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Exposure and Vulnerability to Global Fertilizer Trade and Market Disruptions: Nigeria Case Study

Ismael Fofana*, Leysa Maty Sall**, and Yaya Ky***



1. Introduction

Nigeria is a major fertilizer producer in Africa. However, it still relies on the global market to meet its own needs. In 2020, the West African country imported nearly half of its fertilizer needs from the global market (46 percent), with almost half of these imports originating from Russia (48 percent). The use of fertilizers in Nigeria is low on average and tends to be concentrated in a few sectors. However, the sharp increases in global fertilizer prices are likely to affect Nigeria's economy through the following chain of events. Higher prices and supply shortages will reduce fertilizer application rates which will lower productivity per hectare and result in decreased crop output. Declines in individual crop output will lower the agricultural sector's contribution to the overall economy and depress growth of the country's Gross Domestic Product (GDP). This brief presents the results from simulations of this chain of events for Nigeria.

*Director, Capacity and Deployment, AKADEMIYA2063

**Economist, Centre d'Études Prospectives et d'Informations Internationales (CEPII)

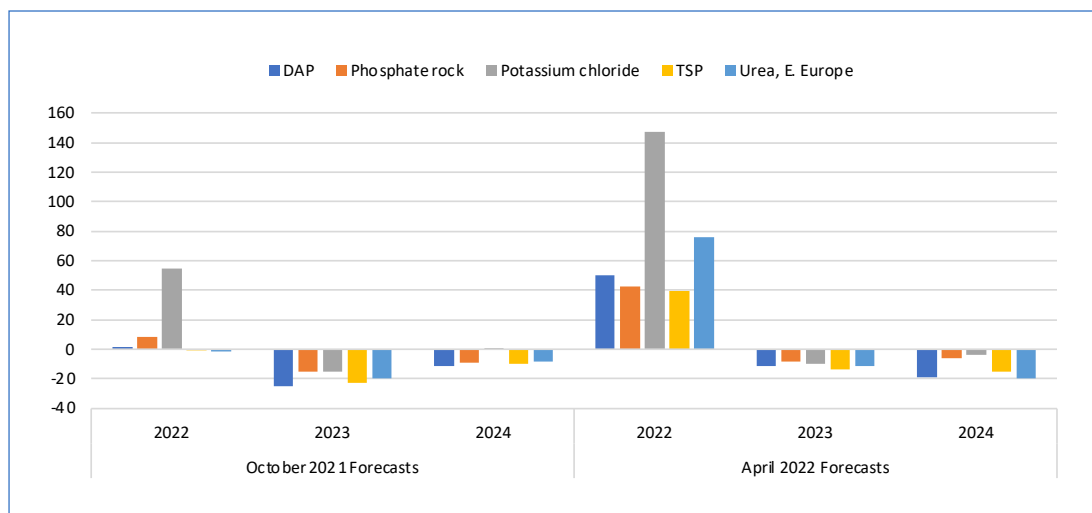
***Economist, Université Thomas Sankara (UTS), Burkina Faso

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2. Supply Chain Disruptions and Changes in Global Market Prices for Fertilizers

Figure 1 compares the price projections from October 2021, i.e., before the start of the Russia-Ukraine war (Baseline scenario), with the price projections from April 2022 following the outbreak of the conflict (Ukraine scenario). This comparison illustrates the change in fertilizer prices during the Ukraine crisis. The Baseline scenario indicates that fertilizer prices will remain stable in 2022, with the exception of potassium, before they drop in 2023 and 2024. However, with the outbreak of the Russia-Ukraine war, global fertilizer prices are projected to increase by more than 40 percent on average before they drop slightly in 2023 and 2024. Overall, Nigeria will experience an increase in global fertilizer prices over the 2022-2024 period.

Figure 1: Global Fertilizer Prices, Annual Changes (%)

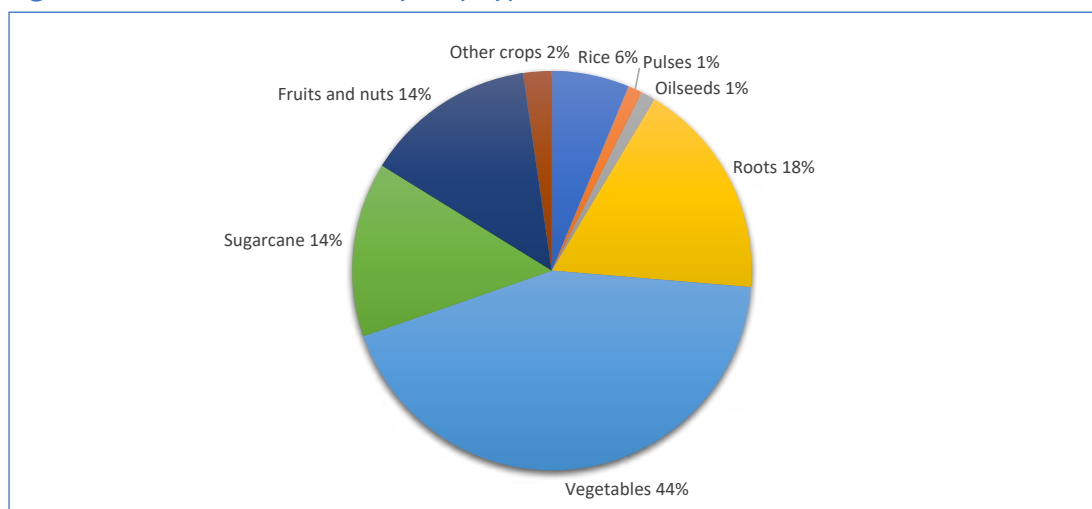


Source: Commodity Market Outlook (World Bank 2022).

3. Fertilizer Use Patterns and Changes

Figure 2 illustrates the share of fertilizers used by crop type. The vegetable sector uses 40 percent of all fertilizers, followed by root crops (16 percent), sugarcane (13 percent), nuts and fruits (13 percent), maize (8 percent) and rice (6 percent). Only a small portion of total fertilizers are used for oilseeds, pulses, and other crops. Fertilizer use tends to be concentrated among a few crop types.

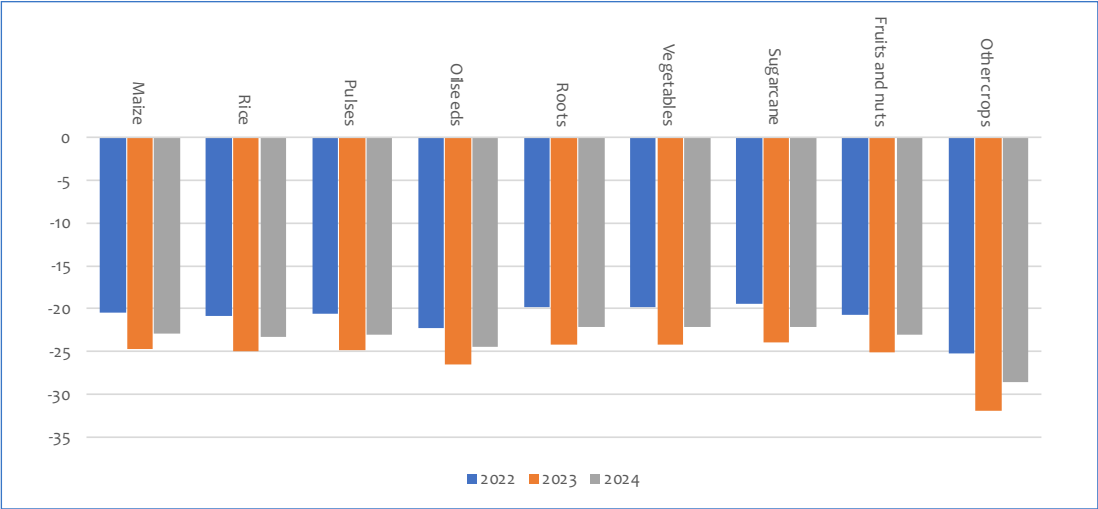
Figure 2: Share of Fertilizer Use by Crop Type



Source: Nigeria 2018 Social Accounting Matrix (Thurlow 2021).

Figure 3 shows the difference between the Ukraine scenario and the Baseline scenario. The use of fertilizers in Nigeria is anticipated to decrease by 20-30 percent. Figure 3 also shows that the price impacts will peak in 2023 and continue into 2024.

Figure 3: Fertilizer Use by Crop Type, Ukraine Scenario vs. Baseline Scenario (%)

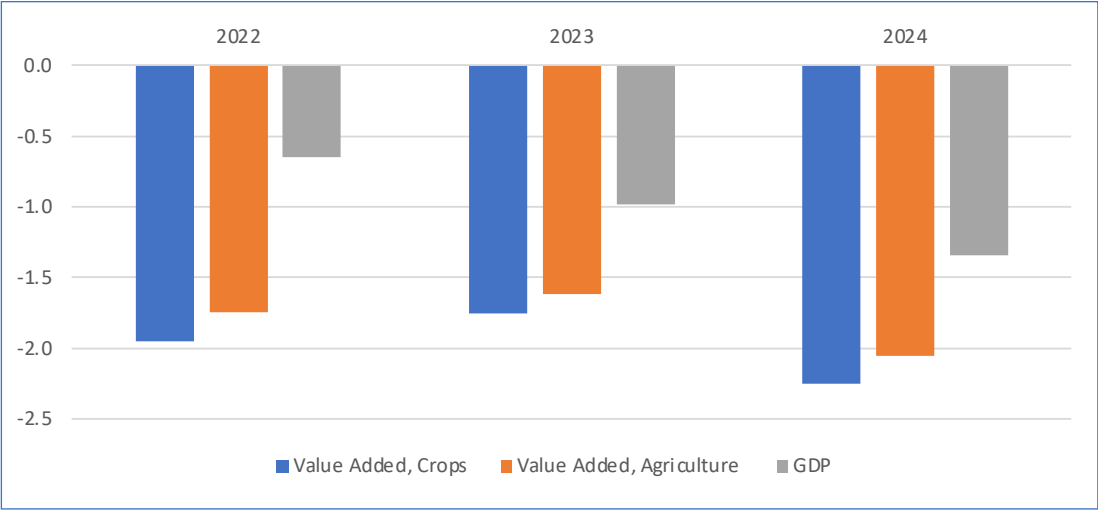


Source: Compilation from simulation results (2022).

4. Agricultural Productivity and Growth Effects of Fertilizer Sector Disruptions

The increase in fertilizer costs coupled with a decrease in fertilizer application for all crops will result in reduced yields and ultimately, the contraction of Nigeria’s agricultural production (Figure 4). Projections indicate that the value added for the crops sub-sector and the agricultural sector as a whole will decline by about 2 percent between 2022 and 2024. This decrease in agricultural output is reflected in GDP growth shrinking by 0.5 and 1.5 percent, between 2022 and 2024.

Figure 4: Output Effects, Ukraine Scenario vs. Baseline Scenario (%)



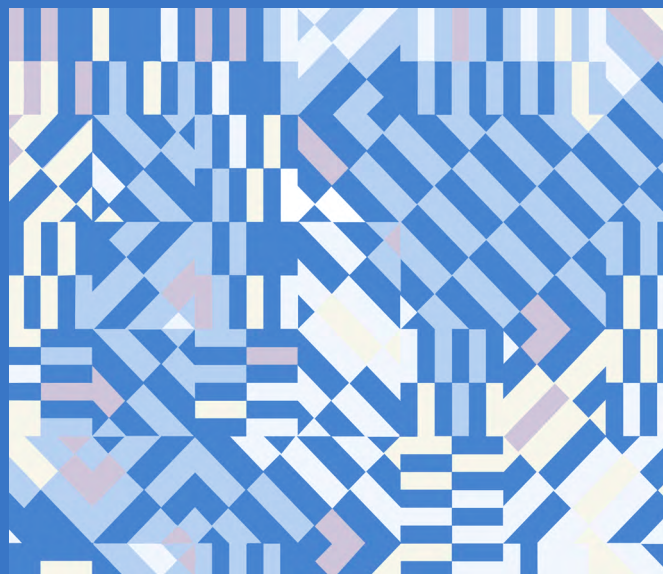
Source: Compilation from simulation results (2022).





5. Conclusion

Fertilizers are used on a small range of crop types in Nigeria. The disruptions induced by the Russia-Ukraine war, are expected to result in high fertilizer prices over the 2022-2024 period. These disruptions affect crop production by reducing fertilizer application across all crops in Nigeria. The results indicate a decline in the output of Nigerian crops by about 2 percent, which will be transmitted to the agricultural sector and reflected in slower GDP growth. The economic and food security implications of the fertilizer market disruptions from the Russia-Ukraine conflict are therefore likely to be significant for Nigeria.

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-  AKADEMIYA2063 | Kicukiro/Niboye KK 341 St 22 | 1855 Kigali-Rwanda
-  +250 788 318 315 | +221 338652881
-  kigali-office@akademiya2063.org
-  www.akademiya2063.org

    @AKADEMIYA2063