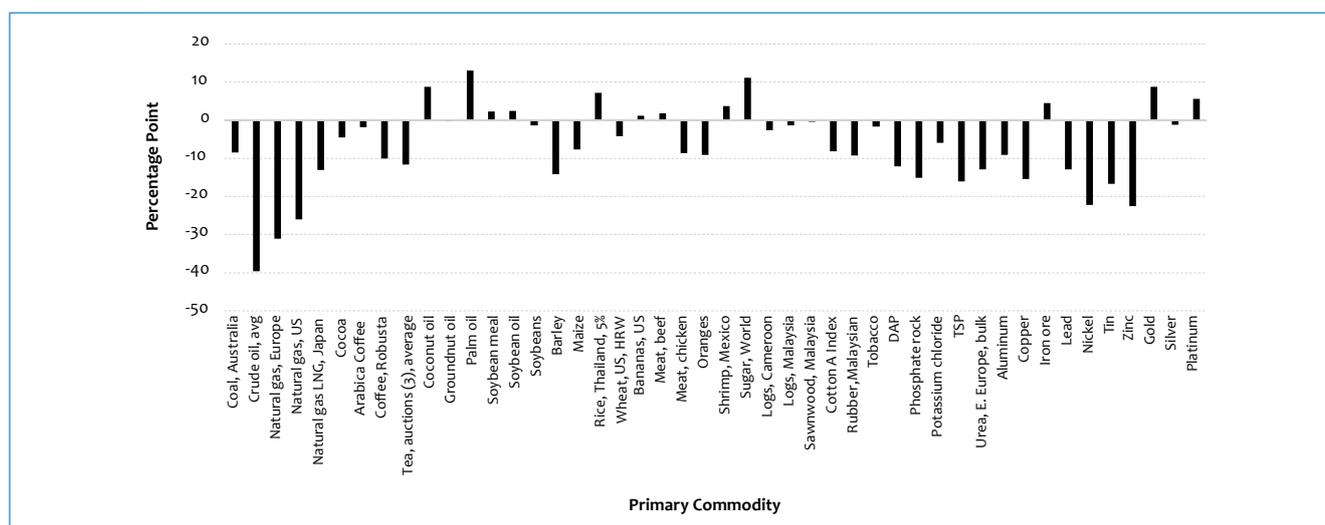
3 African Growth and Development Policy. (www.agrodep.org)

4 United Nations Commodity Trade Statistics Database. (<https://comtrade.un.org/db>)

5 World Bank. Commodity Markets. Retrieved in July 2020. www.worldbank.org/en/research/commodity-markets#2

Ousmane Badiane, Executive Chairperson

Figure 1: Changes in predicted prices in 2020 for primary commodities



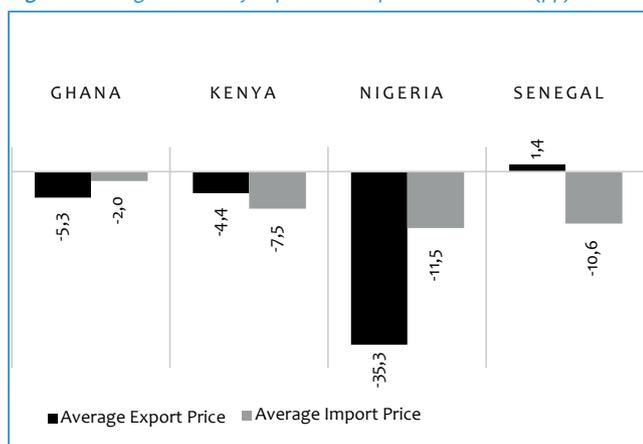
Note: Differences between prices forecast in April 2020 and in October 2019 in pp.
 Source: Computation from the World Bank Commodity Price Forecasts, October 2019 and April 2020. Data retrieved in July 2020 from <https://www.worldbank.org/en/research/commodity-markets>

World Bank as of October 2019. This scenario also uses the predicted rates of GDP growth by the International Monetary Fund (IMF) before the pandemic. The COVID scenario, in contrast, is based on the April 2020 World Bank predictions of primary commodity prices for the same year 2020. In addition to the global price shock, the COVID scenario also accounts for the deterioration in global market access and the shrinking global demand for goods and services.⁶

Changes in global commodity markets

The differences in the two rounds of price predictions reveal that the pandemic has driven most commodity prices down in 2020 (Figure 1). Global prices are projected to decline for energy and base metal products by as much as -37.5 percentage points (pp) for petroleum products, and -21.7 pp for zinc products. The projected prices of most of the oil and energy commodities related to transportation are much lower under the COVID scenario compared to the baseline. On the other hand, international prices for precious metal products are forecast to rise, by close to 6.0 pp for platinum and 10.0 pp for gold. In contrast, prices for agricultural and food

Figure 2: Change in Country Export and Import Price Indices (pp)



products show a rather mixed picture, with, for example, increases in projected prices for commodities like palm oil by 12.7 pp or sugar by 11.5 pp and a decrease of similar magnitude (-12.5 pp) for barley. The impact of changes in global prices for primary commodities on individual economies depends on the magnitude of price changes for specific commodities and on the composition of the basket of primary commodities exported and imported by each country. As Figure 2 shows, the combined variation of prices of primary commodities traded by Kenya, Ghana, and Nigeria translate to an average drop in each country's export price index by -4.4, -5.3, and -35.3 pp respectively. Nigeria is the most affected by the decline in price of exports due to the drastic drop in the price of petroleum. Indeed, petroleum products are the most important primary commodities exported by Nigeria with a share of 93.7 percent. The corresponding declines in the average import price index for Ghana, Kenya, Nigeria, and are -2.0, -7.5, and -11.5 pp. In the case of Senegal, on the other hand, the combined variation of prices of primary commodities translates to a slight increase in the country's export price by 1.4 pp, on average. This increase is enhanced by positive price changes in gold related products, fish products, as well as coconut and cashew nuts. In terms of imports, the corresponding decline of the average price index, is similar to the other countries with 10.6 pp. The reductions in import price indices in the selected countries are mainly explained by changes in the price of petroleum, which is among the most important primary commodities imported.

Impact on trade performance

The ultimate effects of the pandemic on the economies of Ghana, Kenya, Nigeria, and Senegal will depend on the capacity of each country to respond to changes in global trade conditions. To have a more accurate picture of how each economy is affected, varying

6 COVID-19 and international trade: Issues and actions (OECD). Retrieved in July 2020 from www.oecd.org/coronavirus/policy-responses/covid-19-and-international-trade-issues-and-actions-494da2fa. Lower export demand elasticity values are selected to implement the COVID scenario compared to the baseline scenario.

degrees of responsiveness to the changes in prices and market access were considered in the COVID scenarios. The numbers on the horizontal axis in Figures 3 and 4 represent decreasing degrees of responsiveness from 1 (highest) to 35 (lowest) as one moves from left to right. The measure for responsiveness is a combination of elasticities of export supply and import demand by firms and consumers in each country, as well as elasticities of demand for each country's exports in global commodity markets. As the degree of responsiveness is varied from high to low, the pressure to adjust falls increasingly on the exchange rate which gradually appreciates (Figure 5). In the case of Ghana, the simulated change in the value of exports barely changes (from -5.8 pp to -5.7 pp) as the degree of responsiveness changes across individual COVID scenarios. The change in export value for Senegal is the largest, ranging from 8.1 pp to -4.9 pp. The change in the value of exports by Kenya is also substantial, ranging from 0.8 pp to -5.3 pp. Regarding Nigeria, the change in the value of exports ranges from -3.3 pp to -1.9 pp (Figure 3).

Senegal and Kenya are the two countries which may benefit from an increase in export revenues if they were able to respond sufficiently to capture the rise in export prices. However, given continuing challenges facing global trade and domestic coping measures, including

confinement and disruption of ports and airport operations, situations with lower responsiveness are more probable. It is therefore likely that the final impact on country exports will be closer to the values observed at the extreme end of the curves to the right of the X axis, with negative changes ranging from -1.9 pp for Nigeria to -5.7 pp for Ghana.

The cost of imports also varies across countries with a similar trend. Senegal experiences the largest change with the import value ranging from 20.2 pp to 0.9 pp. For Kenya, Ghana, and Nigeria, the change in the value of imports ranges, respectively, from 7.2 pp to -0.4 pp, -3.2 pp to -10.3 pp, and -17.6 pp to -24.0 pp (Figure 4). In Nigeria and Ghana, the pressures from global commodity markets induce a sharp decrease in the cost of imports and, to a lesser extent, exports. The negative trade impact in these two countries persists with varying degrees of responsiveness. The ultimate effects on the economies of Senegal and Kenya, in contrast, vary more substantially with the countries' capacities to respond to changes in global trade conditions. Even though, the positive effect on imports by both countries holds across all scenarios. It is the change in exports that shifts from a positive to a negative value with varying degrees of assumed responsiveness.

Figure 3: Country Export Performances Under the Global Commodity Market Disruption (pp)

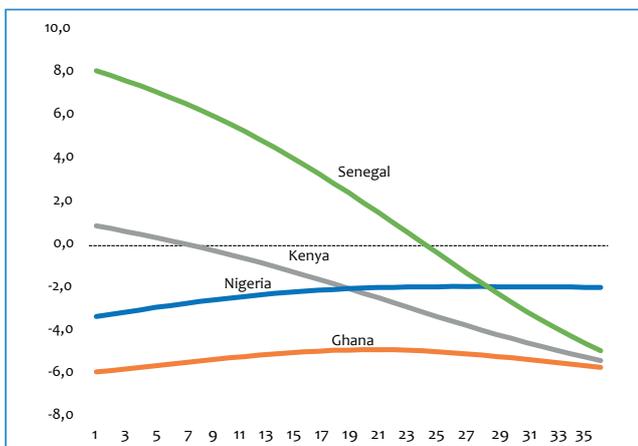
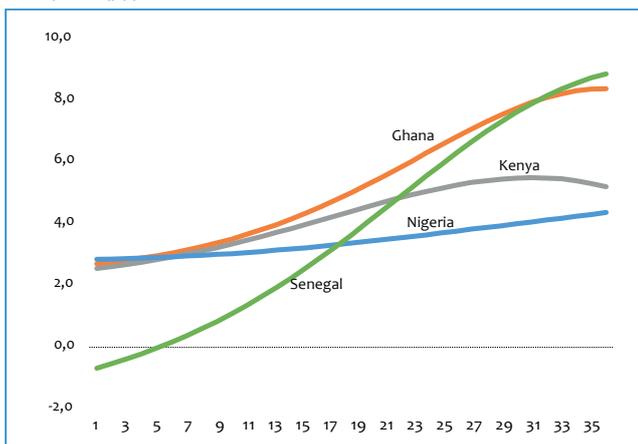


Figure 5: Real Exchange Rate Effects of Global Commodity Market Disruption (pp)



Source: Authors' computation from the simulations. **Note:** The COVID scenarios (1 to 35) combine different values of trade (import and export) elasticities across commodities to mimic the responsiveness of the economies of Ghana, Kenya, Nigeria, and Senegal to changing global market conditions. Scenario 1 uses the highest and scenario 35 the lowest elasticity values. The remaining scenarios combine different values of elasticities between the two extremes. Import and Export values are in constant 2018 or 2019 prices.

Figure 4: Country Import Performances Under the Global Commodity Market Disruption (pp)

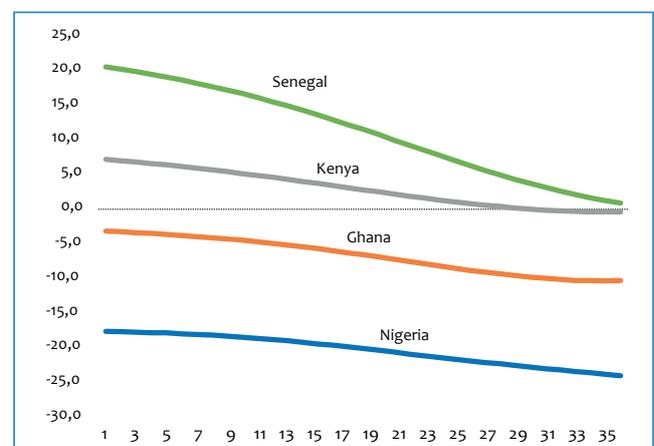
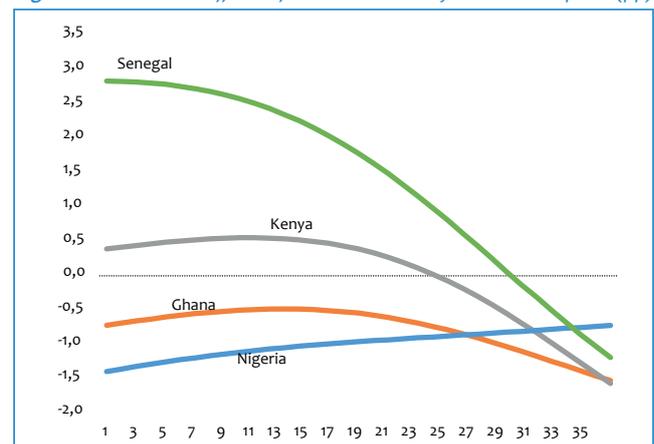


Figure 6: GDP Growth Effects of Global Commodity Market Disruption (pp)



Impact on growth and poverty

The above changes reflect likely adjustments in the broader economy to changing global market conditions, with potentially serious consequences for overall growth and poverty rates, as producers and consumers react to changing market signals. Figure 6 shows the likely effects of the pandemic on economic growth in each country, with changes in GDP growth again being the largest in Senegal, ranging from 2.8 pp to -1.2 pp. In Kenya, Ghana, and Nigeria, respectively, the rates range from 0.4 pp to -1.6 pp, from -0.7 to -1.5 pp, and from -1.4 pp to -0.7 pp. The decline in GDP growth is the more probable case in face of likely limited capacity of countries to respond effectively to global price changes. Key reasons include the marked slowdown in economic activity and the widespread disruption in domestic supply chains.

Lower GDP growth invariably translates to rising poverty rates. Table 1 shows the estimates of changes in poverty rates resulting from a deteriorating global trade environment and adjustments by the economy of each country. The figures are based on the lowest responsiveness scenarios. As each country attempts to gain control over the pandemic, the measures put in place are likely to slow down economic activities. It is therefore more likely, as pointed out earlier, that the actual ability to adjust to changing global trade conditions will be

limited, meaning that actual responsiveness is more likely to be closer to the low case scenario. In other words, it is more likely that the impact on poverty levels will be negative. The results for the least responsive scenario are presented in Table 1. These results show increases in poverty rates across the board, by as little as 0.1 pp in Kenya up to 2.2 pp in Nigeria. Poverty rates in Ghana and Senegal are predicted to increase by 1.2 pp and 1.3 pp.

Changes in poverty levels also vary between rural and urban households. Nigeria experiences the largest poverty increase in both rural (2.3 pp) and urban (2.1 pp) areas. In Kenya, rural poverty declines slightly by 0.1 pp, while urban poverty rises by 0.7 pp. Rural poverty in Ghana, on the other hand, increases by 1.6 pp, more than double the increase in urban poverty of 0.7 pp. In Senegal, the increase in urban poverty (1.7 pp) is about 50 percent higher than the increase in rural poverty (1.1 pp).

The findings summarized above show that the disruption of global primary commodity trade is a major source of potentially negative effects of the pandemic on African economies. The findings also show that the ultimate impact depends on countries' preparedness to respond and adjust effectively to the changes triggered by developments in global markets.

Table 1. Change in Poverty resulting from Global Trade Disruption (pp)

Country	Headcount Ratio (pp)			Headcount Number		
	National	Urban	Rural	National	Urban	Rural
Ghana	1.2	0.7	1.6	313,913	95,577	218,336
Kenya	0.1	0.7	-0.1	57,183	110,347	-19,415
Nigeria	2.2	2.1	2.3	4,701,632	1,716,141	2,985,491
Senegal	1.3	1.7	1.1	187,865	103,149	84,716

Source: Authors' calculations. **Note:** The results are based on COVID scenario 35 which combines the lowest values of trade (import and export) elasticities with the shock in commodity prices. Poverty is measured by the headcount ratio, i.e. the proportion of population that is below the country national poverty line.



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Note: The boundaries and names shown, and the designations used on maps do not imply official endorsement or acceptance by AKADEMIYA2063.

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