



STRATHMORE UNIVERSITY BUSINESS SCHOOL

MASTER OF MANAGEMENT IN AGRIBUSINESS

End of Semester Examination

MMA 8102: AGRIBUSINESS POLICY

DATE: Friday, 14th July 2023

Time: 3 Hours

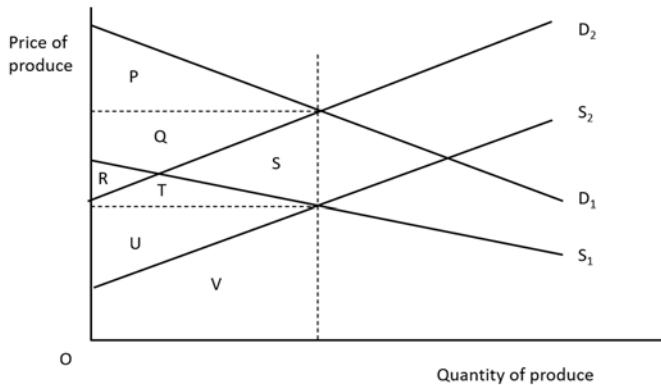
Instructions

This paper consists of three sections. Read **ALL** instruction for each section carefully before attempting any question.

Section I (15 marks): Answer **ALL** questions in this section.

1. Which statement about government intervention is correct?
 - a. Government failure may result from policies with unintended consequences.
 - b. Governments cannot identify the existence of inefficiency.
 - c. Inefficient government policies mean that the market system will be better at allocating resources.
 - d. Market failure means that government action will necessarily improve the situation.
2. A government regards fresh fruits and vegetables as merit goods and subsidized their farming to boost production. What could be a government failure arising from these subsidies?
 - a. Drop in consumer prices for fresh fruits and vegetables.
 - b. Land clearance reducing grazing and forest lands.
 - c. Lower spending on treating dietary illnesses.
 - d. Increased employment opportunities in the fruits and vegetables value chain
3. What statement is not true about an export subsidy?
 - a. A set of policy changes that provide support and assistance (eg. low interest loans) to commodity farmers in order to grow the export of their produce.
 - b. A payment to domestic producers of an export commodity to match international prices.

- c. A decrease in the tax rate at which producers of an export commodity are charged.
 - d. A tariff that makes the price of an exported good cheaper in the world market.
4. In Microeconomics, what is total welfare??
- a. A market equilibrium brought about by the efficient allocation of resources through the dynamics of supply and demand.
 - b. The revenue producers receive in excess of what they would be WILLING to take.
 - c. The sum that consumers don't pay that they would be willing to pay.
 - d. The extra benefit or utility enjoyed jointly by producers and consumers by receiving more than they were willing to accept or paying less than they were willing to pay, respectively.
5. D_1 and S_1 represent initial demand and supply curves for a commodity. D_2 and S_2 represents the equivalent curves after changes in market conditions.



What are the resulting changes in consumer and producer surplus?

- | Change in consumer surplus | Change in producer surplus |
|-----------------------------------|-----------------------------------|
| a. From R to P | From U to Q |
| b. From R+T to P | From U to R+Q |
| c. From R+T to P | From V to Q |
| d. From R to T+S | From V to R+Q |

Section II (45 marks): There are **SEVEN** questions in this section. Answer **ALL** questions.

- 6. Briefly describe the main agricultural trade policy instruments. **(4 marks)**
- 7. How does policy change such as a minimum market price mandate above current market equilibrium affect market supply and demand? **(5 Marks)**
- 8. Describe what a tariff is and why it is beneficial to domestic producers of the imported commodity including what outcome in the domestic market is intended through its application. **(6 marks)**
- 9. Briefly describe, using a relevant example the meaning of a “trigger price mechanism”. **(4 marks)**

10. What do you think the implication on trade will be if Kenya pays an export subsidy of Kes. 1000 for every carton of Avocados exported by it? Suppose the UK were to charge an equivalent countervailing duty on every carton of avocados it imports. Would the world welfare be affected? **(6 marks)**
11. Explain what is meant by political economy in policy formulation. At what point in the policy process do political interests have the most influence? How can the citizenry ensure that policies enacted with undue political involvement respond to issues that affect them? **(10 marks)**
12. What are the main challenges in policy formulation and setting? How can these challenges be overcome? **(10 Marks)**

Section III (40 marks): There are **TWO** questions in this section. Answer only **ONE** question. Read the passage for each question carefully before attempting the ensuing question.

Question 12: Food safety issue or non-Tariff barrier?

There was confusion in the East African grain market this week after Kenya banned maize imports from Tanzania and Uganda. The Agriculture and Food Authority said the reason for the ban was that levels of mycotoxins in the maize from the two countries were above safety limits. But in less than a week the Kenyan government appeared to backtrack and announced that it had asked its East African Community trading partners to pass sanitary and phytosanitary standards on farm produce before it reached Kenya.

What's the issue?

Kenya initially imposed the ban because it said grain from Tanzania and Uganda had high levels of mycotoxins. Mycotoxins are poisonous compounds produced by certain types of molds that grow on foodstuffs such as cereals and nuts in warm and humid conditions, either before or after harvest. Aflatoxins are among the most poisonous mycotoxins and can grow in the soil as well as on the foodstuffs. Research has shown that mycotoxins can damage DNA and cause cancer in animals.

Under the East African Community's common market – which all three countries belong to – safe rules have been which set standards for aflatoxins in maize. These vary from one jurisdiction to another. The East Africa Community's standard is 10 parts per billion, the US's is 20 parts per billion while the EU standard is four parts per billion. In the East African Community, each country enforces the safety standard. In Kenya, the ministries of agriculture and health are mandated to enforce food safety standards. These ministries collaborate with the customs authority to police food imports. The Agriculture and Food Authority, under the Ministry of Agriculture, carries out checks to ascertain the levels of aflatoxins in the food supply system. But the systems put in place for testing are flawed. For example, Kenya does not have a standard method for sampling and testing for aflatoxins. This is critical because aflatoxin levels can differ between grain collected from the same sack. This was illustrated a few years back when various government laboratories came under scrutiny over results showing different levels of aflatoxins for grain samples collected from an imported consignment. Another challenge is that laboratories don't all use the same

protocols. It gets murkier. Currently, important actors such as large grain milling companies conduct their own tests. Standardising the sampling methodology would make the results more consistent. Credibility of the results enhances food safety and certainty for maize traders and consumers.

What's the significance of what's happened?

Events of the last few days has raised awareness about food safety standards in the region. Discerning maize consumers in Tanzania and Uganda are likely to take a greater interest in the aflatoxin standards and how they are applied to their domestic markets. The developments are also significant for farmers in both countries, but more especially Tanzania. Farmers in Uganda mainly grow maize as a cash crop, and Kenya is a key market destination. In Tanzania, Kenya is a niche market offering better prices than domestic prices. Any interruption in trade to Kenya would mean that farmers faced huge losses. Third, this could potentially be a big win for food safety in Kenya. The government intervening to ensure food safety will increase awareness among producers and consumers. If sustained, Kenya will make progress on food safety in the food supply chains. It is clear from Kenya's statement lifting the temporary ban that authorities intend to take a tough stance in policing maize imports. Maize importers will now be required to register, and incoming consignments must be accompanied by a certificate of conformity with aflatoxin levels. Along with this, traders must provide details of their warehousing.

Is imported maize a problem for Kenya from a food safety standpoint?

The high levels of aflatoxins in imports from the region are associated with the fact that produce isn't properly dried. For instance, Ugandan produce is regularly harvested and immediately transported to Kenya from the farm. Maize should be dried to 13% moisture level before storage. Some of the maize is thought to have up to 18% moisture content, implying that once the maize is harvested, it is immediately sold and shipped to Kenya from these countries.

Kenya relies on maize from Uganda and Tanzania to meet its demand each year. According to the Ministry of Agriculture's data, Kenya imported about 277,350 tons of maize (3.1 million 90kg bags) in 2020. About 95% of this came from Uganda and Tanzania. This year, it was estimated that the country would need to import similar amounts to be food secure. Kenya's maize production was about 3.8 million tons (42 million bags). Some of this also contains aflatoxins. The main reason for local contamination remains poor storage and transportation, as well as contamination from the soil, especially in the lower altitude areas (lower eastern region) that have humid and damp conditions.

For this reason, aflatoxins in the maize supply systems cannot be solely blamed on imports from the two countries. But there's a focus on imports now because Kenya is doing much more than its neighbours to combat aflatoxins in the food supply chain. Kenya already has a plant to develop aflasafe. Aflasafe is a fungus, in the same family as the aflatoxin-causing fungi, that is applied to plants and the soil and stops harmful fungi from taking hold of the grain. In addition, consumer awareness of the dangers of aflatoxins is higher in Kenya. Similarly, the checks for aflatoxins in the food supply system are more regular in Kenya.

Timothy Njagi Njeru: Adapted from The Conversation, Published on Mar 11th 2021.

- a. Describe trade protectionism? Is Kenya practicing trade protectionism in the maize imports' scenario described above? What policy instrument is in use to limit the inflow of Aflatoxin affected maize? **(8 marks)**
- b. Was the Kenyan government ban justified? What alternative food safety policy could be put to use to ensure no harm to Kenyan consumers? **(6 marks)**
- c. Why is food safety regulation a public good? Is there evidence of government failure? Discuss. **(10 marks)**
- d. What are the potential tradeoffs of a ban on maize importation from Uganda and Tanzania? What other policy instrument could help avoid these trade-offs? **(8 marks)**
- e. What practical approaches could improve the coherence of the policies around cross-border trade of Maize in East African community? **(8 Marks)**

Question 13: Designing sustainable agricultural systems beyond Vision 2030

Economic value

In the past three decades, agriculture has remained central to Kenya's economic development, constituting 28% to the country's gross domestic product (GDP) and accounting for 65% of Kenya's total exports earnings. The crop, livestock, and fishery sub-sectors contribute approximately 78%, 20%, and 2% to the agricultural GDP, respectively. The country's reliance on agriculture and dependence on imports (especially of wheat, maize, and rice, among others) underscores the need for sustainable, resilient increases in agricultural productivity for food security and economic growth through CSA (Climate Smart Agriculture) promotion. The agricultural sector employs more than 80% of Kenya's rural workforce and provides about 18% of total formal employment. While official figures are not available, it is estimated that women represent between 48% and more than 80% of the total agricultural labour force.

Land use

Kenya's agricultural area extends over 48% of total land-use area in the country. While 78% of this land is categorized as meadows and pastures, the remaining 22% is dedicated to agriculture made up of arable land (21%) and permanent crops (1%) (2007–2011 averages). The most important agricultural regions are located in the Central, Western, and Rift Valley areas. The great majority of Kenyan farming systems are rainfed and small scale, with farmers owning an averaging of 0.2 to 3 ha of land [9]. Small-scale farming, typically characterized by mixed crop–livestock systems and partial commercial production, occupies approximately one-third of the country's land area. Conversely, largescale farming systems occupy the majority of Kenya's land area and generally take one of two forms: (1) privately-owned or state-held ranches that are technologically equipped for commercial production, or (2) extensive, low-technology production using communal grazing systems. An increase in crop cultivation (especially cereal and pulses) has been observed over the past years, as a response to increased demand for food and a growing human population. Consequently, livestock mobility and grazing land have been reduced and altered, resulting in heavy losses (estimated at US\$8,395) for the cattle industry, with potential implications for the configuration of land in Kenya.

Agricultural production systems

Kenya's agricultural sector is predominated by small-scale production systems; however, the scale of farming systems varies across agro-ecological zones. Small-scale production systems (between 0.2 and 3 ha) account for 78% of total agricultural production and 70% of commercial production. The majority of Kenya's maize (70%), coffee (65%), tea (50%), milk (80%), fish (85%), and beef (70%) products are produced by small-scale farmers. These production systems use limited improved inputs and modern production practices, such as hybrid seeds, concentrated feeds and fertilizer, pesticides, machinery, and irrigation. Medium-scale production systems (3 to 49 ha) are generally associated with commercial crops, namely tea, coffee, pyrethrum, and vegetables. These production systems are characterized by the greater adoption of technological practices and inputs, and farmers are more likely to invest in production and marketing or take out loans for farm development. Large-scale production systems (50+ hectares for crops or 30,000+ hectares for livestock) are responsible for 30% of the nation's commercial production, focusing on tea, coffee, maize, and wheat). For large-scale producers, the use of improved technologies, such as terracing and zai pits for improved farmland management, often results in markedly higher productivity. Intensive agricultural production is most common in high rainfall areas. Despite the growing prevalence of intensive agriculture, irrigation remains uncommon. In 2012, only 0.16% of arable land received irrigation. The use of fertilizers remains low compared to global figures, but higher than the average in sub-Saharan Africa. Therefore, intensive agriculture using sustainable land management (SLM) practices and small-scale irrigation offers promising potential for increasing agricultural productivity in Kenya.

Challenges for the agricultural sector

Kenyan agriculture faces productivity and food security challenges tied to a lack of inputs and irrigation, limited access to markets, market information and training/extension services, all of which thwart agricultural investments and create further gender inequalities and inequities. In 2011, about 3.5 million people were declared food insecure in Kenya, with significant numbers facing catastrophic conditions after consecutive years of below average rainfall that have resulted in one of the driest years since 1950. The limited use of inputs, whose costs are often beyond the reach of small-scale farmers, is often compounded by climate-related events (such as low and unreliable rainfall), hampering productivity nationwide. As a result, the productivity of many staple crops (maize, wheat) remains below world and regional averages. For example, 2013 maize yields were 1.1 tonnes/ha, as compared to the sub-Saharan African average (1.43 tonnes/ha) and global average (4.9 tonnes/ha). In other staple crops, productivity may actually be decreasing. Researchers observed steadily decreasing maize production between 2009 and 2014, with general yields ranging from 0.5 to 5.0 tonnes/ha and an annual maize yield of less than 1.5 tonnes/ha in 26 out of the 59 districts.

While declines in productivity of these staple crops are alarming, they also represent an opportunity to invest in CSA practices that boost yields and mitigate climate-related risks. Available arable land is often not used for commodity crop production, remaining mostly unexploited across certain high potential agro-ecological zones. For example, the Kenyan ASAL (Arid Semi-Arid Land) regions receive rainfall below 500 mm per year, yet farmers continue to grow maize rather than drought-tolerant crops, such as sorghum or millet, which are better equipped to match low rainfall levels. Accelerated population growth and an average annual growth rate of 2.59% from 2008 to 2014 has led to a growing demand for food and natural

resources. At the same time, rural migration and adverse climate conditions have led to lower agricultural productivity and a shift towards non-farm income generating activities. Rural population, the major providers of agricultural labour force, decreased by 3.2% from 2008 to 2014. The underperformance of the agriculture sector, together with limited market access, scarce value-added activities and increased anthropocentric pressure on natural resources, is tied to natural resource depletion, conflicts, and poverty. Currently, nearly half of Kenya's population lives in poverty with concomitant food insecurity and dependency on external food aid. In 2011, about 3.5 million Kenyans were food insecure, as compared to one million in 2009.

Excerpt from “*World Bank; CIAT. 2015. Climate-Smart Agriculture in Kenya. CSA Country Profiles for Africa, Asia, and Latin America and the Caribbean Series. Washington D.C.: The World Bank Group*”.

- a. You are tasked with formulating THREE key questions that will form the basis of public policy changes to ensure sustainability and transformation of the Kenyan agricultural system beyond 2030. What would these questions be? **(6 Marks)**
- b. Describe why resource allocations based on competitive markets have not led to an equilibrium that establishes long-lived staple crop self-sufficiency in Kenya. **(10 Marks)**
- c. Is government intervention necessary in the Kenyan agricultural system? What policy instruments would be the most ideal to solve the key issues affecting Kenyan agriculture? **(8 Marks)**
- d. Where in the policy solution set you have described above, do you anticipate the biggest risk for political interference affecting sound policy making? **(8 Marks)**
- e. Outline three areas where government failure may occur and how to mitigate this? **(8 Marks)**