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*The competitiveness of Kenya's production systems compared to those of our trading partners' remains a critical issue with regards to both economic development and food security. Self-sufficiency in major staples has remained elusive as Kenya continues to face structural deficits in both wheat and rice. The deficit is met through imports. Despite Kenya being a high cost producer of wheat and rice there are groups of farmers that are producing these crops competitively. Thus there is potential for growth of the wheat and rice sub-sector through replicating the success cases of competitive farmers and also addressing the inefficiencies that lies along the value chain. The inefficiencies identified in this research included low yields, high input costs, high operational costs, and poor infrastructure. To address these inefficiencies in the short run there is need to harmonize taxation across municipalities, reducing double taxation especially where commodities transcends municipal boundaries. Zero rating of agricultural machinery and removal of VAT on spare parts is recommended. Streamlining the importation, refinery and distribution of fuel to avoid the lag that creates artificial shortages is advised. Bulk importation of inputs would facilitate economies of scale. In the long-run, there is need to focus government expenditure on public investments such as improvement and rehabilitation of infrastructure (rail, road, ports markets and irrigation), alternative energy sources (wind, solar, nuclear) and increasing productivity (breeding high yielding seed, promoting variety turnover, extension services).*

**BACKGROUND:** The competitiveness of Kenya's production systems compared to those of our trading partners remains a critical issue. Kenya's economy has maintained a structural deficit in major grains which include maize, wheat and rice in order of importance. This deficit has always been met through imports from regional and international markets. Self-sufficiency in these commodities has remained elusive over the years, especially given declining yields in wheat and rice. The wheat sub-sector contributes 1.4% and 30% to overall and cereal GDP respectively. It provides employment to over 500,000 people through linkages with several sectors such as transport, storage and the distribution services. The industry contributes over Ksh. 20 billion and supports about 11.3 % of the national population. Rice is currently the third most important cereal crop and is grown mainly by small-scale farmers as both commercial and food crop. According to the National Irrigation Board (NIB) the annual

consumption of rice has increased at a rate of 12%. This can be attributed to progressive change in eating habits especially in the urban areas. Currently the per capita consumption is 7 kilograms annually and this is expected to double by the year 2015. Despite the two sub-sectors' importance in the economy and food security issues, the country has continued to face structural deficit in wheat and rice production. Currently, the country is only able to meet 40% and 20% of its wheat and rice requirement respectively. The deficit is met through imports.

**OBJECTIVES:** This research aimed to establish why Kenya has continued to be high cost producer of wheat and rice. The specific objectives were to 1) establish the costs of production of wheat and rice, 2) estimate costs and margins along the value chain, 3) identify inefficiencies along the value chain, and explore policy options to address them.

**DATA AND METHODS:** The study used primary data collected from farmers, transporters, traders and millers along the value chain for wheat and rice. Marketing costs and margins were calculated at each node of the chain. Technical efficiency scores, based on econometric analysis of farm production, were used to categorize wheat farmers into efficient, average and least efficient producers. For rice production, recommended input use per acre (according to National Irrigation Board) was used to categorize farmers into high average and low input users. Using the landed costs of imported wheat and rice, researchers simulated scenarios to evaluate competitiveness of locally-produced wheat and rice compared to imports, with and without import tariffs.

**MAIN FINDINGS:** Efficient and average producers are producing wheat competitively at the current import duty of 10%. If the import duty is removed, both categories of producers remain competitive. These two categories of producers' accounts for about 70% of the total wheat produced in the country. Least efficient producers are not competitive in either of the two scenarios.

Average costs of production constituted between 57% and 81% of the farm gate mill price, which is an indication of production inefficiencies. Inefficiency established along the value chain included, low yields as a result of slow replacement of old varieties. Over half of the farmers interviewed were growing Kwale and Mwamba varieties which were released 23 years despite that newer, high yielding varieties had been released. With regards to transportation, inefficiencies faced by transporters included high fuel costs (constituting 69% of total transportation costs), poor condition of roads linking farms to markets, and the old age of trucks (over 20 years) used for transportation. These factors have multiplier effects on maintenance and fuel consumption. In

addition, transporters encountered non-tariff barriers in the form of road blocks set-up for security check on major roads. Amongst traders, inefficiencies encountered included double taxation, especially where commodities crossed through several municipalities.

In rice production, only average producers and farmers who use inputs intensively were competitive with the current import duty of 35%. If the import duty were removed, only intensive input users would be competitive. Farmers using the least amount of inputs were uncompetitive under either of the two scenarios.

Several inefficiencies were identified along the rice value chain. Farmers encountered low yields, high costs of production (paddy rice production is labor intensive, with labor constituting 56% of total costs), and high input costs. Thus, farmers do not apply recommended rates. Sub-division of land and changing weather patterns has placed pressure water utilization in the irrigation schemes, affecting the intensity of paddy production. Increase in the prevalence of water borne diseases (malaria and bilharzias) negatively affects labor supply. Traders were faced with high costs of milling as a result of high electricity costs, and labor cost burden, especially in drying paddy rice. Among millers, inefficiencies included high electricity costs and old machinery that broke down frequently, interfering with operations. Some machinery spare parts were not locally available.

**POLICY IMPLICATIONS:** Some Kenyan farmers produce wheat and rice competitively, with or without the protection of import duties. There is a need to learn and replicate the lessons learned by efficient farmers among those who are not currently competitive. Furthermore, a number of major constraints still impede the performance of

wheat and rice value chains, reducing the nation's competitiveness in these crops.

To address these problems we suggest the following policy options. First, the nation must streamline and improve efficiency in crude oil importation, refining and the release to the market. This will address the lag which causes artificial shortage that push up the pump prices. Second, Kenya should harmonize taxes levied across municipalities to avoid double taxation, especially where products cross several municipality boundaries. Third, wheat production is highly mechanized, but the machinery currently used by farmers is outdated and depreciated. Maintenance costs are high, and efficiency is low. Government needs to zero rate imported spare parts, and exempt agricultural machinery from VAT. Government should invest in the improvement and rehabilitation of infrastructure (rail, road, ports and markets), alternative energy

sources (wind, solar, nuclear) and increasing productivity (breeding high yielding seed, variety turnover, extension services). These efforts will address inefficiencies along the wheat and rice value chain. Investment in irrigation is necessary if area under wheat and rice is to be expanded.

In the rice sub-sector, zero rating and exemption from VAT would enable the importation of simple technology from Asia that is utilized in most production activities. More funds should be allocated to rehabilitate current schemes. Funds should be invested in processing, branding and marketing activities in order to create employment in rice-growing areas and draw in labor.

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\*Raphael Gitau is a Research Fellow at Tegemeo; Samuel Mburu was a Research Assistant at Tegemeo Institute (Currently working at ILRI), Mary K. Mathenge is the Director of Tegemeo Institute and Melinda Smale is a Professor, Agricultural, Food and Resource Department, Michigan State University